CLASSIFICATION OF PART OF THE ART OF HANDLING MATERIAL

THESIS FOR THE DEGREE OF CIVIL ENGINEER

LOUIS MARTIN SPENCER

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Emergency maintenance
of
the Material handling

Mechanical Engineering

PROPOSED CLASSIFICATION OF PART OF THE ART OF HANDLING MATERIAL.

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Louis Martin Spencer.

1913.

B. S., Michigan Agricultural College.

LL.B., L.D.M., Georgetown University.

THESIS

PROPOSED CLASSIFICATION OF PART OF THE ART OF HANDLING MATERIAL.

Foreword concerning the principles upon which a classification for the use of the Patent Office should be based.

It is clear that any classification is good only in so far as it subserves the purpose for which it was intended. Nitro compounds are used both in medicine and in warfare, but a classification of these compounds based on the needs of a physician would be of little value from the viewpoint of an army engineer. It is conceivable that gatherings of people may be classified according to number, or to the businesses of the various individuals, or to complexion and race. Likewise machines may be divided into groups that depend on number of parts, or use, or motions involved. The data collected under any one of these criteria, no matter how admirable its arrangement may be, is comparatively useless to one seeking information relative to some other aspect of the same gathering or machine.

That classification is best the single groups of which provide for the largest number of elements directly bearing on the purposes for which the groups are respectively intended. For example, if it be assumed that it is desirable to collect information concerning rotary cutting members, it will be better to make one class the definition of which is rotary members especially adapted for cutting, than to make several classes designated Wood sawing, Metal sawing, Engraving, Grinding and Polishing, etc. Indeed, it seems absolutely necessary to adopt the former plan, otherwise machines for cutting substances other than those named, as ice or meat, will be unclassifiable in the rotary cutter group. The interrelationship

of varieties of trees is better shown if data relative thereto is arranged broadly under some leading principle, and then subdivided, if necessary, than would be the case if it were placed according to a series of relatively less important characteristics such as the shape of the root, the structure of the bark, or the edging of the leaves.

DIFFICULTIES IN CLASSIFICATION OF "USEFUL ARTS".

It has been recognized from the beginning that there can be no such thing as classification without definition, yet in the consideration of any group of material there is found strictly definable matter and matter which may be said to be undefinable. This is especially true in the case of the "useful arts" which may be regarded as made up of known matter and matter not yet known. Not only must an acceptable Patent Office classification place all existing matter relating to the "useful arts" in an orderly recognizable manner, but it must also provide for the progress of the future which may take place along lines wholly unthought of at the present time.

The manner in which the "useful arts" have developed in itself contributes elements of difficulty:- Certain principles running through the works of nature are recognizable and the apparent deviations therefrom are usually explicable. At least it is known that they follow natural laws. The normal mind acts along channels conformable to principles of logic. But the abnormal mind submits to no such limitations and pursues a course of its own without regard to precedent or fear of result. The border lines between genius, sanity and insanity cannot be readily traced. As Dryden says, "Great wits are sure to madness near allied".

The Patent Office is a repository into which flow products of minds of all types. Degree of utility is never used as a check

on the subject matter of invention otherwise than to insure operativeness. And patents are occasionally issued on inoperative devices. Thus there may be in a single group a description of a pioneer invention, of one that violates every principle of good design, and of an inoperative device.

After establishing the proposition that inventions should be classified according to the claims contained therein, the difficulties that beset the classifier of inventions are admirably suggested in an unsigned article contributed by Mr. Eugene D. Sewall, Chief of the Classification Division of the U. S. Patent Office, and published in House Document No. 1110, 62nd Congress, 3rd Session, page 588. "When claims scatter, wander into irrelevant incidentals, leave hiatuses here and there, and accumulate absolute excrescences, the problems of classification are made hard. Fortunately no classification of the natural sciences has such problems to deal with. Monsters of the animal kingdon occur only in fairy tales. The zoologist never has to classify combinations of birds, fishes, reptiles and mammals. In the field of invention, legitimate combinations of any known means may occur, and any combination or permutation whatever, normal or abnormal, among the infinite number of possibilities may be presented to the classifier."

And on page 589, "a classification of the useful arts deals not only with complete organizations adapted to the final ends of useful arts, but also with all parts and details of such organizations down to the minutest element in its nicest refinement. Zoological and botanical classifications deal with the complete organisms, while the classification of the details of these organisms are the bases of other sciences. It will be

apparent, therefore, that the subject of classification of useful arts is of much greater numerical magnitude at least than that of any of the biological sciences. . . . . Perhaps it will be perceived, also, how difficult it is to follow the rules of logical division in a classification of inventions. The products of sane and orderly thought governed by the recognized laws of thought are probably susceptible of logical division; but when, ... the alleged invention has not been set forth in accordance with the laws of thought that guided the inventor to his goal, the path of the classifier is considerably befogged."

EXPEDIENTS IN CLASSIFICATION.

In order to provide for matter of both sorts - definable and undefinable - it is customary to divide a group into a series of classes the nature of which is definitely pointed out, and another class that is designed to receive everything not falling into the defined classes. Similarly, each class is divided into defined and "miscellaneous" subclasses.

A single patent frequently describes a plurality of inventions that considered separately would fall into two or more classes or subclasses. The extra inventions may consist in adding something to the first, for example, attaching a conveyer flight to a special form of chain; or they may be wholly unrelated to it, as in the case of the structure of a press, and a chemical compound in the manufacture of which it is used. In the first instance there is a logical relation existing between the two. Conveyers include chains. Therefore a search for chains must cover the class of conveyers, but a search for conveyers need not include the class of chains. Thus it is proper to place the patent in the conveyer class. In the second instance, however, the patent must be placed arbitrarily in presses and cross-

referenced to chemical compounds, or vice versa. It often occurs that a series of patents are found each claiming two independent inventions that are, respectively, of the same general character. For the purpose of avoiding duplication it is advisable,in cases of this sort to place all of them in one class and insert in the other class a note - termed a "search note" - calling attention to their location.

PATENT LAW AS BASIS OF CLASSIFICATION.

A classification of the useful arts, in order to be of maximum value to the Patent Office and to inventors, evidently must be based on the law of patents. Since patents were not recognized at common law the criterion or rule of classification must be sought in the statute relative to patents as interpreted by the courts.

The authority under which Congress has legislated in respect to patents is found in Sec. 8 of Art. I of the Constitution. "The Congress shall have power . . . . . to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries". Sec. 4886, Revised Statutes, enacted pursuant to the above section of the Constitution, provides that:- "Any person who has invented or discovered any new and useful art, machine, manufacture or composition of matter, or any new and useful improvement thereof . . . . . may . . . obtain a patent therefor."

The thing upon which the patent is granted must be invented or discovered ("discovered" is synonymous with "invented"). It must be new. It must be useful. The qualities necessary to sustain a patent are therefore said to be novelty, utility and invention. It follows that in these elements, taken singly or

in combination, must be found the basis of any classification that is to be of real value to the Patent Office.

Utility means usefulness - the capacity to perform the function or accomplish the purpose for which the thing is intended. That function, moreover, must be one approved by sound public policy; but if the invention is designed and operative for any good purpose the fact that it may be used for an immoral purpose does not remove from it the protection otherwise afforded by the patent law. Utility may be founded on beauty, for beauty gives happiness, which is the ultimate object of all effort. The thing covered by a patent may perform its function extremely well or extremely poorly. It may be better or worse than devices previously known.

Utility, then, is a quality inherent in the thing itself, apart from and unaffected by every other thing. No arrangement of the known arts will be of particular value in the determination of the presence or absence of the quality of utility. The analysis of all questions relating to utility rests on the fundamental laws of science and mechanics and the dictates of sound public policy.

Novelty and invention, on the other hand, determine the bearing of the prior art upon the question of patentability. Novelty may be defined as newness as modified by statutory provisions. Assuming utility to be present invention may be said to be that quality which, added to novelty, confers patentability.

Actual novelty is a question of fact. The thing either did or did not exist. For reasons of public policy, however, findings in regard to actual novelty are made by statute, in some instances, not conclusive. These laws are based on the proposition that a thing in order to negative novelty must not only

exist but must be in a form adequate "to promote the progress of science and the useful arts."

Applications filed in the Patent Office are confidential and incapable as such of promoting the progress of the useful arts. Those applications that become abandoned are not allowed, therefore, to negative novelty in a later application covering the same subject matter. Likewise things used in a foreign country, but not patented or described in a printed publication, are considered inaccessible to citizens of the United States, and have no bearing on the novelty of a later application for the same subject matter by an independent inventor.

In all cases as in the instances cited, the laws that modify actual novelty are independent of the nature of the thing itself and relate only to certain forms of knowledge in respect thereto. Their effect is merely to exclude the particular forms of knowledge from consideration. From the standpoint of novelty classification is concerned only in answering the question, Did the thing exist at the time the application was filed?

Novelty rests upon identity. From the definition of newness it follows that similar things do not negative novelty. The thing itself must have existed. However, a thing may possess both novelty and utility and yet not be patentable for the reason that it does not involve invention.

The word invention has probably never been exactly defined. Indeed, it is the opinion of the Supreme Court that it is incapable of being defined. In the case of McClain v. Ortmayer, 141 U.S., 427, Mr. Justice Brown said "The truth is that the word (invention) cannot be defined in such manner as to afford any substantial aid in determining whether a particular de-

vice involves an exercise of the inventive faculty or not. In a given case we may be able to say that there is present invention of a very high order. In another we can see that there is lacking that impalpable something which distinguishes invention from simple mechanical skill. Courts, adopting fixed principles as a guide, have by a process of exclusion determined that certain variations in old devices do or do not involve invention; but whether the variation relied upon in a particular case is anything more than mechanical skill is a question which cannot be answered by employing the test of any general definition."

There is no affirmative rule whereby the presence or absence of invention may be determined in every case. There are, however, negative rules that are of great aid in solving the problem. These rules are numerous and cover a variety of phases of the subject, but the one that is of primary importance from the standpoint of the classifier is that relating to analogous use. Briefly, the doctrine of analogous or double use is that "it is not invention to use an old process, machine, manufacture, composition of matter, or design, for a new and analogous purpose." (Walker on Patents, Sec. 38). An examination of some of the cases, which number at least one hundred and fifty, wherein the doctrine has been successfully or unsuccessfully invoked will serve to indicate more precisely its meaning.

Tucker v. Spaulding, 13 Wallace, 543, involved a patent covering a circular disk with removable saw teeth. A circular disk with removable cutters for the purpose of cutting tongues and grooves was old. The Supreme Court held that if cutting

tongues and grooves was in its nature the same as sawing, then the combination was only a double use of the old invention and not patentable.

In Brown v. Piper, 91 U.S., 37, the Supreme Court held that a patent for an apparatus for preserving fish was void in view of the fact that the structure was old in an ice-cream freezer.

The same court in Pennsylvania R. R. Co. v. Truck Co., 110 U.S., 494, decided that it did not amount to invention to use in a locomotive a centrifugal-force-compensating truck that had previously been used in cars.

The leading English cases on the subject are Crane v. Price, 1 Webster Pat. Cas., 393, Bush v. Fox, 5 H. L. Cases, 707, Brook v. Ashton, 27 Law Journal (NS) Q.B., 45, and Harwood v. Great-Northern Ry. Co., 11 H.L. Cas., 654.

The House of Lords held in Bush v. Fox that a patent for a caisson constructed with successive chambers "in such manner that the work people may be supplied with compressed air and be able to raise the material excavated and to make and construct foundations" under water was void because the same sort of a device had been used on land.

In Brook v. Ashton the Court of Queen's Bench held that no invention was involved in using for the purpose of finishing yarns of wool or hair a process previously used in finishing yarns of cotton and linen.

A patent on the now almost universally used fish-plate rail-joint was held by the House of Lords in Harwood v. Great-Northern Ry. Co. to be anticipated by a similar joint in a truss member of a bridge.

On the other hand the Court of Common Pleas in Crane v. Price upheld a patent for using anthracite instead of bituminous coal with the hot blast in smelting iron ore, it being proven that "the nature, properties and quality of the iron were better". This decision rests upon the ground that a new metal or composition was formed.

In Taylor, et al., v. Sawyer Spindle Co., 75 F. R., 301, a U. S. Court of Appeals decided that a new combination of old parts whereby spinning spindles were mounted so as to allow greatly increased speed of revolution was not anticipated by similar devices in centrifugal machines for drying sugar or creaming milk, the object in the latter case being to prevent jar due to the great weight of the machines.

The Supreme Court held in Potts v. Creager, 155 U.S., 608, that the disintegrating of clay and the polishing of lumber were not analogous uses.

The most noted late case on the subject of double use is that of Frederick R. Stearns and Company v. Russell, 85 Federal Reporter, 230. It was there decided that a patent on a suction tube designed and used for picking up and dipping pills in a bath of gelatin was void in view of similar devices used in button and paper feeding mechanisms. Mr. Justice Taft (Lurton, J., and Severens, J., concurring) stated the law as follows: "It has long been settled that a mere use or function is not the subject of a patent and also that the inventor of a machine is entitled to the benefit of all the uses to which it can be put, no matter whether he conceived the idea of the use or not. It would seem to follow as a corollary to these two propositions that where it requires substantially no change in the old device to adapt it

to the new use such adaptation cannot be the subject of a patent, no matter how remote and unthought of the new use may be, provided no new force or mode of application be necessary in carrying on such use. Otherwise in case the device has been patented the right of monopoly of the prior patentee is invaded by excluding him from a use of a machine which by the rule stated . . . . . he is exclusively entitled to enjoy. If, however, the adaptation of the old machine to the new use involves a change in its form or operation, it may by the changes and the very newness of the use or function become either a new machine or an improvement on the old machine and be patentable as such, or the new machine may result in a new product which is itself patentable, or the use may be a step in a new and patentable process."

In other cases a patent for a billiard cue rack has been declared invalid in view of prior patents on dining tables and bottle casters; a patent for a guide for metal-punching presses has been held void over a feeder for a paper-perforating machine; and a patent for a concrete mixer has been held anticipated by the structure of a tea mixer.

It will be seen upon analyzing the above cases that the question of double use is determined by the "immediate, necessary, proximate, or as the logician puts it, the 'peculiar' utility" of the industrial means," as opposed to the ultimate function, product or effect. In Tucker v, Spaulding the peculiar utility was the cutting of material; in Brown v. Piper, the transfer of heat; in Pennsylvania R. R. Co. v. Truck Co., the overcoming of centrifugal force; in Bush v. Fox, the penetration of fluent material; in Harwood v. Great Northern R. R.

Co., the joining of structural members; in Stearns v. Russell, transportation; in the mixer case, agitation; and so on.

The relation of classification of the useful arts to the principles of patent law may be restated thus:- Classification is independent of utility (that is, usefulness, not specific use); it must answer the question, Is the thing new?; and it must bring together with the thing itself, or indicate the location of, such other things as the doctrine of analogous use declares to be pertinent references. In other words, it must collect with the thing itself, or refer to, all similar things having the same proximate or necessary function, effect or product.

PRIMARY DIVISIONS OF THE "USEFUL ARTS".

The "useful arts" are made up of four statutory groups: arts (processes), machines, manufactures (including structures) and compositions of matter. It might be presumed that these statutory divisions would constitute broadly the most satisfactory grouping upon which to base a scheme of classification, but in practice they are found to be inextricably intermingled. The whole experience of the Office shows that a more desirable plan is to base classification broadly on function and subdivide wherever possible on structure.

The primary functional lines upon which the final classification is to be based may, as yet, be regarded as uncertain. It is possible that the grouping and order finally adopted will be closely akin to the following: (1) production, (2) life, (3) material handling, (4) intelligence, (5) energy, and (6) structure. It may be necessary to provide an additional miscellaneous group.

It is thought that these groups neither have been nor ever will be accurately defined. Generally it may be said that in the

first group should be placed means the peculiar function of which is the production of material things; that life should include all means having some necessary relation to the care of living organisms; that material handling should be concerned with the handling of things without changing their form or nature; that intelligence relates to the transfer of ideas from mind to mind; that the group of energy should include both the development and transfer of energy; and that structures are static things designed for shelter, storage and support of matter.

MATERIAL HANDLING.

Material handling includes both the transportation and fixing of material.

TRANSPORTATION.

Transportation may be defined as the moving of materials or loads without changing their form or nature. This definition, while serving to indicate generally the scope of the subject, is manifestly inaccurate for reason that it is broad enough to include mere adjustment. It is not to be understood that degree of movement alone determines what is transportation. Moving a car a foot along a railroad track is as clearly transportation as moving it a mile. As a rule devices designed for adjustment only if of one of the types commonly used to transport things should be considered, according to the doctrine of proximate function, to be within the art of transportation.

PRESENT LOCATION OF PATENTS.

The patents that fall within the art of transportation are now found in two main groups, first, the classes ordinarily known as transportation, for example, railways, conveyers and ships;

second, machine parts wherein the invention is not limited to the group that includes the machine in connection with which they are intended to be used, as is often the case in driers, washers, rolling mills, mailing machines, printing presses, coating devices, and so on, through nearly all of the classes in the Office.

The following outlines, clipped from the Manual of Classification of the Patent Office will show, for the most part, the present location of classes and subclasses containing almost exclusively matter falling into the art of transportation.

CLASS 9.—BOATS AND BUOYS. (XXII.)

(See Definitions of Revised Classes.)

Subclasses.

1. **Boats**—
6. Hull construction—
6.5. Formers and framers,
5. Hunting,
3. Life-boats—
4. Inclosed,
7. Seats and foot-supports,
2. Sectional and folding.
8. **Buoys**—
8.3. Illuminating,
8.5. Oil-distributers,
10. Safes,
9. Wreck-indicating.
22. **Hoisting and lowering**—
23. Detaching devices.
17. **Life-preservers**—
20. Garment,
18. Mechanical propulsion.
19. Self-inflating.
11. **Life-rafts**—
13. Mattress,
12. Ship parts and furniture.
14. **Life-saving apparatus.**
24. **Oars**—
25. Bow-facing.
15. **Rafting and booming**—
16. Timber-couplings.
26. **Rowlocks.**
21. **Swimming appliances.**

CLASS 10.—BOLT, NAIL, NUT, RIVET, AND SCREW MAKING. (XIII.)

(See Definitions of Revised Classes.)

Subclasses.

162. **Distributers and feeders**—
163. Agitated-chute,
164. Agitated-hopper,
166. Gripping feeding-jaws.
165. Inclined-chute,
171. Nail-plate—
178. Nippers and nose-pieces,
172. Oscillating,
173. Reversing—
174. Geared—
175. Rack-and-pinion,
176. Segmental,
177. Strap-drive,
167. Reciprocating-lifter,
168. Rotary-cylinder,
169. Rotary-disk,
170. Rotary-hopper.

CLASS 14.—BRIDGES. (IV.)

(See Definitions of Revised Classes.)

Subclasses.

24. **Arch**—
26. Abutments and anchorages,
25. Compound.
Combination—
2. Truss and arch.
74. **Coverings.**
31. **Draw**—
47. Aprons,
Bascule—
36. Fixed-pivot—
37. Hinged sections,
38. Rack-and-pinion,
41. Locking devices,
39. Non-pivoted—
40. Rack-and-pinion,
48. Buffers,
50. Gates—
Bridge-operated—
Displacement—
54. Horizontally-sliding—
55. Locking,
56. Horizontally-swinging—
57. Locking,
58. Vertically-sliding—
59. Locking,
60. Vertically-swinging—
61. Locking,
Shaft-rotation—
62. Horizontally-sliding—
63. Locking,
64. Horizontally-swinging—
65. Locking,
66. Vertically-sliding—
67. Locking,
68. Vertically-swinging—
69. Locking,
Hand or motor operated—
51. Horizontally-swinging,
52. Vertically-sliding,
53. Vertically-swinging,
Draw—
43. Horizontally-sliding—
44. Boat-operated,
45. Lazy-tongs,
42. Lift,
46. Locking devices,
49. Signals,
32. Swing—
34. Boat-operated,
35. End supports and locking devices,
33. Hand or motor operated.
27. **Floating**—
28. Adjustable height,
29. Draw—
30. Locking.
73. **Floors.**
Gangways—
70. Endless conveyor,
71. One end attached,
72. Unattached.
17. **Girder.** ✓
1. **Miscellaneous.**
75. **Piers**—
76. Fenders,
77. Processes.
18. **Suspension**—
22. Cables and cable-clamps,
19. Compound system,
23. Constructive apparatus.
20. Simple system,
21. Towers and anchors.
3. **Truss**—
4. Arrangement—
5. Adjustable,
12. Both chords curved,
9. Bowstring—
10. Adjustable,
7. Cantilever—
8. Suspension,
6. Deck,
11. Intermediate catenary.
Details—
14. Connections,
15. End shoes,
16. Expansion devices,
13. Structure.

CLASS 16.—BUILDERS' HARDWARE. (XX.)

Subclasses.

4. **Casters**—
164. Adjustable,
Antifriction-rollers—
73. Loose,
72. Pivoted,
45. Ball—
151. Antifriction-rollers,
152. Pivoted,
165. Leg-elevators—
166. Frame,
168. Locked,
76. Pintle-retainers,
74. Spring,
167. Temporary,
75. Wheels.

CLASS 13.—BRAKES AND GINS. (XXI.)

Subclasses.

12. **Gin-feeders.**
19. Pneumatic.

CLASS 17.—BUTCHERING. (XXV.)

Subclasses.

30. **Slaughtering, elevating, and suspending.**

CLASS 21.—CARRIAGES AND WAGONS. (X.)

Subclasses.

80. **Ambulances and stretchers.**
2. **Axle-boxes.**
4. **Axle-skeins.**
5. **Axles—**
188. Cushioned lateral thrust,
153. Rotary shaft or spindle,
187. Spring-mounted skein or spindle.
7. **Bodies.**
81. **Boots and aprons.**
10. **Brake-levers.**
8. **Brakes—**
9. Automatic,
82. Shoes.
11. **Carriage-irons.**
85. **Chafe-irons.**
12. **Children's carriages—**
83. Folding,
84. Stops.
86. **Chute-wagons.**
13. **Clips.**
14. **Close carriages.**
15. **Dashboards.**
125. **Doors and windows.**
76. **Draft-equalizers.**
19. **Drays.**
20. **Dumping-wagons.**
21. **End-gates.**
87. **Fellies and rims.**
23. **Fenders.**
24. **Fifth-wheels.**
88. **Hand-barrows.**
74. **Hay-racks.**
26. **Hearses.**
27. **Holdbacks.**
75. **Horse-detachers.**
28. **Hose-carriages.**
29. **Hounds.**
30. **Hub-attaching devices.**
89. **Hub-caps.**
31. **Hubs.**
32. **King-bolts.**
33. **Lumber-wagons.**
90. **Motor-vehicles.**
77. **Neck-yokes.**
36. **Poles and shafts—**
91. Convertible.
92. **Pole-tips.**
127. **Rein-holders—**
132. Clamp,
133. Spring—
134. Pivoted,
135. Weighted,
136. Wheel.
128. **Rein-supports.**
39. **Running-gear.**
40. **Sand-bands.**
41. **Seat-locks.**
42. **Seats—**
43. Shifting,
44. Spring.
45. **Shifting-rails.**
93. **Short-turning gear.**
46. **Sled-brakes.**
47. **Sled-propellers.**
48. **Sleds—**
94. Hand,
95. Shifting-thills,
96. Wheel-runners.
49. **Spoke-sockets.**
97. **Spring-gear—**
99. Axle cross,
101. Lever,
100. Longitudinal,
98. Side-bar cross.
50. **Springs—**
102. Bolster,
105. Braces and equalizers.
103. Elliptic,
51. Platform,
104. Shackles,
53. Torsion.
54. **Standards.**
55. **Steps.**
56. **Sulkies.**
57. **Thill-couplings—**
106. Antirattlers,
107. Jacks.
108. **Thill-supports.**
Tires—
110. Metallic.
63. **Tongue-supports.**
60. **Top-joints.**
61. **Top-props.**
62. **Tops.**
114. **Traction-engines**
124. Steppers.
64. **Traction-wheels.**
65. **Trucks—**
121. Barrel,
116. Brick,
122. Drying,
118. Elevating,
115. House-moving,
120. Implement,
117. Piano,
119. Water-barrel.
68. **Wheelbarrows.**
69. **Wheels.**
79. **Whiffletree-hooks.**
78. **Whiffletrees.**
129. **Whip-sockets—**
130. Lock.
131. **Whip-sockets and rein-holders combined.**

CLASS 22.—METAL-FOUNDING. (III.)

(See Definitions of Revised Classes.)

Subclasses.

57. **Casting apparatus—**
79. Metal holding and pouring—
81. Ladles—
84. Bottom-pour—
85. Internal-stopper,
82. Carriers and manipulators,
86. Hand,

CLASS 34.—DRIERS. (XXXVI.)

Subclasses.

1. **Absorbent.**
2. **Baffles and screens.**
3. **Condensers.**
Cylinder—
4. External,
Internal—
5. Rotary horizontal,
6. Rotary inclined,
7. Stationary horizontal,
8. Stationary inclined,
9. Vertical.
10. **Disk and hopper.**
11. **Elevator.**
12. **Endless carrier.**
13. **Endless scraper.**
Floors—
14. Fixed,
15. Tilting-section.
16. **Forms and platens.**
17. **Frames and trays.**
18. **Heaters.**
19. **Houses and kilns.**
20. **Lath and chain.**
21. **Pans.**
22. **Pan and boiler.**
23. **Pan and scraper.**
24. **Processes.**
25. **Push-bar.**
26. **Racks and stands.**
Reels—
27. Skein,
28. Tray-carrier,
29. Winding.
30. **Retort.**
31. **Rolls.**
32. **Rotary disk.**
Shafts—
33. Inclined,
34. Vertical,
35. Zigzag.
36. **Shaft and cylinder.**
37. **Shaft and shelf.**
38. **Shaking.**
39. **Shelf and tray.**
40. **Sliding rack.**
41. **Solar.**
42. **Spiral.**
43. **Stirrers.**
44. **Trough and beater.**
45. **Trough and screw.**
Truck and rail—
46. Horizontal.
47. Inclined.
48. **Web.**

CLASS 37.—EXCAVATING. (IV.)

Subclasses.

Dredgers—
18. Anchoring,
14. Clamshell—
30. Buckets,
13. Scouring—
36. Hydraulic.
Excavators—
24. Chain and bucket—
23. Buckets,
16. Dipper,
9. Hydraulic—
46. Pipe-supports,
47. Rotary head,
44. Steam vacuum,
45. Suction-pipe mouthpieces,
25. Plow and carrier—
48. Side-delivery plow,
26. Screw—
27. And carrier,

Excavators—
17. Wheel—
28. And belt,
29. And carrier.
40. **Scoops—**
54. Buckets,
41. Railway-rails.
5. **Scrapers—**
19. Distant-power,
6. **Self-loading carts—**
32. Carrier,
33. Scoop,
34. Wheel.

CLASS 27.—UNDERTAKING. (XX.)

Subclasses.

2. **Burial apparatus—**
5. Grave-fillers,
6. Raising and lowering.

CLASS 43.—FISHING AND TRAPPING. (XXXVIII.)

Subclasses.

11. Oyster-dredges.

CLASS 46.—GAMES AND TOYS. (VII.)

Subclasses.

72. **Amusement elevators.**

CLASS 48.—GAS. HEATING AND ILLUMINATING. (XXXI.)

(See Definitions of Revised Classes.)

Subclasses.

Generators—
Cupola—
86. Chargers,

CLASS 49.—GLASS. (XV.)

(See Definitions of Revised Classes.)

Subclasses.

Annealing—
Furnaces—
47. Conveying.
62. **Gathering and ladling.**

CLASS 55.—HARROWS AND DIGGERS. (I.)

Subclasses.

2. **Forks—**
25. Adjustable heads,
26. Combined forks and shovels,
27. Fodder-forks,
28. Potato forks and shovels—
79. Fulcrumed.
14. **Shovels—**
115. Attachments,
147. Blades,
151. Fire,
116. Handles,
117. Sifting.
17. **Stone gatherers.**
18. **Transplanters—**
68. Pivoted jaws,
70. Post-hole diggers—
71. Pivoted jaws,
69. Sliding jaws,
72. Wheel-machines—
120. Tree-conveyers,
121. Wheel-planters.

CLASS 56.—HARVESTERS. (V.)

Subclasses.

Hay-loaders—
61. Endless belts,
62. Intermittent,

Hay-loaders—
63. Lifting-reels,
64. Walking-rakes.

Droppers—
47. Direct-tilting,
49. Miscellaneous,
48. Opening and closing.
50. Side-delivery,
51. Swinging and tilting.

CLASS 57.—HOISTING. (IV.)

Subclasses.

107 **Bale and box hooks.**
2. **Barrel-rollers.**
120. **Belt-stretchers—**
121. Rack-bar and pinion,
122. Ratchet-bar and lever,
123. Screw,
124. Windlass.
34. **Block and tackle—**
5. Differential pulleys.
22. **Capstans and windlasses—**
130. Automatic stops,
82. Capstans,
83. Drum and clutch,
84. Hand-crank operated,
85. Lever-operated,
86. Steam-winch,
87. Sweep-operated,
88. Wildcats,
89. Windlass with capstan.
37. **Chutes—**
114. Counterweighted,
115. Equalizers.
117. **Floor-jacks.**
9. **Grapples.**
Hay-forks—
39. Corkscrew,
40. Grapple,
41. Harpoon,
42. Tilting.
11. **Hay-slings.**
13. **Hoisting-buckets.**
127. **Hoisting-hooks—**
128. Releasing.
129. **Hoisting-gear.**
126. **Lewises.**
Lifters—
109. Barrel and box,
110. Picture,
111. Spittoon,
112. Spool,
113. Store-goods.
15. **Lifting-jacks—**
97. Bar and cam-lever,
118. Heads,
43. Lever,
98. Lever, bar, and clutch-loop.
99. Lever, bar, and double-acting pawls,
100. Lever, bar, and pawl,
101. Lever and lifting-bar,
125. Pushers,
102. Rack-and-pinion,
119. Rim-engaging devices,
44. Screw.
116. **Raising and lowering, automatic check and release.**
18. **Skids.**
53. **Stackers.**
19. **Stump-extractors**
103. Drum,
104. Lever,
105. Lever-and-drum,
106. Screw.
79. **Wagon-raisers.**

CLASS 61. HYDRAULIC ENGINEERING. (IV.)

Subclasses.

1. Aqueducts.
4. **Canals—**
28. Gate-valves,
21. Lock-gates—
27. Bear-trap.
5. **Chutes—**
34. Water-power.

CLASS 75.—METALLURGY. (III.)

Subclasses.

Furnaces—
40.
189.
190.
191.
184.
5. Blast—
114. Charging devices—
115. Bell and hopper,

CLASS 79.—BUTTON-MAKING. (XIII.)

(See Definitions of Revised Classes.)

Subclasses.

17. **Blank-feeders.**

CLASS 80.—METAL-ROLLING. (XIII.)

(See Definitions of Revised Classes.)

Subclasses.

43. **Feeding—**
51. Guides and conductors—
52. Loop-return,
53. Work-rotating,
44. Tables—
45. Horizontally and vertically movable,
46. Horizontally-movable,
48. Shifters—
49. Horizontally and vertically movable carrier,
50. Swinging carrier,
47. Vertically-movable.

CLASS 83.—MILLS. (XXV.)

Subclasses.

Grinding-mills—
44. Feed-regulators,

CLASS 89.—ORDNANCE. (XXII.)

(See Definitions of Revised Classes.)

Subclasses.

Loading—
46. Hoisting apparatus,

CLASS 91.—COATING. (XV.)

(See Definitions of Revised Classes.)

Subclasses.

Envelope-machine—
Reciprocating—
71. Carrying mechanism,
72. Ejecting mechanism,

CLASS 93.—PAPER MANUFACTURES. (XVII.)

(See Definitions of Revised Classes.)

Subclasses.

56. **Elevating devices.**

CLASS 101.—PRINTING. (XVII.)

Subclasses.

29. **Deliveries—**
30. Associators,
31. Droppers,
32. Fly-frames,
33. Gripper-fliers,
34. Receiving-tables.
36. **Feeding—**
37. Gages—
38. Front stops,
39. Separators—
40. Buckling,
41. Pneumatic,
42. Web.

CLASS 107.—BREAD, PASTRY, AND CONFECTION MAKING. (XV.)

(See Definitions of Revised Classes.)

Subclasses.

55. **Bakers' ovens—**
64. Attachments,
67. Bakers' peel,
56. Charging and removing devices—
57. Endless-carrier—
58. Automatic pans or forms,
59. Reel,
60. Rotary-hearth,

CLASS 110.—FURNACES. (XIX.)

(See Definitions of revised classes.)

Subclasses.

101. **Fuel-feeders—**
104. Blower—
105. Hopper,
106. Pulverizer,
103. Boiler-controlled,
107. Bridge-wall,
Chute—
116. Door—
117. Multiple-charge,
108. Hopper—
Pusher—
109. Reciprocating,
110. Screw,
Spreader—
111. Carrier—
112. Door,
113. Oscillating,
114. Reciprocating-plunger,
115. Rotary,
102. Shavings and sawdust,
118. Vertical-drop.

CLASS 104.—RAILWAYS. (XXXIV.)

Subclasses.

54. **Balloon.**
49. **Buffers.**
1. **Car-replacers—**
161. Car-attached,
162. Hinged blocks,
163. Rigid blocks,
164. Shifting jacks.
40. **Crossings—**
116. Movable-rail—
117. Stub.
3. **Deadening noise.**
4. **Elevated—**
131. Bicycle,
146. Cable rail,
181. Suspended ways—
180. Switches.
165. **Endless carrier.**
50. **Foot-guards.**
5. **Frogs—**
99. Movable-rail—
118. Lap,
119. Stub,
98. Spring-rail.
35. **Grippers—**
87. Automatic-release,
130. Coal-car,
88. Friction,
89. Friction-belt,
132. Overstepping,
90. Roller,
91. Sprocket-wheel,
92. Whelp-wheel.
7. **Hose-bridges—**
167. Overhead,
168. Under-rail.
8. **Inclined plane—**
113. Traction.
133. **Logging.**
Moving train—
205. Passenger-transfer.
111. **Pleasure-railways.**
179. **Pneumatic—**
177. Motor-charging.
61. **Sledways.**
95. **Switch-chairs.**
115. **Switch-pieces.**
96. **Switch-rods.**
25. **Switch-stands.**
12. **Switches—**
23. Automatic—
77. Safety,
127. Derailing,
155. Electric—
198. Controller-operated,

Switches—
Electrofluid-pressure—
199. Car-controlled,
125. Lap,
26. Pneumatic,
78. Safety,
152. Slip,
79. Spring,
126. Stub,
24. Tramway—
170. Horse-threads,
171. Point-throwers,
172. Track-cams.
Track—
178. Highway,
14. Miscellaneous,
45. Portable—
112. Crossovers.
Track-cleaners—
65. Blade and broom,
36. Centrifugal,
37. Dumpers,
38. Elevators,
56. Explosive,
100. Flangers—
176. Rotary,
102. Vibrating,
103. Hot plows,
153. Oilers and washers,
51. Plows,
58. Removing weeds,
66. Snow-guards,
57. Stock-alarms.
110. **Track-curves.**
16. **Track-layers—**
173. Tampers.
17. **Track-platforms.**
18. **Traction—**
80. Cable-shields,
81. Crossing conduits,
82. Crossing streams,
83. Curves,
207. Draft-cable,
53. Running and carrying rope,
84. Slot-closers,
85. Slot-switches,
86. Take-ups,
47. Underground.
48. **Transfer-tables.**
64. **Truck-changers.**
19. **Turn-tables.**
62. **Yards and plants—**
208. Smoke-jacks.

CLASS 105.—RAILWAY ROLLING-STOCK. (XXXIV.)

Subclasses.

4. **Axles—**
Divided—
258. Fixed middle bearings,
66. With couplings,
67. Wheel-attaching devices,
68. With sleeved and fixed wheels.
Bevel-ended—
69. **Non-telescoping.**

63. **Car-movers—**
132. Flange or axle grip,
70. Pinch-bars—
71. With rail-grip.
73. Traction-wheels.
Cars—
265. Automatic door-locks,
74. Dining,

CLASS 105—Continued.

Cars—
14. Dumping—
184. Convertible flat and hopper bottom,
185. Hopper-bottom,
Inclined-bottom—
186. Side doors,
187. Inwardly-tilting sections,
188. Outwardly-tilting sections—
189. Displaceable sides,
190. Tilting-body—
191. Displaceable sides,
262. Expansible,
Express—
75. Burglar-proof.
76. Floor-frames,
15. Freight—
192. Frames,
77. Fruit,
78. Removable covers,
193. Removable side sections,
79. Rolling,
194. Running boards and rails,
183. Stakes—
173. Releasable,
174. Side-folding,
195. Steps and platforms,
264. Tank,
16. Hand—
196. Geared,
198. Merchandising,
Open street—
80. Seats,
81. Side guards
19. Passenger—
5. Baskets,
199. Double-deck,
200. Dust-guards,
82. Emergency-exits,
201. Frames,
202. Head-rests,
83. Individual safes,
Platform extensions—
84. With gates,
204. Platforms,
205. Seat and door arrangement,
85. Steps—
Extension—
86. Folding,
87. Sliding,
88. With gate,
21. Safety-bridges.
23. Sleeping—
90. Berth-guards,
206. Berth-locks,
207. Compartment arrangement,
208. Convertible seat and berth,
89. Curtains and rods,
209. Hinged berths,
91. Ladders,
210. Partitions,
211. Seat-back and upper berth,
212. Suspended berths,
28. Steam street,
31. Street—
213. Awnings,
92. Convertible open and closed,
35. Hand-straps,
214. Reversible,
93. Storm-fronts,

Cars—
61. Vestibule—
266. Curtain-releasers.
94. **Derailment-guards—**
215. Inclined wheels,
95. Rail-interlocking,
96. Supplemental wheels.
17. **Locomotives—**
217. Belt-gearing,
97. Draw-bar lifters,
259. Electric—
218. Belt-gearing,
219. Friction-roller driven,
220. Geared,
221. Intermittent-grip,
222. Longitudinal gear-shafts,
223. Longitudinal worm-shafts.
224. Friction-roller driven,
225. Intermittent-grip,
227. Longitudinal shafts,
228. Rack-rail,
226. Swinging-bogie,
98. Telescoping pilots,
260. Tenders,
99. Traction-increasers—
175. Electric,
229. Gripping-drivers.
Mail-bag delivery—
230. Car-forks,
231. Catchers and cranes,
232. Cranes,
261. Projectors.
Motors—
102. Manually-operated,
101. Spring,
100. Tread-power.
60. **Sanding devices—**
176. Chain-feed,
263. Fluid-pressure.
177. Oscillatory-feed,
Reciprocatory-feed—
178. Horizontal,
179. Vertical,
180. Rotary-feed.
233. **Single rail—**
234. Side guides—
235. Locomotives.
236. **Single top and bottom rail.**
181. **Sound-deadening devices.**
24. **Springs—**
117. Coil—
118. Cap and bed plates,
119. Coil and rubber,
120. Conical volute,
121. Elliptic—
122. Cap and bed plates,
123. Multiple-disk,
134. Pneumatic,
124. Rubber—
125. Cap and bed plates,
126. Zigzag.
26. **Starters.**
27. **Starters and brakes.**
237. **Suspended.**
Trains—
238. Power-transmitters.
32. **Trucks—**
135. Antifriction-wheels,
103. Bolsters—
104. Cast,
105. Guides,
106. Pressed-steel,
107. Trussed,
257. Cable-grip,

CLASS 105—Continued.

Trucks—
108. Center bearings—
109. Pressed-steel,
11. Changeable-gage,
Curve-adjusters—
136. Swiveled-wheel,
Electric-motor—
239. Bogies,
240. Equalizing-levers,
241. Motor-supporters,
242. Rigid-frame,
Four-wheel—
243. Bogies,
Curve-adjusters—
137. Axles, radial,
138. Axles, sectional,
111. Frames—
112. Pressed-steel,
113. Pedestals,
114. Safety-supporters,
115. Side bearings,
Six-wheel—
244. Bogies,
Curve-adjusters—
139. Axles, radial,
245. Supplemental.
46. **Velocipedes—**
247. Bicycle attachments,
248. Geared.
Wheel-bodies—
140. Cast in tires,
141. Cast on hubs.
33. **Wheel-fenders—**
249. Car and truck equalizer,
250. Combined brake,
251. Fixed-scoop,
252. Folding hinged-scoop,
253. Hinged-scoop,
Inclined—
127. Tilt-up front,
128. Obstacle-projectors,
254. Pilot type,
Rotary—
129. Positively-driven,
130. Trip and drop-scoop,

Wheel-fenders—
255. Trip and shoot forward,
256. Wheeled-scoop,
131. Wheel-tread.
Wheels—
146. Bushings,
147. Counterbalances,
148. Epicycle,
Flanges—
149. Independent-movement,
Integral—
150. Cast—
151. Hollow webs,
Spokes—
153. Cast-in,
Metallic—
154. Detachable,
155. Wooden,
156. Tire-fasteners—
158. Bolted lap-flanges,
157. By casting,
159. Integral lugs,
160. Transverse intermediate keys,
Tires—
Cushioned—
161. Metallic springs,
162. Rubber,
163. Wooden blocks,
164. Loose,
165. Non-metallic,
Webs—
167. Sheet-metal disks—
168. Non-metallic filling,
169. Single,
Split castings—
170. Detachable tires,
171. Wooden.
Webs and tires—
172. Pressed-steel.
182. **Wheel-tread surfaces—**
142. Form,
143. Multiple,
144. Peripheral rollers,
145. Recessed.

CLASS 103.—PUMPS. (IX.

Subclasses.

45. **Accumulators.**
52. **Air-suction chamber.**
53. **Assembling.**
5. **Cattle.**
6. **Chain.**
50. **Collapsible tube.**
54. **Combined types.**
8. **Compressed-air water-elevators—**
84. Aerated column,
55. Hydraulic compression.
10. **Diaphragm.**
56. **Differential reciprocating pistons—**
57. Hollow piston-rod.
Elements—
58. Air and vacuum chambers,
60. Cut-off and drain devices,
59. Cylinders,
61. Miscellaneous and combined,
62. Operating devices,
63. Pistons,
64. Sand traps and strainers,
65. Stocks, curbs, and supports,
66. Valves.
67. **Fluid motive power—**
68. Fluid-transmitting,
69. Water-wheel.
17. **Hollow piston-rod—**
70. Double-acting—
71. One solid piston,
72. Multiple-cylinder.
73. **Oscillating piston.**
51. **Railway-tank feeders.**
29. **Rams.**
85. **Regulators—**
86. Liquid-level—
98. Air-admitting,
100. Bucket-operated—
101. Float-controlled,

Regulators—
Liquid level—
Curved rack—
105. Float-controlled,
Diaphragm-operated—
103. Float-controlled
96. Overflow to motor,
Piston-operated—
102. Float-controlled,
99. Pump-check-valve controller,
Reciprocating rack—
104. Float-controlled,
97. Thermostatic.
87. Pressure—
88. Belt-shifter,
89. By-pass,
Throttle—
90. Multiple fluid-pressure—
91. Auxiliary valve,
92. Single fluid-pressure—
93. Auxiliary valve,
94. Speed,
95. Speed and pressure.
44. **Rotary double-piston.**
43. **Rotary single-piston.**
74. **Sand-ballers.**
75. **Solid reciprocating piston—**
76. Double-acting,
77. Multiple-cylinder—
78. Double-acting.
79. **Systems.**
106. **Trap type.**
80. **Valved reciprocating piston—**
81. Multiple-cylinder,
82. Opposing pistons,
83. Successive pistons.
35. **Windlass water-elevator.**

CLASS 111.—SEEDERS AND PLANTERS. (I.)

Subclasses.

1. **Broadcast—**
38. Cetrifugal scatterers.
2. Hand—
39. Centrifugal scatterers,
3. Revolving hoppers,
4. Walking.
5. **Check-row—**
42. Anchors,
46. Endless belts,
44. Knots,
45. Reels,
43. Wire-doffers.
8. **Cups on belt.**
9. **Cups on disk.**
Drills—
35. Adjustable rank,
18. Grain,
36. Walking.
10. **Drills and broadcast combined.**
11. **Drill-teeth.**
12. **Elastic feed-wheels.**
34. **Fertilizer-distributers—**
40. Feeding-belts,

Fertilizer-distributers—
13. Hand,
14. Revolving hoppers.
15. Walking.
17. **Force-feed.**
19. **Grain-drill cleaners.**
24. **Land-markers—**
41. Liquid and powder.
25. **Pivoted seed-cups.**
Planters—
6. Corn,
7. Cotton,
16. Foot,
20. Hand—
21. Oscillating,
22. Reciprocating,
23. Rotating,
27. Potato—
28. Walking,
32. Walking—
33. Vibrating hoppers.
26. **Plungers.**
37. **Rolling hoppers.**
31. **Screw-feed.**

CLASS 78.—METAL FORGING AND WELDING. (XIII.)

(See Definitions of Revised Classes.)

Subclasses.

96. **Work-handling mechanism—**
99. Blank-feeding,
98. Feeding and rotating,
100. Shifting,
101. Supports—
102. Tables,
97. Wire or strip feeding.

CLASS 113.—SHEET-METAL WARE. MAKING. (XIV.)

(See Definitions of Revised Classes.)

Subclasses.

7. **Can-making machines—**
Head feeding and applying—
Body-feeding—
26. Chute,
27. Endless-chain carrier,
28. Rotary drum-carrier,
29. Rotary table-carrier,

CLASS 106.—PLASTIC COMPOSITIONS. (XV.)

(See Definitions of Revised Classes.)

Subclasses.

45. **Stacking and packing apparatus.**

CLASS 114.—SHIPS. (XXII.)

(See Definitions of Revised Classes.)

Subclasses.

206. **Anchors—**
209. Drags or sea-anchors,
207. Fluke—
208. Pivoted.
210. **Anchor-trippers.**
121. **Ballasting—**
122. Antirolling,
126. Fins and boards,
123. Floats,
124. Shifting weights,
125. Water-tanks.
183. **Bilge-discharge—**
184. Ejectors—
186. Ash,
185. Ship's motion.
218. **Bitts, cleats, and pin-rails.**
65. **Building—**
67. Antifriction surfaces,
83. Bracing and staying,
78. Bulkhead and compartment,
71. Cabins,
86. Calking and seaming,
70. Canal and ferry boats,
85. Decks,
72. Freighters—
73. Bulk-cargo—
75. Antishifting devices,
76. Ceilings and floors,
74. Liquid,
66.5. Hydroplane boats,
68. Insubmergible vessels—
69. Linings and fillings,
79. Iron—
80. Corrugated,
81. Tubular,
88. Joints,
87. Knees,
66. Observation boats,
77. Sectional,
84. Sheathing and planking,
82. Wood.
116. **Bulkheads and doors—**
117. Doors—
118. Automatic—
119. Sliding,
120. Sliding.
199. **Cable-stoppers—**
200. Chain.
127. **Centerboards—**
129. Multiple,
132. Pivoted—
135. Lateral,
136. Lateral-swing,
137. Lateral-tilt,

Centerboards—
Pivoted—
133. Sectional—
134. Fan,
128. Steering,
138. Vertical-drop—
139. Sectional,
130. Vertical drop and pivoted-swing—
131. Sectional.
219. **Fenders—**
220. Roller.
56. **Form—**
60. Canal and ferry boats,
62. Concave bottom,
61. Divided hull,
64. Drafting,
63. Flat bottom,
58. Paddle-wheelers,
57. Screw-propeller type,
59. Spindle,
188. **Furniture—**
189. Cabins and state-rooms,
190. Life-preserver racks,
191. Self-leveling—
192. Berths—
193. Single-pivot,
194. Chairs,
195. Tables.
201. **Hatches and covers—**
203. Fasteners,
202. Sliding.
179. **Hawse-pipes—**
181. Friction-rollers,
180. Stoppers and covers.
43. **Ice-boats.**
40. **Ice-breakers—**
42. Cutters,
41. Rams.
221. **Implements—**
224. Calking, paying, etc.,
226. Clamps,
222. Hull-cleaning,
223. Rigging,
225. Spikes, pins, and fids.
140. **Keels—**
142. Bilge,
143. Rocking,
141. Vertical adjustment.
227. **Leak-stoppers—**
229. Aprons, mats, etc.,
228. Interior.
0.5. **Miscellaneous.**
230. **Mooring devices—**
231. Ferry-slip.
232. **Oil-distributers—**
234. Drags and floats,

CLASS 114—Continued.

Oil-distributers—
233. Ship structure.
173. **Ports.**
177. Light and air—
178. Hinged covers,
174. Stoppers—
175. Gun-port,
176. Hinged.
39. **Sail-boats.**
102. **Sails and rigging—**
115. Clues and thimbles,
114. Cringles and hanks,
113. Hoops and connections,
112. Mast-travelers,
109. Rigging screws and stretchers—
110. Tension-relievers,
111. Running rigging,
103. Sails—
108. Fastening devices,
104. Reefing and furling—
105. Fore and aft sails—
106. Rolling,
107. Rolling.
26. **Scows—**
27. Dumping and unloading—
36. Bottom doors—
37. Flooding-gates,
31. Platform—
34. Conveyers,
35. Side doors,
32. Tilting—
33. Carriers,
28. Sectional—
29. Hinged,
30. Separable,
38. Turnover.
182. **Scuppers.**
187. **Smoke-stacks.**
89. **Spars—**
101. Fair leaders and chocks,
97. Gaffs, booms, etc.—
98. Pivoted,
99. Crotches and supports
90. Masts and masting—
93. Coats, shields, and steps,
92. Cross and trestle trees,
94. Heads and irons,
91. Swinging,
100. Spar-irons,
95. Yards—
96. Trusses and parrels.
144. **Steering mechanism—**
146. Auxiliary,
152. Fins,
153. Foot,
150. Fluid-pressure—
151. Jet,
149. Keel,
147. Paddles and wheels—
148. Channels,
162. Rudders—
164. Auxiliary,
170. Brakes—
171. Hydraulic,
165. Hanging and shipping,
172. Locks,
163. Multiple,
169. Post bearings and heads,
167. Sectional,
166. Tubular,
168. Jury,
145. Speed-retarders,

Steering mechanism—
160. Wheel and drum—
161. Intermediate gear,
154. Wheel-shaft gearing—
155. Screw—
156. Intermediate gear,
157. Right and left—
158. Intermediate gear,
159. Segmental rack.
16. **Submarine vessels—**
16.4. Life and vessel saving devices—
16.5. Buoys,
16.6. Escapes—
16.7. Boats or buoys,
16.8. Salvage,
17. Torpedo boats.
213. **Tension-relievers—**
215. Cable,
216. Couplers—
217. Safety-release,
214. Fluid.
18. **Torpedo-boats—**
19. Spar.
20. **Torpedoes—**
25. Depth regulation,
21. External control,
22. Separable sections,
23. Steering mechanism—
24. Gyroscope.
240. **Torpedo-guards—**
241. Nets.
238. **Torpedo-launching—**
239. Outboard.
235. **Towing—**
236. Steering mechanism—
237. Indicators.
204. **Travelers—**
205. Tension-relievers.
196. **Valves—**
197. Boat-plugs,
198. Sea-cocks.
211. **Ventilation—**
212. Valves.
44. **Vessel raising and docking—**
49. Camels, caissons, and pontoons,
45. Floating dry-docks—
48. Elevators,
47. End-gates,
46. Sectional,
50. Submerged—
52. Air-tanks—
53. Camels, caissons, and pontoons,
54. Inflatable bags,
51. Hoisting,
55. Sand and mud loosening.
1. **War-ships—**
9. Armored—
11. Belting and plating—
12. Compound—
13. Buffers,
10. Deflectors,
14. Screens and shields,
15. Concealment,
4. Floating batteries,
2. Rams—
3. Battering,
5. Turret—
6. Combined elevating and rotary,
7. Elevating,
8. Rotary.

CLASS 115.—MARINE PROPULSION. (XXII.)

(See Definitions of Revised Classes.)

Subclasses.

19. **Buoyant propellers—**
20. Rotary hull.
63. **Chain propellers—**
64. Steering and adjustable.
66. **Crank-paddles—**
67. Steering and adjustable.
11. **Jet—**
13. Explosive,
14. Hydraulic—
15. Pneumatic-drive,
16. Wheel-drive,
12. Steering.
1. **Land and water boats—**
2. Pedomotors.
21. **Manual power—**
22. Catamaran,
23. Paddle-wheel,
24. Screw.
25. **Marine pedomotors—**
26. Catamaran,
27. Bicycle-propelled.
0.5. **Miscellaneous.**
28. **Oscillating propellers—**
30. Reversing,
29. Steering.
49. **Paddle-wheels—**
54. Depth regulation,
53. Channels and ways.
52. Horizontal and inclined wheels,
50. Steering.
17. **Portable propellers—**
18. Steering.
31. **Reciprocating propellers—**
33. Reversing,
32. Steering.
34. **Screw-propellers—**
42. Casings and shields.
39. Channels and ways,
41. Depth regulation,
37. Multiple ~~or twin~~ screw—
38. Side,
43. Propeller-shaft brakes,
40. Self-clearing,
35. Steering.
6. **Towing—**
7. Cable systems,
9. Ground-wheels or polers,
10. Towing-machines,
8. Track systems.
4. **Wave propulsion—**
5. Oscillating weight,
3. **Wind-motors.**

CLASS 122.—LIQUID HEATERS AND VAPORIZERS. (XVIII.)

(See Definitions of Revised Classes.)

Subclasses.

451. **Feeders—**
452. Boiler-pressure,
453. Exhaust-steam—
454. Water-injected—
455. From boiler,
Gravity—
456. Automatic—
457. Heater,
458. Heater.

CLASS 130.—THRESHING. (XXV.)

Subclasses.

1. **Band-cutters and feeders.**
31. **Cane-strippers.**
2. **Clover-hullers.**
3. **Corn-cribs.**
4. **Corn-husking implements.**
5. **Corn-husking machines.**
Corn-shellers—
6. Breast and cylinder.
7. Disk-action,
9. Ear-grasping,
10. Implements,
8. Peripheral action.
12. **Fans and regulators.**
33. **Feeders for shellers and huskers.**
13. **Flax-threshers.**
32. **Fruit and vegetable separators.**
Grain-separators—
17. Gravity,
Grain-separators—
18. Oat, seed, and garlic,
16. Rotary screens,
19. Screens and riddles.
15. Shaking screens,
Straw-carriers—
21. Endless aprons,
22. Overhung rakes,
23. Reels,
24. Shaking tables,
25. Vibrators,
26. Walking-rakes.
14. **Granaries and bins.**
20. **Stackers.**
Threshing-machines—
27. Cylinder-machines,
29. Dust-conveyers,
28. Flail-machines.
30. **Vine and seed strippers.**

CLASS 137.—WATER DISTRIBUTION. (XXXIX.)

Subclasses.

32. **Check-valves.**
Cocks and faucets—
26. Compound,
4. Reciprocating valves,
5. Sliding gates,
27. Tank,
35. Thermal—
92. High-temperature.
6. Tube-compressors,
7. Turning plugs,
93. Water-closet valves.
9. **Cut-offs and spouts.**
101. **Feeders.**
104. **Float-valves.**
11. **Fountains.**
33. **Hose-patches.**
13. **Hydrants and plugs.**
102. **Indicators.**
14. **Irrigating and sprinkling—**
63. Carts,
64. Heads,
60. Insertors,
65. Pipes,
67. Pumps,
62. Roses and cans,
61. Shakers,
66. Systems.
Leak-stoppers—
99. Patches and plugs.
Mains and pipes—
70. Cleaners,
71. Cushions,
90. Hose,
77. Leak-detectors,
75. Pipes,
76. Stoppers,
78. Systems—
79. House,
73. Taps,
72. Thawing,
Mains and pipes—
91. Thread-protectors,
100. Tubes,
69. Valves.
59. **Nozzle-holders.**
17. **Nozzles—**
55. Compressible,
56. Flexible,
57. Splasher,
58. Systems,
97. Tube-cleaners.
Pipe-couplings—
88. Ball-and-socket,
94. Base,
28. Detachable,
34. Detachable and flexible,
29. Permanent,
98. Pipe and plate,
89. Train-pipe, hand-operated,
30. Valved,
Water-closet—
95. Inlet,
96. Outlet.
53. **Safety-valves.**
18. **Sampling-tubes.**
20. **Siphons.**
80. **Sprayers—**
81. Cap,
86. Centrifugal,
84. Cutters,
82. Piston,
87. Reaction,
83. Rose,
85. Terminal-cock.
21. **Tanks—**
68. Automatic.
103. **Traps.**
31. **Water-supply hose-holders.**

CLASS 140.—WIRE-WORKING. (XIV.)

(See Definitions of Revised Classes.)

Subclasses.

125. **Wire-feeding—**
126. Automatic stop,
127. Drum—
128. Tangential contact,
129. Intermittent—
130. Oscillating clamp,
131. Recessed roller,
132. Short lengths.

CLASS 143.—WOOD-SAWING. (XXIX.)

(See Definitions of Revised Classes.)

Subclasses.

96. **Log deck-blocks.**
92. **Log-transfers—**
93. Pusher-blocks,
94. Trough-and-kicker.
97. **Log-turners—**
98. Bar-and-chain,
99. Bar and inclined pistons,
100. Bar and parallel pistons,
101. Bar-and-piston,
102. Endless,
103. Hook,
104. Hook-and-chain.
95. **Log turners and deck-blocks.**

CLASS 144.—WOODWORKING. (XXIX.)

(See Definitions of Revised Classes.)

Subclasses.

Feed and presser mechanisms—
245. Blank-feeders,
242. Miscellaneous,
243. Presser-bars and chip-breakers—
244. Sectional,
Rolls—
Feed—
246. Miscellaneous,
247. Spring-pressed,
248. Weighted,
249. Presser,
250. Sectional.

CLASS 152.—RESILIENT TIRES AND WHEELS. (XLI.)

Subclasses.

28. **Spring-wheels.**
49. Combined curved spring and rigid spoke,
50. Curved spring-spokes—
51. Positive braces, guides, or driving connections,
39. Cushioned inner hub—
44. Annular guide-flange—
45. Positive driving connection,
40. Pneumatic tube—
41. Annular guide-flange—
42. Positive driving connection,
43. Rubber cushion,
32. Cushioned inner rim—
37. Annular guide-flange—
38. Positive driving connection,
33. Pneumatic tube—
34. Annular guide-flange—
35. Positive driving connection.
36. Rubber cushion,
54. Cushioned lateral thrust,

Spring-wheels—
29. Deformable outer rim—
31. Independent rim-segments, spring-pressed plungers,
30. Pivoted or linked rim-segments,
52. Helical spring-spokes,
47. Pivoted, telescoping, spring-carrying spokes,
46. Pneumatic tube,
48. Radial, fixed hub cylinders or spokes, spring-pressed plungers.
53. Radial or tangential spokes, fixed rim sockets and springs.

Tires—
1. Cushion—
2. Antislipping,
3. Armored—
4. Antislipping,
6. Fastening devices—
7. Sectional channels,
5. Inclosed cores,

CLASS 152—Continued.

Tires—
Cushion—
8. Metallic springs,
9. Sectional,
10. Cushion and pneumatic combined,
11. Inflating—
12. Valves,
13. Pneumatic—
14. Antislipping,
Armored—
16. Antislipping,
17. Externally,
18. Internally,

Tires—
Pneumatic—
19. Divided treads,
20. Fastening devices—
21. Sectional channels,
22. Multiple chambers,
23. Repairing—
24. Bandages,
25. Healing compounds,
26. Plugs and patches,
27. Tools.

CLASS 162.—INJECTORS AND EJECTORS. (XVIII.)

Subclasses.

Ejector—
3. Fluid-level controlled.
Injector—
2. Fluid-level controlled.

1. **Miscellaneous.**

CLASS 172.—ELECTRICITY. MOTIVE POWER. (XXVI.)

Subclasses.

152. **Elevators.**

CLASS 164.—CUTTING AND PUNCHING SHEETS AND BARS. (XIV.)

(See Definitions of Revised Classes.)

Subclasses.

Combined machines—
12. Work-feeding.
Cutting—
Die—
Machines—
20. Work-feeding—
21. Reciprocating feeder,
22. Roller-feed,
36. Fixed-cutter—
38. Work-feeding—
39. Roller-feed,
Pivoted-cutter—
42. Work-feeding,
Reciprocating-cutter—
48. Work-feeding—
49. Roller-feed,

CLASS 186.—STORE-SERVICE. (II.)

(See Definitions of Revised Classes.)

Subclasses.

24. **Buffers—**
25. Slide,
14. **Cable-propulsion systems—**
15. Grip, selective-release,
16. Load-release,
17. Reciprocating—
18. Drop-car.
26. **Carriers—**
31. Rolling,
32. Sliding,
27. Wheeled—
30. Derailment-guards,
29. Drop-receptacle,
28. Self-propelled.
33. **Details—**
34. Track.
1. **Dining-room service.**

22. **Elevators and drops—**
23. Speed-controlled drop.
2. **Gravity systems—**
3. Selective delivery,
4. Tilting track—
5. Both ends movable—
6. Pivoted arms,
7. **Self-propelled-car systems.**
8. **Single-impulse systems—**
12. Gravity,
9. Speed-increasing,
13. Spreaders,
10. Spring—
11. Longitudinally-moving line.
19. **Switches—**
20. Selective—
21. Carrier-returned.

CLASS 193.—CONVEYERS. (IV.)

Subclasses.

1. **Conveyers.**
2. **Endless—**
3. Adjustable leg,
4. Belt—
26. Belt structure,
24. Feeders,
23. Guides,
25. Trippers,
27. Troughing-rollers,
5. Boot,
6. Bucket—
28. Bucket structure,
7. Bucket, with traction-rollers,
8. Flight,

Endless—
9. Hook.
10. **Pneumatic—**
21. Stackers.
11. **Reciprocating.**
12. **Retransfer and weighing.**
13. **Screw.**
22. **Spouts.**
20. **Storehouse.**
14. **Thresher attachments—**
15. Foldable,
16. Laterally and vertically adjustable,
17. Oscillatory,
18. Vertically-adjustable.
19. **Trimmers.**

CLASS 187.—ELEVATORS. (XII.)

(See Definitions of Revised Classes.)

Subclasses.

2. **Building material.**
72. **Cable-releasers.**
73. **Car-brakes and catches**—
80. Car-supported—
81. Cable-controlled—
82. Positive—
83. Rail-side,
84. Sliding,
85. Rail-face,
86. Rail-side—
87. Eccentric,
88. Wedge,
92. Operator-controlled—
93. Rail-side,
89. Speed-controlled—
90. Rail-side—
91. Vertically-pivoted,
74. Door-controlled,
77. Driven catch devices—
78. Rotating gear,
79. Well-supported,
75. Landing-chairs—
76. Car-supported.
28. **Control mechanism**—
46. Controller-locks—
47. Door-actuated—
48. Electric,
49. Locked door—
50. Electric,
30. Door-actuated—
31. Electric,
29. Electric,
32. Landing-stops—
33. Lock.
34. Limit—
36. Carrier-actuated—
37. Deflected rope,
35. Electric,
42. Operator-actuated—
43. Electric,
44. Rope-controllers—
45. Running-rope,
38. Speed-controlled—
39. Electric,
40. Well obstruction—
41. Electric.
94. **Counterbalances.**
51. **Door mechanism**—
55. Flexible screens,
61. Locks,

Door mechanism—
52. Motor-actuated—
53. Common motor-shaft,
54. Separate motors,
56. Sliding doors—
57. Locked door,
58. Vertical movement—
59. Locked door,
60. Sliding coupler.
3. **Dumb-waiter type**—
5. Locked car,
4. Mail.
71. **Emergency-cables.**
6. **Exterior wall**—
8. Car-brake,
7. Lateral movement.
68. **Fluid-governors**—
69. Car-supported pump,
70. Counterweight,
95. **Guides**—
96. Mine cross-heads.
62. **Hatch mechanism**—
65. Direct contact,
63. Lever-opener,
64. Sliding coupler,
66. Vertically-slidable hatch.
12. **Inclined**—
13. Cable-controlled brakes—
14. Rail-gripping.
1. **Miscellaneous.**
17. **Motor mechanism**—
18. Lazy-tongs,
19. Rack-and-pinion,
20. Rope-drive—
23. Differential sheave,
21. Hand-rope-operated,
22. Tensioning feature,
24. Screw—
25. Traveling rotary element,
26. Traveling sheave,
27. Winding-drum.
9. **Portable**—
10. Inclined,
11. Winding-drum.
97. **Railway-car locks.**
15. **Shiftable weight.**
16. **Superposed cars.**
67. **Well-end cushions.**
98. **Well-obstruction devices.**

CLASS 191.—ELECTRICITY. ELECTRIC RAILWAYS. (XLII.)

Subclasses.

17. **Collapsible-tube conductor.**
1. **Conductor supports and insulators.**
2. **Electric locomotives**—
25. Electric control,
26. Electromechanical control,
30. Motor on axle,
24. Motor part along track,
27. Single and multiple motor,
31. Traveling-dynamo.
15. **General.**
Sectional conductor—
18. Connected,
19. Magnetic closers—
33. Magnet on car,
34. Magneto-mechanical,
21. Mechanical closers,
20. Traveling closers.

Systems—
4. Battery,
8. Circuits, series,
6. Closed conduit,
5. Conduit—
32. Collectors,
42. Roadway structure,
9. Converters,
41. Current-distribution—
11. Overhead—
12. Trolleys—
35. Catchers—
36. Drop,
37. Guards and finders
38. Ice-clearers,
39. Poles and heads,
40. Stands.
22. **Telpher and towing.**

CLASS 208.—VELOCIPEDES. (VII.)

Subclasses.

11. **Bearings.**
Bicycles—
5. Header-preventers.
Bicycle, propulsion—
Crank and gear—
50. Normally-fixed stud-plate,
74. Planetary,
48. Reverting train,
49. Rotating side shaft,
46. Train—
47. Internal rack,
17. Crank and chain—
153. Chain adjustments,
154. Changeable-speed gear,
18. Lever and crank,
19. Lever, crank and gear, or chain,
20. Lever and ratchet,
21. Lever, ratchet and gear, or chain,
23. Miscellaneous,
22. Rack-and-pinion.
13. **Brakes**—
57. Back-pedaling,
60. Band,
58. Pneumatic,
59. Roller.
45. **Carrier.**
145. **Casings**—
146. Chain—
147. Attached,
148. One-piece,
149. Radially-separable.
24. **Child's seats.**
151. **Cleaner attachments**—
152. Chain.
130. **Combined handle-bar and post adjustment.**
27. **Coupling-bars.**
68. **Cranks and crank-shafts.**
9. **Crank-clutches.**
Cranks—
69. Variable leverage.
3. **Dicycles.**
2. **Epicycles.**
93. **Frames**—
98. Crank-hangers,
107. Depressible-seat,
104. Drop convertible,
96. Forks—
97. Springs,
105. Folding,
102. Heads—
103. Spring,
95. Joints,
106. Knockdown,
110. Ordinary,
111. Parallel seats,
113. Polycycles,
155. Pumps,
94. Spring,
101. Spring-axles,
100. Spring saddle-supports,
108. Tandem—
109. Convertible,
112. Trailing wheels,
99. Yokes.
115. **Handle-bars**—
123. Automatically-collapsing,
122. Automatically-detachable.

Handle-bars—
116. Continuous adjustable—
Locks—
117. Cam,
118. Screw-and-dog,
119. Spring,
124. Folding,
120. Sectional, adjustable—
121. Simultaneously,
125. Spring.
126. **Handles**—
127. Auxiliary
128. Pneumatic,
129. Strip.
67. **Harness.**
Holders—
Brackets—
86. Fixed arm or jaw,
87. Pivoted arm or jaw,
Racks—
90. Frame-supports,
88. Wheel or tire supports—
89. Tilting-shoe,
Stands—
91. Floor-supported,
92. Wall-supported.
139. **Miscellaneous.**
140. **Mud-guards**—
141. Wheel—
142. Rim—
143. Limp,
144. Sectional.
70. **Pedals.**
Polycycles—
42. Figure.
Polycycles, propulsion—
40. Axle-couplings,
32. Crank and chain,
Crank and gear—
51. Planetary,
54. Reverting train,
55. Rotating side shaft,
52. Train—
53. Internal rack,
30. Crank and pitman,
33. Lever and crank,
34. Lever, crank and gear, or chain,
35. Lever and ratchet,
36. Lever, ratchet and gear or chain,
38. Miscellaneous,
37. Rack-and-pinion.
Posts—
131. Mechanical adjustment,
132. Self-locking.
Props—
156. Fixed,
Pivoted—
75. One-leg—
76. Extension hinged,
77. Extension sliding,
78. Lever-actuated,
79. Spring-locked,
80. Universal-joint,
Two (or more) legs—
81. Cam (or gear) spread,
82. Lever-spread,
83. Spring-spread,
Sliding—
84. One-leg,
85. Two (or more) legs.
138. **Rests.**

CLASS 212.—TRAVERSING HOISTS.

Subclasses.

145. **Auxiliary supports.**
4. **Door-lifters.**
3. **Floating.**
144. **Jibs and masts.**
71. **Linear—**
76. Cable—
86. Automatic stop,
122. Carriage-holders, track-clamp,
87. Draft-rope, hoist-rope traverse—
91. Cable-return,
88. Divided hoist-rope,
92. Gravity return—
93. Cable,
89. Hook-lowering,
90. Running track,
94. Draft-rope, independent traverse—
95. Anchored hoist-rope,
96. Hook-lowering,
77. Load-handling—
78. Draft-rope—
79. Dumping—
80. Double-tackle,
81. Grab,
82. Sling,
83. Load-suspension—
84. Grab,
85. Sling,
97. Load-suspension—
98. Hoist, carry and lower,
115. Ratchet-sheave,
106. Rope-catch—
108. Pivoted—
109. Double,
107. Sliding,
110. Rope-grip—
114. Coacting sheave,
111. Variable-elevation—
112. Carriage-release,
113. Side-draft,

Linear—
Cable—
Load-suspension—
99. Running-rope,
100. Sheave-catch—
101. Pivoted cable-extension,
102. Sheave-frame catch—
104. Pivoted—
105. Double,
103. Sliding,
116. Trips, stops and knockers,
123. Pulley changers,
117. Rope carriers—
118. Cable-stop operated,
120. Carrier-sheave operated,
121. Permanently-spaced,
119. Trolley-supported,
72. Cable, ship-coaling type,
133. Hanging-cable traverse,
134. Non-motor traverse—
138. Fluid hoist,
139. Lever hoist,
135. Load-handling—
136. Discharging—
137. Automatic,
124. Self-propelled—
131. Electric—
132. Automatic stop,
125. Load-handling—
126. Electric—
127. Grab,
128. Guide-bar—
129. Grab,
130. Ladle,
73. Shiftable track—
74. Longitudinally-movable,
75. Tilting,
140. Surface—
142. Drum—
143. Intermittent-grip,
141. Self-propelled.

CLASS 212.—TRAVERSING HOISTS.—Continued.

Subclasses.

1. **Miscellaneous.**
28. **Rotary cranes—**
50. Automatic sluing—
51. Portable,
52. Variable radius—
53. Portable,
39. Automatic stop,
29. Combined crane and supporting rack,
48. Counterbalanced—
49. Portable,
61. Fixed radius—
62. Lever, first-class,
65. Portable,
63. Trolley,
64. Vertically-movable jib,
30. Fluid—
31. Swinging hoist-motor, cable-hoist,
32. Swinging hoist-motor, trolley-mounted,
33. Vertically-movable jib—
34. Mast-jack,
35. Vertically-swinging jib,
36. Line-shaft driven,
41. Load-handling—
42. Grab,
43. Portable—
44. Grab,
45. Sling,
40. Load-suspension,
47. Opposing jibs,
70. Pivots, steps and mast-caps,
46. Portable, horizontally-pivoted mast,
38. Self-propelled,
66. Sluing mechanism—
67. Bull-wheel,
68. Gear-sector,

Rotary cranes—
69. Sluing-platform,
54. Variable radius—
55. Extensible jib,
60. Lever, first-class,
56. Trolley,
57. Vertically-movable jib
58. Vertically-swinging jib—
59. Portable,
37. Vehicle-wheel power.
7. **Skidding.**
5. **Track-straddling—**
6. Self-propelled.
10. **Traveling cranes—**
13. Gantry—
14. Load-handling,
15. Overhanging end—
16. Flexible bridge,
12. Horizontally-swinging bridge,
17. Jib,
11. Load-handling,
18. Overhead—
20. Bridge-mounted hoist-motor,
21. Electric—
22. Multiple-track,
19. Flexible bridge,
23. Stationary motor—
24. Cable-driven—
25. Fluid,
27. Traveling motor, cable-shift,
26. Traveling motor, fluid-hoist.
8. **Vertically-swinging hoist-frame—**
9. Load-handling.
2. **Weighing.**

CLASS 214.—LOADING AND UNLOADING. (IV.)

Subclasses.

14. **Elevated carriers—**

1. **Loading and unloading—**
23. Furnace-charging,
2. Hay,
3. Hoist and dump,
4. Hoist, raised track, and dump,

Loading and unloading—
5. Load-binders,
6. Pilers,
7. Raised track,
8. Raised track, track-end dump,
9. Raised track, track-end dump, tilting track-section,
13. Scoop, hoist, carry, and dump,
10. Shoveling devices,
11. Tilting platform,
12. Vertical hoist and dump.

CLASS 218.—BUTTON, EYELET, AND RIVET SETTING (XI.)

(See Definitions of Revised Classes.)

Subclasses.

Machines—
Button—
12. Button-feeders,
Eyeleting—
Magazine—
15.1. Feeding,
Lacing-hook—
Magazine—
17.1. Feeding,
Riveting—
2. Magazine,

CLASS 224.—PACKAGE AND ARTICLE CARRIERS. (XL.)

(See Definitions of Revised Classes.)

Subclasses.

5. **Body and belt attached—**
6. Baby or patient,
26. Bag, case, or frame—
27. Chatelaine,
25. Bracket,
13. Cartridge—
22. Belt or sling—
23. Loop and pocket holders—
24. Skeleton,
20. Block-cell,
17. Compartment,
14. Garment-attached,
21. Individual holders,
15. Magazine—
16. Longitudinal feed,
18. Revolving,
19. Tilting pocket,
7. Game,
28. Hand or wrist attached,
8. Knapsack—
9. Convertible—
10. Tent,
12. Slings,
11. Slings with belts.
45. **Hand—**
46. Convertible and combined,
50. Handle and clamping plates—
51. Strap-tightener,
55. Handle and strap—
56. Cord or chain—
7. Cord-hook,

Hand—
Handle and strap—
58. Strap-loop,
52. Handle, bar, and strap—
53. Harness,
54. Strap-tightener,
49. Sling,
47. Traveling-bag,
48. Tray.
43. **Saddle-bags—**
44. Traveling-bag.
29. **Vehicle—**
30. Bicycle—
39. Bracket—
40. Folding,
41. Handle-bar supported,
31. Convertible and combined,
42. Hooks,
32. Receivers—
33. Collapsible-frame,
35. Forward-reach supported,
36. Handle-bar supported,
34. Wrapper,
37. Spring-holders—
38. Frame.
4. **Watch and clock.**
1. **Weapon—**
2. Sheaths and scabbards—
3. Hangers.

CLASS 238.—RAILWAY TIES AND FASTENERS. (XXXIV.)

Subclasses.

1. **Stringers and ties—**
2. Chairs,
3. Composition,
4. Fastenings,

Stringers and ties—
5. Metallic,
6. Pot-sleepers.

CLASS 239.—RAILWAY-RAILS AND JOINTS. (XXXIV.)

Subclasses.

Rail-joints—
1. Boxes,
Bridge-pieces—
2. Base,
3. Tread,
4. Cast-on,
5. Insulated,
6. Joint-chairs,
7. Miscellaneous,
8. Scarf,
9. Splice-bars—
10. Girder,

Rail-joints—
11. Threadless bolts,
12. Truss,
13. Web-blocks.
14. **Rails—**
15. Braces,
16. Compound,
17. Guard—
18. Clamps,
19. Rack.

CLASS 240.—ILLUMINATION. (XXX.)

(See Definitions of Revised Classes.)

Subclasses.

52. **Light-supports—**
63. Adjustable for trimming—
Electric—
64. Post—
65. Switch,

Light-supports—
Adjustable for trimming—
Electric—
66. Switch

CLASS 246.—RAILWAY SIGNALING. (XLII.)

Subclasses.

1. **Bridge-guards.**
2. **Compensators—**
3. Intermittent grip,
4. Slot,
5. Weight.
6. **Deflection-stands.**
7. **Interlocking—**
57. Detector-bars,
8. Rods,
9. Selectors,
10. Stands—
11. Catch,
12. Plunger.
13. **Signals—**
14. Automatic alarm,
15. Bar,
Detonating—
16. Automatic,
17. Car-placers,
18. Electric,
19. Hand-placers,
20. Torpedoes,
21. Electric—
22. Block,
23. Block-crossing,
24. Block systems,
25. Cab—
26. Sectional rail—
27. Relay,
28. Car,
29. Lock,
30. Sectional rail—
31. Cab and block,
32. Crossing,

Signals—
Electric—
Sectional rail—
33. Electromanual lock,
34. Lock,
35. Track instruments,
36. Trolley,
37. Light,
38. Pneumatic—
39. Automatic,
40. Portable,
41. Switch,
42. Time—
43. Retarders,
44. Train-order.
45. **Signals, automatic—**
46. Agitated,
47. Block,
48. Crossing,
49. Danger,
50. Setting apparatus,
51. Tappets,
52. Trips.
Switches and signals—
Electric—
53. Return indication,
54. Trolley-actuated switches,
55. Trolley-contacts,
56. Staff systems.
58. **Track-circuit controlled.**
59. **Trip-controlled—**
60. Frangible devices.

CLASS 226.—PACKAGING LIQUIDS. (XXXII.)

Subclasses.

4. **Corking-machines—**
5. Automatic-feed,
6. Compressing—
7. Automatic-feed,
8. Hand-tools.
28. **Filling and corking machines—**
29. Barrel,
30. Corking-nozzle.
31. Counter-pressure.
32. Reciprocating nozzle.
9. **Filling-machines—**
10. Barrel,
15. Counter-pressure.
11. Cut-offs—
12. Automatic—
13. Float,
14. Vent.

Filling-machines—
16. Faucets
17. Gage—
18. Adjustable,
19. Pump—
20. Adjustable.
21. Multiple-nozzle.
22. Reciprocating nozzle.
23. Siphon-bottle.
24. Siphon-tube.
Stoppers—
25. Internal.
26. Valve.
27. Turn-over.
33. **Funnels.**

CLASS 243.—PNEUMATIC DESPATCH. (II.)

(See Definitions of Revised Classes.)

Subclasses.

32. **Carriers—**
Sliding—
35. End-opening,
34. Side-opening,
33. Wheeled.
38. **Details—**
39. Carrier.
37. **Obstacle-detectors.**
36. **Signals and indicators.**
29. **Switches—**
30. Main and branch line block,
31. Tube-section.
1. **Systems—**
Active on transit—
7. Motor-actuating—
9. Exhaust,
8. Pressure,
10. Reservoir—
12. Exhaust,
11. Pressure,
13. Timers—
15. Exhaust,
14. Pressure,

Systems—
2. Combined pressure and exhaust,
4. Exhaust,
3. Pressure,
6. Relay,
16. Selective delivery—
18. Exhaust,
17. Pressure,
5. Trunk line and branches.
Terminals—
19. Combined delivery and sending,
Delivery—
23. Exhaust,
24. External receivers,
20. Pressure—
21. Double gate,
22. Single gate,
Sending—
28. Exhaust,
25. Pressure—
26. Lock—
27. Timers.

CLASS 244.—AERONAUTICS. (XXII.)

(See Definitions of Revised Classes.)

Subclasses.

3. **Balloons—**
4. Captive,
5. Propelled—
10. Fluid,
8. Paddle-wheel,
6. Screw—
7. Helicopter,
9. Wing.
30. **Cars.**
31. **Details.**
11. **Flying-machines—**
12. Aeroplane—
13. Propelled—
18. Fluid,
16. Paddle-wheel,
14. Screw—
15. Helicopter,
17. Wing,

Flying-machines—
19. Helicopters,
20. Wing.
22. **Kites—**
24. Accessories,
23. Multiple plane.
2. **Launching and landing devices.**
1. **Miscellaneous.**
21. **Parachutes.**
25. **Propellers—**

27. Wing,
29. **Steering mechanism.**

The present undefined classes have, to a large degree, like Topsy, "just growed". The lack of definitions has caused patents to be placed, now here, now there, to suit the fancy of the particular Examiner. Until recent years the practice of assigning applications to the division having the least work, regardless of classification, was in vogue. The result is that such lines as did exist between classes have been broken down, thus vastly enlarging the field of search, and correspondingly increasing the probability that references will not be found.

Another objection to the present arrangement, wherein several classes contain the same matter, is the possibility that on account of similar applications being classified in different classes or divisions, interferences may be overlooked, thus causing the allowance of a plurality of patents covering the same subject-matter.

PROPOSED CLASSIFICATION.

In lieu of the present arrangement it is proposed to establish a series of classes based as nearly as possible on structure. It is convenient to consider transportation as made up of three major groups, (1) systems, (2) ways, (3) vehicles. Vehicles, for the purposes of this discussion, are carriers, wheeled or sliding, designed to be moved from place to place. Motor mechanism, if present, is mounted on the carrier. Ways are tracks, roads or channels, over or through which a vehicle or material is moved. Systems comprise all transporting devices not falling within the definition of vehicles or ways.

A number of reclassified transportation classes have been established - in some instances, it would seem, with little regard

for the relation of their particular subject matter to the art in general. It is proposed to adopt them, as far as possible, into the general scheme, making only such changes as are deemed of considerable importance.

Vehicles designed for use on the water or in the air are provided for in the defined classes of Ships, Boats and Buoys (part transportation, part information), Marine Propulsion and Aeronautics. Manually propelled vehicles are reclassified (undefined) in Velocipedes. It is assumed that the remaining vehicle art, comprising some fifty thousand patents now classified, for the most part, in Railway Rolling Stock and Carriages and Wagons will ultimately be provided for in a series of classes of which one - Vehicles, Motor - is about to published.

There are no reclassified classes, except Bridges, relating particularly to ways. It is assumed that this matter, which is now also found in the classes of Railways, Railway Ties and Fasteners, Railway Rails and Joints, Railway Switches and Signals, Hoisting (chutes), Paving, Conveyers, etc., will ultimately be placed, as far as possible, in a series of classes relating to ways only.

Four reclassified classes - Store Service, Pneumatic Dispatch, Elevators and Traversing Hoists have been carved out of the matter termed systems. By definition Store Service includes carriers " designed to operate within the limits of a building" and "not under control of an operator from the time they leave one station until they reach another." These limitations are immaterial, and apply equally well to many other transportation devices. It is believed that the class should be abolished.

It is assumed that a class known as Transportation, Endless Carrier, will be formed to include the large number of end-

less carriers now found in Conveyers, Railways, Harvesters, and, in fact, throughout the Office. A series of classes should be established to provide for matter, excluding valves, now constituting the major portion of Water Distribution, Conveyers, subclass pneumatic, Excavating, subclass hydraulic, etc. The reclassified class of Pneumatic Dispatch is a part of the same group, which, as a whole, might well be designated Transportation, Fluid Pressure.

This arrangement leaves for the broad or parent class of Transportation matter not provided for above together with combinations of devices that, taken separately, would fall in specific classes, as, for example, the combination of an endless carrier and a fluid pressure conveyer. The definition of the class and subclasses follows.

TRANSPORTATION.

Outline.

CLASS 214. - TRANSPORTATION.

Definitions.

Class.

The generic class of transportation. It comprises processes and instrumentalities not classifiable in the specific classes relating to transportation. It includes, also, means comprising a series of devices that separately might be classified in the specific classes, but which by their joinder include more than is covered by the definitions of such specific classes.

Subclasses.

Note: Patents falling within the definition of more than one subclass are placed in the subclass having the lowest number and cross-referenced, if necessary to the other or others.

1. MISCELLANEOUS. Transportation devices, and parts and accessories thereto, not elsewhere classifiable.

2. WEIGHING. Transportation devices in combination with a weighing means where the total combination claimed is adopted to accomplish more than the mere moving and weighing of the load.

   SEARCH CLASS -

   73 - MEASURING INSTRUMENTS, appropriate subclasses, for similar devices involving no modification of transportation device other than for the purpose of weighing.

3. SEPARATING. Transportation devices in combination with a separating means where the total combination claimed is adopted to accomplish more than the mere moving and

separating of the material.

SEARCH CLASS -

83 - MILLS, appropriate subclasses, for similar devices involving no modification of transportation device other than for the purpose of separating.

4. PILERS. Transportation devices comprising means for arranging articles, such as lumber, metal sheets or bricks in special relation to one another in a pile.

SEARCH CLASS -

107 - BREAD, PASTRY and CONFECTION MAKING, subclass 45, Stacking and packing apparatus.

5. PILERS, PILING ON EDGE. Pilers comprising means for piling articles on edge.

6. LOAD BINDERS. Devices for binding loads to transportation vehicles. Some special vehicle structure must be involved.

7. CAR-UNLOADING PLOWS. Plow or scraper-like devices which are drawn over cars or vehicles, or under which cars or vehicles are adopted to be drawn for the purpose of unloading.

8. VEHICLE UNLOADING FOLLOWERS. Devices, comprising a follower or pusher, mounted on a vehicle and constituting a part thereof, for removing loads therefrom.

9. LOADING SHIPS AT SEA. Devices, not elsewhere classifiable, comprising means for transferring loads between ships at sea.

SEARCH CLASS -

193 - CONVEYERS, for endless carriers designed to transfer loads from ship to ship.

212 - TRAVERSING HOISTS, subclass 72, Linear, Cable, ship-

coaling type, for overhead cable ways particularly adapted for the same purpose.

10. SHIP TO SHORE. Devices, not elsewhere classifiable, comprising means for transferring loads between a ship and shore.

SEARCH CLASS -

14 - BRIDGES, subclasses of "Gangways", for ways over which material is drawn between ship and shore, and for endless carrier mounted on gangways.

11. FLOATING. Devices, not elsewhere classifiable, for moving material on ships.

SEARCH CLASS -

114 - SHIPS.

193 - CONVEYERS, for endless carriers and fluid pressure conveyers.

212 - TRAVERSING HOISTS, subclass 3, Floating, for devices for hoisting loads from overhead, and shifting them laterally.

12. COAL-STORAGE TYPE. Devices, not elsewhere classifiable, particularly adapted for piling and unpiling material such as coal or ore.

SEARCH CLASS -

193 - CONVEYERS, for endless carriers designed for the same purpose.

13. STORE GOODS LIFTERS. Movable trolleys, or the like, comprising means for removing material, for example, shoe boxes, from store shelves.

SEARCH CLASS -

57 - HOISTING, subclass 113, Lifters, Store-goods, for hand devices for the same purpose.

14. HAY HANDLING TYPE. Devices, not elsewhere classifiable, particularly designed for transferring hay or other fibrous or loose material.

Note:- Hay handling devices the structure of which is within the definition of any of the structural transportation classes are excluded.

SEARCH CLASSES -

56 - HARVESTERS, subclass 61, Hay loaders, Endless belts, and

193 - CONVEYERS, for endless carriers designed for handling hay.

15. HAY HANDLING TYPE, STEP-BY-STEP. Hay handling devices that move the material by a step-by-step motion.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 132, Step-by-step, for similar carriers of general application.

16. HAY HANDLING TYPE, STEP-BY-STEP, AUXILIARY RAKE. Step-by-step devices designed for handling hay or like material that comprise an auxiliary rake for moving the material into reach of the primary handling elements.

17. HAY HANDLING TYPE, STEP-BY-STEP, AUXILIARY RAKE, ENDLESS CARRIER. Devices of the type set forth in the title comprising an endless carrier rake.

18. HAY HANDLING TYPE, TILTING WAGON BODY OR RUNNING GEAR. Hay handling devices comprising a wagon body or running gear arranged to be tilted to receive the load. There is present some element such as a spear, fork or sling, that particularly adapts the device for use with hay or similar material.

SEARCH CLASSES -

21 - CARRIAGES AND WAGONS, and

105, RAILWAY ROLLING STOCK, appropriate subclasses, for similar devices of general application.

19. HAY HANDLING TYPE, DISTRIBUTORS. Devices particularly adapted for distributing hay or similar material in mows or on stacks.

20. MAIL-BAG DELIVERY TYPE. Devices particularly adapted to transfer mail-bags, train orders, and the like, to or from rapidly moving vehicles.

SEARCH CLASS -

214 - TRANSPORTATION, subclasses 141, Roadway type, Vehicle loading, Moving vehicle, and 145, Roadway type, Vehicle unloading, Moving vehicle, and all subclasses thereunder for similar devices of general utility.

103 - PUMPS, subclass 51, Railway-tank feeders, for similar devices particularly adapted to transfer water to a moving vehicle.

21. MAIL-BAG DELIVERY TYPE, SIGNALING FEATURE. Devices of the mail-bag delivery type comprising some feature designed for signaling purposes.

SEARCH CLASS -

246 - RAILWAY SIGNALING, appropriate subclasses, for combined signaling and staff-transferring systems for dispatching trains.

22. MAIL-BAG DELIVERY TYPE, MANUALLY-HELD. Manually supported devices for transferring loads or communications to or from a moving vehicle.

SEARCH CLASS -

57 - HOISTING, subclass 110, Lifters, Picture, for similar devices for transferring picture-hangers to mouldings or other supports.

23. MAIL-BAG DELIVERY TYPE, MAGNETIC. Magnetically operated devices for transferring loads or communications to or from a moving vehicle.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 107, Magnetic, for magnetic transportation devices of general utility.

57, HOISTING, subclass 9, Grapples, for magnetic grapples.

24. MAIL-BAG DELIVERY TYPE, PROJECTORS. Devices of the mail-bag delivery type comprising means for projecting or throwing a load or communication to or from a moving vehicle.

Note:- Chutes, hoppers or releasing devices comprising no means, other than the weight of the load itself, for imparting to the load a lateral or longitudinal motion in respect to the vehicle are excluded.

SEARCH CLASS -

124 - AIR-GUNS, CATAPULTS AND TARGETS, for non-explosive devices for projecting missiles.

25. MAIL-BAG DELIVERY TYPE, PROJECTORS, AUTOMATICALLY ACTUATED. Projectors actuated automatically by movement of the vehicle along the track.

26. MAIL-BAG DELIVERY TYPE, PROJECTORS, AUTOMATICALLY ACTUATED, SPRING. Automatically actuated projectors comprising a spring for imparting motion to the load.

27. MAIL-BAG DELIVERY TYPE, CAR-POSITIONED RECEIVER OR SUPPORT. Devices of the mail-bag delivery type comprising a receiver or support that is thrown into operative position by movement of the car or vehicle along the track.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 25, Projectors, Automatically-actuated, and subclass thereunder for receivers and sup-

ports that are thrown to operative position by the movement of the car during the process of ejecting a load.

28. MAIL-BAG DELIVERY TYPE, LATERALLY SLIDING RECEIVER OR SUPPORT. Devices of the mail-bag delivery type comprising a receiver or support that is movable laterally of the track or car by a sliding motion.

29. MAIL-BAG DELIVERY TYPE, LONGITUDINALLY EXTENDING AUXILIARY TRACK. Devices of the mail-bag delivery type comprising an auxiliary receiving or supporting track that extends in a general direction longitudinally of the main track.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 143, Roadway type, Vehicle loading, Moving vehicle, Auxiliary traveling hopper, for similar devices of general application.

30. MAIL-BAG DELIVERY TYPE, COMBINED RECEIVER AND SUPPORT. Devices of the mail-bag delivery type comprising inventions in the combination of a receiver and a support or in both receiver and support.

31. MAIL-BAG DELIVERY TYPE, COMBINED RECEIVER AND SUPPORT, FORK AND OTHER RECEIVER. Combined receivers and supports comprising two types of receivers one only of which is a bar, hook, V-shaped or similar comparatively sharp or pointed instrument.

Note:- Fork receivers combined with supplemental receiving elements designed to cooperate with the fork in the act of receiving, or to constitute a depository for the load received by the fork are excluded.

32. MAIL-BAG DELIVERY TYPE, COMBINED RECEIVER AND SUPPORT, FORK AND OTHER RECEIVER, RETAINING FEATURE. Devices of the type set forth in the title comprising modifications of a fork re-

ceiver especially designed to prevent the load from rebounding from the receiver.

SEARCH CLASS -

214 - TRANSPORTATION, subclasses 34, Mail-bag delivery type, Fork receiver only, Retaining feature, and subclasses thereunder, and 40, Mail-bag delivery type, Receivers, Fork, Retaining feature, for retainers.

33. MAIL-BAG DELIVERY TYPE, COMBINED RECEIVER AND SUPPORT, FORK RECEIVER ONLY. Combined receivers and supports comprising a single type of receiver that consists in a bar, hook, V-shaped or similar comparatively sharp or pointed instrument.

SEARCH CLASS -

214 - TRANSPORTATION, "Mail-bag delivery", all subclasses thereunder in the title of which the word "fork" occurs, for fork receivers.

34. MAIL-BAG DELIVERY TYPE, COMBINED RECEIVER AND SUPPORT, FORK RECEIVER ONLY, RETAINING FEATURE. Devices of the type indicated by the title comprising modifications of a fork receiver especially designed to prevent the load from rebounding from the receiver.

SEARCH CLASS -

214 - TRANSPORTATION, "Mail-bag delivery", all subclasses in the title of which "Retaining feature" occurs for retainers.

35. MAIL-BAG DELIVERY TYPE, COMBINED RECEIVER AND SUPPORT, FORK RECEIVER ONLY, RETAINING FEATURE, IMPACT OPERATED LOAD-RELEASE. Devices of the type indicated by the title comprising modifications of a fork receiver especially designed to prevent the load from rebounding from the receiver and also latch or

similar means, operated by movement of the vehicle along the track, for releasing another load from its support.

SEARCH CLASS -

214 - TRANSPORTATION, all subclasses under "Mail-bag delivery", in the title of which "Impact-operated load release" occurs for load releasing features.

36. MAIL-BAG DELIVERY, COMBINED RECEIVER AND SUPPORT, FORK RECEIVER ONLY, RETAINING FEATURE, RECEIVER ENGAGING FEATURE. Devices of the type indicated by the title comprising modifications of a fork receiver especially designed to prevent the load from rebounding from the receiver, and also some special means, connected with the load, for engaging with the receiver and sustaining the shock incident to contact therewith.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 22, Mail-bag delivery type, Manually-held, also all subclasses under "Mail-bag delivery" in the title of which "Receiver-engaging feature" occurs for receiver-engaging shock-receiving devices.

37. MAIL-BAG DELIVERY, COMBINED RECEIVER AND SUPPORT, IMPACT-OPERATED LOAD-RELEASE. Combined receivers and supports, not elsewhere classifiable, comprising a support, in the form of a latch or similar member mounted either on the vehicle or along the track, and means either along the track or on the vehicle, for contacting with and releasing the load-holding means.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 25, Mail-bag delivery, Projectors, Automatically actuated, and subclass there-

under, for impact operated load-projecting devices; also all subclasses under "Mail-bag delivery" in the title of which "Impact operated load-release" occurs for other load releasing features.

38. MAIL-BAG DELIVERY TYPE, RECEIVERS. Devices of the mail-bag delivery type, not elsewhere classifiable, mounted either on the vehicle or along the track, for receiving the load, respectively, from a support along the track or on the vehicle.

SEARCH CLASS -

214 - TRANSPORTATION, subclasses 24, Mail-bag delivery type, Projectors, and subclasses thereunder, and 30, Mail-bag delivery type, Combined receiver and support, and subclass thereunder.

39. MAIL-BAG DELIVERY TYPE, RECEIVERS, FORKS. Receivers comprising a bar, hook, V-shaped or similar comparatively sharp or pointed instrument.

Note:- Skeleton scoops and the like are excluded.

SEARCH CLASS -

214 - TRANSPORTATION, all subclasses under "Mail-bag delivery, Combined receiver and support", in the title of which the word "fork" occurs.

40. MAIL-BAG DELIVERY, RECEIVERS, FORKS, RETAINING FEATURE. Fork receivers comprising some special means for preventing the load from rebounding from the receiver.

SEARCH CLASS -

214 - TRANSPORTATION, all subclasses under "Mail-bag delivery, Combined receiver and support", in the title of which "Retaining feature" occurs.

41. MAIL-BAG DELIVERY TYPE, SUPPORTS. Devices of the mail-bag de-

livery type, mounted either on the vehicle or along the track, for supporting the load preparatory to delivering it to a receiver mounted, respectively along the track or on the vehicle.

SEARCH CLASS -

214 - TRANSPORTATION, all subclasses under "Mail-bag delivery type" except "Receivers", and subclasses thereunder.

42. MAIL-BAG DELIVERY TYPE, SUPPORTS, IMPACT-OPERATED LOAD RELEASE. Supports comprising a load-holding means, in the form of a latch or similar device mounted either on the vehicle or along the track, and means either along the track or on the vehicle for contacting with and releasing the load-holding means.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 25, Mail-bag delivery type, Projectors, Automatically actuated, and subclass thereunder, for impact operated load-projecting devices; also all subclasses under "Mail-bag delivery" in the title of which "Impact-operated load-release" occurs.

43. MAIL-BAG DELIVERY TYPE, SUPPORTS, RECEIVER ENGAGING FEATURE. Supports comprising a special means, to which the load is attached, for engaging with a receiver usually for the purpose of receiving the shock of impact, thus preventing injury to bags or other loads.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 22, Mail-bag delivery type, Manually-held, and all subclasses under "Mail-bag delivery type" in the title of which "Receiver engaging feature" occurs.

44. CHARGING TYPE. Devices, not elsewhere classifiable, particularly adapted for charging or discharging ovens, furnaces or similar containers.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 114, Elevator type, Inclined, Furnace charging, for charging devices consisting of an inclined track and a car traveling thereon.

57 - HOISTING, subclass 37, Chutes, for inclined chutes.

110 - FURNACES, subclass 101, Feeding, and subclasses thereunder, for charging devices particularly adapted to spread fuel.

193 - CONVEYERS, for endless carriers and fluid-pressure conveyers designed for charging purposes.

202 - CHARCOAL AND COKE, subclass 5, Charges and discharges, for combined chargers and quenchers.

45. CHARGING TYPE, ROTARY LEVELERS. Charging devices consisting of one or more rotary arms designed to trim or level material, usually coal, in ovens or the like. The arm ordinarily rotates about a vertical axis.

46. CHARGING TYPE, RECIPROCATING BAR. Charging devices comprising a bar or bars designed to be inserted, from the side, into the container to be charged.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 137, Reciprocating bar, for similar devices of general application.

47. CHARGING TYPE, RECIPROCATING BAR, COMBINED WITH ENDLESS CARRIER. Reciprocating bar charging devices combined with an endless carrier, usually designed to bear away material withdrawn by the bar.

48. CHARGING TYPE, RECIPROCATING BAR, CHARGE-SUPPORTING. Reciprocating bar charging devices comprising a bar that is designed to support the load during the charging or discharging operation.

49. CHARGING TYPE, RECIPROCATING BAR, CHARGE-SUPPORTING, GRAB. Charge-supporting reciprocating bars including a grab designed to seize the material.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 126, Elevator type, Grab, for grabs mounted on a vertically reciprocating bar.

50. CHARGING, RECIPROCATING BAR, CHARGE-SUPPORTING, GRAB, HORIZONTALLY SWINGING. Charge supporting reciprocating bars including a grab that is mounted to swinging horizontally.

51. CHARGING TYPE, RECIPROCATING BAR, CHARGE-SUPPORTING, PUSHER DISCHARGE. Charge supporting reciprocating bars comprising a pusher or the like for discharging the load from the bar.

52. CHARGING TYPE, RECIPROCATING BAR, CHARGE-SUPPORTING, PUSHER DISCHARGE, SPREADING AND FURNACE DISCHARGING FEATURES. Devices of the type set forth in the title comprising elements designed for pushing a former charge from a furnace or similar container, or for spreading the charge being inserted.

53. CHARGING TYPE, RECIPROCATING BAR, CHARGE-SUPPORTING, AXIALLY ROTATABLE. Charge-supporting reciprocating bars comprising a load-engaging means that is rotatable about an axis parallel with the axis of the reciprocating bar. In some cases the whole bar is rotatable.

54. CHARGING TYPE, RECIPROCATING BAR, MULTIPLE. Devices of the charging type that comprise a plurality of reciprocating bars.

55. CHARGING TYPE, RECIPROCATING BAR, HORIZONTALLY SWINGING. Devices of the charging type, not elsewhere classifiable, comprising a reciprocating bar mounted to swing horizontally.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 50, Charging type, Reciprocating bar, Charge-supporting, Grab, Horizontally swinging, for similar devices comprising a grab.

56. CHARGING TYPE, RECIPROCATING BAR, HORIZONTALLY SWINGING, VERTICALLY SWINGING. Devices of the charging type, not elsewhere classifiable, comprising a reciprocating bar mounted to swing horizontally and also vertically.

SEARCH CLASS -

214 - TRANSPORTATION, appropriate subclasses under subclass 68, Vertically swinging load-support, for similar devices of general application.

57. CHARGING TYPE, RECIPROCATING BAR, SECTIONAL. Reciprocating charging bars comprising a plurality of sections.

58. CHARGING TYPE, RECIPROCATING BAR, DETAILS. Details, usually heads, of reciprocating charging bars.

59. COMBINED VEHICLE DUMP AND CARRIER. Transportation devices comprising the combination of means for dumping a vehicle with means for removing the material from the vicinity of the dumping means.

Note:- Combinations of vehicle dumps and gravity-operated carriers are classified with the particular vehicle dumping mechanism.

60. COMBINED VEHICLE DUMP AND CARRIER, ENDLESS CARRIER. Devices of the combined vehicle dump and carrier type in which the carrier is of the endless type.

61. COMBINED ENDLESS CARRIER AND SCREW. Transportation devices comprising the combination of an endless carrier with a screw or helical carrier.

62. COMBINED ENDLESS CARRIER AND ROLLER-WAY. Transportation devices comprising the combination of an endless carrier with a roller-way.

63. COMBINED ENDLESS CARRIER AND STEP-BY-STEP CARRIER. Transportation devices comprising the combination of an endless carrier with a carrier having a reciprocating or step-by-step motion.

64. COMBINED ENDLESS CARRIER AND VERTICALLY SWINGING LOAD-SUPPORT. Transportation devices comprising the combination of an endless carrier with a load supporting frame that is mounted to swing in a vertical plane.

65. COMBINED HOIST AND RAILWAY. Transportation devices comprising the combination of a hoisting means, a carrier to be hoisted, a railway associated with the hoisting means, and means whereby the hoisting carrier is either detached from the hoisting means and attached to a car, carrier or the like on the railway, or has its contents dumped into a carrier on the railway.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 109, Elevator type, and subclasses thereunder, for hoisting devices associated with railways, the arrangement being such that the load hoisted runs from the hoisting means and along the railway without being supported by any second carrier on the railway.

66. COMBINED FLUID PRESSURE AND SCREW. Transportation devices comprising the combination of a fluid pressure conveyer

with a screw or helical carrier.

67. COMBINED STEP BY STEP CARRIER AND ROLLERWAY. Transportation devices comprising the combination of a reciprocating or step-by-step carrier with a roller-way.

68. VERTICALLY SWINGING LOAD-SUPPORT. Transportation devices, not elsewhere classifiable, comprising a load-carrying member mounted to swing in a vertical plane.

SEARCH CLASS -

212 - TRAVERSING HOISTS, appropriate subclasses, for vertically swinging load supports from which the load is suspended by a freely swinging cable.

69. VERTICALLY SWINGING LOAD-SUPPORT, TILTING TRACK SECTION. Vertically swinging load supports the swinging portion of which is a section of a track or roadway.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 117, Elevator type, Inclined, Tilting track section.

70. VERTICALLY SWINGING LOAD-SUPPORT, TILTING TRACK SECTION, HORIZONTALLY SWINGING. Tilting track sections mounted to swing horizontally.

71. VERTICALLY SWINGING LOAD-SUPPORT, TILTING TRACK SECTION, WAGON DUMP TYPE. Tilting track sections designed to dump wagons.

72. VERTICALLY SWINGING LOAD-SUPPORT, TILTING TRACK SECTIONS, SWITCH SYSTEMS. Tilting track sections comprising a switch for the purpose of returning a car by another track from that on which it approaches the tilting section.

73. VERTICALLY SWINGING LOAD-SUPPORT, TILTING TRACK SECTION, NON-FIXED PIVOT. Tilting track sections mounted to swing about a non-fixed pivot.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 100, Vertically swinging load-support, Non-fixed pivot.

14 - BRIDGES, subclass 39, Draw, Bascule, Non-pivoted, and subclass thereunder.

74. VERTICALLY SWINGING LOAD-SUPPORT, TILTING TRACK SECTION, SIDE TILT. Tilting track sections mounted to swing about an axis parallel to the line of the track.

75. VERTICALLY SWINGING LOAD-SUPPORT, TILTING TRACK SECTION, SHAKERS. Tilting track sections provided with means for shaking or vibrating the car to discharge the contents.

76. VERTICALLY SWINGING LOAD-SUPPORT, TILTING TRACK SECTION, VEHICLE-DOOR OPERATING FEATURE. Tilting track sections comprising means for opening or closing the door of a vehicle placed thereon.

77. VERTICALLY SWINGING LOAD SUPPORT, TILTING TRACK SECTION, CAR FEEDING OR HOLDING. Tilting track sections comprising means for feeding cars along the track or for clamping or holding them to the section.

78. VERTICALLY SWINGING LOAD SUPPORT, TILTING TRACK SECTION, CAR FEEDING OR HOLDING, SECOND CAR RELEASING FIRST. Tilting sections provided with car-feeding or holding means so designed that a second car, in approaching, operates to release one already on the section.

79. VERTICALLY SWINGING LOAD-SUPPORT, SHOVEL OR FORK TYPE. Vertically swinging load supports comprising a shovel, fork or similar load-engaging element mounted on the swinging support.

80. VERTICALLY SWINGING LOAD-SUPPORT, SHOVEL OR FORK TYPE, SPECIAL VEHICLE BODY. Vertically swinging load supports of the

shovel or fork type comprising special construction of a vehicle body.

81. VERTICALLY SWINGING LOAD SUPPORT, SHOVEL OR FORK TYPE, HORIZONTALLY SWINGING. Vertically swinging load supports of the shovel or fork type designed to swing horizontally.

SEARCH CLASS -

214 - TRANSPORTATION, appropriate subclasses under "Charging type", for similar devices used for charging or discharging ovens and the like.

82. VERTICALLY SWINGING LOAD SUPPORT, SHOVEL OR FORK TYPE, HORIZONTALLY SWINGING, VERTICALLY ADJUSTABLE. Vertically swinging load supports of the type indicated by the title comprising means for adjusting the swinging member bodily in a vertical direction.

SEARCH CLASS -

212 - TRAVERSING HOISTS, subclasses 57, Rotary cranes, Variable radius, Vertically movable jib, and 64, Rotary cranes, Fixed radius, Vertically movable jib, for adjusting features.

83. VERTICALLY SWINGING LOAD-SUPPORT, SHOVEL OR FORK TYPE, HORIZONTALLY SWINGING, TROLLEY-SUPPORTED PIVOTED HANDLE. Load supports of the type indicated by the title comprising a shovel or fork handle that swings vertically about a pivot carried on a trolley or similar device.

84. VERTICALLY SWINGING LOAD-SUPPORT, SHOVEL OR FORK TYPE, HORIZONTALLY SWINGING, RECIPROCATING HANDLE. Load supports of the type indicated by the title comprising a shovel or fork handle that may be reciprocated longitudinally.

85. VERTICALLY SWINGING LOAD-SUPPORT, SHOVEL OR FORK TYPE, HORIZONTALLY SWINGING, RECIPROCATING HANDLE, LINK-SUPPORTED. Load supports of the type indicated by the title comprising a reciprocating shovel handle that is attached to its support by links.

86. VERTICALLY SWINGING LOAD SUPPORT, SHOVEL OR FORK TYPE, HORIZONTALLY SWINGING, HANDLE PIVOTED TO BOOM. Load supports of the type indicated by the title comprising a shovel or fork handle attached to a boom by a fixed pivot.

87. VERTICALLY SWINGING LOAD SUPPORT, SHOVEL OR FORK TYPE, SWINGING LATERALLY FROM VEHICLE. Vertically swinging load supports of the shovel or fork type mounted on a pivot that extends longitudinally of a vehicle.

88. VERTICALLY SWINGING LOAD-SUPPORTS, SHOVEL OR FORK TYPE, GUIDED. Vertically swinging load supports of the shovel or fork type comprising means, such as a trolley and track, in addition to the pivoting means, for guiding the support in its swinging movement.

89. VERTICALLY SWINGING LOAD-SUPPORT, SHOVEL OR FORK TYPE, VEHICLE ACTUATED. Vertically swinging load supports of the shovel or fork type, mounted on a vehicle, and means whereby the support is swung by the forward movement of the vehicle.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 102, Vertically swinging load-support, Vehicle actuated, for vehicle actuated features.

90. VERTICALLY SWINGING LOAD-SUPPORT, SHOVEL OR FORK TYPE, VEHICLE ACTUATED, TILTING. Load supports of the type indicated by the title comprising a shovel or fork mounted on the support in such manner as to be capable of tilting in respect thereto.

SEARCH CLASS -

214 - TRANSPORTATION, subclasses 92, Vertically swinging load-support, Shovel or fork type, Tilting, and 99, Vertically swinging load-support, Tilting carrier, for other tilting carriers.

91. VERTICALLY SWINGING LOAD-SUPPORT, SHOVEL OR FORK TYPE, EXTENSIBLE SUPPORT. Load supports of the type indicated by the title comprising means whereby the distance from the pivot, about which the support swings, to the load-engaging element may be varied.

92. VERTICALLY SWINGING LOAD-SUPPORT, SHOVEL OR FORK TYPE, TILTING. Vertically swinging load supports of the type indicated by the title comprising a shovel or fork mounted on the support in such manner as to be capable of tilting in respect thereto.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 90, Vertically swinging load-support, Shovel or fork type, Vehicle actuated, Tilting, and subclass 99, Vertically swinging load support, Tilting carrier.

93. VERTICALLY SWINGING LOAD-SUPPORT, SHOVEL OR FORK TYPE, RETURN, BUFFER OR COUNTERWEIGHT FEATURE. Vertically swinging load-supports of the type indicated by the title comprising some special means for returning the fork or shovel handle to its normal position, or some special buffer mechanism for cushioning the frame, or some special counterweight mechanism for the frame.

94. VERTICALLY SWINGING LOAD-SUPPORT, SHOVEL OR FORK TYPE, RETURN, BUFFER OR COUNTERWEIGHT FEATURE, SPRING. Vertically swinging load supports of the type indicated by the title com-

prising return, buffer or counterweight mechanism consisting of a spring or springs.

95. VERTICALLY SWINGING LOAD-SUPPORT, SHOVEL OR FORK TYPE, HAY RETAINERS. Improvements in devices for retaining hay upon the forks of vertically swinging load-supports.

96. VERTICALLY SWINGING LOAD-SUPPORT, SHOVEL OR FORK TYPE, SHOVEL OR HANDLE STRUCTURE. Improvements in the structure of the shovel or handle of vertically swinging load supports.

97. VERTICAL SWINGING LOAD-SUPPORTS, SHOVEL OR FORK TYPE, SHOVEL OR HANDLE STRUCTURE, DUMPING MECHANISM. Improvements in mechanism for dumping shovels or forks of vertically swinging load-supports.

98. VERTICALLY SWINGING LOAD-SUPPORTS, SHOVEL OR FORK TYPE, SHOVEL OR HANDLE STRUCTURE, TEETH. Improvements in teeth of shovels or forks of vertically swinging load-supports.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 95, Vertically swinging load-support, Shovel or fork type, Hay retainers, for modifications of teeth designed to retain the load.

99. VERTICALLY SWINGING LOAD-SUPPORT, TILTING CARRIER. Vertically swinging load-supports, not elsewhere classifiable, comprising a carrier mounted on the support in such manner as to be capable of tilting in respect thereto.

SEARCH CLASS -

214 - TRANSPORTATION, subclasses 90, Vertically swinging load-support, Shovel or fork type, Vehicle actuated, Tilting, and 92, Vertically swinging load-support, Shovel or fork type, Tilting, for tilting shovels or forks.

100. VERTICALLY SWINGING LOAD-SUPPORT, NON-FIXED PIVOT. Vertically swinging load-supports, not elsewhere classifiable, mounted

to swing about a non-fixed pivot.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 73, Vertically swinging load-support, Tilting track-section, Non-fixed pivot, and subclasses noted thereunder, for other load-supports similarly mounted.

101. VERTICALLY SWINGING LOAD-SUPPORT, SWINGING LATERALLY FROM VEHICLE. Vertically swinging load-supports, not elsewhere classifiable, mounted on a pivot that extends longitudinally of a vehicle.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 87, Vertically swinging load-support, Shovel or fork type, Swinging laterally from vehicle.

102. VERTICALLY SWINGING LOAD-SUPPORT, VEHICLE ACTUATED. Vertically swinging load-supports, not elsewhere classifiable, mounted on a vehicle and means whereby the support is swung by the forward movement of the vehicle.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 89, Vertically swinging load-support, Shovel or fork type, Vehicle actuated, and subclass thereunder.

103. VERTICALLY SWINGING LOAD-SUPPORT, HORIZONTALLY SWINGING. Vertically swinging load-supports, not elsewhere classifable, comprising means for swinging a load horizontally.

SEARCH CLASS -

214-TRANSPORTATION, subclass 81, Vertically swinging load-support, Shovel or fork type, Horizontally swinging, and subclasses thereunder, and

212-TRAVERSING HOISTS, appropriate subclasses under subclass 29,

Rotary cranes, for other vertically and horizontally swinging load-supports designed to hoist and transfer loads.

104. VERTICALLY SWINGING LOAD-SUPPORT, HORIZONTALLY SWINGING, GRAB. Vertically and horizontally swinging load-supports comprising a grab that is connected to the support by a rigid connection, or a reciprocating bar.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 50, Charging type, Reciprocating bar, Charge-supporting, Grab, Horizontally swinging, for similar charging devices.

212 - TRAVERSING HOISTS, subclass 42, Rotary cranes, Load-handling, Grab and 44, Rotary cranes, Load handling, Portable, Grab, for similar devices wherein the grab or grapple is connected to its support by a cable.

105. HORIZONTALLY SWINGING LOAD-SUPPORT. Load-supports, not elsewhere classifiable, mounted to swing horizontally.

SEARCH CLASS -

214 - TRANSPORTATION, appropriate subclasses under "Vertically swinging load-support", and

212 - TRAVERSING HOISTS, appropriate subclasses under "Rotary cranes" for horizontally swinging load supports capable of swinging vertically, and for horizontally swinging load-supports from which the load is suspended by a cable.

106. HORIZONTALLY SWINGING LOAD-SUPPORT, GRAB. Horizontally swinging load-supports, not elsewhere classifiable, comprising a grab or grapple that is connected to the support by a rigid connection, or a reciprocating bar.

SEARCH CLASS -

214 - TRANSPORTATION, appropriate subclasses under "Vertically

swinging load-support", and

212 - TRAVERSING HOISTS, appropriate subclasses under "Rotary cranes", for horizontally swinging load-supports that also swing vertically, and for horizontally swinging load-supports from which the load is suspended by a cable or by a traveling trolley.

107 - MAGNETIC. Transportation devices, not elsewhere classifiable, comprising a magnetic load-engaging or holding means.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 23, Mail-bag delivery type, Magnetic, and

57 - HOISTING, subclass 9, Grapples.

108. TRAVELING CRANE TYPE. Transportation devices, not elsewhere classifiable, comprising a traveling bridge and a hoisting trolley thereon.

SEARCH CLASS -

212 - TRAVERSING HOISTS, subclass 10, Traveling cranes, and subclasses thereunder, for similar devices comprising hoisting and traversing features only.

109. ELEVATOR TYPE. Transportation devices, comprising a car, bucket or similar carrier having a movement upward and back along a vertical or inclined line, and means for loading or unloading the carrier. There may be movement transversely of the primary line of travel of the carrier, but it is slight, and usually for the purpose of loading or unloading.

SEARCH CLASSES -

104 - RAILWAYS, and

187 - ELEVATORS, for similar devices having no means for loading or unloading the carrier.

110. ELEVATOR TYPE, MAIL. Transportation devices of the elevator type, designed to carry mail.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 20, Mail-bag delivery type, and 142, Roadway type, Vehicle loading, Moving vehicle, Rural mail, for other mail transferring mechanism.

111. ELEVATOR TYPE, WAGON BOX LIFTER TYPE. Device of the elevator type designed to lift a wagon box or similar carrier bodily and dump it.

SEARCH CLASS -

57 - HOISTING, subclass 79, Wagon raisers, for similar devices having no dumping feature.

112. ELEVATOR TYPE, LOAD LOWERING, AUTOMATIC RETURN. Devices of the elevator type designed to lower a load, release it, and automatically return the carrier to loading position.

SEARCH CLASS -

187 - ELEVATORS, appropriate subclasses, for similar devices having no releasing features.

113. ELEVATOR TYPE, INCLINED. Elevator type devices comprising an inclined track.

SEARCH CLASS -

187 - ELEVATORS, subclass 12, Inclined, and subclasses thereunder, for similar devices having no loading or unloading mechanism.

114. ELEVATOR TYPE, INCLINED, FURNACE CHARGING. Inclined elevator type devices comprising features that especially adapt them for furnace charging purposes.

SEARCH CLASS -

75 - METALLURGY, subclass 114, Furnaces, Blast, Charging devices, and subclass thereunder, for similar devices comprising specific furnace structure.

115. ELEVATOR TYPE, INCLINED, CARRIER RUNNING OUT FROM BASE. Inclined elevator type devices comprising a carrier, usually

a fork or scoop, designed to move out from the track at its lower end, ordinarily for the purpose of gathering or receiving a load.

116. ELEVATOR TYPE, INCLINED, FORK TYPE. Inclined elevator type devices comprising a fork-like or skeleton carrier.

Note:- These devices usually receive hay from a bull-rake.

117. ELEVATOR TYPE, INCLINED, TILTING TRACK SECTION. Inclined elevator type devices comprising a tilting track section.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 69, Vertically swinging load support, Tilting track section, and subclasses thereunder, for other tilting track sections.

118. ELEVATOR TYPE, INCLINED, TILTING CARRIER. Inclined elevator type devices, not elsewhere classifiable comprising means for tilting a carrier to discharge it.

SEARCH CLASS -

214 - TRANSPORTATION, subclasses of "Furnace charging", "Carrier running out from base", "Fork or rake", and "Tilting track section" under "Elevator type, Inclined".

119. ELEVATOR TYPE, CENTER-DUMP. Devices of the elevator type comprising an elevating platform provided with doors, usually two in number, that open along the center line of the platform to discharge the load.

120. ELEVATOR TYPE, TILTING PLATFORM. Elevator type devices comprising a tilting platform carrier.

121. ELEVATOR TYPE, TILTING PLATFORM, CAR HANDLING. Tilting platform elevators comprising means for holding or feeding cars.

122. ELEVATOR TYPE, TILTING PLATFORM, CAR-HANDLING, SIDE TILT. Tilting platform elevators comprising means for holding or feeding a car the arrangement being such that the car may tilt about its own longitudinal axis.

123. ELEVATOR TYPE, BUCKET. Devices of the elevator type comprising a bucket carrier.

SEARCH CLASS -

57 - HOISTING, subclass 13, Hoisting buckets, for bucket structure.

124. ELEVATOR TYPE, BUCKET, GUIDED. Devices of the elevator type comprising a bucket carrier and a track or similar guide with which it cooperates in its vertical movement.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 113, Elevator type, Inclined, and subclasses thereunder.

125. ELEVATOR TYPE, BUCKET, GUIDED, TILTING. Devices of the elevator type, comprising a bucket carrier and a track or similar guide arranged to tilt the bucket at some point in its movement.

126. ELEVATOR TYPE, GRAB. Devices of the elevator type comprising a grab carrier, an elevated support and means operating through the support for opening and closing the grab.

127. ELEVATOR TYPE, FORK. Devices of the elevator type comprising an elevated support, a fork carrier, and means operating through the support, for loading or unloading the fork.

128. ELEVATOR TYPE, FORK, VEHICLE ACTUATED. Devices of the elevator type comprising an elevated vehicular support, a fork carrier, means operating through the support for loading or unloading the fork, and means whereby the fork is raised by the forward movement of the vehicle.

129. ELEVATOR TYPE, CARRIER-OPERATED FEEDING MECHANISM. Elevator-type devices comprising means, operated by the movement of the carrier, for feeding loads or material to the carrier.

130. SCREW OR SPIRAL. Transportation devices comprising a rotating screw or helical member for impelling the load or material.

SEARCH CLASS -

170 - MOTORS, FLUID CURRENT, subclass 156, Impellers, Screw, and subclasses thereunder.

131. SCREW OR SPIRAL, REVERSIBLE. Transportation devices of the screw or spiral type having special means for reversing the effective component of their motion.

132. STEP-BY-STEP. Transportation devices, not elsewhere classifiable, comprising means for imparting a step-by-step motion to the load.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 15, Hay-handling type, Step-by-step, and subclasses thereunder, for similar carriers particularly adapted to handle hay.

83 - MILLS, subclasses under "Ore and coal, Separators" and "Sifters and Screens".

141 - WASHING APPARATUS, appropriate subclasses.

133. STEP-BY-STEP, RECIPROCATING BAR. Transportation devices of the step-by-step type wherein the load is moved by reciprocating movement of a bar that contacts directly therewith.

134. STEP-BY-STEP, RECIPROCATING BAR, CO-ACTING CATCH. Step-by-step devices comprising a catch that co-acts with the load to prevent return movement while the bar is returning for another stroke.

135. STEP-BY-STEP, RECIPROCATING BAR, INTERFINGERED SECTIONS. Step-by-step devices comprising a series of interfingered carrying sections or bars one of which moves forward with the load while another is returning to a position to make a new stroke.

SEARCH CLASS -

110 - FURNACES, appropriate subclasses, for grates constructed in a similar manner.

136. STEP-BY-STEP, TROUGH. Step-by-step devices comprising a trough that supports the load and means for vibrating the trough to move the load.

137. RECIPROCATING BAR. Transportation devices, not elsewhere classifiable, comprising a bar and means for reciprocating the bar in the line of its length.

Note:- The distinction between this subclass and subclass 132, Step-by-step, and subclasses thereunder, is that in the latter cases the movement of the load consists of a series of steps, while in the present subclass the load is moved by a single forward movement.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 46, Charging type, Reciprocating bar, and subclasses thereunder.

138. POWER-DRIVEN ROLLERS. Transportation devices comprising a series of rollers upon which a load is designed to be placed, and means for rotating them to propel the load.

SEARCH CLASS -

80 - METAL ROLLING, especially subclass 43, Feeding, and subclasses thereunder.

139. ROADWAY TYPE. Transportation devices, not elsewhere classifiable, comprising a roadway, a vehicle or carrier moving thereon, and means on the roadway co-operating with means on the vehicle for loading or unloading the vehicle, and parts accessory thereto.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 105, Elevator type, and subclasses thereunder, for similar devices comprising an inclined or vertical roadway.

193 - CONVEYERS, for endless carriers.

140. ROADWAY TYPE, VEHICLE LOADING. Roadway type devices comprising means for loading the vehicle.

141. ROADWAY TYPE, VEHICLE LOADING, MOVING VEHICLE. Roadway type devices, not elsewhere classifiable, comprising means particularly adapted to load moving vehicles.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 20, Mail-bag delivery type, and subclasses thereunder, for similar devices particularly adapted to transfer mail-bags to moving trains.

142. ROADWAY TYPE, VEHICLE LOADING, MOVING VEHICLE, RURAL MAIL. Roadway type devices comprising a moving vehicle particularly adapted to collect rural mail.

143. ROADWAY TYPE, VEHICLE LOADING, MOVING VEHICLE, AUXILIARY TRAVELING HOPPER. Roadway devices, especially adapted to load moving vehicles, comprising an auxiliary hopper or carrier designed to move in a direction generally parallel to the line of track upon which the vehicle to be loaded is mounted, and to transfer its load to the vehicle.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 29, Mail-bag delivery type, Longitudinally extending auxiliary track, for similar devices particularly adapted to deliver mail to moving trains.

144. ROADWAY TYPE, VEHICLE UNLOADING. Roadway type devices comprising means for unloading the vehicle.

145. ROADWAY TYPE, VEHICLE UNLOADING, MOVING VEHICLE. Roadway type devices, not elsewhere classifiable, comprising means particularly adapted to unload a moving vehicle.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 20, Mail-bag delivery type, and subclasses thereunder for similar devices, particularly adapted to unload mail-bags from moving trains.

146. ROADWAY TYPE, VEHICLE UNLOADING, MOVING VEHICLE, SUSPENDED. Roadway type devices comprising means particularly adapted to unload moving suspended vehicles.

SEARCH CLASS -

212 - TRAVERSING HOISTS, subclass 137, Linear, Non-motor Traverse, Discharging, for similar devices comprising hoisting means.

147. ROADWAY TYPE, VEHICLE UNLOADING, MOVING VEHICLE, SUSPENDED, SELECTIVE DELIVERY. Roadway type devices comprising means particularly adapted to unload a moving suspended vehicle at one of a series of predetermined points.

148. ROADWAY TYPE, VEHICLE UNLOADING, MOVING VEHICLE, SUSPENDED, TILTING. Roadway type devices comprising means particularly adapted to tilt a moving suspended vehicle-body to discharge its contents.

149. ROADWAY TYPE, VEHICLE-UNLOADING, MOVING VEHICLE, TILTING. Roadway type devices, not elsewhere classifiable, comprising means particularly adapted to tilt a moving vehicle-body to discharge its contents.

SEARCH CLASS -

214 - TRANSPORTATION, subclass 148, Roadway type, Vehicle unloading, Moving vehicle, Suspended, Tilting, for similar devices for tilting moving suspended vehicle-bodies.

150. ROADWAY TYPE, VEHICLE UNLOADING, TILTING VEHICLE-BODY. Roadway type devices comprising means for tilting the body of a vehicle to discharge its load.

SEARCH CLASS -

214 - TRANSPORTATION, subclasses 148, Roadway type, Vehicle unloading, Moving vehicle, Suspended, Tilting, and 149, Roadway type, Vehicle unloading, Moving vehicle,

Tilting, for devices for tilting the bodies of moving vehicles.

151. WAYS. Tracks or ways, not elsewhere classifiable, over which materials or loads are intended to be transported.

SEARCH CLASSES -

14 - BRIDGES.

57 - HOISTING, subclass 37, Chutes.

61 - HYDRAULIC ENGINEERING.

94 - PAVING.

104 - RAILWAYS.

105 - RAILWAY ROLLING STOCK.

137 - WATER DISTRIBUTION.

186 - STORE SERVICE.

193 - CONVEYERS.

238 - RAILWAY TIES AND FASTENERS.

239 - RAILWAY RAILS AND JOINTS.

243 - PNEUMATIC DISPATCH.

152. WAYS, ROLLER. Roller-ways or tracks, not elsewhere classifiable, over which materials or loads are intended to be transported.

153. WAYS, ROLLER, HORIZONTALLY SWINGING. Roller-ways comprising a horizontally-swinging roller or rollers.

154. VEHICLES. Vehicles not elsewhere classifiable.

SEARCH CLASSES -

9 - BOATS AND BUOYS.

21 - CARRIAGES AND WAGONS.

104 - RAILWAYS.

105 - RAILWAY ROLLING STOCK.

114 - SHIPS.

115 - MARINE PROPULSION.

186 - STORE SERVICE.

208 - VELOCIPEDES.

243 - PNEUMATIC DISPATCH.

244 - AERONAUTICS.

155. VEHICLES, GARBAGE. Vehicles comprising means for loading or discharging the material to be carried, and means for preventing the escape of noxious gases or odors.