

Decimal Classification

620 Engineering

- .01 Statistics
- .02 Quantities, costs, estimates
- .03 Contracts and specifications
- .04 Designs and drawings
 - For mechanical drawing, see 744 422*
- .07 Laws and regulations
- .08 Engineering patents
- .09 Reports and surveys
 - For engineering establishments, see 620.65*

.1 Engineering mechanics and materials

Including applied mechanics

Use 620.100 1-620.100 9 for form divisions

For mechanical engineering, see 621; structural engineering, 624.1

SUMMARY

- 620.101 Vibration in engineering
- .102 Applied acoustics (Acoustical engineering)
- .11 Strength of materials
- .112 9 Other engineering properties
- .12 Wood
- .13 Masonry materials
- .14 Ceramic and allied materials
- .15 Masonry adhesives
- .16 Metals and their alloys
- .17 Iron, steel and their alloys
- .18 Nonferrous metals and their alloys
- .19 Other engineering materials

620.101-620.112 9 Fields of applied mechanics

For science of flight, see 629.132, automatic control engineering, 629.8, air-conditioning engineering, 697.9

.101 Vibration in engineering

Calculation, measurement, effects, suppression of mechanical vibration

- 620 102 Applied acoustics (Acoustical engineering)
Including comprehensive works on acoustical designing noise control thru acoustical countermeasures applied ultrasonics
For theoretical acoustics see 554 electronic and electric communication engineering, 621 38 soundproofing a specific structure, the subject e.g. airplanes 629 134 42 a specific application of ultrasonics, the subject e.g. in dentistry 617 6
- 11 Strength of materials [formerly also †539 4]
Stresses, deformations resulting from forces acting on materials
For strength of specific materials see 620 12-620 199 structural analysis 624 171
- 112 Specific tests of strength of materials
Comprehensive works
Including testing methods
For tests of strength of a specific material see the subject, e.g. deformation of iron and steel 620 173
- 112 1 Effect of temperature on strength
- 112 2 Deterioration and deterioration tests
Including deterioration rates resistance to and protective measures against corrosion weathering deterioration of materials
- 112 3 Elastic limit and elastic limit tests
Including tests of elasticity proportional limit plasticity mechanical deformation fatigue, yield point photoelasticity
- 112 4 Other stress measurements
Including tests for tensile, compressive shearing torsional stresses
- 112 5 Impact and impact tests
Including tests of rigidity and repeated shock
- 112 6 Hardness and hardness tests [formerly also †539 53]

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- 112 6 Hardness and hardness tests [*formerly also* †539 53]

Decimal Classification

- 620.188 Nickel and its alloys
Including Monel metal®, Inconel®, German silver
- .189 Other nonferrous metals and their alloys
Including ferroalloying metals and their alloys
For nickel and its alloys, see 620 188
- .19 Other engineering materials
For soil mechanics, see 624 151
- .192 Plastics
Including engineering laminates
- .194 Natural and synthetic rubber
- .195 Insulating materials
Including rock wool, corkboard, asbestos, kapok,
diatomaceous earth
- .196 Bituminous materials
Including asphalt, synthetic and rock asphalts, tar
- .199 Adhesives
Including glues, cementing agents
*For engineering laminates, see 620 192, masonry
adhesives, 620 15*
- .2 Handbooks and outlines
- .3 Dictionaries and encyclopedias
- .4 Essays and lectures
- .5 Periodicals
- .6 Organizations and societies
- .7 Study and teaching
- .8 Collections
- .83 Tables and formulas
For statistics, see 620 01
- .84 Audio-visual aids
For designs and drawings, see 620 04
- .9 History and local treatment

621 Mechanical engineering

Class manufacture of industrial measuring instruments [formerly
*621] in 681 12

*For a specific branch of mechanical engineering, see the subject,
e.g. motor vehicle engineering 629 2*

SUMMARY

- 621 01 Engineering thermodynamics
 - 1 Steam power engineering
 - 2 Hydraulic power engineering
 - 3 Electrical engineering
 - 4 Prime movers
 - 47 Solar engineering
 - 48 Nuclear engineering
 - 5 Pneumatic machinery and mechanical refrigeration
 - 6 Fans, blowers, pumps
 - 7 Factory engineering
 - 8 Mechanical power transmission machinery and related equipment
 - 9 Tools

01 Engineering thermodynamics

*For a specific application of thermodynamics see the subject
e.g. heat engines 621 4 thermodynamics of steam 621 101*

.1 Steam-power engineering

101 Thermodynamic properties of steam

11 Steam engines

*For portable steam engines see 621 15 stationary steam engines,
621 16 steam pumps 621 197 3 a specific application
the subject e.g. steam locomotive engines 621 131*

[1 12] Marine steam engines

Class in 623 872 2

13 Steam locomotive engineering [formerly *625.26]

132 Types of steam locomotives

Including Whyte nomenclature for wheel arrangement

133 Locomotive boilers [formerly †621 154 23, †621 154]

Including auxiliary parts, fuel and fuel consumption
feed water treatment

Decimal Classification

- 621.134 Steam locomotive engines
Including steam-mechanical, steam-electric locomotives
- .134 3 Reciprocating steam engines for locomotives
- .134 6 Steam turbines for locomotives
- .135 Running gear
- .136 Tenders
- .139 Other parts of steam locomotives
- .14 Steam tractors and rollers
Including boilers [*formerly* †621 184 23, *621 184]
- .15 Portable steam engines
Including boilers [*formerly* †621 184 23, *621 184]
For a specific application of portable steam engines, see the subject, e g, fire engines 621 68
- .16 Stationary steam engines
Including boilers [*formerly* †621 184 24, *621 184]
For a specific application of stationary steam engines, see the subject, e g, steam elevators 621 877
- .164 Reciprocating steam engines
Including simple, compound, triple-expansion, quadruple-expansion steam engines
- .165 Steam turbines
Comprehensive works
For a specific application of steam turbines, see the subject, e g, locomotives 621 134 6
- .165 1 Theoretic and mathematical aspects
Including efficiency calculations, steam rate, calorimetric and thermodynamic factors
- .165 2 Specific types of steam turbines
Including impulse, single-stage impulse, velocity-compounded, pressure-compounded, reaction turbines
- 165 3 Design and construction of steam turbines
Including design and construction of component parts
- .166 Other steam engines
Including rotary, eolipile, aerosteam, cycloidal steam engines

- 621 13 Steam generation and transmission
For steam heating see 697 5
- 182 Fuels and fuel consumption
 Fuels for boiler furnaces
 Including fuel efficiency
For fuel technology, see 662 6
- 183 Boiler furnaces
 Comprehensive works
*For boilers in a specific heating system see the system
 e.g. hot water heating 697 4*
- 183 6 Mechanical stokers
- 183 8 Draft appliances
 Natural draft appliances forst draft appliances
 Including stacks chimneys flues dampers
- 184 Boilers (Steam generators)
 Class firing boilers in 621 194 locomotive boilers in 621 133
 boilers for steam tractors in 621 14 for portable steam en-
 gines in 621 15 for stationary steam engines in 621 16 [*all
 formerly 621 184*]
- 184 1 Theoretic and mathematical aspects
 Including boiler economy calorimetric and
 thermodynamic factors
- 184 2 Specific types of boilers
 Including internally and externally fired fire tube boilers
 water tube boilers natural and forst circulation boilers
 horizontal semivertical vertical boilers
- [184 22] Marine boilers
 Class in 623 873
- [184 23] Locomotive traction portable boilers
 Class locomotive boilers in 621 133 boiler for steam
 tractors and rollers in 621 14 portable boilers in
 621 15
- [184 24] Stationary boilers
 Class in 621 16
- 184 5 Design and construction of boilers
 Including maintenance repairs inspection
For operation of boilers see 621 194

Decimal Classification

- 621.184 7 Boiler accessories
 Including gauges, valves, steam collectors
- .185 Steam circulation
 Including steam pipes, safety valves, pressure regulators,
 insulation of steam systems
- .19 Central steam-power plants
- .194 Operation of boilers
 Including firing [*formerly* *621 184], feeding of boilers
- .194 3 Feed-water treatment
 Including scale prevention [*formerly* †621 194 4],
 purification and softening of feed water
 For feed-water appliances, see 621 197 2
- [†.194 4] Scale prevention
 Class in 621 194 3
- .197 Steam plant accessories
- .197 2 Feed-water appliances
 Including feed-water heaters, economizers, steam
 accumulators
 For feed-water treatment, see 621 194 3
- .197 3 Steam traps
 Including pumping traps, lift traps, boiler-feed return
 traps, steam pumps
- .197 4 Steam separators
- .197 5 Steam superheaters
- .197 6 Steam condensers and cooling towers
- .197 7 Steam plant instruments
 Including steam calorimeters, indicators and gauges for
 pressure and temperature
- .2 **Hydraulic-power engineering**
 For steam-power engineering, see 621 1, hydraulic engineering,
 627, water-supply engineering, 628 1, mechanics of liquids, 532 1
- .21 Water wheels
- .22 Overshot wheels
- .23 Undershot wheels

Engineering

- 621 24 Hydraulic turbines
For steam turbines see 621 165
- 25 Hydraulic engines
For steam engines, see 621 11
- 252 Hydraulic pumps
- 254 Hydraulic accumulators
- 26 Hydraulic machinery and appliances
Comprehensive works
For a specific hydraulic machine or appliance see the subject, e g , hydraulic elevators 621 877
- 27 Hydraulic rams
Including lifting pumping compressing rams
- .3 Electrical engineering

SUMMARY

- 621 31 Generation of electricity
- 32 Electric lighting
- 33 Electric traction
- 35 Electric batteries
- 37 Electrical measurements
- 38 Electronic and electric communication engineering
- .39 Other branches of electrical engineering
- 300 1 Statistics on electric power production
- 300 2 Estimates and costs of electric power production
- 300 23 Rates for electric power
- 300 3 Contracts and specifications for electric power production
- 300 4 Designs and drawings of electrical circuits
Including wiring diagrams
- 300 7 Laws and regulations on electric installations
Including underwriter requirements [*formerly*
†621 328 1, †621 328]
- 300 8 Electrical engineering patents
- 300 9 Electrical engineering reports

Decimal Classification

621 31 Generation of electricity

SUMMARY

- 621 312 Plants for electric-power generation
- .313 Dynamoelectric machinery
- .314 Voltage transformation machinery
- .315 Electric condensers
- .316 Details of electrical machinery
- .317 Control devices at electric-power stations
- .319 Power transmission engineering

.312 Plants for electric-power generation

.312 13 Central stations for electric power

Comprehensive works

For nuclear power plants for electricity, see 621 481, central stations for electric lighting only, 621 312 2, for electric traction only, 621 312 3

.312 132 Steam-driven central stations

For steam turbines, see 621 165

.312 133 Internal-combustion-engine driven central stations

Including central stations driven by diesel engines, gas turbines

For internal-combustion engines, see 621 43

.312 134 Hydroelectric central stations

Including stations using tidal power

For dam engineering, see 627.8, hydraulic turbines, 621 24

.312 136 Wind-driven electric plants

.312 2 Central stations for electric lighting

Divide like 621 312 13, e g, hydroelectric central stations for lighting 621 312 24

For electric lighting, see 621 32

.312 3 Central stations for electric traction

For electric traction, see 621 33

.312 6 Electric substations

Engineering

- 621 313 Dynamoelectric machinery
For transmission systems, see 621 319 1
- 313 1 Construction and installation
 Including maintenance testing of electric generating machinery
- 313 2 Direct-current machinery
 Including dynamos dynamotors direct-current motors, converters compensators boosters
- 313 3 Alternating-current machinery
- 313 32 Polyphase machinery
 For polyphase induction motors, see 621 313 6
- 313 4 Synchronous machinery
 Including synchronous generators and motors, alternating-current generators
 For synchronous converters, see 621 313 5
- 313 5 Alternating current converters
 Conversion of alternating current to direct current
 Including synchronous converters phase converters frequency converters motor converters
 For rectifiers, see 621 313 7
- 313 6 Asynchronous and commutator machinery
 Including alternating-current series repulsion induction, polyphase induction motors, asynchronous phase and frequency converters
 For rectifiers, see 621 313 7
- 313 7 Rectifiers
 Converters equipt with commutators
 Including mechanical electronic electrolytic rectifiers
- 314 Voltage transformation machinery
 Including voltage regulators, reactors induction coils
- 314 3 Electric transformers
- 314 31 Power transformers
 Including step up step down interconnection transformers

Decimal Classification

- 621 314 38 Instrument transformers
Including current and potential transformers
- 315 Electric condensers
- .316 Details of electrical machinery
Including armatures and armature winding, contactors,
electromagnets (field cores), brushes
For induction coils and reactors, see 621 314
- 317 Control devices at electric-power stations
Including servomechanisms for power stations
For automatic control engineering, see 629 8
- 317 2 Switchboards
Including panels, switchboard meters
- 317 3 Electrical switches
- 317 36 Electric circuit breakers
For electric fuses, see 621 317 8
- 317 4 Rheostats
- 317 5 Signal devices
- 317 8 Protective devices for electric power stations
Including fuses, lightning arresters, protective relays,
grounding
*For electric circuit breakers, see 621 317 36, protec
tive devices for electric transmission lines, 621 319 8
protective devices at service end of line, 621 328*
- 319 Power transmission engineering
For dynamoelectric machinery, see 621 313
- 319 1 Electric-power transmission systems
- 319 12 Direct-current systems
- .319 13 Alternating-current systems
Including single-phase, two-phase, polyphase current
systems
- .319 15 Composite electric current systems
Direct and alternating currents combined
- 319 16 Polycyclic electric current systems

Engineering

- 621.319 2 Electric transmission lines
For interior wiring, see 621 328 2
- .319 21 Characteristics of electric circuits
 Including heat losses in electric lines, transient currents, induction capacity of parallel lines
 For telephone network analysis, see 621 385 1
- .319 22 Overhead electric transmission lines
 Including overhead power, telephone, telegraph lines
- .319 223 Poles for electric transmission lines
 Including construction, installation, maintenance of poles for electric transmission lines
- .319 224 Cross arms for electric transmission lines
 Including accessories for cross-arm installations
- .319 225 Towers for electric transmission lines
- .319 23 Underground electric transmission lines
 Including electric conduits, conduit materials, man-holes for underground electric transmission lines
- .319 3 Electric wires and cables
- 319 32 Uninsulated electric wires
- 319 33 Insulated electric wires
 For electric cables, see 621 319 34
- .319 34 Electric cables
 Including submarine cables, cable laying
 For telephone cables, see 621 387 84, submarine cable telegraphy, 621 382 8
- .319 37 Electric insulators [*formerly* †621 319 4] and insulation
 Insulating materials used for electric lines and cables
- [† 319 4] Electric insulators
 Class in 621 319 37
- .319 8 Protective devices for electric transmission lines
 Including line lightning arresters, grounding devices
 For protective devices in central electric-power stations, see 621 317 8, at service end of line, 621 328, in central telephone stations, 621 387 94

Decimal Classification

- 621 32 Electric lighting
Including systems and lamps, comprehensive works on illumination engineering
Class electric lighting for streets in 628 95, domestic lighting in 644 3 [*both formerly *621 32*]
For a specific application of electric lighting, see the subject e g, in mines 622 474, central stations for electric lighting, 621 312 2, electric transmission lines, 621 319 2
- .325 Arc lighting
Including carbon arc lighting, high-intensity arc lighting arc searchlights
- .326 Incandescent lighting
Including carbon filament, tungsten, Nernst lamps
- 327 Gas-discharge electric lighting
Comprehensive works on luminous tube lighting
For arc lighting, see 621 325
- .327 3 Fluorescent electric lighting
- 327 4 Mercury-vapor electric lighting
Including Cooper Hewitt, high-pressure mercury-vapor lamps
- 327 5 Neon electric lighting
Including Moore lamps (carbon dioxide and nitrogen lamps), neon tubes
For neon signs in advertising, see 659 136
- 327 6 Sodium-vapor electric lighting
Including sodium-vapor lamps
For municipal lighting, see 628 9
- .328 Apparatus at service end of line
Including panels, fuses, insulators, switches
Class underwriter requirements [*formerly *621 328*] in 621 300 7
- [† 328 1] Underwriter requirements
Class in 621 300 7
- .328 2 Interior wiring
Including house wiring

- 621 328 8 Protective devices at service end of line
 Including grounding devices
For protective devices for electric transmission lines, see
 621 319 8, *in central telephone stations* 621 387 94
- 33 Electric traction [*formerly* 625 1]
 Electric power transmission for railways
 Including apparatus, appliances for transmission
For comprehensive works on electric railways, see 625 6
central stations for electric traction 621 512 3
- 331 Mechanics of electric traction
 Including trolley and third rail systems
- [* 334] Rolling stock
 Class in 625 2
- [* 334 2] Locomotives
 Class in 625 263
- 335 Electrification of street railways
- 336 Electrification of railroads
 Including steam railroad electrification
- [* 34] Electronic engineering
 Class in 621 381
- [* 342] Electron tubes
 Class in 621 381 51
- [* 343] Electronic circuit functions
 Class in 621 381 5
- [* 345] Electroacoustics
 Class electroacoustics in 621 381 8 *manufacture of sound*
recorders and reproducers in 681 843
- 35 Electric batteries
- 353 Primary batteries
 Including dry cells
- 354 Secondary batteries (Storage batteries)
- 355 Lead acid storage batteries
- 356 Alkaline storage batteries
 Including nickel non alkaline cells nickel cadmium
 alkaline cells

Decimal Classification

- 621 37 Electrical measurements [*formerly also* †537 7]
 Determination of instantaneous effective electrical values (instruments), measurement of total quantities of electricity over a period of time (meters)
- .372 Electrical units and standards
 Including primary (absolute) and secondary standards of resistance, voltage, inductance, capacitance, frequency calibration of electrical instruments, instrument errors
- 373 Electric recording meters
 Electric meters driven by clockwork and equipt with charts for recording electrical variations
 For specific electric meters and instruments, see 621 374
- .374 Electric meters and instruments
 Measurement of electric quantities
 For electrical measurement of nonelectric quantities, see 621 379, *electric recording meters,* 621 373
- .374 2 Electric resistance measurements
 Including Wheatstone bridges, ohmmeters, resistance boxes, shunts
- .374 3 Electric potential measurements
 Including electrometers [*formerly also* †537 25], voltmeters, potentiometers, voltage detectors
- .374 4 Electric current measurements
 Including voltmeters, ammeters, milliammeters, coulometers, ampere-hour meters, galvanometers
- 374 5 Electric energy measurements
 Including watt-hour meters, demand meters, electric supply meters
- 374 6 Electric-power measurements
 Including wattmeters, electrodyamometers, voltammeters
 For power-factor meters, see 621 374 91
- 374 7 Electric frequency meters
 Including magnetic oscillographs, cathode-ray oscillographs
 For electric phasemeters, see 621 374 91
- 374 9 Other electric meters and instruments
- .374 91 Electric phasemeters
 Including synchrosopes, power-factor meters

621 379 Electric measurements of nonelectric quantities
*For a specific measuring instrument, see the subject e.g.,
telephone meters 621 387 96*

379 5 Electric telemeter systems
Electrical instruments measuring transmitting and
recording electrical or nonelectrical quantities

38 Electronic and electric communication engineering
For comprehensive works on telecommunication, see 384

SUMMARY

621 381 Electronic engineering
382 Wire telegraphy
383 Telegraph instruments
384 Radio communication engineering
385 Wire telephony
386 Telephone instruments
387 Central telephone station equipment
388 Television engineering
389 Other electrical and electronic
communication devices

381 Electronic engineering [*formerly 621 34*]

Applied electronics

Class radar [*formerly 621 381*] in 621 384 8

*For electronics see 537 5 electronic navigation 623 893
gas discharge electric lighting 621 327*

381 5 Electronic circuits

Electrical circuits depending on vacuum tubes for their
operation

Including electronic circuit functions e.g. detection,
amplification control modulation frequency generation
[*formerly 621 343*] semiconductors

*For a specific application of electronic circuits, see the
subject e.g. radio circuits 621 384 12, printed circuits
621 381 7*

381 51

Electronic circuit components.

Including high vacuum and electron tubes [*formerly
621 384 132 621 342*] gas tubes

*For a specific application of electron tubes see the
subject, e.g. radio tubes 621 384 132*

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- 621 37 Electrical measurements [*formerly also* †537 7]
Determination of instantaneous effective electrical values (instruments), measurement of total quantities of electricity over a period of time (meters)
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- .373 Electric recording meters
Electric meters driven by clockwork and equip with charts for recording electrical variations
For specific electric meters and instruments, see 621 374
- .374 Electric meters and instruments
Measurement of electric quantities
For electrical measurement of nonelectric quantities, see 621 379, electric recording meters, 621 373
- .374 2 Electric resistance measurements
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- 374 3 Electric potential measurements
Including electrometers [*formerly also* †537 25], voltmeters, potentiometers, voltage detectors
- .374 4 Electric current measurements
Including voltameters, ammeters, milliammeters, coulometers, ampere-hour meters, galvanometers
- 374 5 Electric energy measurements
Including watt-hour meters, demand meters, electric supply meters
- .374 6 Electric power measurements
Including wattmeters, electrodynamic meters, voltmeters
For power-factor meters, see 621 374 91
- 374 7 Electric frequency meters
Including magnetic oscillographs, cathode-ray oscillographs
For electric phasemeters, see 621 374 91
- 374 9 Other electric meters and instruments
- 374 91 Electric phasemeters
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- 621 379 Electric measurements of nonelectric quantities
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- 38 Electronic and electric communication engineering
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385 Wire telephony
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387 Central telephone station equipment
388 Television engineering
389 Other electrical and electronic communication devices

- 381 Electronic engineering [*formerly 621 34*]
Applied electronics
Class 1 and 2 [*formerly 621 381*] in 621 384 8
For electronics see 537 5 electronic navigation, 623 833 gas discharge electric lighting 621 327

- 381 5 Electronic circuits
Electrical circuits depending on vacuum tubes for their operation
Including electronic circuit functions e.g. detection amplification control modulation frequency generation [*formerly 621 343*] semiconductor
For a specific application of electronic circuits see the subject e.g. radio circuits 621 384 12, printed circuits 621 381 7

- 381 51 Electronic circuit components
Including high vacuum and electron tubes [*formerly 621 384 132 621 342*] gas tubes
For a specific application of electron tubes see the subject e.g. radio tubes 621 384 132

Decimal Classification

- 621 381 7 Printed circuits
Printed replacements for conventional wiring
Including electrical and electronic printed circuits
- 381 71 Printed circuit components
Including modules, printed resistors and inductors,
transistors, electron tube replacements
- .381 8 Electroacoustics [*formerly* *621.345]
Electronic aspects of electroacoustical devices, sound
recording and reproducing systems
*For communication engineering, see 621 382–621 389,
manufacture of a specific electroacoustical device, the
subject, e g, sound reproducers 681 843, use of a
specific electroacoustical device, the subject, e g, elec-
tronic musical instruments 789 9*
- 381 9 Applications of electronic engineering
Comprehensive works
Including electronic metal locators
*For a specific application of electronic engineering,
see the subject, e g, radar 621 384 8*

621 382–621.389 Communication engineering Including manufacture of apparatus [*formerly also* †681 63]

- .382 Wire telegraphy
Class telegraph instruments [*formerly* *621 382] in 621 383
*For radiotelegraphy, see 621 384 2, military telegraphy,
623 732*
- 382 1 Telegraphic codes
Including Morse, Phillips, Continental codes
- 382 3 Acoustic systems of telegraphy
Including hand-operated systems, e g, simplex, duplex,
quadruplex, multiplex systems
- .382 4 Automatic systems of telegraphy
Including telegraphic systems of Bain, Morse,
Wheatstone, Delany
- 382 5 Printing telegraphy
Including stockticker, teleprinter, teletype
- .382 6 Writing telegraphy (Telautography)

Engineering

- 621 382 7 Facsimile telegraphy
For radiofacsimile see 621 384 2
- 382 8 Submarine cable telegraphy
For cables, cable laying, see 621 319 34
- 383 Telegraph instruments [*formerly 621 382*]
Including telegraph keys transmitters receivers calling apparatus relays repeaters, switches recorders
- 384 Radio communication engineering
- 384 1 Radio principles
- 384 11 Radio wave propagation
Radio-wave radiation, spreading absorption, reflection diffraction refraction transmission
Including ionospheric reflection phenomena e.g. fading skip distance effects of atmospheric electricity on radio-wave transmission
For elimination of interference in radio reception see 621 384 154
- 384 12 Radio circuits
Including radio circuit functions e.g. detection, amplification control modulation frequency generation
For radio tubes see 621 384 132 other radio circuit instrumentation, 621 384 133
- 384 13 Radio instruments and apparatus [*formerly 621 384 3*]
- 384 131 Radio transmitters
Transmitting instruments
Including carrier current generators modulators power amplifiers alternators
For transmitting antennas see 621 384 135
- 384 132 Radio tubes
Comprehensive works
Class comprehensive works on high vacuum and electron tubes [*formerly 621 384 132*] in 621 381 51
For radio transmitting instruments see 621 384 131, radio receiving instruments, 621 384 136

Decimal Classification

- 621 384 133 Other radio circuit instrumentation
Including condensers, microphones, inductors, resistors, filters, oscillographs, grounding devices
- .384 135 Radio antennas
Including transmitting and receiving antennas, wave guides
- .384 135 5 Directional radio antennas
Including direction finders, directive, radio beam, Adcock antennas
For radar, see 621 384 8, direction finders in aeronautics, 629 135 1, positioning ships with respect to radio beams, 623 893
- .384 136 Radio receivers
Receiving instruments
Including radio-frequency amplifiers, modulators, rectifiers, detectors, loud speakers
- 384 136 6 Radio receiving sets
Including crystal, radio-tube, regenerative, tuned radio-frequency, superheterodyne receiving sets
For manufacture of radio receiving sets, see 621 384 18
- .384 15 Radio communication systems [*formerly *621 384 5*]
- .384 151 Short-wave radio systems
For frequency modulation systems, see 621 384 152, elimination of radio interference, 621 384 154
- .384 152 Frequency modulation (FM) systems
- [†.384 152 2] Radio telephone systems
Class in 621 384 5
- .384 153 Long-wave radio systems
Including amplitude modulation (AM) systems
- .384 154 Elimination of radio interference
For effects of atmospheric electricity on radio-wave transmission, see 621 384 11

Engineering

- 621.384 16 Radio broadcasting stations
Technical operations of clear-channel, regional, local radio stations
Including control room operations
For planning, organization, management of radio stations, see 384.5
- .384 166 Amateur broadcasting stations
- .384 17 Radio measurements and standardization
Including measurements and standardization of radio impedance, frequency, wave-length, modulation, signal intensity
- 384 18 Manufacture of radio receiving sets
Including repairs
- .384 19 Applications of radio [*formerly* *621.384 9]
Comprehensive works only
For a specific application of radio transmission, see the subject, e g, as an aid in sea navigation 623 893, as a landing aid in aeronautics 629 135 1, in advertising 659 142, as entertainment 791 44
- .384 2 Radiotelegraphy
Including systems for radiotelegraphic transmission, radiofacsimile
For wire telegraphy, see 621 382, military radiotelegraphy, 623 732
- .384 3 Radiotelegraph instruments and apparatus
Class radio instruments and apparatus [*formerly* *621 384 3] in 621 384 13
- .384 5 Radiotelephony
Including radiotelephone systems [*formerly also* †621 384 152 2]
Class radio communication systems [*formerly* *621 384 5] in 621 384 15
For wire telephony, see 621 385, military radiotelephony, 623 733
- .384 6 Radiotelephone instruments and apparatus

Decimal Classification

- 621 384 8 Radar [*formerly* *621 381]
Including racon
For a specific application of radar, see the subject, e g, as landing aid in aeronautics 629 135 1, directional antennas, 621 384 135 5
- [* 384 9] Applications of radio
Class in 621 384 19
- .385 Wire telephony
Class telephone instruments in 621 386, central telephone station equipment in 621 387 [*both formerly* *621 385]
For radiotelephony, see 621 384 5, military telephony, 623 733
- 385 1 Telephone network analysis
- .385 3 Intercommunication systems
Interphone systems
- .385 4 Central telephone stations
Telephone exchanges
For central telephone station equipment, see 621 387
- .385 41 Telephone substations
- 385 47 Manual switchboard systems
For automatic switchboard systems, see 621 385 7, manual telephone switchboards, 621 387 2
- .385 5 Multiple switchboard systems
- .385 6 Trunking systems
Including transfer systems
- .385 7 Automatic switchboard systems
Including semiautomatic and Strowger systems
For manual switchboard systems, see 621 385 47, automatic telephone switchboards, 621 387 7
- .385 8 Private telephone exchanges
Including private automatic exchange (PAX), private board exchange (PBX)
- .386 Telephone instruments [*formerly* * 621 385]
Including dial telephones, automatic telephones
For telephone meters, see 621 387 96
- .386 2 Telephone transmitters
Including handsets containing transmitters and receivers in one housing

Engineering

- 621 386 3 Telephone receivers
- 386 7 Recording telephones (Mechanical telephones)
Telephonographs telegraphones
- 386 9 Telephone pay stations
- 387 Central telephone station equipment [*formerly*
"621 385"]
- 387 2 Manual telephone switchboards
For manual switchboard systems see 621 385 47,
automatic telephone switchboards 621 387 7
- 387 3 Multiple telephone switchboards
- 387 4 Transfer telephone switchboards
Switchboards for transferring lines from one central
station to another
- 387 5 Telephone switchboard components
Including parts and accessories of manual and automatic
telephone switchboards
- 387 6 Telephone central station power equipment
Including auxiliary generators, batteries
- 387 7 Automatic telephone switchboards
Including semiautomatic and Strowger switchboards
For automatic switchboard systems see 621 385 7,
manual telephone switchboards 621 387 2
- 387 8 Telephone transmission
Including local and long-distance telephone transmission
For electric transmission lines see 621 319 2
- 387 84 Telephone cable construction
- 387 9 Other central telephone station equipment
- 387 94 Protective devices in central telephone stations
Including grounding devices lightning masts
- 387 96 Telephone meters and counters
- 388 Television engineering
Including monochrome and color television engineering
- 388 1 Television principles
Including television circuits and optics

Decimal Classification

- 621.388 3 Television apparatus and instruments
Divide like 621 384 13, e g , television picture tubes
621 388 32
- .388 34 Television cameras
Including iconoscopes, image orthicon cameras,
camera tubes
- .388 6 Television stations
Technical operations
Including control room operations
*For planning, organization, management of television
stations, see 384 55*
- 388 9 Television applications
Comprehensive works only
*For a specific application of television, see the subject,
e g , television in teaching 371 335 8*
- .389 Other electrical and electronic communication devices
Including electric bells, buzzers, alarms, public address
systems
*For amplifiers and loudspeakers in radio receiving
instruments, see 621 384 136*
- .39 Other branches of electrical engineering
Including comprehensive works on applications of electricity
*For a specific application, see the subject, e g , electroplating
671 732*
- .393 Rural electrification
Comprehensive works
*For central stations for electric power, see 621.312 13,
agricultural use of electric power, 631 371*
- 396 Electric furnaces
Comprehensive works on arc, resistance, electromagnetic,
dielectric furnaces
Including conduction and induction heating [*formerly
697 7]
*For a specific use of electric furnaces, see the subject
e g , metallurgical furnaces 669 8*

Engineering

- 621.4 Prime movers
Including comprehensive works on heat engines
For steam engines see 621 11 hydraulic power engineering, 621 2, engineering thermodynamics, 621 01
- 41 External combustion engines
Including hot air engines
- 42 Air engines (Air motors)
Including reciprocating air motors rotary vane positive expansion motors air-turbine engines
For wind engines see 621 45 air compressors 621 51 gas turbine engines, 621 433
- 43 Internal combustion engines
For a specific application of internal combustion engines see the subject e.g. aircraft engines 629 134 35 internal combustion-engine driven central stations, 621 312 133
- 433 Gas-turbine engines
Including comprehensive works on gas-turbine engines and jet engines
For jet engines see 621 435
- 433 5 Modified gas turbine engines
Including free-piston engines
- 434 Spark-ignition engines
Engines using gasoline and other light petroleum products as fuel
For high compression-ignition engines see 621 436
- 435 Jet engines
- 436 High-compression ignition engines (Diesel engines)
Engines using heavy oil as fuel
For spark ignition engines, see 621 434
- 436 1 Theories and principles
- 436 2 Design and construction
- 436 8 Operation, maintenance repair
Including lubrication
- 437 Parts and accessories of internal combustion engines
Including cylinders carburetors pistons ignition devices, connecting rods governors

Decimal Classification

- 621.438 Applications of internal-combustion engines
Comprehensive works only
For a specific application of internal-combustion engines, see the subject, e g, aircraft engines 629 134 35
- .45 Wind engines
Including windmills, wind wheels, Flettner rotors
For air engines, see 621 42, wind-driven electric plants, 621 312 136
- .47 Solar engineering
For solar heat, see 523 72, solar heating, 697 78, solar houses, 728 69
- .48 Nuclear engineering
Including fission and fusion reactions
For nuclear physics, see 539 7
- 481 Central stations using nuclear power
Including stations for generation of thermal and electric power
- 483 Nuclear reactors
Including production and industrial research reactors
- .483 2 Design and construction of nuclear reactors
Including shielding designs
- 483 3 Nuclear materials and fuels
Preparation and treatment of metallic fuels
- 483 5 Operation of nuclear reactors
Including safety measures
- .483 7 Nuclear by-products
Industrial production of radioactive isotopes
Including comprehensive works on utilization of radioactive isotopes
For a specific application of radioactive isotopes, see the subject, e g, in medicine 615 842 4
- .483 8 Treatment of radioactive wastes
Including proposed disposal methods
For preventive measures against radioactive fallout, see 614 715

- 621 489 Nuclear power applications
Comprehensive works only
For a specific application of nuclear power, see the subject, e g, heating buildings 697 3-697 79
- .49 Central power stations
Comprehensive works
For steam power plants see 621 19 central stations for electric power, 621 312 13, central stations using nuclear power, 621 481
- .5 Pneumatic machinery and mechanical refrigeration
For pneumatic tools, see 621 9 fans, blowers, pumps, 621 6, materials handling equipment, 621 86
- 51 Air compressors
Including reciprocating, rotary, jet air compressors
For air engines, see 621 42
- 53 Comprest-air transmission
Including design of comprest-air transmission systems equipment, e g piping, mains gauges, pneumatic pumping
For vacuum pumps, see 621 692
- 54 Applications of comprest air
Comprehensive works only
For a specific application of comprest air see the subject e g, pneumatic hoisting machinery 621 862
- .549 Pneumatic cleaners and carriers
Including sandblasts
- .55 Vacuum technique applications
Comprehensive works
For a specific vacuum technique or application, see the subject, e g, high-vacuum tubes 621 381 51
- .56 Refrigeration
Including comprehensive works on refrigeration and air conditioning engineering
For heating, ventilating and air conditioning engineering, see 697, a specific application of refrigeration the subject e g, commercial refrigeration and cold storage of fruits and vegetables 664 85
- 563 Heat pumps
For heat pumps used as heating devices see 697 3

Decimal Classification

- 621 564 Refrigerants
Including ammonia, Freons®, carbon dioxide, dry ice,
methyl chloride, sulfur dioxide used as refrigerants
- 57 Mechanical refrigerators
Comprehensive works on commercial, domestic, storage
(deep-freeze) refrigerators
*For domestic use of mechanical refrigerators, see 643 3,
commercial use, 664 802 85*
- 58 Ice manufacture
Including ice cutting, ice storage
- .6 Fans, blowers, pumps
*For use of fans and blowers in ventilating buildings, see 697 92,
air compressors, 621 51*
- 61 Piston blowers
Including blast engines
- 62 Rotary blowers
- 63 Centrifugal blowers
Including centrifugal and exhaust fans
- 64 Pumps
- 643 Hand pumps
- 65 Reciprocating pumps
Including piston and plunger pumps
- 66 Rotary pumps
- 67 Centrifugal pumps
- 68 Fire engines
For fire extinction, see 614 843-614 846
- 69 Other pumps
- 691 Jet pumps
Including injectors (injection pumps), ejectors
- 692 Vacuum pumps
Including oil-diffusion and high-vacuum pumps
- .699 Miscellaneous pumps
Including density pumps, direct fluid pressure
displacement pumps, e g, pulsometers

- 621.7 **Factory engineering**
Engineering aspects affecting over-all operations of manufacturing plants, arrangement with reference to sequence of processes mechanical equipment economy of power
For production management, see 658.5, manufactures 660-680
- 75 **Machine-shop practice**
Comprehensive works on machining to size and assembling metalwork
For machine tools see 621.9, metal manufactures 671, manufacture of specific finished articles 680
- 78 **Automatic factories**
For automatic control engineering see 629.8 automation in production 658.561
- .8 **Mechanical power transmission machinery and related equipment**
Class servomechanisms [formerly + 621.8] in 629.83
For compressed air transmission see 621.53 hydraulic power engineering, 621.2
- 81 **Principles of mechanism**
Including mechanical movements kinematics and dynamics in machines
- 812 **Power control devices**
Including speed controllers (governors) power measuring devices e.g. dynamometers
- 815 **Machine design**
For mechanical drawing see 744.422
- 82 **Elements of mechanical power transmission**
- 821 **Journals**
- 822 **Bearings**
Including plain ball roller bearings
For lubrication, see 621.89
- 823 **Shafts and shafting**
- 824 **Springs**

Decimal Classification

- 621 825 Couplings and clutches
Including universal joints
- .83 Gears [*formerly* †621 84] and gearing
For gear-cutting machinery, see 621.944
- .838 Cams
- .84 Valves and pistons
Class gears [*formerly* †621 84] in 621 83
- .85 Power transmission by flexible connections
For materials-handling equipment, see 621 86
- .852 Belt transmission
For belt conveyers, see 621 867 5
- .853 Rope transmission
- 854 Wire transmission
- 859 Chain transmission
For chain hoists, see 621 863
- .86 Materials-handling equipment
For excavating machinery, see 624 152, *materials handling in production, 658 512*
- 862 Hoisting machinery
For cranes, derricks, elevators, see 621 87
- .863 Mechanical tackles
Including hydraulic tackles, chain hoists
- .864 Windlasses
Including winches, capstans
- .865 Power shovels
- .867 Conveying machinery
- .867 2 Pipes and pipelines
Comprehensive works
For gas pipelines, see 665 74, *petroleum pipelines, 665 54, water mains, 628 15, pipe fitting, 696*
- .867 5 Belt conveyers

Engineering

- 621 867 6 Escalators
For elevators, see 621 877
- 868 Telpherage
Including ski tows chair lifts
For cable railways, see 625 5
- 87 Cranes, derricks, elevators
- 872 Derricks
- 873 Cranes
Including mobile [*formerly* †621 874–†621 875] and stationary cranes
- [† 874–† 875] Mobile cranes
Class in 621 873
- 877 Elevators
Including hand-powered belt-driven, steam hydraulic electric elevators, elevator parts and accessories
- 877 7 Dumb-waiters
- 88 Fastenings
- 882 Screws, nuts, bolts
For screw cutting machinery see 621 944 tapping machinery, 621 955
- 883 Cotters and cotter pins
- 884 Rivets and nails
For riveting machinery, see 621 978
- 89 Lubrication
Elimination of friction in machinery by lubricants
For manufacture and properties of lubricants, see 665, bearings, 621 822
- .9 **Tools**
Design, maintenance, repair operation
Including pneumatic tools [*formerly* †621 542], power driven metalworking machinery, toolmaking
For machine shop practice see 621 75 woodworking tools 674 42–674 43 hand forged tools, 682 4
- 908 Hand tools
Comprehensive works
For a specific hand tool see the subject e.g. hand hammers 621 973

Decimal Classification

- 621 91 Milling machinery
.912 Planers and shapers
Including slotting and grooving machines
.92 Abrading machinery
.922 Grinding machinery
Including cylinder and surface grinders, lapping machines,
crushers
.923 Emery wheels and grindstones
924 Filing machinery
Including rasps
.93 Cutting and sawing machinery
Including power shears, contour band saws
For sawmills, see 674 2
94 Turning machinery
942 Lathes
943 Chucks
.944 Screw-cutting machinery
Including gear-cutting and pipe-threading machinery
*For tapping machines, see 621 955, screws, nuts, bolts
621 882, gears, 621 83*
945 Boring machinery
.95 Perforating machinery
For boring machines, see 621 945, punching machines, 621 96
.952 Drilling machinery
954 Reaming machinery
Including broaching machinery
955 Tapping machinery
For screw-cutting machinery, see 621 944
96 Punching machinery
For die-pressing machinery, see 621 984
.97 Hammers
973 Hand hammers
.974 Power hammers
Including pneumatic hammers

- 621 978 Riveting machinery
For nuts, see 621 884
- 98 Pressing machinery
- 982 Bending machinery
- 983 Straightening jigs
- 984 Die pressing machinery
Including punch and die machines
For punching machinery, see 621 96
- 99 Jigs, fixtures, gauges
For straightening jigs see 621 983

622 Mining and mining engineering

For economic geology see 553 metallurgy 669 economics of production in mineral industries, 338 2, conservation of mineral resources, 333 8

SUMMARY

- 622 1 Prospecting and exploratory operations
- 2 Underground mining
- 3 Types of mining
- 4-5 Mine plant and equipment
- 6 Transportation and hoisting in mines
- 7 Ore dressing
- 8 Mine hazards and accidents
- 001 Mining statistics
- [† 002] Quantities costs, estimates
Class in 622 13
- 007 Mining laws and regulations
- 009 Reports on mines and mining
For mining companies, see 622 065
- 065 Mining companies [*formerly 622 17*]
For reports on mines and mining, see 622 009
- 078 Mining machinery
Comprehensive works
For machinery used in a specific type of mining see the subject e.g. placer mining 622 320 78 ore dressing machinery 622 707 8

Decimal Classification

- 622.1 Prospecting [*formerly* *553] and exploratory operations
Class development workings [*formerly* *622 1] in 622 2
For mining prospectuses, see 553
- .12 Practical prospecting methods
Including surface examination, biogeochemical and geobotanical prospecting
Class divining rods [*formerly* †622 12] in 133 323
For geophysical exploration, see 622 15, *prospecting for a specific mineral, 622 18*
- .13 Mineral surveys and valuation
Quantities, costs, estimates [*all formerly also* †622 002]
Including mine examination, sampling, quantitative measurements of mineral content, tonnage calculations [*all formerly* *622 17]
- .14 Mine surveying
Determination of size, shape of mines
Including preparation of mine maps and models
- .15 Geophysical exploration
Comprehensive works on gravitational methods, magnetic methods, seismic methods, electrical (resistivity, potential electromagnetic) methods, acoustic methods, radioactivity methods
For exploration for specific minerals, see 622 18
- [*.17] Mining economics
Class examination, sampling, measurement, tonnage calculation in 622 13, mining companies in 622 065
- 18 Prospecting and exploration for specific minerals [*formerly* *622 33–*622.38]
Divide like 553 2–553 86, e g, seismic prospecting for petroleum 622 182 82
For mining specific minerals, see 622 33–622 39

- 622 2 **Underground mining**
 Including development workings [*formerly* *622 1]
 For underground mining of specific ores see 622 33-622 39
- 21 **Excavation of mines**
 Including stoping [*formerly* †622 27]
 *For quarrying, see 622 35, mine shafts 622 25 mine
 tunnels 622 26*
- [† 22] **Quarrying**
 Class in 622 35
- 23 **Blasting operations**
 Including drilling of blast holes
- 24 **Boring operations**
- 25 **Mine shafts**
 Including inclines winzes, raises
- 26 **Mine tunnels**
 Including drifts crosscuts levels adits gangways
- [† 27] **Stoping**
 Class in 622 21
- 28 **Supporting structures in mines**
 Including structures of timber, masonry steel
- .3 **Types of mining**
 Comprehensive works on underground mining open-pit mining
 alluvial mining
 For underground mining see 622 2
- 31 **Open-pit mining**
 Including strip mining
 For open pit mining of specific ores, see 622 33-622 39
- 32 **Alluvial mining**
 Placer mining, hydraulic mining dredging drift mining
 For alluvial mining of specific ores, see 622 33-622 39
-
- 622 33-622 39 Mining specific minerals
 Class prospecting and exploration for specific minerals
 [*formerly* *622 33-†622 38] in 622 18
- 33 **Mining carbonaceous ores**
 Divide like 553 2 e.g., mining anthracite coal 622 335

- 622.34 Mining metalliferous ores
- 341 Mining ferrous ores
- 342 Mining gold, silver, platinum ores
- 343- 349 9 Mining other metalliferous ores
Divide like 553 43-553 499, e g, mining uranium ores
622 349 3
- 35 Quarrying [*formerly also* †622 22]
Extraction of building stone deposits
Divide like 553 5, e g, quarrying granite 622 352
- .36 Mining earthy material deposits
Divide like 553 6, e g, mining salt 622 363
- .37 Extracting minerals from mineralized water
Including extraction of minerals and metals from sea water
and oil brines
- 38 Mining gem deposits
Divide like 553 8, e g, mining diamonds 622 382
- .39 Mining other economic minerals
- .4 Mine plant and equipment
*For mining machinery, see 622 078, transportation and hoisting,
622 6*
- .41 Mine gases
Including methods of detecting mine gases
- 42 Ventilation and air conditioning in mines
- .43 Temperature control in mines
Including heating systems, cooling systems, temperature
control devices in mines
- 47 Illumination in mines
- 473 Portable lamps
Including safety lamps miners' lamps
- .474 Electric lighting systems in mines
- 48 Electricity in mines
Comprehensive works
*For a specific application of electricity in mines, see the
subject, e g, illumination 622 474*

- 622 49 Mine sanitation
- .5 Mine drainage
Including drainage ditches drainage channels pumping systems
- .6 Transportation and hoisting in mines
Including haulage systems
- [† 63-† 64] Cars and gravity planes
Class in 622 66
- 65 Nonmechanical haulage
Including use of chutes wheelbarrows hand tramping, horse and mule haulage
- 66 Mechanical haulage
Including gravity planes [*formerly* †622 64] shuttle cars [*formerly* †622 63], conveyers electric mine locomotives scrapers
- 67 Hoisting systems
Direct- and gear driven hoists
Including single- and double drum hoists
- 68 Mine elevators
Including cages, skips, buckets
- 69 Surface transportation
Including loading, unloading, transshipment
- .7 Ore dressing
Comprehensive works
For preparation and treatment of a specific ore see technology of the ore, e.g., reduction of iron ore 669 14
- 73 Crushing and grinding operations
- 74 Sizing operations
Including use of screens and mechanical classifiers
- 75 Ore concentration
Separation of crushed ores and removal of wastes
- 751 Gravity concentration
Ore concentration utilizing differences in specific gravity between minerals
Including sink float concentration jigging

Decimal Classification

- 622 752 Flotation
Ore concentration utilizing differences in chemical composition of minerals to bring about attachment of mineral grains to air bubbles in water
- 77 Electrical separation
Ore concentration depending upon differences in magnetic permeability or surface electrical conductivity between different mineral varieties
Including magnetic and electrostatic separation
- [† 78] Coal washing
Class in 662 623
- .79 Milling plants
Including design and equipment
For a specific operation in milling plants, see the subject, e g, ore concentration 622 75
- .8 Mine hazards and accidents
Causes, occurrence, prevention of mine accidents
- .81 Mine explosions
- 82 Mine fires
- 83 Earth movements in mines
Including cave-ins, fall of rocks, subsidences
- 84 Mine floods
- .86 Rescue and relief operations for miners
- 623 Military and naval engineering

SUMMARY

- 623 1 Fortifications
- .2 Offensive engineering operations
(Demolition operations)
- .3 Defensive engineering operations
- .4 Ordnance
- .5 Gunnery
- 6 Military transportation engineering
- .7 Other military engineering operations
- .8 Naval engineering

623 1-623 77 Military engineering

For military science, see 355-359

- 623.1 Fortifications
- 12 Permanent fortifications
 - Design, construction, maintenance of permanent land harbor, coastal defenses
 - 15 Temporary fortifications
 - Field fortifications built by combat forces with material available to field armies
 - .19 Specific forts and fortresses
 - Divide like 930-999 e g fortress of Gibraltar 623 194 689
 - .2 Offensive engineering operations (Demolition operations)
 - Including demolition of transportation facilities [*formerly also* *623 6], railroad tracks [*formerly* †623 632], fortifications, wire entanglements
 - Class countermining operations [*formerly* 623 2] in 623 36
 - For demolition of military communication facilities see 623 32*
 - .26 Mine laying [*formerly* 623 3]
 - For countermining operations see 623 36*
 - 262 Land mines
 - Including booby traps, underground torpedoes
 - 263 Marine mines
 - .3 Defensive engineering operations
 - Class mine laying [*formerly* *623 3] in 623 26
 - For camouflage engineering, see 623 77*
 - 32 Demolition of enemy communication facilities
 - 34 Trench defenses
 - 36 Countermining operations [*formerly* *623 2]
 - Detection of land mines, demolition of mine fields, mine sweeping
 - 37 Defenses against chemical and biological warfare
 - 372 Defenses against gas warfare
 - Including military use of gas masks

Decimal Classification

- 623 373 Decontamination operations
Including decontamination from gases, microorganisms,
radiation
- 38 Defenses against air warfare
Including engineering aspects of civilian protection against
bombings, atomic warfare
For barrage balloons, see 623 744
- 382 Air raid warning systems
Operation, maintenance of air raid warning systems
Including radar detection of enemy approach, distant early
warning systems
For radar engineering, see 621 384 8
- 383 Blackouts in war
Engineering aspects of blackouts, dimouts, brownouts
Including blackout flashlights, lanterns, flares
- 388 Air raid shelters
Design, construction, maintenance of air raid shelters
- .4 **Ordnance**
Design, construction, repair of war weapons
Including naval ordnance [*formerly †623 9*]
- 41 Artillery
Comprehensive works on mounted artillery pieces
*For types of artillery, see 623 42, mounts, 623 43,
ammunition, 623 45*
- 42 Types of artillery
For chemical artillery, see 623 445
- 421 2 Guns
Including guns on mobile and fixed mounts
- 421 3 Howitzers
- 421 4 Mortars
- 421 7 Guided missile launchers
- [† 422] Machine guns and submachine guns
Class in 623 442
- [† 425] Sighting apparatus
Class in 623 46

Engineering

- 623 43 Gun mounts and armored vehicles
 - 431 Towed mounts
 - 433 Fixt mounts
 - Including turret mounts
 - 434 Naval mounts
 - 438 Armored vehicles
 - Including tanks armored cars armored trains
- 44 Small arms
 - Portable arms of not more than 60 caliber
 - For manufacture and repair of small nonmilitary firearms see 683 4*
- 441 Primitive firearms
- 442 Machine guns [*formerly* †623 422] and shoulder weapons
 - Including submachine guns [*formerly* †623 422] bazookas rifles muskets carbines
- 443 Pistols
 - Including revolvers, automatic pistols semiautomatic pistols
- 444 Side arms
 - Including swords bayonets daggers lances trench knives
- 445 Chemical artillery
 - Including flame throwers [*formerly* †623 454 31] mortars for smoke and gas projectiles
- 45 Ammunition
- 451 Artillery missiles
 - Including fixt [*formerly* †623 453] semifixt separate loading ammunition
 - Class rockets in 623 454 3 pyrotechnical signal devices in 623 454 4 [*both formerly* †623 451]
- 451 1 Bombs
 - Low velocity projectiles
 - Including fragmentation demolition depth bombs comprehensive works on aircraft bombs
 - For chemical projectiles see 623 451 6 rockets 623 454 3*
- 451 14 Grenades
 - Including rifle and hand grenades

Decimal Classification

- 623 451 15 Mines
Including land, naval, aerial mines
For mine laying, see 623 26, countermining operations, 623 36
- 451 19 Nuclear projectiles
Including atom and hydrogen bombs
- .451 3 Projectiles
Comprehensive works
Including high-velocity projectiles
For bombs, see 623 451 1, nuclear projectiles, 623.451 19
- .451 4 Shrapnel projectiles
- .451 6 Chemical projectiles
Including incendiary [*formerly also †623 454 31*], gas, smoke bombs
For pyrotechnical signal devices, see 623 454 4
- .451 7 High-explosives (HE) projectiles
Including torpedoes [*formerly also †623 95*], block-busters, high-explosive-antitank (HEAT) projectiles
For bangalore torpedoes, see 623 454 5
- .451 8 Armor-piercing (AP, APC) projectiles
Including high-velocity armor-piercing (HVAP), canister projectiles
- .451 9 Guided missiles (Strategic rockets) [*formerly †623.74*]
Including intercontinental ballistic missiles (ICBM)
For pilotless aircraft, see 623 746 9, tactical rockets, 623 454 3
- .451 94 Antimissile rockets
- 452 Explosives
Chemical compounds used for propelling, bursting, demolition charges
For manufacture of explosives, see 662 2
- [†.453] Fixt ammunition
Class in 623 451

Engineering

- 623 454 Other types of ordnance material
For artillery missiles, see 623 451 small-arms ammunition.
623 455
- [† 454 1] Fuses
Class in 623 454 2
- 454 2 Detonators
Including fuses [*formerly* †623 454 1] primers, firing mechanisms, boosters, percussion caps
- 454 3 Rockets (Tactical rockets) [*formerly* *623 451]
Jet-propelled bombs 'buzz' bombs
For guided missiles, see 623 451 9, signal rockets,
623 454 4
- [† 454 31] Incendiary devices
Class incendiary bombs in 623 451 6 flame throwers
in 623 445
- 454 4 Pyrotechnical signal devices [*formerly* *623 451]
Including signal rockets, illuminating projectiles star shells drifting lights float lights aircraft-wing flares parachute-borne flares used for illumination, signaling, recognition
- 454 5 Demolition charges
Including bangalore torpedoes shaped charges destructors demolition blocks
For mines, see 623 451 15, demolition of mine fields
623 36
- 455 Small-arms ammunition
Bullets, cartridges
- 46 Artillery accessories
Including sighting apparatus [*formerly* †623 425] range finders, range keepers range directors
For sighting, range finding, see 623 5
- [† 47] arsenals
Class in 355 73

- 623.5 **Gunnery**
Application of ballistics in laying, aiming, firing various types of guns
Including sighting, range finding, fire control
For sighting apparatus, range finders, see 623 46, target practice, 355 54
- .51 **Ballistics [formerly *623 53]**
Former heading Theory and strength of guns
Motion of projectiles, conditions affecting that motion
Including bomb, rocket ballistics
For forensic ballistics, see 364 12
- .53 **Interior ballistics**
Motion of projectiles within the bore, conditions governing that motion
Class comprehensive works on ballistics [formerly *623 53] in 623 51
For reaction of mounts, see 623 57
- .54 **Exterior ballistics**
Motion of projectiles after leaving gun tube, resistance encountered due to motion thru air
- [†.554] **Naval target practice**
Class in 359 5
- .56 **Terminal ballistics**
Effect of projectiles on targets
- .57 **Reaction of mounts**
Including controlled recoil mounts, nonrecoil mounts
- .6 **Military transportation engineering**
Temporary and rapid construction, maintenance, and repair of transportation facilities
Including use of pierst steel planking (PSP)
Class demolition of transportation facilities in 623 2, military water-supply engineering in 623 75, military power and light systems in 623 76 [all formerly *623 6]
For military aircraft, see 623 74, military transports, 623 826 4
- .62 **Military roads**

- 623 63 Military railways
- [† 632] Demolition of railroad tracks
Class in 623 2
- 64 Military docks
Including construction maintenance, repair of breakwaters,
artificial harbors
- 65 Military bridges
Including materials [*formerly* †623 66] construction main-
tenance, repair of pontoon bridges rope ferries other tem-
porary bridges
- [† 66] Bridge material
Class in 623 65
- .7 Other military engineering operations
- 71 Military topography
Military sketching map making map reading
Class military photogrammetry [*formerly* 623 71] in 623 72
- .72 Military photography
Including photogrammetry [*formerly* *623 71] photomaps
- 73 Military communication engineering
Including installation, operation of equipment
- 731 Visual signal communication
Including semaphore systems, heliographs light emitters
smoke generators, panel systems
For pyrotechnical signal devices see 623 454 4
- 732 Military telegraphy
Including teletype, radiotelegraphy, radioteletype
- .733 Military telephony
Including radiotelephony, walkie-talkies,
radiocommunication
- 74 Military aircraft [*formerly* 629 1]
Design, construction identification
Class guided missiles [*formerly* †623 74] in 623 451 9
- 741 Military lighter-than-air aircraft
- 742 Military free balloons

Decimal Classification

- 623 743 Military airships
Including nonrigid, semirigid, rigid dirigibles
- .744 Barrage balloons
- .746 Military heavier-than-air aircraft
Including military airplanes
- 746 2 Trainers
- .746 3 Bombers
- .746 4 Fighters
- .746 5 Carriers
Including transport and cargo aircraft
- .746 6 Rescue aircraft
Including amphibian planes, helicopters
- 746 9 Pilotless aircraft (Guided aircraft)
- 75 Military sanitary engineering
Military water-supply engineering [*formerly* *623 6], military
sewage-disposal engineering
For military hygiene, see 613 67
- .76 Military power and light systems [*formerly* *623 6]
- 77 Camouflage engineering
- .8 Naval engineering
Including nonmilitary naval engineering

SUMMARY

- 623 81 Naval architecture
- .82 Shipbuilding
- .83 Shipyards
- .84 Hull construction
- .85 Electrical, mechanical, chemical accessory systems
- .86 Equipment and outfit
- .87 Marine engineering
- .88 Seamanship
- .89 Sea navigation
- .81 Naval architecture
Structural engineering for ships
Including design of ships, calculations and considerations of
moments, stability, displacement, resistance and speed, rolling
pitching, structural strength, tonnage, steering, maneuvering
*For graphic statics, see 531 25, strength of materials,
620 11, fluid mechanics, 532*

- 623 82 Shipbuilding
Comprehensive works on construction, maintenance repair of ships
For hull construction, see 623 84, comprehensive works on ships 387 2
- 821 Ancient and medieval ships
Including caravels [*formerly* †623 822 5] galleys, sailing men-of-war biremes triremes comprehensive works on primitive crafts
Class clipper ships [*formerly* *623 821] in 623 822
For hand propelled and towed craft see 623 829
- 822 Modern sailing ships
Including clipper ships [*formerly* *623 821] racing yachts rotor ships
Class caravels [*formerly* †623 822 5] in 623 821
For ancient and medieval ships see 623 821 power yachts 623 824 3 yachting, 797 14
- 823 Power-driven ships
- 823 1 Small power craft
Including motorboats motor launches
For racing yachts, see 623 822 power yachts, 623 824 3
- 823 2 Tugboats and towboats
- 823 4 Ferryboats
Including passenger freight tram ferryboats
- 824 Merchant ships
- 824 3 Passenger ships
Including lake, river ocean liners power yachts
For military transports and hospital ships see 623 826 4
- 824 5 Cargo ships
Including freighters bulk carriers tankers
For military supply ships see 623 826 5
- 824 8 Factory ships
Including modern whaleboats ship canneries

Decimal Classification

- 623 825 Warships
Design, construction, identification
Including armor protection of warships [*formerly*
†623 9]
Class patrol craft [*formerly* *623 825] in 623 826 3
For sailing men-of-war, see 623 821
- .825 2 Battleships
- 825 3 Cruisers
Including antiaircraft cruisers
- 825 4 Destroyers
Including destroyer escorts, motor torpedo boats,
gunboats, submarine chasers
For patrol craft, see 623 826 3
- 825 5 Aircraft carriers
- .825 6 Landing craft
Including amphibious landing craft
- .825 7 Submarines
Including nuclear-powered submarines
- 826 Other government vessels
- 826 2 Mine craft
Including mine layers, mine sweepers
- .826 3 Patrol craft [*formerly* *623 825]
Including police boats, revenue cutters
For submarine chasers, motor torpedo boats, see
625 825 4
- .826 4 Military transports and hospital ships
- .826 5 Military supply ships
- .828 Other power-driven ships
Including icebreakers, trawlers, dredgers
For underwater dredging operations, see 627 73
- .829 Hand-propelled and towed craft
Including canoes, lifeboats, barges, scows, rowboats, towed
canalboats, coracles
For lifeboats as equipment on ships, see 623 865

- 623 83 Shipyards
Appliances and facilities used in construction, maintenance and repair of ships
Including slips, launching ways, drydocks moldlofts shipbuilding baths
- 831 Experimental model tanks for ships
- 84 Hull construction
Construction of body of ships
Including joinery, riveting welding sheet metal work for shipbuilders (loftsmen, ship fitters, shipwrights)
- 85 Electrical, mechanical, chemical accessory systems
Class gear [*formerly* †623 85] in 623 862
- 852 Electricity on ships
Electric power equipment and its installation on ships
Including electric lighting on ships
For communication systems on ships, see 623 864
- 853 Heat, ventilation, refrigeration on ships
Including air conditioning on ships
- 854 Water supply and sanitation on ships
Including water distillation fire detection and prevention systems plumbing systems
- 86 Equipment and outfit
- 862 Gear [*formerly* †623 85] and rigging
Including rope masts spars rudder sails cordage anchors
- 863 Nautical instruments
- 864 Communication systems on ships
Including wireless equipment telephones signal lights
- 865 Lifesaving equipment
Including lifeboats life preservers
For construction of lifeboats see 623 829
- 866 Ship furniture

Decimal Classification

- 623 87 Marine engineering
Marine propulsion machinery and its auxiliaries
For naval design involving calculation of resistance and speed, see 623 81, hydrodynamics, 532 5
- 872 Marine engines
- 872 2 Marine steam engines [*formerly* †621 12]
Including steam turbines, reciprocating steam engines
- .872 3 Marine internal-combustion engines
Divide like 621 43–621 437, e g, marine diesel engines
623 872 36
- 873 Marine engine auxiliaries
Including marine boilers [*formerly* †621 184 22], piping, condensers, blowers, pumps, propellers, propulsion shafting
- .874 Marine fuels
- .88 Seamanship [*formerly* †656]
Art and science of handling ships
Including splicing, marling, knotting ropes, rescue at sea, Inland Rules of the Road, International Rules of the Road
- .89 Sea navigation [*formerly* †656]
Selection and steering of a course on water
Including problems of position, direction, distance
For celestial navigation, see 527
- 892 Geonavigation (Surface piloting)
Positioning ships by visual observation of prominent objects of known position on the earth
Including dead reckoning
- 892 9 Pilot guides
Divide like 940–999, e g, pilot guides for harbor of New York 623 892 974 71
- .893 Electronic navigation
Positioning ships with respect to radio stations and beams thru visual or audio presentation
Including use of radar, loran, decca, pulse doppler

- 623.894 Aids to navigation
 Including lighthouses, lightships, buoys, sailing directions,
 light lists, navigational tables, tide and current tables
 For comprehensive works on tide tables, see 525.69
- [†.9] Naval ordnance
 Class naval ordnance in 623 4, armor protection of warships in
 623 825
- [†.95] Torpedoes
 Class in 623.451 7
- 624 **Civil engineering**
 Comprehensive works on design, construction, maintenance of public
 works
 *For a specific branch of civil engineering, see the subject, e g.,
 sanitary engineering 628*
- .1 **Structural engineering**
 Comprehensive works on planning, analysis, design, construction
 of bridges, buildings, dams, other structures
 Class bridge engineering and construction [*formerly †624 1*] in
 624 2
 *For architectural design, see 729, a specific branch of struc-
 tural engineering, the subject, e g, dam engineering 627 8,
 engineering materials, 620 1*
- .15 **Foundation engineering**
 *For design and construction of foundations for a specific struc-
 ture, see the structure, e g, foundations for buildings 721 1*
- .151 **Foundation soils**
 Physics and mechanics of soils supporting structures
 Including soil surveys, physical tests and analysis, engineer-
 ing properties, e g., strength, deformation, compressibility,
 stability, moisture content
 *For comprehensive works on soil physics, see 631 43,
 soil surveys for a specific structure, the subject, e g, for
 highways 625 732*
- .152 **Excavation engineering**
 Including earthwork, shoring, rock excavation, use of
 excavating machinery
 Class tunnel engineering [*formerly *624 152*] in 624 19
 For excavation of mines, see 622 21

Decimal Classification

- 624 154 Pile foundations
 Including pile driving [*formerly* †624 155]
[† 155] Pile driving
 Class in 624 154
- .156 Floating foundations (Platform foundations)
 Including cantilever foundations
- .157 Underwater foundations (Subaqueous foundations)
 For bridge engineering, see 624 2, dock engineering, 627 3
- .157 1 Cofferdam method
- .157 2 Crib and open-caisson method
- .157 3 Pneumatic-caisson method
- .157 4 Freezing methods
- .157 5 Pneumatic forcing method
- .157 6 Dredging method
- .158 Pier foundations
 Including "skyscraper" foundations
- .16 Other supporting structures
 Including piers, abutments, embankments, retaining walls
 For dock engineering, see 627 3
- .17 Structural theory
- 171 Structural analysis
 Determination of forces on all types of structures by
 mathematical means and use of models
 Including calculation of pressure, shears, impact, bending
 moments
 Class loads in 624 172, wind pressure in 624 175, stresses
 in 624 176 [*all formerly* *624 171]
 For graphic statics, see 531 25
- .172 Loads [*formerly also* †624.173-†624 174, *formerly*
 *624 171]
 Determination of dead and live loads on structures
 Including weight of snow and ice
- [†.173-† 174] Loads
 Class in 624 172
- .175 Wind pressure [*formerly* *624 171]

Engineering

- 624 176 Stresses [*formerly* ~624 171]
 Including stresses produced by earthquakes
- 177 Structural design
 Determination of materials for structure and proportions
 of the structural elements
 Including girders [*formerly* †624 21 †624 23] beams [*for*
 merely †624 22] trusses [*formerly* †624 24 †624 3] columns
 arches slabs frames and fastenings for all types of struc
 tures
 For design and construction of elementary forms for
 buildings see 721
- 18 Design in specific materials
 For systems of building construction see 693-694
- 182 Design in structural metal
 Including iron steel
- 183 Design in masonry
 Including design in brick, cement concrete, reinforst
 concrete
- 184 Design in wood
- .19 Tunnel engineering and construction [*formerly* †625 13,
 ~624 152]
 Design construction maintenance of tunnels
 Including railroad and vehicular tunnels
- 192 Mountain tunnels
- 193 Underground tunnels
- 194 Underwater tunnels
- 199 Other tunnels
 Including siphon and canal tunnels
- .2 Bridge engineering and construction [*formerly* also †624.1]
 Comprehensive works on railroad [*formerly* †625 10] and highway
 bridges
- [† 21-† 24] Girders, beams trusses
 Class in 624 177
- 25 Floor systems for bridges

Decimal Classification

- 624 27 Girder bridges
Including plate-girder and lattice-girder bridges
For plate-girder suspension bridges, see 624 7, box-girder bridges, 624 4
- .275 Covered bridges
- 3 Trussed bridges
Class trusses [*formerly †624 3*] in 624 177
For trussed arch bridges, see 624.7
- 32 Trestle bridges
- 33 Continuous bridges
Bridges consisting of beams, girders, or trusses extending uninterruptedly over more than two supports
- .35 Cantilever bridges
- .4 Tubular bridges
Including box-girder bridges
- .5 Suspension bridges
For plate-girder suspension bridges, see 624 7
- .52 Primitive suspension bridges
Rope bridges of hammock and basket types
- .55 Modern suspension bridges
Including wire-cable, self-anchored, eyebar-chain, rope-strand cable suspension bridges
- .6 Arch bridges
Including hinged and hingeless arch bridges
- .63 Masonry arch bridges
Including arch bridges of stone, brick, concrete, reinforced concrete
- 67 Arch bridges of structural metal
Including iron and steel arch bridges
- .7 Compound bridges
Including plate-girder suspension bridges and trussed arch bridges
- .8 Movable bridges
- .82 Bascule bridges
- .83 Swing bridges

- 624 84 Vertical lift bridges
 - 86 Transporter bridges
 - 87 Permanent pontoon bridges
- For military pontoon bridges see 623 65*

.9 Roof engineering and construction

Comprehensive works

*For design and construction of roofs see 721 5 roof design
729 35 covering and repairing roofs 695*

625 Railroad and road engineering

SUMMARY

- 625 1 Railroad engineering and construction
- 2 Rolling stock
- 3 Inclined and mountain railways
- 39 Ship railways
- 4 Rapid transit systems
- 5 Cable railways
- 6 Electric railways
- 7 Road and highway engineering
- 8 Pavements and other road surfaces

.1 Railroad engineering and construction

Including monorails, standard- and narrow gauge railroads
Class cable railways in 625 5 underground railways in 625 42
elevated railways in 625 44, street railways in 625 66 electric
traction in 621 33 ship railways in 625 39 [*all formerly 625 1*]

*For rolling stock see 625 2 railroad transportation, 385 1
railroad construction over ice covers, 625 892*

11 Railroad surveying

Reconnaissance preliminary surveys final location surveys
Including roadway design, determination of grades curves
switchbacks right of way

For soil surveys see 625 122

12 Earthwork operations for permanent way

122 Soil surveys

Including soil profiles physical tests, and analysis of
subgrade soils for railroad purposes

123 Preparation of roadbed

Including clearing and grubbing compaction excavation
rock cutting earth and rock haulage grading formation
of embankments cuts fills

Decimal Classification

- 625 125 Roadbed stabilization
Including drainage structures, e g , culverts [*formerly also* †625 13], grouting, slide piling, sand piling of railroad roadbeds
- 13 Protective structures
Including snow fences, permanent snowsheds, retaining walls
Class culverts in 625 125 [*formerly* †*625 13], tunnel engineering in 624 19 [*formerly* †625 13], railroad tunnels in 624 19, railroad bridges in 624 2 [*both formerly* *625 13]
- 14 Superstructure of permanent way
Including tracks
Class maintenance of tracks [*formerly* *625 14] in 625 17
- .141 Ballast
Including ballast materials, raising tracks, tamping
- .143 Ties and sleepers
Including tie plates
- .15 Rails and rail fastenings
Including rail joints, tie pads, spikes, rail anchors
- 16 Track accessories
- .163 Track turnouts and crossings
Including design, construction, installation of railroad switches, frogs, sidings
- .165 Railroad signals
Design, construction, installation
For codes of visual signaling, see 384 9
- 17 Railroad maintenance and repairs
Including maintenance of tracks [*formerly* *625 14] and roadbed, snow removal operations
For work trains, see 625 222, protective structures, 625 13
- 18 Railroad yards
Engineering aspects of terminal layouts
Including receiving, separating, departure, storage, repair yards
For design and construction of railroad transportation buildings, see 725 31-725 33 comprehensive works on stations, terminals, railroad yards, 385 3
- .19 Model railroads and trains

- 625 2 Rolling stock
 Design construction maintenance
 Including rolling stock for electric traction [*formerly* †621 334]
- 21 Running gear
 Including wheels axles bearings and lubrication, springs
 For accessory equipment see 625 25
- 22 Specific types of cars
 Including car building [*formerly* †699]
 Class passenger cars in 625 23, freight cars in 625 24 [*both formerly* 625 22]
- 222 Work cars (Non-revenue rolling stock)
 Design construction maintenance of locomotive cranes and
 shovels, handcars railroad snowplows ditchers, flangers,
 derrick cars, cabooses wrecking cars
 For railroad maintenance see 625 17
- 23 Passenger cars [*formerly* 625 22]
 Design construction maintenance of coaches chair cars,
 diners club cars, lounge cars sleeping cars baggage cars,
 mail cars
 Including interior furnishing heating lighting ventilation
 air conditioning, sanitation
 For streetcars and trolley buses, see 625 662
- 24 Freight cars [*formerly* ~625 22]
 Design construction maintenance of refrigerator cars auto
 mobile cars boxcars cattle cars tank cars hoppers, gon-
 dola cars, flatcars
- 25 Accessory equipment
 Including design construction maintenance installation of
 brakes and couplings
 For running gear, see 625 21
- 26 Railroad locomotive engineering
 Design construction, maintenance
 Class steam locomotive engineering [*formerly* 625 26] in
 621 13
- 262 Gas-turbine locomotives
- 263 Electric locomotives [*formerly* †621 334 2]
- 265 Comprest-air locomotives

Decimal Classification

- 625.266 Diesel locomotives
Including diesel-mechanical, diesel-electric locomotives
- .27 Mechanical operation of railroads (Railroading)
[formerly †656]
Including trainmen's manuals
- .3 Inclined and mountain railways
- 32 Funicular railways
- .33 Rack railways
- .39 Ship railways [formerly †625.9, *625.1]
- .4 Rapid transit systems
For street railways, see 625 66
- 42 Underground railways (Subways) [formerly *625.1]
- .44 Elevated railways [formerly *625 1]
- .5 Cable railways [formerly *625.1]
Comprehensive works
Including aerial railways
*For funicular railways, see 625 32, ski lifts and chair lifts,
621 868*
- .6 Electric railways
Including light interurban electric railways
For electric traction, see 621 33, electric locomotives, 625 263
- 66 Street railways [formerly *625 1]
- .662 Streetcars and trolley buses
- .7 Road and highway engineering
Including streets
Class pavements [formerly *625 7] in 625 8
- .71 Road systems
Including rural and urban systems
- .72 Highway surveying
Reconnaissance, preliminary surveys, final location surveys
Including determination of grades, curves, bankings, design of
highways

- 625 73 Earthwork operations for highways
- 732 Soil surveys
Including physical tests analysis of subgrade soils for highway purposes soil profiles
- 733 Preparation of foundations
Including clearing and grubbing excavation earth haulage, compaction formation of embankments finishing operations e.g. trimming slopes grading roadbed
- 734 Drainage and drainage structures
Drainage dikes gutters ditches culverts pipes conduits
For soil stabilization processes see 625 74, side-wall cutters 625 88 installation of utility lines under highways 625 78
- 735 Highway materials
Road aggregates bituminous materials nonbituminous materials
Including tests of highway materials
For paving materials see 625 8
- 74 Stabilized soil roads
Granular stabilized roads granular subbases bituminous soil stabilized roads, gravel roads soil-cement roads
Including binders [*formerly* †625 75] soil stabilization processes
- 75 Dirt road surfacing
Class binders [*formerly* †625 75] in 625 74
- 76 Highway maintenance
- 761 Highway damage and repairs
Including frost damage patching blading dragging, scarifying resurfacing resealing shoulder maintenance
- 763 Snow and ice control on highways
Comprehensive works
Including use of snowplows power graders bank slicers sanders stock piled abrasives snow guides snow fences
For municipal snow removal see 628 466

Decimal Classification

- 627.2 **Harbor engineering**
For lighthouse engineering, see 627 92, aids to navigation, 623 894
- .24 **Breakwaters**
For jetties, see 627 6
- .3 **Dock engineering**
Design, construction, maintenance of docks, piers, wharves, quays
For drydocks, see 623 83
- .4 **Flood control engineering**
Preventive and protective control of floods
- 42 **Protective measures**
Including construction of dikes, sea walls, levees
- .44 **Preventive measures**
Including water storage in ponds, lakes, artificial reservoirs
For dam engineering, see 627 8
- .5 **Reclamation engineering**
- .52 **Irrigation engineering**
Reclamation of arid land by construction of irrigation canals [formerly †626 8], flumes, conduits, flooding wastelands
For agricultural irrigation, see 631 7, dam engineering, 627 8
- .54 **Drainage engineering**
Reclamation of bogs, swamps, marshes by means of drainage systems
For agricultural drainage, see 631 6
- .58 **Shore reclamation and protection**
Including prevention of beach erosion
- .6 **Jetties**
For breakwaters, see 627 24
- .7 **Underwater operations**
Including salvage operations [formerly *387 55]
For marine salvage business, see 387 55
- 72 **Diving operations**
For recreational diving, see 797 2

- 627 73 Underwater dredging operations
For excavation engineering, see 624 152
- 74 Underwater blasting operations
- .8 **Dam engineering**
Design and construction
Including sluices, penstocks spillways, weirs
*For hydroelectric engineering see 621 312 134 barrages
627 12, flood control engineering 627 4, water-supply en-
gineering, 628 1*
- 82 Masonry dams
Including gravity arch arch-gravity, buttress dams
- 83 Earth and rock-fill dams
Including rock-fill dams with concrete facing embankment
dams
- 84 Movable dams and gates
Including bear-trap, bridge shutter and wicket roller, frame,
curtain dams
- 85 Steel dams
- .9 **Other hydraulic structures**
- 92 Lighthouse engineering
Design and construction of lighthouses lightships beacons,
buoys, daymarks
For lighthouse services, see 623 894
- 98 Artificial islands
- 628 **Sanitary and municipal engineering**
Design, construction, operation of works contributing to public
health
Class house drainage [*formerly 628*] in 696 13
*For public health aspects of sanitation and sanitary control see
614 7 military sanitary engineering, 623 7*

SUMMARY

- 628 1 Water supply engineering
2 Sewerage
3 Sewage treatment and disposal
4 Municipal sanitation
5 Industrial sanitation
7 Rural sanitary engineering
9 Municipal lighting

Decimal Classification

- 628.1 Water-supply engineering
 - Comprehensive works
 - Including waterworks, municipal water-supply plants
 - For rural water supply engineering, see 628 72*
- .11 Water-supply sources
 - Including lakes, rivers, springs, wells
- .13 Water storage
 - Including reservoirs, storage tanks, water towers
 - For dam engineering, see 627 8*
- .14 Water distribution
 - Including pumping stations, conduits, aqueducts
- .15 Water mains and service pipes
 - Including thawing frozen water mains
 - For plumbing and pipe fitting, see 696*
- .16 Water purification [*formerly also *613 35*] and treatment
 - Including biological analysis of water [*formerly †613 33-†613 34*]
- .162 Sedimentation
 - Including coagulation
- .164 Filtration
- .165 Aeration and deaeration
- .166 Chemical treatment
- 166 2 Disinfection
 - Including chlorination, superchlorination, dechlorination, ozone treatment, copper sulfate treatment, ultraviolet radiation
- .166 3 Fluorination
 - For preventive dentistry, see 617 601*
- 166 6 Softening processes (Dem mineralization processes)
- .167 Conversion of sea water into potable water
- .168 Water pollution
 - Comprehensive works on stream pollution
 - For water pollution from sewage, see 628 39, water pollution from industrial wastes, 628 54*
- 17 Water consumption
- .177 Water meters

- 628.2 Sewerage [*formerly* 628 3]
Comprehensive works on design, construction maintenance of
sewerage systems and sewage treatment plants
Including pumping stations
For sewage treatment and disposal see 628 3
- 21 Sewerage systems
Including combined and separate systems
- 23 Ventilation of sewers
Elimination of sewer gas
Including flues drains pipes chemical methods for eliminating
and deodorizing sewer gases
For ventilators and traps see 628 25
- 24 Sewers
Including design construction maintenance of sewers
- 25 Sewer appurtenances
Including manholes, house connections flushing apparatus
inlets, catch basins, regulators, valves penstocks ventilators
traps
- 28 Septic tanks
- .3 Sewage treatment and disposal
Class sewerage [*formerly* *628 3, in 628 2
For rural sewage disposal see 628 74
- 32 Disinfection of sewage
- [† 33] Subsidence
Class in 628 34
- 34 Primary treatment of sewage
Including subsidence [*formerly* †628 33] precipitation use of
screens, grit chambers skimming tanks sedimentation tanks
- [† 348] Sludge disposal
Class in 628 36
- 35 Secondary treatment of sewage
Including use of secondary sedimentation tanks
- 352 Filtration
Including trickling filter process

Decimal Classification

- 628 354 Activated sludge process
 Including use of aeration chambers, sludge digestion tanks,
 anaerobic digestion
- .36 Sewage disposal on land
 Including sludge disposal [*formerly* †628 34], sewage irrigation
- .39 Sewage disposal into water
 Disposal into streams, sea, other bodies of water
 Including water pollution from sewage
- .4 **Municipal sanitation**
 *For water-supply engineering, see 628 1, sewerage, 628 2, sewage
 treatment and disposal, 628 3, rural sanitary engineering, 628 7,
 municipal lighting, 628 9*
- .41 Middens, privies, cesspools
- .42 Pail systems
- .43 Earth closet systems
- .44 Municipal garbage and refuse
 For rural refuse disposal, see 628 74
- .442 Municipal refuse collection
 Including collection of ashes, garbage, street sweepings,
 dead animals
- .445 Municipal garbage treatment and disposal
 Disposal of garbage and refuse by burial, incineration,
 reduction
 *For production of fertilizers from municipal wastes, see
 628 49*
- .45 Public comfort stations
- .46 Street cleaning
 Including street sprinkling
- .466 Snow and ice removal
 Including salting and sanding streets and pavements
- .49 Production of fertilizers from municipal wastes
 For municipal garbage treatment, see 628 445
- .5 **Industrial sanitation**
- .51 Industrial plant sanitation
- .52 Effluvium control
 Including prevention of noxious odors

- 628.53 Smoke control
Including prevention of smoke and smog
- 54 Industrial wastes
Including disposal of industrial wastes water pollution from industrial wastes
For waste recovery and utilization in a specific manufacture see the manufacture e.g., in pulp and paper manufacture 676
- [T 6] House drainage
Class in 696.13
- .7 Rural sanitary engineering
Including sanitary engineering in isolated areas
- 72 Rural water-supply engineering
For wells see 628.11
- 74 Rural sewage and refuse disposal
For middens privies cesspools see 628.41 pail systems 628.42 earth closet systems, 628.43 septic tanks 628.28
- [†.8] Ventilation, heating, air conditioning
Class in 697
- .9 Municipal lighting
- 93 Gas lighting for streets
- 95 Electric lighting for streets [*formerly 621.32*]
Including electric lighting systems for parks flood lighting for sports and exhibitions
- 629 Other branches of engineering
- .1 Automotive engineering
Comprehensive works on all types of automotive vehicles
Class military aircraft in 623.74 aeronautics in 629.13 [*both formerly 629.1*]
Relocations from specific subdivision of 629.1 to subdivisions of 629.13 are indicated below only in those cases where the digit following * 1 and 13 vary e.g. electrical installations relocated from 629.143 to 629.135.4
For a specific type of automotive vehicle see the subject e.g. land vehicles 620.2

Decimal Classification

629 13

Aeronautics [*formerly* *629.1]

Relocations from specific subdivisions of *629 1 to subdivisions of 629 13 are indicated below only in those cases where the digits following * 1 and 13 vary, e g, electrical installations relocated from *629 143 to 629 135 4

For air transportation, see 387 7, military aircraft, 623 74

SUMMARY

- 629 130 9 History and local treatment of aeronautics
.132 Science of flight
.133 Aircraft
.134 Airplane design, construction, performance
.135 Aircraft equipment and instruments
.136 Airports
.138 Uses of aircraft
.138 8 Space flight (Inertial navigation)
- .130 9 History and local treatment of aeronautics
 Accounts of flights, flight records
 For voyages and travels, see 910 4
- .130 91 Transoceanic flights
 Divide like 551 461-551 469, e g, transpacific flights
 629 130 915
- .130 94-130 99 Flights in specific countries
 Divide like 940-999, e g, transcontinental flights in
 the United States 629 130 973
- 132 Science of flight
- .132 2 Aerostatics of flight
 Equilibrium, static lift, stability characteristics of
 lighter-than-air aircraft
 For lighter-than-air aircraft, see 629 133 2
- .132 3 Aerodynamics of flight
 Forces acting on heavier-than-air aircraft in motion
 thru air
 Including subsonic, transonic, supersonic aerodynamics
 For heavier-than-air aircraft, see 629 133 3
- .132 31 Forces in gliding, soaring [*both formerly* *629 133 3],
 diving
 Including bird and insect flight as basis of
 aerodynamic studies
 For gliders, see 629 133 33

- 629 132 32 Air flow patterns
 Including incompressible compressible (subsonic,
 transonic supersonic) laminar and turbulent flows,
 shock waves downwash Mach number
 For boundary layers see 629 132 37
- 132 33 Dynamic lift and thrust
 Including unsteady lift in high-speed flight
 For zero lift drag, see 629 132 34
- 132 34 Drag (Air resistance)
 Including zero-lift drag parasite drag
- 132 35 Pressure distribution over wing surfaces
 Including chordwise and spanwise pressure
 distribution wing load
 For drag see 629 132 34
- 132 36 Moment equilibrium and stability
 Longitudinal lateral and vertical stability
 Including roll pitch yaw autorotation (spinning)
- 132 362 Control aerodynamics
 Including flutter and vibration
- 132 37 Boundary layers
 Region of retarded air flow near surface of moving
 aircraft due to viscosity of air
 Including laminar and turbulent boundary layers,
 transition regions skin friction (shearing stress)
 Reynolds number
 For air flow patterns see 629 132 32
- 132 4 Meteorology in aeronautics
 Study of weather conditions for aeronautical purposes
 and methods of combating adverse effects
 Divide like 551 5-551 57 e.g. ice formation and
 prevention [*formerly 629 18 | 629 132 472*]

Decimal Classification

- 629 132 5 Flight engineering
Class celestial navigation [*formerly* *629 125] in 527
- .132 51 Air navigation
Dead reckoning and electronic navigation
Including navigational radar (Gee-H, micro-H, racon, and shoran systems), navigational radio (Gee and loran systems)
For navigation instruments, see 629 135, radio and radar as landing aids, 629 136 6, celestial navigation, 527
- 132 52 Piloting of airplanes [*formerly* *629 126]
Operation of airplanes
Including flight training, instrument flying, take-off and landing, operational problems, e g, cruise control, weight and balance problems [*both formerly* *629 18]
For fighter pilot training, see 358 43, operation of lighter-than-air aircraft, 629 133 2, of heavier-than-air aircraft other than airplanes, 629 133 3
- [† 132 53] Airways
Class in 387 72
- .132 54 Navigational aids
Including aerial maps, charts, logbooks, pilot guides
For navigation instruments, see 629 135, landing aids, 629 136 6
- 132 55 Wreckage studies
Determination of causes of aircraft accidents thru examination of broken remains
For air travel safety, see 614 869
- [†.132 56] Aviation medicine
Class in 616 980 21
- .132 6 Command systems
Including geomagnetic, celestial, and electronic systems of controlling guided aircraft

- 629 133 Aircraft
- Comprehensive works
For military aircraft see 623 74
- 133 1 Aircraft models and modelmaking
 Divide like 629 133 2-629 133 39 e.g. models of
 helicopters 629 133 135
*For use of models in aeronautical research see
 629 130 72*
- 133 2 Lighter-than-air aircraft
 Description design construction, operation maintenance,
 performance of lighter-than-air aircraft and
 their parts
For military lighter than an aircraft see 623 741
- 133 22 Balloons
 Including free and captive balloons balloon sondes
For toy balloons see 796 15
- 133 24 Airships (Drigible balloons)
- 133 25 Rigid dirigibles
- 133 26 Semirigid dirigibles
- 133 27 Nonrigid dirigibles
- 133 3 Heavier-than-air aircraft
 Description design construction, operation maintenance
 performance of heavier-than-air aircraft other
 than airplanes
 Including parts of heavier than air aircraft other than
 airplanes
 Class gliding, soaring [*both formerly 629 133 3*] in
 629 132 31
- 133 32 Kites
For flying kites as a sport see 796 15
- 133 33 Gliders
- 133 34 Airplanes
 Description and identification
*For design construction performance of airplanes,
 see 629 134 of airplane parts 629 134 3 operation
 of airplanes, 629 132 52 military airplanes, 623 716*
- 133 343 Monoplanes
For jet propelled airplanes, see 629 133 319

Decimal Classification

- 629.133 347 Seaplanes (Hydroplanes)
.133 348 Amphibian planes
.133 349 Jet-propelled airplanes
For jet engines, see 629 134 353
- .133 35 Rotary-wing aircraft
Including helicopters, Autogiros®
- .133 36 Orthopters (Ornithopters)
- .133 38 Rocket-propelled aircraft
Including rocket-propelled, high-speed, high-altitude
test missiles (rockets [*formerly *629 143 53*])
*For guided missiles, see 623 451 9, rocket engines,
629 134 354*
- .133 39 Other heavier-than-air aircraft
- .133 4 Unidentified flying objects (UFO)
Including flying saucers
- .134 Airplane design, construction, performance
Including comprehensive works on design, construction,
performance of aircraft
*For design, construction, performance of heavier-than-
air aircraft other than airplanes, see 629 133 3, of lighter-
than-air aircraft, 629 133 2*
- .134 1 Structural analysis and design
Former heading Stress analysis and structures
Including calculations of strains, stresses, shears, impact,
determination of materials and proportion of various
members, monocoque design
- .134 2 Airplane manufacturing techniques
Including materials, template production, forging,
sheet-metal work, riveting, welding, finishing
- .134 3 Parts and details of airplanes
Including design, construction, performance,
maintenance, repair
- .134 31 Airframes
For fuselages, see 629 134 34
- .134 32 Airfoils
Including wings, wing accessories
*For control surfaces, see 629 134 33, fuselages,
629 134 34*

Engineering

- 629 134 33 Control surfaces
Including fins, flaps ailerons, elevators rudders,
stabilizers
For wings see 629 134 32
- 134 34 Fuselages
Including cockpits instrument panels
*For airframes see 629 134 31 power plants
629 134 35*
- 134 35 Power plants
Including engine fuels
For propellers see 629 134 36
- 134 352 Reciprocating and compound engines
- 134 353 Gas-turbine and jet engines
Including turbojet, turboprop turbo ram jet,
pulse jet engines jet propulsion
- 134 354 Rocket engines
Including rocket propulsion, comprehensive works
on rocket engineering
*For a specific application of rocket engineering
see the subject e.g., interplanetary travel
629 138 85*
- 134 36 Propellers (Air screws)
- 134 37 Rigging and bracing equipment
- 134 38 Take-off and landing gear
Including wheel, float, ski, caterpillar truck gears
- 134 386 Ejectors
Including pilot seat ejectors capsule cockpits,
parachutes
- 134 4 Airplane accommodations
Including interior design
- 134 42 Airplane comfortization
Including soundproofing [*formerly *629 18*] heating
ventilating air conditioning pressurization
- 134 43 Airplane safety devices
Including safety belts [*formerly †629 135 7*] life
rafts fire prevention, first aid equipment
*For ice formation and prevention see 629 132 4/
parachutes, 629 134 386*

Decimal Classification

- 629 134 5 Testing of airplanes
- 134 52 Mechanical testing of airplanes
 Factory inspection
- .134 53 Flight testing of airplanes
 Including performance, performance calculations
- 134 6 Airplane maintenance and repair
 Including fueling, refueling [*formerly* *629 18],
 lubrication
 For maintenance and repair of airplane parts, see
 629 134 3
- .135 Aircraft equipment and instruments
 Including hydraulic [*formerly* *629 143] and pneumatic
 equipment
- .135 1 Navigation instruments
 Including radio compasses (direction finders), automatic
 pilots, altimeters, air-speed indicators, air-mileage indica-
 tors, air-position indicators, vertical-speed indicators
 (rate-of-climb indicators), landing and navigation lights
- .135 2 Operational instruments
 Including turn-and-bank indicators, accelerometers,
 Machmeters, gyro horizons, directional gyros
 For automatic pilots, altimeters, air-speed indicators,
 vertical-speed indicators, see 629 135 1
- .135 3 Power-plant instruments
 Including manifold-pressure, oil-pressure, fuel-pressure,
 fuel quantity gauges, engine tachometers, oil and
 cylinder-head thermometers, propeller-pitch indicators
- .135 4 Electrical installations
 Including maintenance and servicing of electrical
 equipment [*formerly* *629 143]
- .135 5 Communication equipment [*formerly* *629 16]
 For communication equipment at airports, see 629 136 6
- 135 7 Equipment for personnel
 Including protective eyeglasses, oxygen masks, pressure
 suits
 Class safety belts [*formerly* †629 135 7] in 629 134 43
 For parachutes, see 629 134 386
- [†.135 8] Accessory equipment
 Class in 629 135 9

Engineering

- 629 213 6 Accidents and accident prevention
 Including compulsory motor vehicle inspection
 wreckage studies
 For highway safety see 614 862 factory inspection,
 629 234
- [† 213 63] Insurance
 Class in 368 572
- [† 213 7] Accounting
 Class in 657 867
- [† 213 8] Sales and prices
 Class sales in 658 896 292 prices in 335 476 292

22 Types of motor vehicles
 For motor vehicles for operation on railroads see 625 26 steam
 locomotives 621 13 steam tractors and rollers 621 14

629 222-629 228 Gasoline and oil powered motor
vehicles

For other types of motor vehicles see 629 229

- 222 Passenger automobiles
 Including manufacturers manuals
- 222 2 Private automobiles
 Including sport cars three-wheel cars
 Arrange alphabetically by name of car using A1 for
 comprehensive works e.g., Lincoln cars 629 222 2 I.
 For racing cars, see 629 228
- 222 3 Motor vehicles for public transportation
- 222 32 Taxicabs
- 222 33 Motor buses
 Including urban, interurban, school sight seeing
 buses
- .223 Light motor trucks
 Including light delivery trucks

Decimal Classification

- 629 138 85 Interplanetary flight
Including proposed flights to moon
- [*.143] Hydraulic and electrical equipment
Class hydraulic equipment in 629 135, electrical equipment
in 629 135 4
- [* 143 53] Rockets and space flight
Class rockets in 629 133 38, space flight in 629 138 8
- [*.16] Communication equipment in aircrafts
Class in 629 135 5
- [*.18] Operational problems
Class refueling in 629 134 6, soundproofing in 629 134 42, ice
formation and prevention in 629 132 47, cruise control, weight
and balance problems in 629 132 52
- .2 Motor vehicle engineering (Land vehicles)

SUMMARY

- 629.21 Financial and legal aspects
- .22 Types of motor vehicles
- .23 Motor vehicle design and construction
- .24 Chassis
- .25 Motor vehicle engines
- .26 Motor vehicle bodywork
- .27 Motor vehicle accessories
- .28 Operation of motor vehicles
- .21 Financial and legal aspects
- 213 Laws and regulations
For financial responsibility laws, see 368 572
- 213 4 Taxation and registration
Including motor vehicle titles and transfers, drivers'
licenses, revenues, motor vehicle tags
- [† 213 43] Traffic regulations
Class in 388 312

Decimal Classification

- 629 224 Heavy motor trucks
Including moving vans, dump trucks, comprehensive works
on motor trucks
For light motor trucks, see 629 223
- .225 Motor tractors
Including bulldozers, Caterpillars®
*For steam tractors, see 621 14, use of tractors on farms,
631 372*
- .226 Trailers
- .227 Cycles
Design, construction, maintenance, repair
Including velocipedes, tricycles, tandems
- .227 2 Bicycles
Including motor bicycles
- .227 5 Motorcycles
- .228 Racing cars
Including "hot rods"
- .229 Other types of motor vehicles
Motor vehicles by motive power
*For gasoline- and oil-powered motor vehicles, see
629 222-629 228*
- .229 2 Steam automobiles
- .229 3 Electric automobiles
- .229 4 Comprest-air automobiles
- .23 Motor vehicle design and construction
Class plant layout [formerly *629 23] in 658 23
*For design and construction of motor vehicle parts, see
629 24-629 27*
- 232 Materials for motor vehicles
*For materials used in a specific part of motor vehicles, see
the part, e g, rubber for tires 629 248 6*
- .233 Tests of materials for motor vehicles
Including testing methods and equipment

- 629 234 Motor vehicle manufacturing techniques
Including assembly methods and equipment, template production, forging, sheet-metal work, riveting, welding, finishing, factory inspection
For performance tests of motor vehicles, see 629 282, compulsory motor vehicle inspection, 629 213 6
- [†.234 2] Plant layout
Class in 658 23
- [† 234 3] Personnel management
Class in 658 3
- [†.234 8] Storage
Class in 658 78
-

629 24–629.27 Motor vehicle parts

Including design, construction, maintenance, repair of motor vehicle parts

- .24 Chassis
- .242 Supporting frames
Including engine mountings
- .243 Springs
Including shock absorbers
- .244 Transmission devices
Including clutches, conventional and automatic transmission devices
- 245 Rear axles, differentials, drive shafts
Including drive shafts with universal joints, torque elements
- 246 Brakes
Including brake fluids
- .247 Front axles and steering gear
- .248 Wheels
Including rims, hubs, bearings
- 248 6 Tires
Comprehensive works on natural and synthetic rubber tires
For manufacture of rubber tires, see 678.32

Decimal Classification

- 629 25 Motor vehicle engines
 Including steam, electric, and internal-combustion engines
 (e g, spark ignition, diesel engines) in motor vehicles
- .252 Motor parts
 Including cylinders, piston assemblies, crankcases, bearings,
 valve mechanisms, manifolds, mufflers
- .253 Fuels and fuel systems
 Including carburetors and carburation, use of producer gas
 in motor vehicles, fuel consumption
- .254 Ignition and electrical systems
 Including batteries, generators, spark plugs, distributors,
 ignition controls
 For electric lights on motor vehicles, see 629 271
- 255 Lubricants and lubricating systems
 For lubrication, see 629 287
- .256 Cooling systems
 Including radiators, fans, pumps, controls, antifreeze
 solutions
- .257 Starting devices
- 258 Control devices
 Including valve, throttle, spark control devices
- 26 Motor vehicle bodywork
 Including trimming and finishing operations, conventional and
 plastic bodies, interior design and upholstery
- 27 Motor vehicle accessories
 Including tools, tool chests, gauges, signals, bumpers
- 271 Lighting equipment
 Including lights, beam modifiers, reflectors
 For electrical systems, see 629 254
- 277 Heaters for motor vehicles

- 629 28 Operation of motor vehicles
 Operation of passenger automobiles motor trucks tractors
 Including safe driving
 For automobiling see 796 7 road guides 914-919, maps,
 912
- 282 Performance tests of motor vehicles
 For factory inspection see 629 234 compulsory motor
 vehicle inspection, 629 213 6
- [† 285] Garages
 Class in 629 286
- 286 Garages [*formerly* †629 285] and service stations
 Including tools equipment
- 287 General servicing of motor vehicles
 Mechanics handbooks on maintenance and repair of motor
 vehicles
 Including washing lubrication adjustment and replacement
 of parts
 Arrange alphabetically by name of car using A1 for
 comprehensive works, e.g. general servicing of Lincoln
 cars 629 287 L7
 For repairs of motor vehicle parts see 629 24-629 27
- 288 Individual servicing of motor vehicles
 Including preventive maintenance manuals
 Arrange alphabetically by name of car using A1 for
 comprehensive works e.g. personal care and
 maintenance of Lincoln cars 629 288 L7
- .8 Automatic control engineering
 Engineering aspects of automation
 For socioeconomic effects of automation see 301 243 automa
 tion in relation to production 338 45, as a production method,
 658 561 *automatic factory, 621 78*
- 82 Open-loop control systems
 Control mechanisms which are independent of the performance
 of the systems which are controlled
 Including manufacture of automatic dispensing machines
 [*formerly* †681 131]

Decimal Classification

629.83

Closed-loop control systems

Feed-back control systems, control mechanisms which maintain established relationships between the controlled variable and the command

Including servomechanisms [*formerly* †621.8]

For a specific application of servomechanisms, see the subject, e g, in electric power stations 621.317

.89

Applications of automation

Comprehensive works

For a specific application of automation, see the subject, e g, automatic pilots 629.135.1

630 Agriculture

1 Rural life

Including living conditions and interests of individuals and families

For rural sociology see 301.35 rural communities, 323.354

.2 Manuals

Including compendiums outlines

Divide like 500 where applicable Representative subdivisions are given below

23 Agricultural physics

For soil physics see 631.43

24 Agricultural chemistry

For soil chemistry see 631.41

251.5 Agricultural climatology [*formerly also †631.9*]

289.9 Agricultural bacteriology

.62 Nongovernment organizations

Class cooperative agriculture [*formerly †630.62*] in 354.683

.7 Study and teaching

71 Instruction in schools

711 Agricultural colleges

Arrange alphabetically using A1 for comprehensive works
e.g. Clemson Agricultural College 630.711 C6 If preferred
divide like 940-999 e.g. Clemson Agricultural College
630.711 757.21

712 Secondary and other agricultural schools

Arrange like 630.711

713 Short courses

714 Correspondence courses

715 Institutes

716 Courses in nonagricultural institutions

717 Extension work

Including work of county agent boys and girls clubs

*For 4 H Clubs see 630.627.3 home economics
demonstration agents, 640.714*

Decimal Classification

631 The farm and farmstead

Including farm management

SUMMARY

- 631.09 Geographic distribution of cultivation
 - 1 Business management of farms
 - .2 Farm buildings
 - .28 Farm roads and bridges
 - .3 Farm machinery and equipment
 - .4 Land and soil
 - .5 Crop production
 - .6 Drainage of farm land
 - .7 Irrigation of farm land
 - .8 Fertilizers and improvement of soil
- .09 Geographic distribution of cultivation
 - .091 Crop zones and physical regions
 - .091 1 Frigid Zones
 - .091 2 Temperate Zones
 - .091 3 Torrid Zone (Tropics)
 - .091 4 Mountainous regions
 - .091 5 Desert regions
- .1 Business management of farms
 - For agricultural economics, see 338 1*
 - 11 Selection and acquisition of farms
 - Including location, means of communication and transportation
 - .112 Purchase
 - Including cost, valuation, taxes
 - For valuation in real estate business, see 333 332, valuation for tax purposes, 336 222*
 - .113 Rent
 - From renter's point of view
 - .114 Share systems
 - 115 Systems of management
 - From owner's point of view
 - Including working by owner, manager, share system, renting
 - 116 Size of farm

- 631 12 Planning of farm
Including layout of buildings, fields, roads
- 14 Types of farms
Comprehensive works on types of farms e.g. field crop
vegetable fruit, woodland, stock fish farms
For a specific type, see the type, e.g. fruit farms 634
- 16 Financial management of farms
Including finances and accounts, bookkeeping records
For accounting principles see 657
- 17 Expenses
For agricultural wages see 331 286 3
- 18 Marketing of farm products direct from the farm
*For marketing a specific product see the product e.g.,
melons 635 61, prices of agricultural products, 333 13
agricultural markets and marketing programs 338 14*
- .2 Farm buildings
Including fences walls comprehensive works on maintenance
and use of farm buildings
*For architecture of farm buildings, see 728 construction 690
housing of animals, 636 083 1*
- 28 Farm roads [*formerly also* 631.9] and bridges
- .3 Farm machinery and equipment
Description, maintenance
*For manufacture, see 681 763 use in a specific operation the
operation, e.g., mowing 631 552*
- 31 Soil working tools and machines
Including digging tools
- 312 Plows
- 313 Harrows
- 314 Rollers
Including disk rollers clod crushers plunkers
- 315 Hand gardening tools
Including hoes scrapers, weedeis garden rakes
- .316 Cultivators

Decimal Classification

- 631 33 Planting and sowing equipment
Including drills, planters, fertilizer distributors, fertilizer and seed spreaders, transplanters
- .34 Equipment for care and shelter of plants
Including grafting, pruning, protection and shelter equipment, supports, receptacles
- .35 Harvesting equipment
Including hand tools, e g, sickle, scythe, cradle, mowers, reapers, combines, corn harvesters, harvesting tools for special crops
- .36 Equipment used in preparing for storage or transport
Including threshers, cleaning tools, silo machinery, balers, packers
- .37 Power and power machinery, transport, on the farm
- .371 Sources of power
Including human, animal, water, wind, steam, internal-combustion engine, electric power
For engineering aspects, see 621
- .372 Tractors
For manufacture, see 629 225
- .373 Farm transportation equipment
Including packs, sleds, handcarts, wagons, motor trucks
For manufacture of motor vehicles, see 629 2
- [† 374] Harness and saddles
Class in 636 083 7
- [†.38] Implements for care of farm animals
Class in 636 083
- .4 Land and soil
For engineering properties of soil, see 624 151, reclamation and drainage, 631 6, irrigation, 631 7, fertilizers, 631 8
- [407 2] Soil research
Class in 631 42
- [.409] History
Class in 631 49

- 631 41 Soil chemistry
For soil classification see 631 44
- 411 Soil mineralogy
- 42 Soil testing and research
Methods of investigation and analysis
Including analysis for soil pollution [*formerly 1614 771*]
- 43 Soil physics
Including organic matter, moisture temperature color
texture structure
For conservation of soil moisture see 631 45
- 44 Soil classification
Including adaptability for growing special crops e.g. tobacco
alkali lands
*For soil surveys see 631 47 economic aspects of land
classification 333 7 improvement of soil 631 8*
- 45 Soil conservation
Including maintenance of soil fertility
*For economic aspects of conservation of agricultural land
see 333 76 irrigation, 631 7 fertilizers 631 8 drainage
631 6 crop production methods for maintenance of soil
fertility 631 58*
- 455 Erosion control
Including contour planting terracing
- 46 Microbiology of soils
Class nitrification and soil inoculation [*both formerly
631 46*] in 631 847
- 47 Soil surveys
Surveys showing the kinds, composition, characteristics of soils
within a given area, and the uses to which they are or can be
put
Including methods and reports
For soil classification see 631 44
- 473-479 Soil surveys by country
Divide like 930 999 e.g. soil survey of France 631 471 1
- 49 History and local treatment
Divide like 930-999 e.g. soils of Mexico 631 497 2

Decimal Classification

- 631.5 **Crop production**
 Comprehensive works
 For production of a specific crop, see the crop, e g, wheat
 633 11, *farm machinery and equipment, 631 3*
- .51 Preparation and tilling of soil
- .52 Plant selection and breeding
- 521 Plant selection
 Including seed selection, catalogs, regulation, inspection
- 522 Plant breeding
- 523 Hybrids
 Including crossing, creation of new varieties
- .524 Introduction of new kinds
- .53 Methods of plant multiplication
- 531 Seeding
- 532 Separation of growing plants
 Including separation of bulbs, cutting of tubers, division or
 partition of plants
- .533 Detaching of separate plants
 Including suckers, runners, proliferous buds
- 534 Layering
- .535 Cuttings
- .536 Transplanting
 For grafting, see 631 541
- 537 Nurseries
 For nursery catalogs, see 631 521
- .54 Care of plants
- .541 Grafting
- 542 Pruning
- 544 Protection and shelter
 Including greenhouses
 For protection against injury, see 632
- .545 Retardation

- 631.546 Training
 - Including training on poles, trellises, walls, arbors
- .547 Stages of plant growth
- 55 Harvesting
 - Comprehensive works on methods, operations
- .552 Mowing
- 553 Haymaking and stacking
- .554 Reaping
- [†.555] Corn harvesting
 - Class in 633.15
- [†.556] Harvesting other special crops
 - Class in 633–635
- .56 Operations subsequent to harvesting
- .561 Preparing grains
 - Including threshing, husking, shelling
- .562 Cleaning
 - Including winnowing, sorting, sifting, washing, grading
- .563 Storing
 - Including silo filling
- .564 Packing
 - Including baling
- .58 Special methods of crop production
 - Including cover crops and strip cropping
- .581 Fallowing
- .582 Crop rotation
- .585 Soilless culture
 - Including tank, chemical, water culture
- .586 Dry farming
- .587 Irrigation farming
 - For irrigation and water supply, see 631.7*

Decimal Classification

- 631.6 **Drainage of farm land**
Including ditching, draining of waste lands, marshes, swamps,
comprehensive works on reclamation of land
*For economic aspects of conservation of agricultural land, see
333 76, drainage engineering methods, 627.54*
- .7 **Irrigation of farm land**
*For irrigation engineering methods, see 627 52, economic aspects
of conservation of agricultural land, 333 76, water rights for
irrigation, 333 913, farming methods using irrigation, 631 587*
- .71 **Source of water**
Including wells, reservoirs
- .72 **Irrigation canals**
- .74 **Measure and distribution of water**
- .75 **Cost of water**
- .78 **Machinery**
- .79 **Methods of conserving moisture**
Including mulching
For dry farming, see 631 586
- .8 **Fertilizers and improvement of soil**
Class manufacture of commercial fertilizers [*formerly *631 8*]
in 668 62
- [.807 2] **Experiments and research**
Class in 631 88
- .81 **History, nature, uses**
Including analysis, methods of application
- .819 **History in specific places**
Divide like 930-999, e g, use of fertilizers in Japan
631 819 52
- .82 **Mineral additions**
Including calcium (lime), gypsum, plaster of Paris, marl,
sulfate of iron

- 631.83 Potash fertilizers
Including wood ashes, potassium chloride, sulfate of potash
Class seaweed [*formerly* *631.83] in 631.87
- .84 Nitrogenous fertilizers
Class muck [*formerly* *631 84] in 631.87
- .842 Nitrates
- .843 Animal industry residues
Including fish, blood, tankage [*formerly* †631 844–†631 846]
For bone meal, see 631 85
- [†.844–†.846] Fish, blood, tankage
Class in 631.843
- .847 Nitrifying crops
Including nitrification and soil inoculation [*both formerly* *631.46], bacteria
- .85 Phosphoric fertilizers
Including rock phosphates, bone meal, basic slag,
superphosphate or acid phosphate
Class guano [*formerly* †631.854] in 631 86
- .86 Animal manure
Including guano [*formerly* †553 64, †631 854]
- .87 Vegetable manures
Including muck [*formerly* *631 84], leaves, seaweed [*formerly* *631 83], residue from vegetable industries
- .874 Green manures
Crops plowed under while still green, e g , rye, clover,
vetch, cowpeas
- .875 Compost
- .88 Fertilizer experiments and research
- [†.9] Climate and roads
Class agricultural chmatology in 630 251 5, roads in 631.28

632 **Plant injuries, diseases, pests in crop production**

Including blights, comprehensive works on destruction of, and diseases and pests injurious to, both plants and animals, on effect and control, on plant diseases, injuries, pests

For injuries, diseases, and pests of a specific crop or plant, see the crop, e g, diseases and pests of potatoes 633 491, plant pathology 581 2, crop insurance, 368 123, pest control, 632 9, diseases of animals, 636 089 6

.1 **Elemental destruction and damage**

Including methods of protection

.11 Low temperature

.12 Excessive heat and drought

.14 Hail

.15 Lightning

.16 Wind and rain

.17 Floods

.18 Fires

.2 **Galls**

Including cecidology

For gall insects, see 632 7

.3 **Bacterial diseases**

Including bacterial blights, e g, fire blight, wilt

For virus diseases, see 632 8

.4 **Fungus diseases**

Including rusts, smuts, bunts, mildews, molds, rots

Divide like 589 2, e g, smuts 632 427

For fungi, see 589 2, fungicides, 632 952

.5 **Injurious plants**

Including parasitic plants

.58 Weeds [*formerly also †581.65*]

For deleterious plants, see 581 65

- 632.6 **Animal pests**
 Including birds, rodents
 Divide like 590, except for insects, e.g , snails 632 643
 For injurious insects, see 632.7
- .7 **Insect pests**
 Divide like 595.7, e.g., locusts 632 72
 For pesticides, see 632.95, household pest control, 648 7
- .8 **Other injurious factors**
 Including virus diseases
- .9 **Agricultural pest control**
 Comprehensive works
 Including inspection and regulation by government
 For protection from elements, see 632 1, control of a specific pest, the pest, e g , control of flies 632 77, protection of a specific crop, the crop, e g., protection of apple crops 634 11
- .93 **Plant quarantine**
- .94 **Methods and apparatus of pest control**
 Including spraying, dusting, fumigating, use of airplanes
 For biological control, see 632.96
- .95 **Pesticides**
 For manufacture of pesticides, see 668 65
- .951 **Insecticides and rodenticides**
 Including fumigants, contact and stomach poisons, vermicides
- .952 **Fungicides and algicides**
- .953 **Disinfection and disinfectants**
 Including bactericides
- .954 **Herbicides**
 Chemical weed killers
- .96 **Biological control**
 Including natural enemies of pests, e g , praying mantis

633-635 Production of specific crops

Including harvesting [*formerly* †631 556], varieties, yield, storage

For comprehensive works on crop production, see 631 5, agricultural economics, 338 1, scientific classification and description of plants, 582-589

633 Field crops

For plants raised for fruits, see 634, for garden crops, 635, ornamental plants and plants raised for flowers, 635 9, forestry, 634 9

SUMMARY

- 633.1 Cereals and grains
- .2 Pasture grasses
- .3 Pasture legumes
- .39 Other forage crops
- .4 Root crops
- .5 Fiber crops
- .6 Sugar and starch plants
- .7 Alkaloidal crops
- .8 Other plants grown for industrial processing

- .1 Cereals and grains
 - .11 Wheat (*Triticum aestivum*)
 - .12 Buckwheat (*Fagopyrum esculentum*)
 - .13 Oats (*Avena*)
 - .14 Rye (*Secale cereale*)
 - .15 Corn (*Zea mays*)
 - Including corn harvesting [*formerly* †631 555]
 - .16 Barley (*Hordeum*)
 - .17 Millet (*Panicum miliaceum*), sorghum (*Andropogon sorghum*), and related crops
 - Including panic grass, prosos, broom corn, shallu, Kaffir corn, milo maize, durra, Jerusalem corn
 - For sweet sorghum, see 633 62*
 - .18 Rice (*Oryza sativa*)
- .2 Pasture grasses
 - Including comprehensive works on forage crops, hay
 - For a specific forage crop, see the subject, e g, clover 633 32*
- .21 Bluegrass (*Poa*)

- 633.22 Orchard grass (*Dactylis*)
.23 Bent grass (*Agrostis*)
 Including redtop
.24 Timothy (*Phleum*)
.25 Cereal grasses
 Divide like 633.1, e.g., corn as fodder 633 255
- .3 Pasture legumes
.31 Alfalfa (*Medicago*)
.32 Clovers (*Trifolium*)
.33 Cowpeas (*Vigna*)
.34 Soybean (*Glycine*)
 For edible seeds of the soybean, see 635 655
.35 Vetches (*Vicia*)
.36 Peanut (*Arachis hypogaea*)
 For edible seeds of the peanut, see 635 659
.364 Japan clover (*Lespedeza*)
.366 Sweet clover (*Melilotus*)
.367 Lupine (*Lupinus*)
- .39 Other forage crops
 Including cactus, sunflower
- .4 Root crops
 For root crops as garden vegetables, see 635 1-635 2
.41 Beet (*Beta vulgaris*)
 Including mangel-wurzel
 For sugar beet, see 633 63
.42 Turnip (*Brassica rapa*)
.43 Carrot (*Daucus carota*)
.44 Parsnip (*Pastinaca sativa*)
.49 Tubers and bulbs
 Including Jerusalem artichoke
491 Potato (*Solanum tuberosum*)
.492 Sweet potato (*Ipomaea batatas*)

Decimal Classification

- 633.5 **Fiber crops**
 Plants grown primarily for use in textiles or other industrial uses
- .51 Cotton (*Gossypium*)
- .52 Flax (*Linum*)
- .53 Hemp (*Cannabis*)
- .54 Jute (*Corchorus*)
- .55 Ramie (*Boehmeria*)
- .58 Fibers for plaiting, basket and wickerwork, weaving
 Including coir (coconut fiber), raffia, esparto, hat fibers,
 rushes, sedges, reeds, bamboo, osier, willow
- .59 Fibers for other industrial uses
 Including filling or stuffing fibers, bast fibers
- .6 **Sugar and starch plants**
 Comprehensive works
- 61 Sugar cane (*Saccharum*)
- 62 Sorghum (*Andropogon sorghum*)
 For sorghum as a cereal crop, see 633 17
- .63 Sugar beet (*Beta*)
 For beet as root crop, see 633 41, as garden vegetable, 635 11
- 64 Sugar maple
- .68 Plants raised for starch
 Including arrowroot, sago palm
- .7 **Alkaloidal crops**
 For medicinal plants, see 633 88
- .71 Tobacco (*Nicotiana*)
- .72 Tea (*Camellia thea* Link, *Thea* Linn)
- .73 Coffee (*Coffea*)
- .74 Cacao, cocoa, chocolate (*Theobroma*)
- .75 Poppy (*Papaver*)
- .76 Cola (*Cola acuminata*)
- .77 Maté (*Ilex*)
- .78 Chicory (*Cichorium*)
 For chicory as a salad green, see 635 54

- 633.8 Other plants grown for industrial processing
- .81 Plants yielding perfume
Including floral and herbal plants, woods, roots, balms and gums grown for perfume
- .82 Flavorings
Including vanilla, mint, wintergreen, sassafras, ginger, hop
For condimental and sweet herbs as garden crops, see 635 7
- .83 Spices
Including allspice, clove, cinnamon, nutmeg
- .84 Condiments
Including pepper, paprika, chili, mustard, caper, horseradish
For condimental and sweet herbs as garden crops, see 635 7
- .85 Plants yielding oil
Comprehensive works
For plants yielding perfume-producing oils, see 633 81
- .86 Plants yielding dyes
- .87 Plants yielding tannin
Including sumac
- .88 Medicinal plants
Including cinchona, digitalis, ginseng
- .89 Resin-producing plants
For resin-producing insects, see 638 3, naval stores, 634 986 2
- 895 Rubber-producing plants
Including guayule, gutta-percha
For production of rubber latex from trees, see 634 986 5
- .898 Plants used in making insecticides
Including pyrethrum
For insecticides, see 632.951

634 Fruit culture and orchards

Including propagation, varieties, yield, storage of fruits and nuts

For melon, see 635.61

SUMMARY

634.1	Pomaceous or pome fruits
.2	Drupaceous or stone fruits
.3	Citrus fruits
.36	Moraceous fruits
.4	Minor fruits
.5	Nuts
.6	Palmaceous fruits
.7	Small fruits
.77	Herbaceous or nonwoody fruits
.8	Grape

.1 Pomaceous or pome fruits

.11 Apple (*Malus*)

.12 Crab apple

.13 Pear (*Pyrus*)

.14 Quince (*Cydonia*)

.15 Medlar (*Mespilus*)

.16 Loquat (*Eriobotrya japonica*)

.2 Drupaceous or stone fruits

.21 Apricot (*Prunus armeniaca*)

.22 Plum (*Prunus*)

.23 Cherry (*Prunus cerasus*)

.24 Racemose cherry

Including wild cherry, chokecherry, sand cherry

.25 Peach (*Amygdalus persica*)

.26 Nectarine

.3 Citrus fruits

.31 Orange

Including sour orange (*Citrus aurantium*), sweet orange (*Citrus sinensis*), Valencia, navel orange

.32 Special varieties

Including mandarin, Temple orange, tangerine, tangelo

- 634 323 Grapefruit (*Citrus grandis*)
Including pomelo shaddock
- 324 Kumquat (*Fortunella*)
- 33 Citron group
- 331 Citron (*Citrus medica*)
- 334 Lemon (*Citrus limonia*)
- 337 Lime (*Citrus aurantifolia*)
- .36 Moraceous fruits
- 37 Fig (*Ficus carica*)
- 38 Mulberry (*Morus*)
- 39 Breadfruit (*Artocarpus altilis*)
- .4 Mimos fruits
- 41 Anonaceous fruits
Including sour sop sweet-sop Jamaica apple, northern papaw,
custard apple
For melon papaw, see 634 651
- 42 Myrtaceous fruits
Myrtle family
Including guava (*Psidium*)
- 425 Passifloraceous fruits
Passionflower family
Including passion fruit (maypop)
- 43 Sapotaceous fruits
Star apple or sapodilla family
- 44 Anacardiaceous fruits
Including mango, Spanish plum
For cashew nuts, see 634 573
- 45 Ebenaceous fruits
Ebony family
Including persimmon
- 46 Leguminous fruits
Bean family
Including tamarind

Decimal Classification

- 634.5 **Nuts**
 For wild nut trees, see 634 987, peanuts, 635 659
- 51 Walnut (*Juglans*)
 Including English, black, Japanese walnut, butternut
- .52 Hickory nut (*Hicoria*)
 Including pecan, pignut
- 53 Chestnut (*Castanea*)
 Including European, American, Japanese chestnut, chinquapin
- .54 Filbert, hazelnut, cobnut (*Corylus*)
- .55 Almond (*Prunus*)
- 57 Other nuts
 Including litchi (leechee), ginkgo
- 573 Cashew (*Anacardium occidentale*)
- 574 Pistachio (*Pistacia vera*)
- .575 Brazil nut (*Bertholletia excelsa*)
- .6 **Palmaceous fruits**
 Palm and other tropical, subtropical tree fruits
- .61 Coconut (*Cocos nucifera*)
- .62 Date (*Phoenix dactylifera*)
- 63 Olive (*Olea europaea*)
- .64 Pomegranate (*Punica granatum*)
- .651 Papaya (*Carica papaya*)
 Including melon papaw, melon zapote
 For northern papaw, see 634 41
- .653 Avocado (*Persea gratissima*)
- .7 **Small fruits**
- .71 Rubaceous, cane or bramble fruits (*Rubus*)
- .711 Raspberry
- .713 Blackberry
- .714 Loganberry
- .717 Dewberry

- 634 72 Ribaceous fruits (Ribes)
- 721 Currants
- 722 Garden or common currant (*Ribes rubrum*)
- 723 Black currant
- 724 Buffalo Missouri flowering or golden currant (*Ribes aureum*)
- 725 Gooseberry (*Saxifragaceae*)
- 73 Huckleberry (*Gaylussacia*) and blueberry (*Vaccinium*)
- 74 Other bush fruits
 - Including Junberry buffalo berry barberry elderberry
- 75 Strawberry (*Fragaria*)
- 76 Cranberry (*Vaccinium*)
- 77 Herbaceous or nonwoody fruits
- 771 Musaceous fruits
- 772 Banana (*Musa sapientum*)
- 773 Plantain banana (*Musa paradisiaca*)
- 774 Pineapple (*Ananas sativus*)
- 775 Cactaceous fruits
 - Including prickly pear, tuna (*Opuntia tuna*)
- .8 Grape
- 81 Viticulture
 - Including management special techniques, equipment
- 82 Injuries and diseases
 - Including blights, pests
- 83 Varieties
 - Including varieties adapted to specific environments
 - varieties of specific colors
- 84 American species and stocks
- 85 Other species and stocks
 - Divide like 930-999 e.g. grape culture of Italy (34 854 5)
- 87 Grapes for purposes other than winemaking
- 872 Table grapes
- 873 Raisins

Decimal Classification

634.9 Forestry

Art and science of forming, maintaining, cultivating forests

SUMMARY

- 634.92 Forest economics
- .93 Forestry engineering
- .94 Forest ecology
- .95 Silviculture
- .96 Protection of forests against injury and disease
- .97 Forestry of specific kinds of trees
- .98 Forest exploitation and utilization
- .99 Other uses of forests

.92 Forest economics [*formerly also* †333.75]

Including relation of forests to industries, forest influences on health, recreation

.922 Forest geophysics

Including influence on climate, soil, water resources, erosion

.925 Forest policy

Including public and private ownership, government regulation, importance of forests for watershed protection, water-power development, timber production

Divide like 930-999, e g, forest policy in the United States
634 925 73

.927 Forest resources

Including production, distribution, consumption of timber and other forest resources

.928 Forest management

Including personnel, organization and plans

Class business management [*formerly* *634 928] in 658 934 9

.928 4 Finance

Including valuation, timber risks

.928 5 Mensuration

Including determination of volume of timber stands, growth and yield, logs and lumber

.93 Forestry engineering

Including surveying, construction relating to forest improvement

For a specific engineering process, see the subject, e g, road engineering 625 7

- 634.94 Forest ecology
Reaction of individual trees and tree groups to environment
Including site factors e.g. light soil moisture climate [formerly
also 1551 58], formational forest ecology [formerly also
1581 526 42]
- .95 Silviculture
Establishment, development care reproduction of stands
of timber
For commercial raising of ornamental trees, see 635 977
- 956 Forestation
Establishment of forest stands
Including seeds and seeding, planting reforestation nursery
practice planting for shelter belts, watershed protection
- .96 Protection of forests against injury and disease
Divide like 632, e.g. forest fires 634 961 8
*For injuries diseases, pests of a specific species, see the
species, e.g., diseases of pine tree 634 975 1, a specific disease
or pest attacking both forest trees and other plants, the disease
or pest, e.g., tent caterpillar 632 78*
- .97 Forestry of specific kinds of trees
*For forest exploitation and utilization, see 634 98, cultivation of
trees for a specific product, the subject, e.g., for production of
coffee 633 73*
- 972 Deciduous trees
- 972 1 Oak
- 972 2 Maple
For maples raised for sugar see 633 64
- 972 3 Poplar
- 972 4 Chestnut
- 972 5 Beech
- .972 6 Birch
- 972 7 Linden and basswood
- 972 8 Elm
- 973 Other dicotyledons
Divide like 583 e.g. locust tree 634 973 32

Decimal Classification

- 634 974 Monocotyledons
Divide like 584, e g, palm 634 974 5
- 975 Coniferous or evergreen trees
- .975 1 Pine
- .975 2 Spruce
- .975 3 Hemlock
- .975 4 Fir
- .975 5 Cypress
- 975 6 Cedar
- .975 7 Larch
- .975 8 Sequoia
- .975 9 Other coniferous trees
- .98 Forest exploitation and utilization
Comprehensive works
Class wood technology in 674 1, rough lumber products in 674 28 [*both formerly *634 98*]
For exploitation and utilization of a specific species, see the species, e g, oak bark products 634 972 1, exploitation and utilization of trees for a specific product, the subject, e g, for production of quinine 633 88
- .982 Logging
Including machinery and tools, transportation, log sorting and grading
For grading lumber, see 674 5
-
- 634.983-634 987 Primary products of forests
For production of secondary and finished products, see the subject, e g, maple syrup 664 132, wood pulp 676 12, latex products 678 53
- 983 Logs and pulpwood
Class rough lumber products (crossties, poles, piling, posts, mine timbers, fuel woods [*all formerly †634 983*]) in 674 28
- 985 Barks
Including cork, tannin barks, medicinal barks

- 634 986 Saps
 Including gums resins, latexes
- 986 2 Naval stores
 Including turpentine orchards turpentine operations
 extraction of gum from pine trees
 *For turpentine as a by product of pulp and paper
 industries, see 676 5*
- 986 5 Rubber latex
 Including rubber plantations extraction of latex from
 rubber-producing trees
 *For rubber-producing plants other than trees,
 see 633 895*
- 986 7 Food saps
- 987 Fruits and nuts
 Including tung oil nuts
 For culture of fruits and nuts, see 634 1-634 873
- 989 Other forest products
 Including pine needles, Spanish moss, forest wastes
- .99 Other uses of forests
 Including grazing and pasture use farm woodlands
 For camping, see 796 54 fishing, hunting as recreation, 799

635 **Garden crops (Horticulture)**

Plants usually grown on a smaller scale than field crops raised for food, ornament, home use or commercial marketing
 Including truck and home gardening, vegetable gardening
For landscape gardening, see 712, field crops, 633, flower gardening 635 9

SUMMARY

- 635 1 Edible roots
- 2 Edible tubers and bulbs
- 3-5 Edible leaves, flowers, stems
- 6 Edible fruits and seeds
- .7 Condimental and sweet herbs
- 8 Mushrooms and truffles
- 9 Flower gardening (Floriculture)

- .1 Edible roots
- .11 Beet

Decimal Classification

- 635.12 Turnip
 - Including rutabaga, celeriac
- 13 Carrot
- 14 Parsnip
- .15 Radish
- 16 Salsify, oyster plant, vegetable oyster

- .2 **Edible tubers and bulbs**
- .21 Potato
- .22 Sweet potato
- .23 Yam
- .24 Jerusalem artichoke
- .25 Onion
- 26 Other plants of genus *Allium*
 - Including leek, garlic, shallot, chive

- .3 **Edible leaves, flowers, stems**
- .31 Asparagus
- .32 Artichoke
- .34 Cabbage
 - Including kale, collard, kohlrabi
- 35 Cauliflower
 - Including broccoli
- 36 Brussels sprouts
- .4 Greens
 - Including mustard, sorrel, dandelion
- .41 Spinach
- 42 Chard
- .48 Rhubarb
- .5 Salad greens
- .52 Lettuce
- .53 Celery
- .54 Chicory

- 635 55 Endive
- 56 Cresses
Including water cress, garden cress, winter cress
- .6 Edible fruits and seeds
- 61 Melon
Including muskmelon, cantaloupe, watermelon
- 62 Squash
Including pumpkin, gourd
- 63 Cucumber and gherkin
- 64 Tomato
- 646 Eggplant
- 648 Okra
- 65 Legumes
Including beans
- 651 Broad bean
- 652 Kidney bean
Including garden, snap string bean
- 653 Lima bean
- 655 Soybean
For soybean as a forage crop, see 633 34
- 656 Peas
- 657 Chick-pea
- 658 Lentil
- 659 Other legumes
Including peanuts
For peanuts as a forage crop, see 633 36
- 67 Corn
Including sweet corn
- .677 Popcorn

Decimal Classification

- 635.7 **Condimental and sweet herbs**
For growing of condimental plants for industrial use, see 633 84
- 71 Seasoning leaves and flowers
- 72 Mint
- 74 Flavoring for pickles and vinegar
Including dill, tarragon, samphire, costmary
- 75 Seeds for flavoring
Including anise, coriander, caraway
- .78 Garnishes
Including parsley, leaf chervil
- .8 **Mushrooms and truffles**
- .9 **Flower gardening (Floriculture)**
Flowers and ornamental plants grown for home use or commercial marketing
For flowering plants in landscape gardening, see 716
- .907 4 Flower and garden shows
Including exhibits of potted plants [formerly †635 965 5], exhibits of cut flowers [formerly †635 966 5]
- .91 **Economics and operations of flower raising**
Divide like 631, e g, fertilizers and improvement of soil in the florist business 635 918
For raising a specific species, see the species, e g, roses 635 933 3, of a specific group of plants, the group, e g, foliage plants 635 975, operations common to a variety of plants, not limited to floriculture, 631
- .92 **Diseases and injuries of plants**
Comprehensive works on diseases and injuries of ornamental plants
For diseases and injuries affecting a specific species, see the species, e g, rose blight 635 933 3, diseases and injuries common to a variety of plants, not limited to floriculture, 632
- 93 **Plants groupd by life duration**
- .931 **Annuals and biennials**
Comprehensive works
For a specific species, see the species, e g, aster 635 933 55

- 635 932 Perennials
 Comprehensive works
 For a specific species, see the species e.g. rose 635 933 3
- 933-939 Individual species
 Divide like 583 589, e.g. cactus 635 933 47
 If preferred arrange alphabetically under 635 933
 For a specific species of ornamental tree, see 635 977 3-635 977 5 scientific classification and description 552-589
- 94 Plants grouped by means of propagation
 Including plants raised from seed, runners, cuttings
 For a specific species, see the species e.g. narcissus 635 934 25
- 944 Bulbs and tubers
- 95 Plants grouped by special conditions of growth
 For a specific species, see the species e.g. orchid 635 934 15
- 952 Plants growing in special climates
 Including tropical plants, arctic plants, alpine plants
- 953 Plants flowering at specific times
 Including spring flowering plants, morning blooming plants
- 954 Plants growing under certain light conditions
 Including sunshine, shade, artificial light
- 955 Plants growing under certain soil conditions
 Including moist, dry, rich, sandy soils
- 96 Plants grouped by purpose
 For a specific species, see the species e.g. colchic 635 933 89
- 963 Borders or edging
- 964 Lawns
 Including grass, other ground cover plants
- 965 House plants
 Including potted plants, window gardening
 Class exhibits of potted plants [*formerly 635 965 5*] in 635 907 4
- 966 Cut flowers
 Class exhibits of cut flowers [*formerly 635 966 5*] in 635 907 4

Decimal Classification

- 635 966 3 Flower arrangement in vases
.966 4 Floral designs
Including set floral pieces, wired or tied, corsages
.967 Special kinds of gardens
.967 2 Rock gardens
.967 4 Water gardens
Including aquatic plants
.967 6 Wild flower gardens
.969 Nurseries
For nursery practice in forestry, see 634 956, comprehensive works on plant nurseries, 631 537
.97 Other groupings
For a specific species, see the species, e g, coleus 635 933 89
.973 Everlastings
.974 Climbing plants
Including vines, creepers
.975 Foliage plants
Including ferns, mosses
.976 Shrubs and hedges
Including deciduous and evergreen, ornamental and flowering shrubs
977 Trees
Including commercial raising of ornamental trees, miniature trees
For use of trees in landscape planning, see 715 2, fruit tree culture, 634, forestry, 634 9
.977 3-977 5 Individual species
Divide like 583-585, e g, elm 635 977 396 2
If preferred, arrange alphabetically under 635 977 3
.98 Plants raised under glass
Including hotbeds, cold frames bell glasses, forcing of plants
.982 Plants raised in greenhouses
Including conservatories
For greenhouses as means of protection and shelter of plants, see 631 544

636-638 Animal husbandry

636 Livestock and domestic animals

For scientific classification and description, see 592-599

SUMMARY

- 636 08 Livestock management, breeding, care
 - 1 Horses and other equines
 - 2 Cattle
 - .3 Sheep
 - .39 Goats
 - 4 Swine
 - 5 Poultry
 - 6 Birds
 - 7 Dogs
 - 8 Cats
 - 9 Other useful animals

08 Livestock management, breeding, care

For management of a specific species, see the species, e.g., horses 636 1

081 Selection and acquisition of stock

For breeding, see 636 082

081 2 Branding and marking

Including catalogs of brands

081 3 Stock farms and ranches

Including descriptions of individual farms

For farms not limited to livestock see 631

082 Stockbreeding

Including species races breeds strains, heredity variation formation of stock, character and composition of herd flock colony

082 2 Herdbooks, studbooks, flock books

082 4 Breeding and reproduction

Including inbreeding crossbreeding artificial insemination, incubation

Decimal Classification

- 636 083 Shelter, care, protection of livestock
Including implements for care of farm animals [*formerly* †631 38], protection from predatory animals, extremes of climate
- .083 1 Housing
Including stables, stalls, pens, sties, coops, cages, kennels, hutches
For architecture of farm buildings, see 728 9
- .083 3 Care of animals
Including grooming, clipping
- .083 7 Care of harnesses and accessories [*formerly also* †631 374]
- 084 Feeding methods
Including feeding of young, amount and preparation of food, feeding for special purposes, e g, feeding for great production
- .084 2 Grazing
- .085 Feed
Including composition, nutritive value, adulteration, fodder, silage, commercial preparations
Class individual feeds, e g, oats, corn, hay [*formerly* *636 085] in 636 086, garden crops, feeds of animal and mineral origin [*formerly* *636 085] in 636 087
- .086 Cereals and other field crops [*formerly* *636 085]
Including oats, corn, hay, other forage crops
- 087 Fruit, feeds of animal and mineral origin [*formerly* *636 085]
Including garden crops
- .088 Development of animals
Breeding and training for specific purposes
- .088 1 For breeding purposes
For reproduction and breeding, see 636 082 4
- .088 2 For work [*formerly also* †636 088 6]
Including hauling, guarding, racing
- .088 3 For production of food
Including meat, eggs

Agriculture

- 636 088 4 For production of other animal products
 Including wool, skins, feathers, fur
 For fur farming, see 636 92
- .088 5 For scientific purposes
 *For experimental physiology, see 612 072, experimental
 medicine, 619*
- [† 088 6] Breaking in, training
 Class in 636.088 2
- .088 7 For pets
- .088 8 For performance and exhibits
- 089 Veterinary science
 Divide like 611–618, where applicable Representative
 subdivisions are given below
- .089 1 Veterinary anatomy
 For comparative anatomy, see 591 4
- .089 2 Veterinary physiology [*formerly* *591.1]
- .089 4 Veterinary public health [*formerly* †614 9]
 Including veterinary hygiene, control and eradication of
 livestock diseases, sanitation
- .089 5 Veterinary therapeutics
 Including pharmacology
- .089 6 Diseases and their treatment
- .089 7 Veterinary surgery
 Including dentistry
- 089 8 Veterinary obstetrics
- .1 **Horses and other equines**
 Divide 636 108 like 636 08, e g , feeding of horses 636 108 4
 *For horse racing, see 798 4, horsemanship, 798 2, scientific
 description and classification, 599 725, cavalry services, 357*
- [108 82] Utilization for work
 Class in 636 12–636.15
- 11 Oriental horses
 Including Arabian, Persian, Tartar, Turkish, Barb horses
- .12 Race horses and trotters

Decimal Classification

- 636.13 Riding horses
Including saddle horses, hunters
- .14 Carriage horses
- .15 Draft horses
Including cart horses, dray horses
- .16 Ponies
- .168 American ponies
Including mustangs, broncos, Indian ponies, pintos,
quarter horses
- .18 Other equines
Including asses, mules, zebras
- .2 Cattle
Including other large ruminants
Divide 636 208-636 208 7, 636 208 9 like 636 08-636 087,
636 089, e g, branding cattle 636 208 12
For scientific description and classification, see 599 735
- .21 Uses
Divide like 636 088, e g, cattle for beef production 636 213
*For production of a specific breed, see the breed, e g,
Jersey 636 224*
- .22 British cattle
- 222 Beef breeds
Including Shorthorn, Hereford
- 223 Scotch, Welsh, Irish breeds
Including Aberdeen Angus, Galloway
- .224 Dairy breeds
Including Alderney, Jersey, Guernsey
- .225 Scotch and Irish breeds
Including Ayrshire, Kerry
- 226 Dual-purpose breeds
Including Devon, Polled Durham, Red Polled, Longhorn
- 23 German, Dutch, Danish, Swiss cattle
- .232 Beef breeds

- 636 234 Dairv breeds
Including Holstem Friesian
- 235 Dutch breeds
Including Dutch Friesian
For other Friesian breeds see 636 234
- 235 6 Danish breeds
- 236 Dual-purpose breeds
- 237 Swiss breeds
- 24 French and Belgian cattle
Including beef, dairy dual purpose breeds
- 27 Other European cattle
Including Russian breeds
- 28 Non-European cattle
- 282 American beef breeds
- 283 American dairy breeds
Including Holderness Quebec Jersey
- 29 Other large ruminants
Including domesticated reindeer, buffalo, camel zebu
- .3 Sheep
Including comprehensive works on sheep, goats, other small ruminants
Divide 636 308-636 308 7 636 308 9 like 636 08-636 087
636 089, e g sheep breeding 636 308 24
For scientific description and classification see 599 737
- 31 Uses
Divide like 636 088 e g production of wool 636 314
- 32 English sheep
Including long-wooled, short woolled mountain breeds
- 33 German, Dutch, Swiss sheep
Including low country or marsh upland breeds
- 34 French and Flemish sheep
- 35 Italian sheep

Decimal Classification

- 636 36 Merino breeds
Including other Spanish breeds
- .367 Other European Merino breeds
- .368 Non-European Merino breeds
Including American, Delaine, Australian
- .37 Other European sheep
Including Russian breeds
- .38 Non-European sheep
- .385 Asiatic sheep
- .386 African sheep
- .39 **Goats**
Divide 636 390 8-636 390 87, 636 390 89 like 636 08-636 087,
636 089, e g, feeding of goats 636 390 84
For scientific description and classification, see 599 735
- .391 Uses
Divide like 636 088, e g, raising of goats for milk 636 391 3
- .392 British goats
Including long-haired Irish, short-haired English goats
- .393 German and Austrian goats
- .393 6 Swiss goats
- .394 French goats
- 395 Italian goats
- .396 Spanish goats
- .397 Other European goats
- .398 Non-European goats
Including American, Asiatic, African goats
- .4 **Swine**
Divide 636 408-636 408 7, 636 408 9 like 636 08-636 087,
636 089, e g, diseases of swine 636 408 96
For scientific description and classification, see 599 734
- .41 Uses
Divide like 636 088, e g, production of bacon 636 413

Decimal Classification

- 636.5 Poultry
Divide 636 508-636 508 7, 636 508 9 like 636 08-636 087,
636 089, e g, poultry hatching 636 508 24
For scientific description and classification, see 598 6
- .51 Uses
Divide like 636 088, e g, raising chickens for egg
production 636 513
- 52 British poultry
Including Dorking, Sussex, Kent, Orpington, Redcap
- 53 German and Dutch poultry
Including Hamburg, Lakenfelds, Ramelsloher, Styrian,
Bohemian
- .54 French and Belgian poultry
Including Crevecoeur, Houdan, La Fleche, La Bresse,
Faverolles, Gournay
- .55 Italian poultry
Including Leghorn, Paduan, Polverara, Ancona
- .56 Spanish poultry
Including Castilian, Minorcan, Black Spanish, Blue
Andalusian, Prat
- 57 Other European poultry
- .58 Non-European poultry
- 581 American poultry
Including Dominique, Jersey Blue, Bucks County, Java,
Winnebago
- .582 Plymouth Rock
- 583 Wyandotte
- .584 Rhode Island Red
- .585 Asiatic poultry
Including Cochin China, Brahmaputra, Langshan, Malay
- 587 Special varieties
- .587 1 Bantams
- .588 Other
Including game, deformed, silkies, frizzles

- 636.59 Other domestic and game birds
- 592 Turkeys
Including North American or wild turkey Bronze Bourbon Red
- 593 Guinea fowl
- 594 Pheasants
Including partridge
- 595 Peacocks
- 596 Pigeons
Including pouter, English carrier, homing
For military use of pigeons see 355.424
- 597 Ducks
- 598 Geese
- .6 Birds
Raising care of domesticated birds, other than poultry useful for plumage or work pet birds
For poultry see 636.5, scientific description and classification of birds 598.2-598.9
- 68 Song and ornamental birds
- 686 Caged and aviary birds
- 686.2 Canaries
Including finches
- 686.4 Budgerigars (Shell parakeets)
- 686.5 Parrots
Including macaws cockatoos
- .7 Dogs
Divide 636.708-636.708.7 636.708.9 *See* 636.05 636.087, 636.032
e.g. diseases of dogs 636.708.96
For scientific description and classification see 599.744.1
- 71 Breeds of dogs
Comprehensive works on various types and breeds
For a specific breed, see type of usefulness e.g. bulldogs 636.74

Decimal Classification

- 636 72 Utility dogs
- .73 Draft and other work dogs
Including sled dogs, Eskimo dogs
- 74 Watch dogs and herd dogs
Including shepherd dogs, police dogs
- 75 Hunting and sleuth dogs
Including sporting dogs, gun dogs, hounds
- .76 Pet dogs
- .765 Toy dogs
- .77 Pictures and illustrations of dogs
For painting of dogs, see 758 3
- .78 Essays, stories, biographies of dogs [*formerly the *800's*]
- .8 Cats
Divide 636 808-636 808 7, 636 808 9 like 636 08-636 087, 636 089,
e g, feeding of cats 636 808 4
For scientific description and classification, see 599 744 2
- .81 Breeds
- .87 Pictures and illustrations of cats
For painting of cats, see 758 3
- .88 Essays, stories, biographies of cats [*formerly the *800's*]
- ✓ .9 Other useful animals, *see also 636 9 S6 for Se. Invertebrates*
Including selection, breeding, care, feeding, training, diseases of
specific animals not provided for in 636 1-636 8
Arrange alphabetically by name of animal, using A1 for
comprehensive works, e g, skunks 636 9 S6
*For culture of fish, see 639 3, of insects and other invertebrates,
638*
- .92 Fur farming
Including comprehensive works on raising animals for fur
*For raising a specific animal, see the animal, e g, Persian
lamb 636 385, mink 636 9, trapping and hunting animals for
fur, 639 1*

- 637 **Dairy industry**
 Including management of dairies production analysis testing of dairy products
For sanitary control and inspection of milk and milk products, see 614 32
- 1 **Milk industry**
- 11 **Dairy farms**
 Including description of individual farms
 Class business management of dairy farms *[formerly 637 11]*
 in 658 937 1
- 12 **Milk production and composition**
 Including choice of dairy cows
For a specific breed see the breed e. g. Jersey (36 224)
- 124 **Milking methods**
 Including hand and machine methods
- 125 **Milking machinery**
- 127 **Composition and quality of milk**
 Including sampling analysis testing
For chemical analysis of milk see 543 2
- 13 **Care of milk**
- 131 **Dairy buildings**
- 132 **Installations and apparatus for handling milk**
- 133 **Treatment of milk**
 Including cooling filtration pasteurization sterilization
 irradiation homogenization
- 135 **Distribution and transportation**
- 14 **Forms of milk for utilization and consumption**
- 141 **Whole milk**
 Including fresh milk evaporated milk
- 142 **Condensed milk**
- 143 **Dried milk or milk powder**
- 145 **Milk sugar (Lactose) *[formerly also 637 315]***
- 146 **Cultured milk**
 Including fermented milk (kumiss)

Decimal Classification

- 637 147 Skim milk
For casein-derived plastics, see 668 43, casein-derived fiber textiles, 677 472
- 148 Cream
For ice-cream industry, see 637 4
- .17 Milk other than cow's milk
Including mare's, ewe's milk
- 174 Goat's milk
Including yogurt
- 18 Substitutes for milk
Including soybean milk, coconut milk
- .2 Butter industry
- .22 Composition and quality of butter
Including analysis, testing
For chemical analysis of butter, see 543 2
- .23 Buttermaking
Including processes, equipment, packing, transportation
For sanitary control and inspection, see 614 32
- 24 By-products
Including buttermilk
- [† 28] Butter substitutes
Class in 664 32
- .3 Cheese industry
- .32 Composition and quality of cheese
Including grades, testing, analysis
For chemical analysis of cheese, see 543 2
- 33 Cheese manufacture
Including factories, apparatus, transportation
For sanitary control and inspection, see 614 32
- 34 By-products
Including whey
- [† 345] Milk sugar
Class in 637 145

- 37 35 Varieties of cheese
 - 352 Cream cheese
 - 353 Soft cheese
 - Including semisoft blue mold white-mold cheese
 - 354 Hard cheese
 - 355 Cheese from other than cow's milk
 - 356 Sour-milk cheese
 - Including cottage cheese pot cheese
 - 358 Procest cheese
 - Including cheese sprcads

- .4 Ice-cream industry [*formerly* †664.15]
 - Including sherbets ices, frozen custards
 - For ice-cream making at home, see* 641 86

- 638 Insects and other useful invertebrates
 - For oysters and other mollusks see* 639 4

- .1 Beekeeping
 - For scientific description and classification of bees, see* 595 799
- 11 Management
 - Including establishment of apiaries selection of bees
 - For hive management, see* 638 14
- 12 Bees
 - Including habits varieties
- 13 Pasturage for bees
 - Including nectar plants pollen plants
 - For supplementary feeding see* 638 14
- 14 Hive management
 - Including handling bechives, breeding supplementary feeding swarming control comb honey removal
 - Class diseases [*formerly* †638 14] in 638 15
- 15 Diseases [*formerly* †638 14] and injuries
 - Including means of protection

Decimal Classification

- 638.16 Honey production
Including composition, preparation, varieties, alterations,
substitutes
- .169 Uses of honey
Including use of honey in medicine, e g , royal jelly
- .17 Beeswax and other honeybee products
- .19 Bees as pollinating agents
- .2 Silkworm cultivation
- .3 Resin- and dye-producing insects
Including lac insects, cochineal
For manufacture of lacquer, see 667 75, of shellac, 667 79
- .5 Culture of miscellaneous useful invertebrates
- .51 Worms
Including earthworm culture
- 57 Praying mantises
- 639 Hunting and fishing industries
*For hunting and fishing as sport, see 799, conservation of wildlife,
799, seafood processing and preservation, 664 94*
- .1 Hunting and trapping
For sealing, see 639 29
- .11 Game animals
Including deer, big game, fur-bearing animals
For fur farming, see 636 92
- .12 Wild fowl
- 14 Crocodiles and alligators
- .2 Fishing, sealing, whaling
- 21 Fresh-water fisheries
- .22 Salt-water fisheries

Agriculture

- 639 27 Specific kinds of fish and amphibians
 Divide like 597, e g salmon fishing 639 275

- 279 9 Reptiles
 Including turtles, terrapins
 For hunting and trapping crocodiles and alligators, see
 639 14

- 28 Whaling

- 29 Sealing

- .3 Fish culture

- 31 Culture in fresh water
 Including lakes streams

- 311 Ponds
 Including artificial ponds

- 32 Culture in salt water

- 34 Ornamental fish culture

- 37 Culture of specific kinds of fish and amphibians
 Divide like 597, e g frog culture 639 378

- 379 9 Culture of reptiles
 Including alligator farms snake farms

- .4 Mollusk fisheries
 Including clams mussels scallops

- 41 Oysters

- 412 Pearl fishing

- .5 Crustacean fisheries
 Including lobsters crabs, shrimp

- .6 Other sea food
 Including sea urchins, seaweed

- .7 Sponges and coral

Decimal Classification

640 Home economics

Including public and private establishments

.714 Extension work

641 Food

Including food for laborers [*formerly* †331 834]

For physiology of nutrition, see 612 3, food in relation to health, 613 2

01 Epicurism

Including pleasures of eating, esthetics of cookery, gourmets

For ethical aspects of gluttony, see 178 9, overweight and health, 613 25

.1 Food values

Applied nutrition

Including food requirements for adults [*formerly* †612 395], nutrients required to meet body needs, their proportions in various foods, application of principles of nutrition in diet control

For chemical analysis of food, see 543 1, food and drug control, 614 3, dietotherapy, 615 854, food and health, 613 2, physiology of nutrition, 612 3, food requirements for children, 649 3

.11 Organic food ingredients

Composition of foodstuffs

12 Proteins

Including meat, eggs, nuts, legumes

.13 Carbohydrates

Including vegetables, cereals, fruits, sugar

.14 Fats and oils

.15 Inorganic food ingredients

.16 Water

17 Salts, minerals, ash ingredients

18 Vitamins

For pharmacology of vitamins, see 615 328, vitamin therapy, 615 854

- 641.3 Animal and vegetable foods
- Comprehensive works on foods derived from specific agricultural products
Including history customs, supply, value preparation
For cookery of specific foodstuffs, see 641.6 commercial manufacture of foods, 664.
- 31 Food selection and buying
Including retail food markets [*formerly* †641.4], quality, cost, other factors in buying food
- 33 Products of field crops
- 331 Cereals
Divide like 633.1, e.g., rice 641.331.8
- 336 Sugar
- 337 Alkaloidal plants
Divide like 633.7 e.g. coffee 641.337.3
- 338 Seasonings and flavorings
Divide like 633.8, e.g., spices 641.338.3
- 34 Fruits
Divide like 634, e.g., apples 641.341.1
- 35 Vegetables
Divide like 635, e.g. potatoes 641.352.1
- 36 Meat
Divide like 636 e.g. chicken 641.365
- 37 Dairy products
Divide like 637, e.g., butter 641.372
- 38 Honey
- 39 Products of hunting and fishing
Divide like 639, e.g. oysters 641.394.1

Decimal Classification

- 641.4 **Home preservation of foods**
Including comprehensive works on methods of food preservation
Class retail food markets [*formerly* †641 4] in 641 31
For commercial preservation of food, see 664 8, commercial preparation of fruit and vegetable juices, 663 63, home preparation of jelly, jam, marmalade, 641 8
- .42 Home canning [*formerly* †641 48]
Including fruits, vegetables, soups
For canning meats, see 641 49
- .44 Drying and dehydration [*formerly* †641 484]
Including concentrated and extracted foods
For drying meats, see 641 49
- 45 Freezing [*formerly* †641 485]
For freezing meats, see 641 49
- 46 Brining and pickling [*both formerly* †641 48]
For brining, pickling meats, see 641 49
- [†.48] Home canning, pickling
Class canning in 641 42, pickling in 641 46
- [† 484] Drying and dehydration
Class in 641 44
- [†.485] Freezing
Class in 641 45
- .49 Meat processing and preservation
Including canning, drying, freezing, brining, smoking, pickling home slaughtering, dressing
- .493 Poultry processing and preservation
- 494 Sea food processing and preservation
- .5 **Food preparation**
Including cookbooks, recipes
For menus and meal planning, see 642 1, commercial manufacture and preparation of food, 664
- 56 Cookery for special conditions
Including low-calorie recipes, allergy cooking
- .562 Infants and children
For management of meals for infants and children, see 649 3

- 641 563 Invalids and aged
Including hospital cookery
For food in relation to health, see 613 2 dietotherapy
615 853
- 565 Religious limitations of food
- 566 Christian seasons and days
Including Lent, fast days
- 567 Limitations in other religions
Including Jewish, Buddhist
- 57 Institutional and quantity cookery
For institutional management, see 647 9, hospital cookery
641 563
- 572 Hotel and restaurant cookery
- 573 Aired services cookery
Including army, navy air force
- [† 574] Shipboard cookery
Class in 641 575
- 575 Travel cookery
Including shipboard cookery [*formerly †641 574*]
- 576 Railway dining and buffet car cookery
- 577 Canteen cookery
Including emergency mass feeding in times of disaster
- 578 Outdoor cookery
Including camp cooking barbecues
For camping, see 796 54
- 58 Cookery with special appliances, utensils, fuels
For kitchen equipment, see 643 3
- 583 Cooking by oil
- 584 Cooking by gas
- 585 Cooking by alcohol
Including chafing dish cookery
- 586 Cooking by electricity
Including cooking with electric skillet frying pan roaster
grill waffle iron

Decimal Classification

- 641.587 Steam cookery
Including pressure cooking
- .588 Slow and fireless cookery
Including Aladdin ovens
- .59 Cookery of special countries
Including international cookery
- .591 Arctic and cold weather cookery
- .592 Tropical and hot weather cookery
- .593- 599 National and regional cookery
Divide like 930-999, e g , German cooking 641 594 3
- .6 Cookery of specific foodstuffs
Divide like 641 3, e g , meat cookery 641 66
- 7 Cookery techniques
Including braising, stewing, steaming
For cookery of specific foodstuffs, see 641 6, quantity cookery, 641 57, cookery with special appliances, 641 58
- .71 Baking and roasting
For home baking of cakes, see 641 631, desserts, 641 8
- .73 Boiling and simmering
Including soups
- .76 Broiling, grilling, barbecuing
For cooking by electricity, see 641 586, outdoor cookery, 641 578
- .77 Frying and sautéing
- .8 Composite dishes
Including jelly, jam, marmalade, comprehensive works on desserts
For a specific dessert, see the type of food, e g , pies 641 631
- 81 Sauces, relishes, appetizers
Including canapes, hors d'oeuvres
- 83 Salads
- .84 Sandwiches
For planning of picnic and travel lunches, see 642 3

- 641 85 Confectionery
Including candies sweets bonbons comprehensive works
on use and making of confectionery
*For commercial manufacture of candies and
confectionery see 664 15*
- 86 Ice cream
Including ices sherbets puddings comprehensive works on
use and making of ice cream
For commercial manufacture of ice cream see 637 4
- 87 Beverages
Including soft drinks comprehensive works on use and
making of beverages
*For commercial manufacture of beverages see 663
bartenders manuals and recipes 663 5*
- 642 Dining and food service
For etiquette of hospitality see 395 3 table service 642 6
- 1 Home and family meal planning
Including menus meal management
- [† 2] Refreshments
Class in 642 4
- 3 Camp picnic travel lunches
Including packet lunches
For camp cooking see 641 578
- 4 Entertaining
Including light refreshments [formerly 1(42 2)] luncheon
dinners receptions buffet suppers banquets church
suppers
- 47 Catering
Service for all types of functions
For systems for serving large numbers see 64 5
- [† 48] Toasts table anecdotes conversation
Class in 808 8

Decimal Classification

- 642 5 Systems for serving large numbers
 Including table d'hôte, a la carte
 For quantity cookery, see 641 57, restaurant management, 647 95
- 57 Lunch counters and cafeterias
 Including quick service, short orders, snack bars, canteens
- 58 School lunchrooms and cafeterias
 Including management, service
 For school meals, see 371 716
- 6 Table service
 Including table setting, carving, serving, changing courses
- 7 Table furnishings
 Including linen, china, silver, crystal, comprehensive works on use, history, making of each
 For manufacture of table linens, see 677 6 of dishes and glassware, 666, of silverware, 739 238 3, of cutlery, 683 82
- 8 Table decorations
 Selection and arrangement of flowers, colors, lights
 For floral arrangements, see 635 966 3
- 643 **Home planning**
 Location and arrangement of home for convenient and economic administration
 Including natural lighting
 For architecture, see 720, materials and construction, 690, heating and ventilation in the home, 644, heating, ventilating, air conditioning engineering, 697, artificial lighting, 644 3, plumbing and gas fitting, 696, furnishing, 645, interior decoration, 747
- .3 **Kitchens and equipment**
 Including location, arrangement, comprehensive works on use, manufacture, history of kitchen utensils, kitchen equipment
 For cookery with special utensils or fuels, see 641 58, manufacture of kitchen utensils, 683 82, of kitchen equipment, 683 88
- .4 **Dining areas**
 Including pantries, breakfast rooms, bars

- 643 5 Other special rooms
Including living rooms bedrooms bathrooms sunrooms lunchies
storage rooms
For laundry equipment, see 648 1 storage of materials 648 8
- .6 Household appliances
Comprehensive works
Including electric appliances comprehensive works on
laborsaving installations
*For a specific appliance see the use e.g. vacuum cleaners
648 5 manufacture of household appliances 683 8*
- .7 Household repair and home improvement
Including remodeling how to do it and fix it books yard or
garden improvement
*For building construction see 690 built in furniture 684 2
furniture repair 645 4*
- 644 Heating, lighting, ventilation, water supply
Description, suitability choice operation of systems in households
- 1 Heating systems and appliances for household use
[formerly 697]
Including comprehensive works on equipment
For installation see 697 manufacture of equipment 683 88
- 3 Domestic lighting [formerly 621 32]
Including lamps [formerly also 166 6] fixtures fittings
accessories comprehensive works on use, manufacture history
of each
*For electric lighting see 621 32 decorative lighting 747 92
manufacture of fixtures equipment 683 8 natural lighting
643*
- 5 Home ventilation [formerly 697]
Including air conditioning for the home
*For manufacture of ventilating and air conditioning
equipment, see 697 9*
- 6 Domestic water supply
Including hot-water supply
For water supply engineering see 628 1 plumbing 696 1

Decimal Classification

645

Home furnishing [formerly *747]

Furnishings from the point of view of the home decorator or housewife

For interior decoration, see 747, manufacture of home furnishings, 684

.1

Floor coverings

Including carpets, rugs, linoleum, comprehensive works on use, manufacture, history of each

For manufacture of carpets and rugs, see 677 643 handmade rugs, 746 7, Oriental rugs, 746 75

.2

Wall coverings

Including wallpaper, paint

For wallpaper design, see 745 54

.3

Window and door furnishings

Including curtains, draperies, shades, blinds, accessories comprehensive works on use, manufacture, history of each

For manufacture of draperies, hangings, curtains, see 684 3

4

Furniture and accessories

Including upholstery of furniture, slip covers, comprehensive works on use and manufacture of furniture

For manufacture of furniture, see 684 1, of slip covers, 684 3

6

Furnishings for special rooms

For decoration of specific rooms, see 747 7

8

Outdoor furnishings

Including garden and patio furnishings, comprehensive works on manufacture, use, history

For manufacture of garden, patio, porch furniture, see 684 18

46 Management of clothing and personal appearance

Including clothing for workers [*formerly* †331 936] comprehensive works on clothing

For social and historic aspects of costume, see 391. apparel manufacture 687. manufacture of leather and fur garments 687.2 of footwear 687.3 of gloves and mittens 687.4 ethics of personal appearance 177.4

01 Fashions

Including psychology and economics of fashions home clothing design comprehensive works on clothing design

For fashion modeling, see 659.152 commercial clothing design, 687.1

09 Climate and clothing

Including seasonal arctic tropical clothing

For military uniforms see 355.14

.1 Textiles and fibers

Comprehensive works on materials used by housewife

For manufacture of textiles see 677

.2 Sewing [*formerly also* †746 42]

Including mending darning reweaving machine sewing at home

Class embroidery in 746 44 knitting crocheting tatting in 746 43 [*all formerly* *646 2]

For clothing construction see 646.1 manufacture of sewing machines, 681 746 2

[† 26-1 27] Knitting crocheting, tatting

Class in 746 43

.3 Clothing selection and buying

Guides to quality, workmanship

32 Clothing for men

34 Clothing for women

36 Clothing for children

Including hycetes baby clothes

Decimal Classification

- 646.4 **Clothing construction**
Including dressmaking, directions for cutting and fitting, remodeling, patternmaking for various types of clothing and accessories
For commercial garment making, see 687 1
- 42 Underwear
- 43 Outer house garments
Including dresses, coats, trousers
- 45 Outdoor garments
Including overcoats, stoles, sweaters
For millinery, see 646 5
- 47 Garments for special purposes
Including lounging garments, sportswear
- 48 Accessories
Including neckties, collars, cuffs, belts, aprons, handkerchiefs
- .5 **Millinery**
Hatmaking at home
Including comprehensive works on use, making, history of hats
For commercial millinery, see 687 4
- .6 **Care of clothing at home**
For home laundering, see 648 1
- 62 Dry cleaning of clothes
For commercial dry cleaning, see 667 12
- 63 Dyeing
For commercial dyeing, see 667 2
- .7 **Care of personal appearance**
Including cleanliness, good grooming, charm bathing, toilet
For personal hygiene, see 613, manufacture of accessories for personal grooming, 688 5
- .72 **Beauty culture**
Including professional hairdressing for women [*formerly* *646 74], professional treatment of skin, nails [*formerly* *646 75], cosmetology, administration of beauty shops
For personal care at home, see 646 73, barbering, 646 74, manufacture of cosmetics, 668 55

- 646 73 Home care of skin and hair
For professional beauty treatment, see 646 72 manufacture of cosmetics 668 55
- 74 Barbeing
Including barbers' manuals, tools, materials, hairdressing for men, shaving, administration of hairdressing.
Class hairdressing for women [*formerly* 646 74] in 646 72
- 75 Slenderizing salons
Including massage, steam baths, professional reducing treatments.
Class manicure [*formerly* 646 75] in 646 72
For exercise and health, see 613 71 reducing exercise 796 41
- 647 Household management
Including organization, administration of private and public households
- .1 Household expenses
Including budgets, finances, costs, shopping and buying for the home.
For food selection and buying, see 641 31 clothing selection and buying 646 3
- .2 Household employees
Indoor servants
Selection and training of housekeepers, hostesses, cooks, butlers, maids, waitresses, laundresses, janitors, emergency help.
Class outdoor employees [*formerly* 647 2] in 647 3
- .3 Outdoor employees [*formerly* 647 2]
Including gardeners, chauffeurs, laborers
- .6 Hours and duties
Class wages [*formerly* 647 6] in 331 284 7
- 9 Institutional household management
Including cooperative housekeeping [*formerly* also 1334 4], collective housekeeping, janitorial duties.
For housing of laborers, see 331 833 housing and health 613 5
- 92 Apartment house management

Decimal Classification

- 647 94 Hotel management
 Including inns, taverns, hostels, clubs
 For motels, see 647 97
- 943- 949 History and local treatment
 Including history, description of specific hotels
 Divide like 930-999, e g , Mayflower Hotel,
 Washington, D C 647 947 53
- .95 Restaurant management
 Including restaurants for laborers [*formerly* †331 835],
 cafeterias, tea rooms, canteens, soda fountains, bars
 For restaurant cookery, see 641 572, service, 642 5
- 953- 959 History and local treatment
 Including history, description of specific restaurants
 Divide like 930-999, e g , restaurants in Washington, D C
 647 957 53
- .96 Household management of other public buildings
 Divide like 725, e g , management of office buildings 647 962 3
- 969 8 Religious and ecclesiastical buildings
 Divide like 726, e g , management of monastery buildings
 647 969 87
- 969 9 Educational and scientific buildings
 Including buildings for research, learned societies,
 community centers
 *For management of school buildings, see 371 62, of
 museum buildings, 069 2, of library buildings, 025 9*
- 97 Tourist accommodation management
 Including tourist and trailer camps, tourist homes, motor
 courts, motels
 For hotels, see 647 94
- 648 Household sanitation
- 1 Home laundering
 Including processes, equipment supplies for washing, drying,
 ironing [*all formerly* †648 2-†648 4]
 *For home processes of dry cleaning, see 646 62, commercial
 laundering, 667 13, manufacture of laundry equipment,
 683 88*
- [† 2-† 4] Washing, drying, ironing
 Class in 648 1

- 648 5 House cleaning
 Including sweeping dusting polishing dishwashing by hand
 or with appliances e.g. vacuum cleaners
 For manufacture of household appliances see 683 8
- 7 Household pests
 Control and eradication
 For insecticides, see 632 951
- .8 Storage
 Including preparation of materials for storage
 For storage rooms, see 643 5
- 649 Child care and home nursing
- ✓ 1 Child care and management
 Guides for parents on care and training of infants and children
 For child psychology see 136 7 pediatrics 618 92
 sociological aspects of child and the family, 301 427
- 2 Nursery management and routine
- 3 Feeding and meals
 Including food requirements for children [*formerly*
 †612 394] food for infants [*formerly* †613 22]
 For cookery for infants and children see 641 562
- 4 Clothing, dress, cleanliness
 For making of children's clothes, see 646. manufacture of
 children's clothing 687 1²
- 5 Recreation and play
 Including creative activities in the home e.g. paper work
- 55 Amusements
 Including toys dolls games in the home
 For toy and doll manufacture see 688 72 indoor
 games and amusements, 793
- 6 Manners and habits
- 8 Home nursing
 Home care of the sick invalids and infirm
 For geriatrics see 618 97 pediatrics 618 92