A. There are several laurel oils; one is made by distilling with water the berries of the sweet laurel (Laurus nobilis); the product is often called bay oil, and is used for making toilet preparations. It is expensive. The specimen you speak of did not reach us with your letter. 3. What effectual means can I use to cleanse a flue which cannot be reached by a sweeper? Have always burnt wood. A. Explode a small amount of gunpowder at the bottom, and if there is danger of the chimney catching fire, burn a little sulphur held well within it.

(381) A. K. asks how to make the modeling wax that is used by artists. A. Melt carefully 100 parts yellow wax, add 13 parts Venetian turpentine, 61/2 parts lard, and 721/2 parts elutriated bole or other inert powder; mix thoroughly, pour off, and knead as it cools. The wax must be melted at a low temperature.

(382) W. C. B. writes: Please inform me how to find the exact focus of my camera lens. The focus of a camera lens and the distance from that lens to the object to be photographed being known, is there any rule by which I can tell what distance the negative plate should be from the Iens, thereby substituting instrumental focusing for visual focusing? A. The focus of a camera lens depends npon the distance of the object from the camera, there being an exact focus for every given distance. If the camera has a solid box or a fixed position for the plate, the focus can be adjusted for varying distances and marked upon the slide. This would be reliable for the distance, but would not take in the variation for effect with various kinds of objects, as between landscapes and portraits or other objects. In portraiture there is a little variation required for different faces that the eye only can appreciate. We do not think that index focusing will give the best results, except for copying, by which the focus and distance of the object become exact expo-

(383) F. D. P. writes: Linclose herewith a problem for your correspondence column. It was given by a man at our school and there was quite a diversity of opinion in regard to it. A solution from you will greatly oblige. I would also like a little information on another matter which I also inclose. Have been greatly entertained by some of the questions in your paper. 1. A tank 10 feet inside diameter, 232 feet high, made of 4 inch staves, is hooped with 6 inch iron hoops 12 inches apart. What is the pressure per square inch on third hoop from bottom, allowing 2:03 feet to equal one pound? A. The pressure against the sides of the tank at the third hoop is equal to 230 feet hydrostatic pressure, or 100 pounds per square inch. To get the pressure or strain on the third hoop, multiply the pressure by one-half the diameter in inches, which we make 6,000 pounds for one inch height. Now, as you say that the hoops are 1 foot apart and 6 inches wide, this makes 18 inches in height between the centers of the spaces for each hoop to hold—6,000×18=108,000 pounds strain upon the hoop. Now if the hoops are half an inch thick, there will be but three square inches of metal, and as iron hoops should not be trusted for more than 20,000 to the square inch in any case, you have $3\times20,000=60,000$ pounds safe resistance against 108,000 pounds strain. Such a tank could not be filled with safety. 2. What metal possesses the quality of expanding and contracting in the greatest degree with temperature from 40° to 80° Fah.? A. Zinc has the greatest range of expansion and contraction of the solid metals, being eight-tenths of an inch in 100 feet for a difference of 40° Fah. 3. How much does an iron rod 1/2 inch by 1/4 inch, 2 feet long, expand in length for a change of temperature from 40° to 80° Fah.? A. For the iron rod 2 feet long, the change of length would be equal to 64 ten thousandths of an inch for a change of temperature of 40° Fah.

through the columns of your paper. 1. The cause of with your pigment. You can use thick India ink dishooting stars and velocity of same. A. You will find complete illustrated articles on meteors or shooting stars-history, theory, speed, and distances, as far as known-in Scientific American Supplement, Nos. 532 and 667. 2 The simplest way of boring a hole in glass, excluding the use of a drill? A. The simplest and safest way to bore holes in glass is to use a copper or brass tube, quite thin, of the size of the hole. Bore a bole in a small block of wood about 1/4 inch thick. Hole to fit the tube loosely. Fasten the block to the glass with beeswax, so that the hole corresponds with the required hole in the glass. Insert the tube in the hole and pour emery (No. 90) and water into the tube with a spoon and turn the tube back and forth with the fingers, or a little grooved pulley may be put on the tube to work with a string, in which case a center should be placed at upper end to guide the tube. In this way a doubt if you can repair them. hole of any size from 1/8 inch to an inch or more may be cut through ordinary window glass in a few minutes.

(385) J. B., Fire Department, writes: increased according to size of cylinder? What distance should cylinder be from port to give a deep vibrating tone? Should port be exactly the same diameter as the inside of cylinder? Are whistles sounded any other way than a circular groove or port? If so, which gives best results for fire alarm? A. The opening in the ports of steam whistles of cylindrical form or bell for for the 6 inch cylinders and a sixty-fourth of an inch wider for a 9 inch whistle, for the above pressure. As a general rule, the ports should increase in width with the diameter of the cylinder and be made of the same diameter as inside of cylinder or bell. The thickness and length of the bell controls the tone and the distance of the edge of the bell from the ports generally fixes the volume of tone. The distance of the rim from the ports is adjustable, and may vary from 11/2 to 21/2 inches in large whistles, and is the only adjustment in the hands of the engineer for bringing out the full volume to meet variable pressures of steam and any imperfection of the workmen in sizing the ports. The cylindrical whistles with annular ports are the most powerfal and compact, and are in general use.

(386) G. F. M. writes: Please inform us, through your valuable paper, the most economical lacquer for chandelier work. What is the test mixture to apply to the ends of metal spinners' wooden chucks to keep them for cracking? A. Lacquers are generally made with shellac and alcohol, with a little gum coloring from dragon's blood or turmeric. See "Techno-Chemical Receipt Book," which has a variety of receipts or processes for lacquering, varnishing, and bronzing of metals. We can mail it for the price, \$2.00. Chucks for spinning should be thoroughly seasoned before use. Dipping in hot linseed oil and drying in a warm oven after the chuck has been shaped may answer your purpose.

(387) E. J. S. asks (1) for the component parts of the Disque Leclanche battery. A. The porous cup contains a carbon prism embedded in clear graphite and binoxide of manganese mixed in about equal parts. The outer cell contains an unamalgamated zinc rod, Sal-ammoniac dissolved in water is the exciting fluid. 2. How to make a battery of uncoppered electric light carbons, nsing sal-ammoniac for the exciting fluid? A. See SCIENTIFIC AMERICAN, December 17, 1887, and October 27, 1888. 3. How to make an electric gas lighting coil for two or three burners? A. Wind 5 pounds No. 18 wire on a bundle of iron wires, the bundle to be 6 inches long and 1 inch thick. 4. What kind of battery is best to use in connection with it? A. A Leclanche battery is excellent or the battery shown in first named Scientific American, using only one zinc rod, and using sal-ammoniac and water as the solution.

(388) P. W. W. asks for the ingredients used in the making of British gum. A. British gum or dextrine is prepared by the artificial roasting of dry starch at a temperature between 413° and 482° Fah. It is also made by an acid process, in which the dry starch is moistened with dilute nitric or hydrochloric acid and heated to a temperature between 212° and 248° Fah. and may also be made direct from potatoes. For the illustrated details of its manufacture see Spons' "Encyclopedia of the Industrial Arts."

(389) E. F. L. writes: Please give a simple and practical way to purify resin and precipitate its impurities. A. Melt and allow to settle, and if necessary, strain through sacking.

(390) P. L. M. writes: I am in search of recipe to make what is called "compressed Chinese sheet bluing." It is a very nice article of bluing, that is sold to families by agents in small sheets of about the size of playing cards. A. The preparation may be paper saturated with a strong solution of Prussian blue in water containing ferrocyanide of potassium.

(391) A. H. S. writes: What can Tuse torub npon or cover a bony substance so that it will become a conductor of electricity, that will enable me to plate it with gold, silver, or nickel, etc., so that it will adhere to the surface with tenacity and durability? A. Coat it with plumbago of good quality, applying it with a brush, as polishing a stone. The adherence to the surface will not be very great, but the model, if under cut, will hold it with great tenacity.

(392) G. E. W. asks for the surface of the zinc and copper and the number of cells of gravity sufficient to run a Sawyer-Man 19 volt 12 candle power incandescent lamp. A. Use carbon zinc couples excited by electropoion (bichromate and sulphuric acid) fluid. Twenty cells, each having eight square inches of zinc and copper facing each other, will answer.

(393) D. E. W. asks how to prepare the surface of glass so that it may be drawn on with India ink (the purpose being to make lantern slides). A. Try the following: Shake white of egg with twice its volume of water, and ten drops of ammonia, pour off the froth, and flow the plate with the clear solution and allow to (384) W. L. S. writes: Please state dry, and heatslightly in an oven. Mix a little ox gall rectly upon the glass

> (394) R. H. S. asks: Please tell me how to construct a glass melting apparatus, such as is used by amateur glass blowers. A. We refer you to Shenstone on Glass Blowing, which we can supply for 80 cents, for full description of glass blowing pro

> (395) B. A. asks: 1. What preparation would be the best to fasten cue tips to cues? A. Use carpenter's glue. 2. Please let me also know the way to make pool balls. A. The best are turned ont of ivory, various compositions are used for inferior ones, into which celluloid or analogous substances enter. 3. The balls I now have are more or less disfigured by use. Will you please let me know what compound I can use to repair them? A. Have them turned down. We

(396) G. I. writes: Can you tell me through your paper how water can be sucked up a hill, 50 or 60 rods long with an elevation of 60 feet by the use Will you please answer the following: What should be of a windmill, without triangles and have the mill the size of the steam ports for whistles with cylinders above the spring? A. You cannot draw the water 9 inches by 18 inches, 6 inches by 18 inches, 6 inches by 24 inches, pressure 60 to 80 pounds? Must ports be place a windmill and pump above the spring so as not to paper it treats of filtering and tracing paper, imperlift over 25 feet and force the water to the required height. This, with a windmill of moderate height. should give a fair working power for ordinary uses, and is preferable to the bell crank connections for any considerable distance.

(397) A. G., Patras, Greece, writes: As a subscriber I take the liberty of asking you to reply the sizes above should be one thirty-second of an inch through the columns of your paper as to which is the best method of polishing hippopotamns hide? I have a strip of the said hide which I wish to convert into a riding switch, and am told that it admits of a very high polish. A. Hippopotamus hide, if tanned, can be polished by preparing the surface by planing or cutting to the required shape and scraping with broken glass, so as to obtain as smooth and fine surface as possible. Then rub the surface with paraffine and polish with a woolen

> (398) E. U. asks: Can you give me directions for making porous cups for battery purposes A. They are made of porous clay, baked in a kiln. You may have to mix a little sand with the clay to prevent it from cracking, and you should have enough heat in an ordinary stove for firing them.

cribed in your paper can be made so as to run by a Westinghouse alternating current. If so, please inform me what change should be made? A. It is not adapted. 2. What is the easiest way to make a storage battery? A. There is no easy way. Consult our index to SUPPLEMENTS. 3. Can the field magnet in the motor be cast out of brass? A. No.

(400) M. A. N. asks: How many Bunsen cells would be required to produce a light to study by, and illuminate a room 14 ft. square? What would be the cost of getting cells and light ready and the runningexpenses? A. Twenty or thirty quart cells; they will cost about \$1.50 each; the lamps and connections, \$2; they will cost to run not far from 25 cents an

(401) H. E. M. asks: Does resistance of wire decrease the number of volts or amperes of current? A. It decreases the amperes only, and does not necessarily affect the volts.

(402) Inquirer writes: 1. Will a current of electricity instantly applied to and instantly broken from a very tightly stretched wire make it vibrate enough to produce sound? A. No. 2. Can it be said of a battery that it collects electricity or that it sets it free by chemical action? A. The second statement approaches the truth. In a battery, chemical energy is transformed into electric energy. 3. Is the present open winter accounted for upon any astronomical basis? If so, what is it, and how does it affect the earth's atmosphere? A. No tangible basis can be assigned.

Euquiries to be Answered.

The following enquiries have been sent in by some of our subscribers, and doubtless others of our readers will take pleasure in answering them. The *number* of the enquiry should head the reply.

(403) T. H. DeS. writes: 1. Is a steam adiator more effective under 15 pounds of steam than under, say 2 pounds, or is the temperature of the radiator unaffected by the rise in the temperature of the steam due to the increased pressure? I have seen it stated that the pipes of a radiator could not be made hotter than 212°, and cannot help thinking that it must be a mistake. 2. What is the relative efficiency of the following coals for making steam under the ordinary return tubular boiler, without blast? (a) The bituminous coal mined from Jelico Mountain, Tenn., having streaks of cannel through it occasionally. (b) Pure cannel mined in North Alabama. (c) Semi-cannel mined in North Alabama. (d) Semi-anthracite mined in North Alabama. If you are not familiar with these special coals, give values generally, based upon the kinds of coals named. 3. For deep well pumping, which is the best, in your judgment, to have, a vertical steam cylinder, etc., such as Knowles steam pump works make, and the Deanes also, placed over the mill with the piston rod in direct connection with the sucker rods, or to have an ordinary horizontal engine with a small pulley on a shaft belted to a large wheel, pulley say 8 feet in diameter, having a crank pin 2 feet from center, said crank pin to be connected to the sucker rods through a cross head and connecting rod? Which will work the smoothest over the ends of the stroke? 4. Will bones thrown in the retort with coal enrich the candle power of gas? If so, why?

(404) H. R. writes: 1. What is the rule for estimating the horse power of water powers? 2. Which will last the longer, a post set top or butt down? 3. With bark on or off, dry or green? 4. What is the difference in the lasting of posts charred and uncharred? 5. Does the time of year in which a post is cut make any difference in its lasting qualities?

(405) C. A. A. writes: Is water collected from a galvanized iron roof in a cistern safe to use for drinking, and is it safe to use galvanized pipes to convey drinking water? Which makes the best roof, tin or galvanized iron? Will water from a painted roof be fit and safe for drinking?

NEW BOOKS AND PUBLICATIONS.

LES INDUSTRIES D'AMATEURS. Le Papier et la Toile. La Terre, pa Cire, le Verre et la Porcelaine. Le Bois, les Metaux. By Henry de Graffigny. 395 drawings. Bailliere et Fils, Paris.

A field which seems to be expanding more and more and which is constantly growing in popularity is the subject of amateur mechanics. Every few months brings out some new work on the subject. It is a refreshing symptom that there are large classes whose recreations are improving in their nature and who find that labor and pleasure may be combined. The above work, which is in French, is the latest production of this character. It treats of the various subjects menmeable and luminous paper and the methods of preparing them. Then it shows a number of toys, boxes, etc... that may be made of paper. Then the subject of binding is taken up. Then paper flowers, kites, and fireworks made of paper are treated of. The other subjects mentioned are treated in the same manner, the course taken being the steps necessary in progressing from the simplest to more advanced stages of the arts.

TO INVENTORS.

An experience of forty years, and the preparation of nore than one hundred thousand applications for patents at home and abroad, enable us to understand the laws and practice on both continents, and to possess unequaled facilities for procuring patents everywhere. synopsis of the patent laws of the United States and all foreign countries may be had on application, and persons contemplating the securing of patents, either at home or abroad, are invited to write to this office for prices. which are low, in accordance with the times and our extensive facilities for conducting the business. Address MUNN & CO., office Scientific American, 361 Broadway, New York.

(399) J. J. B. asks (1) if the motor de- INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

February 5, 1889,

AND EACH BEARING THAT DATE

[See note at end of list about copies of these patents.]

Agricultural heater, C. A. Masterson	397,195
Shallenberger	
Ash or garbage can, McKeever & Smith	
Atomizer, A. M. Shurtleff	
Axle box, car, W. E. Heffner	397,283
Ax polls, die for making, W. C. Kelly	397,368 397,369
Axle, wagon, N. S. Ketchum	
Bag. See Paper bag.	
Bag holder, B. F. Ellis	397,346 397,398
Balls, machine for winding, H. Harwood	
Bark from timber, machine for removing, N. H.	
Dolsen	397,114
Barrow, double deck, W. H. Hall	397,358
Baseball winding and rolling machine, B. B.	
Newell	397,303
tery.	
Bed bottom, spring, E. Yeoman	
Bed, folding, J. Penney Bed or upholstered springs, spring, C. B. Howell	
Bedstead, folding, W. J. Griebel	
Bedstead, folding, J. Penney	397,307
Bell, signal, E. Olsen	
Southwick	
Blcycles from a single blank, forming backbones	
and rear forks of, G. T. Warwick	
Binder shifting mechanism, J. A. Graham Bit. See Bridle bit.	391,300
Blasting, Plom & D'Andrimont	397,440
Block. See Hat block.	
Board. See Bulletin board. Drawing board. Em- balming board. Vehicle dash board. Wash-	
board.	
Boat. See Racing boat.	
Boiler. See Steam boiler. Boiler tube plug, E. W. Tucker	397.450
Boot or shoe sole protector, E. & D. J. Rowlands	397,250
Bottle stopper, J. A. Traut	397,449
Box. See Axle box. Salt box. Telephone call box.	
Boxes, etc., art of and machine for making, M.	
Young	
Boxes, means for securing metallic bands to, J. H. Williams	
Braiding machines, racer for, J. A. Turner	
Brake. See Sled brake.	
Brake, O. L. Gilbert	397,120 397,273
Broom corn, utilizing waste, S. M. Youngjohn	397,482
Bulletin board and broom holder, combined, M.	
W. Mahar	39 7,465
Burial annaratus G. T. Gohring	
Burial apparatus, G. L. Gehring Button, D. P. Fitzgerald	397,283
Button, D. P. Fitzgerald	397,283 397,350 397,438
Button, D. P. Fitzgerald	397,283 397,350 397,438
Button, D. P. Fitzgerald	397,283 397,350 397,438
Button, D. P. Fitzgerald	\$97,283 397,350 397,438 397,471
Button, D. P. Fitzgerald. Buttonhole cutter, E. Nowill. Button setting implement, F. H. Richards. 397,388, Camera. See Photographic camera. Can. See Ash or garbage can. Can jacket, W. Zinsser, Jr. Car coupling, D. C. Bassett.	\$97,283 397,350 397,438 397,471 397,163 397,163
Button, D. P. Fitzgerald	397,283 397,350 397,438 397,471 397,163 397,412 397,277
Button, D. P. Fitzgerald. Buttonhole cutter, E. Nowill. Button setting implement, F. H. Richards. 297,388, Camera. See Photographic camera. Can. See Ash or garbage can. Can jacket, W. Zinsser, Jr. Car coupling, D. C. Bassett. Car coupling, E. N. Colwell. Car coupling, H. H. Mansfield. Car coupling, S. P. Mickey.	\$97,283 \$97,350 \$97,438 \$97,471 \$97,163 \$97,412 \$97,277 \$97,375 \$97,137
Button, D. P. Fitzgerald. Button loe cutter, E. Nowill. Button setting implement, F. H. Richards. 397,388, Camera. See Photographic camera. Can. See Ash or garbage can. Can jacket, W. Zinsser, Jr. Car coupling, D. C. Bassett. Car coupling, E. N. Colwell. Car coupling, E. N. Colwell. Car coupling, S. P. Mickey. Car coupling, J. H. Simpson.	\$97,283 397,350 397,438 397,471 397,163 397,412 397,277 397,375 397,137 397,473
Button, D. P. Fitzgerald. Buttonhole cutter, E. Nowill. Button setting implement, F. H. Richards. 297,388, Camera. See Photographic camera. Can. See Ash or garbage can. Can jacket, W. Zinsser, Jr. Car coupling, D. C. Bassett. Car coupling, E. N. Colwell. Car coupling, H. H. Mansfield. Car coupling, S. P. Mickey.	\$97,283 397,350 397,438 397,471 \$97,163 397,412 397,277 397,375 397,137 397,473 397,473
Button, D. P. Fitzgerald. Button lole cutter, E. Nowill. Button setting implement, F. H. Richards. 397,388, Camera. See Photographic camera. Can. See Ash or garbage can. Can jacket, W. Zinsser, Jr. Car coupling, D. C. Bassett. Car coupling, E. N. Colwell. Car coupling, B. N. Colwell. Car coupling, S. P. Mickey. Car coupling, J. H. Simpson Car door, freight, E. H. Whitaker Car floor, W. L. Everit. Car heating apparatus, railway, H. R. Towne.	\$97,283 \$97,350 \$97,438 \$97,471 \$97,163 \$97,412 \$97,277 \$97,375 \$97,137 \$97,413 \$97,423 \$97
Button, D. P. Fitzgerald. Buttonhole cutter, E. Nowill. Button setting implement, F. H. Richards. 397,388, Camera. See Photographic camera. Can. See Ash or garbage can. Can jacket, W. Zinsser, Jr Car coupling, D. C. Bassett. Car coupling, E. N. Colwell Car coupling, E. N. Colwell Car coupling, S. P. Mickey Car coupling, J. H. Mansfield. Car coupling, J. H. Simpson Car door, freight, E. H. Whitaker Car floor, W. L. Everit Car heating apparatus, railway, H. R. Towne Car heating apparatus, railway, F. M. Wilder	\$97,283 \$97,350 \$97,453 \$97,471 \$97,163 \$97,472 \$97,277 \$97,375 \$97,137 \$97,473 \$97,473 \$97,473 \$97,473 \$97,473 \$97,152 \$97,161
Button, D. P. Fitzgerald. Buttonhole cutter, E. Nowill. Button setting implement, F. H. Richards. 237,388, Camera. See Photographic camera. Can. See Ash or garbage can. Can jacket, W. Zinsser, Jr. Car coupling, D. C. Bassett. Car coupling, E. N. Colwell. Car coupling, E. N. Colwell. Car coupling, B. P. Mickey. Car coupling, J. H. Simpson. Car door, freight, E. H. Whitaker Car floor, W. L. Everit. Car heating apparatus, railway, H. R. Towne. Car heating apparatus, railway, F. M. Wilder. Car heating apparatus, railway passenger, M.	\$97,283 \$97,350 \$97,455 \$97,471 \$97,163 \$97,471 \$97,375 \$97,375 \$97,473 \$97,420 \$97,152 \$97,161
Button, D. P. Fitzgerald. Buttonhole cutter, E. Nowill. Button setting implement, F. H. Richards. 397,388, Camera. See Photographic camera. Can. See Ash or garbage can. Can jacket, W. Zinsser, Jr. Car coupling, D. C. Bassett. Car coupling, E. N. Colwell. Car coupling, E. N. Colwell. Car coupling, S. P. Mickey. Car coupling, J. H. Mansfield. Car coupling, J. H. Simpson Car door, freight, E. H. Whitaker Car floor, W. L. Everit. Car heating apparatus, railway, H. R. Towne. Car heating apparatus, railway, F. M. Wilder. Car heating apparatus, railway passenger, M. Wood. Car starter, Ackers & Lindsey, Jr.	\$97,283 \$97,350 \$97,451 \$97,471 \$97,163 \$97,412 \$97,277 \$97,137 \$97,137 \$97,413 \$97,423 \$97,152 \$97,161 \$97,212 \$97,327
Button, D. P. Fitzgerald. Buttonhole cutter, E. Nowill. Button setting implement, F. H. Richards. 397,388, Camera. See Photographic camera. Can. See Ash or garbage can. Can jacket, W. Zinsser, Jr. Car coupling, D. C. Bassett. Car coupling, E. N. Colwell. Car coupling, E. N. Colwell. Car coupling, S. P. Mickey. Car coupling, J. H. Simpson. Car door, freight, E. H. Whitaker. Car floor, W. L. Everit. Car heating apparatus, railway, H. R. Towne. Car heating apparatus, railway passenger, M. Wood. Car starter, Ackers & Lindsey, Jr. Car starter, Ackers & Lindsey, Jr. Car starter, N. V. Viele.	\$97,283 \$97,350 \$97,471 \$97,163 \$97,417 \$97,375 \$97,137 \$97,375 \$97,137 \$97,137 \$97,132 \$97,420 \$97,152 \$97,152 \$97,152 \$97,152 \$97,152 \$97,152 \$97,152 \$97,152 \$97,152 \$97,155
Button, D. P. Fitzgerald. Button loe cutter, E. Nowill. Button setting implement, F. H. Richards. 397,388, Camera. See Photographic camera. Can. See Ash or garbage can. Can jacket, W. Zinsser, Jr. Car coupling, D. C. Bassett. Car coupling, E. N. Colwell. Car coupling, E. N. Colwell. Car coupling, S. P. Mickey. Car coupling, J. H. Mansfield. Car coupling, J. H. Simpson Car door, freight, E. H. Whitaker Car floor, W. L. Everit. Car heating apparatus, railway, H. R. Towne. Car heating apparatus, railway, F. M. Wilder. Car heating apparatus, railway passenger, M. Wood. Car starter, Ackers & Lindsey, Jr. Car starter, N. V. Viele. Car, stock, J. Montgomery. Car, unloader, H. M. Barnhart.	\$97,283 \$97,350 \$97,471 \$97,163 \$97,412 \$97,277 \$97,137 \$97,413 \$97,413 \$97,423 \$97,152 \$97,152 \$97,152 \$97,152 \$97,152 \$97,152 \$97,155 \$97,158 \$97,158 \$97,158
Button, D. P. Fitzgerald. Buttonhole cutter, E. Nowill. Button setting implement, F. H. Richards. 397,388, Camera. See Photographic camera. Can. See Ash or garbage can. Can jacket, W. Zinsser, Jr. Car coupling, D. C. Bassett. Car coupling, E. N. Colwell. Car coupling, E. N. Colwell. Car coupling, S. P. Mickey. Car coupling, J. H. Simpson Car door, freight, E. H. Whitaker Car floor, W. L. Everit. Car heating apparatus, railway, H. R. Towne. Car heating apparatus, railway, F. M. Wilder. Car heating apparatus, railway, F. M. Wilder. Car starter, Ackers & Lindsey, Jr. Car starter, Ackers & Lindsey, Jr. Car starter, N. V. Viele. Car, stock, J. Montgomery. Car, unloader, H. M. Barnhart. Car wheels, device for lubricating, S. M. Briggs.	\$97,283 \$97,350 \$97,471 \$97,163 \$97,412 \$97,375 \$97,137 \$97,375 \$97,137 \$97,375 \$97,137 \$97,420 \$97,420 \$97,420 \$97,162 \$97,163
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Button, D. P. Fitzgerald. Button betuter, E. Nowill. Button setting implement, F. H. Richards. 237,388, Camera. See Photographic camera. Can. See Ash or garbage can. Can jacket, W. Zinsser, Jr. Car coupling, D. C. Bassett. Car coupling, E. N. Colwell. Car coupling, E. N. Colwell. Car coupling, S. P. Mickey. Car coupling, S. P. Mickey. Car coupling, J. H. Simpson Car door, freight, E. H. Whitaker Car floor, W. L. Everit. Car heating apparatus, railway, H. R. Towne. Car heating apparatus, railway, F. M. Wilder. Car heating apparatus, railway passenger, M. Wood. Car starter, Ackers & Lindsey, Jr. Car starter, N. V. Viele. Car, stock, J. Montgomery. Car, unloader, H. M. Barnhart. Car wheels, device for lubricating, S. M. Briggs. Cars, spring buffer for railway, C. A. Schroyer. Card clothing, foundation of, S. Roberts. Card clothing to flat bars, apparatus for attaching, G. & E. Ashworth.	\$97,283 \$97,350 \$97,471 \$97,163 \$97,471 \$97,163 \$97,217 \$97,375 \$97,137 \$97,375 \$97,137 \$97,152 \$97,152 \$97,152 \$97,152 \$97,158 \$97,199 \$97,158 \$97,199 \$97,165 \$97,327 \$97,327 \$97,327 \$97,327 \$97,327 \$97,121 \$97,327 \$97,122 \$97,327 \$97,138 \$97,139 \$97,138 \$97,139 \$97,138 \$97,139 \$97,138 \$97,139 \$97,138 \$97,139 \$97,138 \$97
Button, D. P. Fitzgerald. Button setting implement, F. H. Richards. 397,388, Camera. See Photographic camera. Can. See Ash or garbage can. Can jacket, W. Zinsser, Jr. Car coupling, D. C. Bassett. Car coupling, E. N. Colwell. Car coupling, E. N. Colwell. Car coupling, S. P. Mickey. Car coupling, J. H. Simpson Car door, freight, E. H. Whitaker Car can, Car, W. L. Everit. Car heating apparatus, railway, H. R. Towne. Car heating apparatus, railway, F. M. Wilder. Car heating apparatus, railway passenger, M. Wood. Car starter, Ackers & Lindsey, Jr. Car starter, N. V. Viele. Car, stock, J. Montgomery. Car, unloader, H. M. Barnhart. Car wheels, device for lubricating, S. M. Briggs. Cars, spring buffer for railway, C. A. Schroyer. Card clothing, foundation of, S. Roberts. Card clothing, foundation of, S. Roberts. Card clothing, foundation, means for driving, G. & E. Ashworth.	\$97,283 \$97,350 \$97,471 \$97,163 \$97,412 \$97,217 \$97,137 \$97,137 \$97,137 \$97,420 \$97,322 \$97,152 \$97,165
Button, D. P. Fitzgerald. Button setting implement, F. H. Richards. 237,388, Camera. See Photographic camera. Can. See Ash or garbage can. Can jacket, W. Zinsser, Jr. Car coupling, D. C. Bassett. Car coupling, E. N. Colwell. Car coupling, E. N. Colwell. Car coupling, S. P. Mickey. Car coupling, S. P. Mickey. Car coupling, J. H. Simpson Car door, freight, E. H. Whitaker Car floor, W. L. Everit. Car heating apparatus, railway, H. R. Towne. Car heating apparatus, railway, F. M. Wilder. Car heating apparatus, railway passenger, M. Wood. Car starter, Ackers & Lindsey, Jr. Car starter, N. V. Viele. Car, stock, J. Montgomery. Car, unloader, H. M. Barnhart. Car wheels, device for lubricating, S. M. Briggs. Cars, spring buffer for railway, C. A. Schroyer. Card clothing, foundation of, S. Roberts. Card clothing to flat bars, apparatus for attaching, G. & E. Ashworth. Carding engine cylinders, means for driving, G. & E. Ashworth.	\$97,283 \$97,350 \$97,471 \$97,163 \$97,412 \$97,375 \$97,127 \$97,375 \$97,137 \$97,420 \$97,420 \$97,420 \$97,420 \$97,152 \$97,152 \$97,152 \$97,153 \$97,163 \$97,163 \$97,420 \$97,163 \$97,267 \$97,267
Button, D. P. Fitzgerald. Buttonhole cutter, E. Nowill. Button setting implement, F. H. Richards. 397,388, Camera. See Photographic camera. Can. See Ash or garbage can. Can jacket, W. Zinsser, Jr. Car coupling, D. C. Bassett. Car coupling, E. N. Colwell. Car coupling, E. N. Colwell. Car coupling, S. P. Mickey. Car coupling, S. P. Mickey. Car coupling, J. H. Simpson Car door, freight, E. H. Whitaker Car floor, W. L. Everit. Car heating apparatus, railway, F. M. Wilder. Car heating apparatus, railway passenger, M. Wood. Car starter, Ackers & Lindsey, Jr. Car starter, N. V. Viele. Car, stock, J. Montgomery. Car, unloader, H. M. Barnhart. Car wheels, device for lubricating, S. M. Briggs Cars, spring buffer for railway, C. A. Schroyer. Card clothing, foundation of, S. Roberts. Card clothing to flat bars, apparatus for attaching, G. & E. Ashworth. Carding engine cylinders, means for driving, G. & E. Ashworth. Carding engines, device for securing card clothing to the flats of, G. & E. Ashworth.	\$97,283 397,350 397,412 397,412 397,412 397,375 397,137 397,375 397,137 397,420 397,152 397,152 397,152 397,161 397,212 397,161 397,212 397,163 397,193 397,164 397,267 397,268
Button, D. P. Fitzgerald. Button de cutter, E. Nowill. Button setting implement, F. H. Richards. 397,388, Camera. See Photographic camera. Can. See Ash or garbage can. Can jacket, W. Zinsser, Jr. Car coupling, D. C. Bassett. Car coupling, E. N. Colwell. Car coupling, E. N. Colwell. Car coupling, S. P. Mickey. Car coupling, S. P. Mickey. Car coupling, J. H. Simpson Car door, freight, E. H. Whitaker Car floor, W. L. Everit. Car heating apparatus, railway, F. M. Wilder. Car starter, Ackers & Lindsey, Jr. Car starter, N. V. Viele. Car, stock, J. Montgomery. Car, unloader, H. M. Barnhart. Car wheels, device for lubricating, S. M. Briggs. Card clothing, foundation of, S. Roberts. Card clothing foundation of, S. Roberts. Card clothing for fat bars, apparatus for attaching, G. & E. Ashworth. Carding engine cylinders, means for driving, G. & E. Ashworth. Carding engines, device for securing card clothing to the flats of, G. & E. Ashworth. Carding engines, doffer comb head for, G. & E.	\$97,288 \$97,350 \$97,471 \$97,163 \$97,412 \$97,375 \$97,137 \$97,375 \$97,137 \$97,375 \$97,137 \$97,420 \$97,420 \$97,420 \$97,420 \$97,420 \$97,161 \$97,212 \$97,327 \$97,158 \$97,168 \$97,168 \$97,168 \$97,168 \$97,267 \$97,268
Button, D. P. Fitzgerald. Buttonhole cutter, E. Nowill. Button setting implement, F. H. Richards. 397,388, Camera. See Photographic camera. Can. See Ash or garbage can. Can jacket, W. Zinsser, Jr. Car coupling, D. C. Bassett. Car coupling, E. N. Colwell. Car coupling, E. N. Colwell. Car coupling, S. P. Mickey. Car coupling, S. P. Mickey. Car coupling, J. H. Simpson Car door, freight, E. H. Whitaker Car floor, W. L. Everit. Car heating apparatus, railway, F. M. Wilder. Car heating apparatus, railway passenger, M. Wood. Car starter, Ackers & Lindsey, Jr. Car starter, N. V. Viele. Car, stock, J. Montgomery. Car, unloader, H. M. Barnhart. Car wheels, device for lubricating, S. M. Briggs. Cars, spring buffer for railway, C. A. Schroyer. Card clothing, foundation of, S. Roberts. Card clothing, foundation of, S. Roberts. Card clothing foundation of, S. Roberts. Card clothing foundation of, S. Roberts. Card clothing foundation of, S. Roberts. Card clothing, foundation of, S. Roberts. Card clothing, foundation of, S. Roberts. Card clothing, foundation of, S. Roberts. Carding engine cylinders, means for driving, G. & E. Ashworth. Carding engines, device for securing card clothing to the flats of, G. & E. Ashworth. Carding engines, device for securing card clothing engines, device for securing card clothing to the flats of, G. & E. Ashworth. Carding engines, device for securing card clothing engines, device for securing card clothing.	\$97,283 397,350 397,471 397,163 397,471 397,163 397,127 397,375 397,137 397,375 397,137 397,420 397,152 397,152 397,152 397,152 397,161 397,212 397,321 397,163 397,164 397,266 397,266
Button, D. P. Fitzgerald. Button setting implement, F. H. Richards. 397,388, Camera. See Photographic camera. Can. See Ash or garbage can. Can jacket, W. Zinsser, Jr. Car coupling, D. C. Bassett. Car coupling, E. N. Colwell. Car coupling, E. N. Colwell. Car coupling, S. P. Mickey. Car coupling, S. P. Mickey. Car coupling, J. H. Simpson Car door, freight, E. H. Whitaker Car floor, W. L. Everit. Car heating apparatus, railway, F. M. Wilder. Car starter, Ackers & Lindsey, Jr. Car starter, N. V. Viele. Car, stock, J. Montgomery. Car, unloader, H. M. Barnhart. Car wheels, device for lubricating, S. M. Briggs. Card clothing, foundation of, S. Roberts. Card clothing foundation of, S. Roberts. Card clothing foundation of, S. Roberts. Card clothing to flat bars, apparatus for attaching, G. & E. Ashworth. Carding engines, device for securing card clothing engines, device for securing card clothing engines, defer comb head for, G. & E. Ashworth. Carding engines, doffer comb head for, G. & E. Ashworth. Carrier. See Cash carrier. Carpet sweeper, Ru Ton & Gore.	\$97,283 \$97,350 \$97,471 \$97,163 \$97,412 \$97,375 \$97,137 \$97,375 \$97,137 \$97,420 \$97,420 \$97,420 \$97,420 \$97,420 \$97,161 \$97,212 \$97,327 \$97,163 \$97,163 \$97,163 \$97,163 \$97,420 \$97,420 \$97,420 \$97,420 \$97,420 \$97,420 \$97,420 \$97,420 \$97,420 \$97,420 \$97,420 \$97,420 \$97,420 \$97,420 \$97,265 \$97,266 \$97,266 \$97,266
Button, D. P. Fitzgerald. Button setting implement, F. H. Richards. 237,388, Camera. See Photographic camera. Can. See Ash or garbage can. Can jackst, W. Zinsser, Jr. Car coupling, D. C. Bassett. Car coupling, E. N. Colwell. Car coupling, B. P. Mickey. Car coupling, B. P. Mickey. Car coupling, B. P. Mickey. Car coupling, J. H. Simpson Car door, freight, E. H. Whitaker Car floor, W. L. Everit. Car heating apparatus, railway, H. R. Towne. Car heating apparatus, railway, F. M. Wilder. Car heating apparatus, railway passenger, M. Wood. Car starter, Ackers & Lindsey, Jr. Car starter, N. V. Viele. Car, stock, J. Montgomery. Car, unloader, H. M. Barnhart. Car wheels, device for lubricating, S. M. Briggs. Cars, spring buffer for railway, C. A. Schroyer. Card clothing, foundation of, S. Roberts. Card clothing to flat bars, apparatus for attaching, G. & E. Ashworth. Carding engines, device for securing card clothing to the flats of, G. & E. Ashworth. Carding engines, device for comb head for, G. & E. Ashworth. Carding engines, doffer comb head for, G. & E. Ashworth. Carrier. See Cash carrier. Carpet sweeper, Ru Ton & Gore.	\$97,283 \$97,283 \$97,485 \$97,471 \$97,163 \$97,412 \$97,375 \$97,137 \$97,375 \$97,137 \$97,375 \$97,137 \$97,420 \$97,420 \$97,420 \$97,152 \$97,163 \$97,163 \$97,163 \$97,163 \$97,163 \$97,163 \$97,163 \$97,163 \$97,163 \$97,163 \$97,163 \$97,163 \$97,163 \$97,163 \$97,163 \$97,165 \$97,267 \$97,267 \$97,266 \$97,266 \$97,266 \$97,266 \$97,266
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Button, D. P. Fitzgerald. Button setting implement, F. H. Richards. 237,388, Camera. See Photographic camera. Can. See Ash or garbage can. Can jackst, W. Zinsser, Jr. Car coupling, D. C. Bassett. Car coupling, B. N. Colwell. Car coupling, B. P. Mickey. Car coupling, B. P. Mickey. Car coupling, B. P. Mickey. Car coupling, J. H. Simpson Car door, freight, E. H. Whitaker Car floor, W. L. Everit. Car heating apparatus, railway, H. R. Towne. Car heating apparatus, railway, F. M. Wilder. Car heating apparatus, railway passenger, M. Wood. Car starter, Ackers & Lindsey, Jr. Car starter, N. V. Viele. Car, stock, J. Montgomery. Car, unloader, H. M. Barnhart. Car wheels, device for lubricating, S. M. Briggs. Cars, spring buffer for railway, C. A. Schroyer. Card clothing, foundation of, S. Roberts. Card clothing to flat bars, apparatus for attaching, G. & E. Ashworth. Carding engines, device for securing card clothing to the flats of, G. & E. Ashworth. Carding engines, device for comb head for, G. & E. Ashworth. Carding engines, doffer comb head for, G. & E. Ashworth. Carrier. See Cash carrier. Carpet sweeper, Ru Ton & Gore. Cart spring, road, R. E. Jones. Cart tridge reloading implement, H. Fuermann. Case. See Piano case. Shipping case. Cash carrier, T. M. Kenney.	\$97,283 \$97,283 \$97,350 \$97,471 \$97,163 \$97,417 \$97,163 \$97,417 \$97,375 \$97,137 \$97,375 \$97,137 \$97,322 \$97,420 \$97,322 \$97,420 \$97,321 \$97,163 \$97,163 \$97,163 \$97,162 \$97,322 \$97,420 \$97,321 \$97,163 \$97,163 \$97,163 \$97,265 \$97,266 \$97,266 \$97,266 \$97,266 \$97,266 \$97,266 \$97,266 \$97,266 \$97,266 \$97,266
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Button, D. P. Fitzgerald. Button setting implement, F. H. Richards. 397,388, Camera. See Photographic camera. Can. See Ash or garbage can. Can jacket, W. Zinsser, Jr. Car coupling, D. C. Bassett. Car coupling, E. N. Colwell. Car coupling, E. N. Colwell. Car coupling, S. P. Mickey. Car coupling, S. P. Mickey. Car coupling, J. H. Simpson Car door, freight, E. H. Whitaker Car floor, W. L. Everit. Car heating apparatus, railway, F. M. Wilder. Car heating apparatus, railway passenger, M. Wood. Car starter, Ackers & Lindsey, Jr. Car starter, N. V. Viele. Car, stock, J. Montgomery. Car, unloader, H. M. Barnhart. Car wheels, device for lubricating, S. M. Briggs. Cars, spring buffer for railway, C. A. Schroyer. Card clothing, foundation of, S. Roberts. Card clothing, foundation of, S. Roberts. Card clothing to flat bars, apparatus for attaching, G. & E. Ashworth. Carding engine cylinders, means for driving, G. & E. Ashworth. Carding engines, device for securing card clothing to the flats of, G. & E. Ashworth. Carrier, See Cash carrier. Carpet sweeper, Ru Ton & Gore. Cart spring, road, R. E. Jones. Cartridge reloading implement, H. Fuermann. Case. See Piano case. Shipping case. Cash carrier apparatus. pneumatic, J. L. Given. Casks, bushing casing for, P. J. Westphal. Cement, manufacture of, R. W. Lesley. Chairs, spring attachment for rocking, W. I. Bunker.	\$97,283 \$97,283 \$97,350 \$97,471 \$97,163 \$97,471 \$97,163 \$97,172 \$97,375 \$97,137 \$97,137 \$97,137 \$97,137 \$97,152 \$97,152 \$97,152 \$97,152 \$97,152 \$97,152 \$97,153 \$97,153 \$97,153 \$97,153 \$97,154 \$97,267 \$97,266 \$97,266 \$97,266 \$97,266 \$97,266 \$97,266 \$97,266 \$97,266 \$97,266 \$97,266 \$97,266 \$97,266 \$97,266 \$97,266 \$97,266 \$97,266 \$97,266 \$97,266 \$97,266
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Corpses, preserving, J. G. Meyers...... 397,379

 Corpet stay, R. Theiler
 397,401

 Cotton chopper, scraper, and harrow, J. M. P.
 Lyon

 Lyon
 897,133

 Cotton picker, J. W. Wallis
 337,209

 Cover fastener, G. Staib
 397,207

124		
Countersink A. Leitelt Coupling. See Car coupling. Hame and tug coupling. Hose coupling. Pipe coupling. Thill coupling.		Knittir Knittir Knittir pior
Crank for machinery, W. H. Kaye	397,119 397,185	Knittir Knittir Lamp grif
Cultivator, T. S. Warner	397,404 397,403	Lamps Latch a Letter
Cut-off and governor, E. Hartung	397,361	Leveling Lid or T. S
Cutting apparatus, endless, A. Clark et al Dental engine, J. S. Campbell Dental plates by electro-deposition, making, J. G. Ward	397,169	Lifting Lock. Lock n Loom,
Direct-acting engine, G. A. Barth	397,166 397,463	Mat. 8 Mat, C.
Door check, B. A. Mitchell, Jr	397,326	Match Measur Medici
Draught equalizer, J. R. Davis	397,343 397,173	Lin Metal, E. I Metal s
Drawing board or table, T. C. Henley Drilling machine, F. Schoff Dumbwaiters, mechanism for operating, G. M.	397,427 397,311	Micron Mill. 8 Mould.
Emerick	397,481	Mouldi Motor, Music,
Dynamo, R. L. Cohen Earring, J. Krug	397,340 397,433	Music l Nail m
Electric communicating system, A. G. Holcombe. Electric converter, L. Gutmann Electric light and other electrical devices, switch	397,461	Nails, 1 Nails, 1 Nut loc
and cut-out for, O. S. Bussmann Electric machine and motor, dynamo, F. J. Pat-	39 7,109 ;	
ten Electric wire conduit, W. B. Mack Electrical circuits, connection of, Griscom &	39 7,43 9 39 7, 300	L. S Oiler, a Open h
Wiedner	397,424	Ore fee Pad. 8
Callender		Paint,
dall Electrode, therapeutical, L. T. Stanley Electrodes, forming secondary battery, R. M.		Paper Paper Paper
Hunter Elevators, etc., grip device for, W. E. Nickerson	397,382	C. T
Embalming board, L. K. Smedes	397,394	Paper Paper Paper,
Engine crosshead. steam, J. J. Tonkin Engine lubricating device, A. L. Ide	307,293	Pen, fo
Exercising apparatus, R. Reach Exercising machine, G. Gaertner	397,386	Phono son Photos
Extractor. See Fruit juice extractor. Eyes, machine for forming interlocking, R.		Photos Piano
Faries	397,374	Piano Picker Pictur
Fence, J. C. Kemp	397,370 397,240	Pin. 8
Finger pull, coin controlled, F. R. White Fishing reel, A. F. & W. Meisselbach	397,160	Pipe co
Flour, machine for packing, S. T. Ayres	397,411	Pipes ting. Planer
man Frame plates for rolling stock, apparatus for the manufacture of, S. Fox	!	Planin Plante Plante
Frame plates for rolling stock, manufacture of, S. Fox	397,177	Plaster G.
Frame plates, manufacturing, S. Fox	397.334	Plow, i
Furnace. See Hot air furnace. Open hearth furnace. Smoke consuming furnace.		Pocker
Furnace, J. F. Durham		Post h
Gauge. See Micrometer gauge. Stone sawing machine gauge.		tair Press.
Galley, self-locking. J. H. Youmans	897 111	940
Gas, apparatus for the manufacture of, R. H. Smith	:	Propel
Gas machine, E. D. Self		Protect Pump,
Gate, E. H. Bauer	397,216	Racing Rail jo Rail po
Goods, machine for compressing and bundling, W. O. Crain	397,457	Railwa Railwa Railwa
Grain binders, knot tier for, J. A. GrahamGrinding mill, H. F. Stone	397,355	Railwa
Gun, magazine, H. A. Pitcher	397,310	Railwa Rake. Rasp o
Hair pin, W. E. Banta	397,164 397,182	Reel. Regula
Harrow, O. Lunn Harrow, M. Skow Harrow and roller, A. H. & J. H. Davis	397,145	Ring. Road e
Hat block, J. C. Fiester Hatchway, elevator, C. A. McAllister	397.117	Rolling
Hay carrier track, M. G. Grosscup	397,338	der Roofin Salt bo
Hay rakes, tooth for horse, E. Tush	397,155	Sandin
Heater. See Agricultural heater. Hinge, spring, J. Keene		Scale r Scales
Hoisting machine, V. W. Mason	031,243	Screw Screw
Hook. See Whiffletree hook. Hook, C. S. Van Wagoner		Seal lo
Horse power, D. Berlew	397,187 397,171	Second Seed, a Sewag
Hose strap. I. Glauber	397,180 397,154	W. Sewing
Hydrant, E. Zwiebel Hydrocarbons, apparatus for burning, J. H. Bullard	89 7, 387	Shavir & S Sheet
Implement joint, F. H. Richards	397,389	Shelf s Shingl
Ink and color slab, Indian, E. G. Soltmann Inkstand, S. G. Baldwin	397.330	Shippi Signal Signal
Iron, apparatus for converting cast, L. Ianke Jar cover, slop, F. Haberman Jewelry setting, L. Krug	397,365 397,425	Sled b Smoke Smoke
Joint. See Implement tolut. Rail joint. Knitting machine, F. Wilcomb		Snap l Spark

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Knitting machine, circular, G. Cooper	897,417	
Knitting machine, circular, W. H. Stewart Knitting machine circular warp, Payne & Campion		
Knitting machine, straight, H. B. Payne Knitting machine, warp, Payne & Campion	397,141	. ;
Lamp manufacture, incandescent, J. A. Vande- grift		i ,
Lamps, suspension device for, W. C. Homan Latch and lock, combined, M. E. De Aguero	397.462	
Letter box indicator, G. A. Colton	397,341	
Lid or cover for metallic or other receptacles, W. T. Seymour		
Lifting machine, coin-controlled, B. Fuchter Lifting machine, coin-controlled, J. G. Kearney	397,229	
Lock. See Nut lock. Paper box lock. Seal lock. Lock nut, Allen & Loree		
Loom, A. Urbahn Mat. See Door mat.		
Mat, C. Wolcott		
Measuring device, liquid, Winters & Bingham Medicine, remedy for rheumatism, etc., J. F.		
Lindgren	397,19 2	
E. N. Colwell		. ;
Micrometer gauge, C. H. Russom		 !
Mould. See Glass mould. Moulding machine, sand, A. L. Teetor	997 316	
Motor, Heinsohn & Hoffmann	397,288	
Music leaf turner, F. H. Loughlin	397,241	
Nails, machine for rolling, H. E. Fuller Nails, rolling, H. E. Fuller	397,460	ŀ
Nut lock, J. C. Morehead	397,436],
Oil cup, C. H. Nunn		
Oiler, automatic, A. Kinney	397,432	
Ore feeder, J. & J. H. Hendy (r)		ľ
Pad. See Truss pad. Paint, D. Bell		ŀ
Palette and easel, combined, Brown & Moody Paper bag, L. D. Benner	397,217	ŀ
Paper box lock, F. E. De Long		ļ
C. TiffanyPaper, conservatory for, I. M. Chase	397,276	
Paper garment, Mudge & Wasson	397 ,27 5	ļ
Paper, naphthaline, A. Tsheppe Pen, fountain, T. F. Bourne	397,413	į.
Pen, fountain, O. F. GrantPhonograph recorder and reproducer, T. A. Edi		į
	397,309	1
Photographic camera, J. J. Higgins397,428, Piano case, P. Gmehlin	397,121	
Piano forte action, Kranich & Bach		ľ
Picture frames, canvas stretcher for, W. Murphy Pin. See Hair pin.	3 97, 1 39	
Pipe. See Hose pipe. Pipe coupling insulating, S. Bergmann		ŀ
Pipe joint delineator, G. S. Kimball Pipes together, steam power apparatus for screw-		
ing, L. A. Stanford	397,400 397,24 6	ļ
Planing machine rolls, J. R. Thomas		:
Planter, corn, J. D. Fitzgerald		ï
G. R. King		!
Plow, mould board or breaking, M. S. & E. L. Cadwell	397,415	i
Pocketbook, purse, or satchel frame fastening, L. B. Prahar		ļ
Post hole machine, W. W. & G. V. Nivison Power. See Horse power.	397,38 3	
Power from water and air currents, means for obtaining motive, J. B. Fox		-
Press. See Baling press. Hay press. Printing machines, means for collecting and		ŀ
evening up sheets for, W. Scott	397,480	i
Propelling and steering apparatus, pneumatic, R. A. Chesebrough		;
Protector. See Boot or shoe protector. Pump, filter, O. H. Woodworth	397,263	i
Racing boat. tubular, F. Frenzel, Jr		:
Rail point, switch, T. G. Palmer		:
Railway signal, electric, A. Z. Boda		1
Railway tracks, apparatus for depositing tor- pedoes upon, J. F. McLaughlin		İ
Railways, danger signal for, J. Prince		
Rasp cutting machine, P. S. Stokes	397,254	
Regulator. See Draught regulator. Ring. See Curtain ring. Earring.		
Road engine, H. K. Sams		ļ
Rolling mill plant, E. L. Clark	397,339	İ
derman	397,149	
Salt box, E. S. Ayer	397,104	
Sawing machine, W. E. Patterson Scale measure, S. J. Hester	397,203	1
Scales, hydrostatic indicator for weighing, H. A. Lewis		-
Screw, jack, M. Reisch	397,387	
Seal lock, O. T. Welch	397,210	
Secondary battery, W. A. Shaw	397,443	1
Sewage by electricity, apparatus for purifying, W. Webster, Jr		
Sewing machine shuttle, C. H. Benoit	397,269	:

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١	Spark extinguisher and arrester, Q. J. Hoke	397,363
	Speed indicator, E. C. Smith	397.395
1	Spittoon, A. E. Moore	207 200
ď	Spittoon, A. E. Moore	0011200
	Spring. See Cart spring. Vehicle spring.	
	Spur, W. Nicholls	397,304
١.	Stall and stock handling apparatus, combined, C.	
÷	F. Shedd	397.206
!		04.14.00
	Stand. See Christmas tree stand.	
	Steam boiler, W. E. Kelly	397,130
i i	Steam engine, G. W. Price	397,468
	Steam engine, revolving piston, W. E. Leonard	397,299
	Steam trap, measuring, G. Guntz	207 104
	Steam trap, measuring, G. Guntz	991,104
	Steel, manufacture of, Tilford & Redemann,	
	397,476 to	397,478
	Stitchingmachine, wire, C. L. Lasch	397,372
	Stone, apparatus for leveling and squaring, M.	
1		
1	Hansel	
ŀ	Stone cutting machine, H. Young	397,410
	Stone sawing machine gauge, Melchior & Meyer	397.244
i	Stools or tables, detachable leg and standard for,	
1		
	G. E. Clow	397,225
	Stopper. See Bottle stopper.	
٠	Strainer holder, L. A. Tarring	397 997
i		001,441
ı	Strap. See Hose strap.	
1	Street sprinkling apparatus, M. Haughey	
	Sunshade, E. Dean	
٠	Surgical appliance, J. H. Bowen	
	Switch operating and locking device, T. W. Bur-	
:	ley	
j	Syringe, B. F. Sutton	
	Tap, expansible and collapsible, T. F. Hammer	
١.		
	Tap, pipe, H. C. Bradford	
:	Tapping bush for barrels, J. McKenzie	397,377
ı.	Telegraph, printing, A. T. McCoy	397.46
ď		
ı	Telephone call box. Griffith & Burbank	
ij	Telephone circuit and apparatus, J. A. Barrett	397,331
)	Telephone or analogous electric system, A. B.	
1	Ferdinand	397 178
'	Telephone paper pad holder, J. B. Seymour, Jr	
ì	Tennis racket, R. B. Brown	397.220
	Thermometer, oven, Henderson & Johnston	397.127
	Thill coupling, W. H Bowmar	397.455
1	Thill, vehicle, E. J. Hagan	
ŀ	Tire apparatus, P. Schlosser	397,390
:	Tire, vehicle wheel, H. M. Du Bois397,458,	
	Toy figure, cut, J. McLoughlin	
1	Toy, flying, F. J. Lutz	397,435
	Trap. See Steam trap.	
d	Tricycle, W. L. Fay	397,348
,	Trowel, plastering, A. Hill	
	Truss pad, O. Eckert	
i.	Type forms, matrix impression guard for, R. B.	
	Hastie	397,232
١	Valve, G. A. Matteson	
	Volume electric stem D Wellens	207 100
	Valve, electric stop, R. Wellens	
	Valve for fluid pressure brakes, H. Guels	
	Valve for fluid pressure brakes, H. Guels Valve for oil well stand pipes, discharge, R. M.	
	Valve for oil well stand pipes, discharge, R. M.	397,125
	Valve for oil well stand pipes, discharge, R. M. Dunn	397,125 397,115
	Valve for oil well stand pipes, discharge, R. M. Dunn	397,125 397,115 397,323
)	Valve for oil well stand pipes, discharge, R. M. Dunn	397,125 397,115 397,323 397,170
)	Valve for oil well stand pipes, discharge, R. M. Dunn	397,125 397,115 397,323 397,170
	Valve for oil well stand pipes, discharge, R. M. Dunn	397,125 397,115 397,323 397,170 397,329
	Valve for oil well stand pipes, discharge, R. M. Dunn Valve gear, R. Wilby Valve, slide, F. C. Cleaver Vehicle dash board, C. L. Baker Vehicle spring, E. Jarrell	397,125 397,115 397,323 397,170 397,329 397,366
	Valve for oil well stand pipes, discharge, R. M. Dunn. Valve gear, R. Wilby. Valve, slide, F. C. Cleaver. Vehicle dash board, C. L. Baker. Vehicle spring, E. Jarrell. Velocipede pedal, T. B. Jeffery.	397,125 397,115 397,323 397,170 397,329 397,366 397,188
	Valve for oil well stand pipes, discharge, R. M. Dunn. Valve gear, R. Wilby. Valve, slide, F. C. Cleaver. Vehicle dash board, C. L. Baker. Vehicle spring, E. Jarrell. Velocipede pedal, T. B. Jeffery. Vending apparatus, F. M. Leavitt.	397,125 397,115 397,323 397,170 397,329 397,366 397,188 897,297
	Valve for oil well stand pipes, discharge, R. M. Dunn. Valve gear, R. Wilby. Valve, slide, F. C. Cleaver. Vehicle dash board, C. L. Baker. Vehicle spring, E. Jarrell. Velocipede pedal, T. B. Jeffery.	397,125 397,115 397,323 397,170 397,329 397,366 397,188 897,297
	Valve for oil well stand pipes, discharge, R. M. Dunn. Valve gear, R. Wilby. Valve, slide, F. C. Cleaver. Vehicle dash board, C. L. Baker. Vehicle spring, E. Jarrell. Velocipede pedal, T. B. Jeffery. Vending apparatus, F. M. Leavitt. Vending apparatus, J. W. Vaughn	397,125 397,115 397,323 397,170 397,366 397,188 897,297 397,319
	Valve for oil well stand pipes, discharge, R. M. Dunn Valve, slide, F. C. Cleaver Vehicle dash board, C. L. Baker Vehicle spring, E. Jarrell Velocipede pedal, T. B. Jeffery. Vending apparatus, F. M. Leavitt Vending apparatus, J. W. Vaughn Veneer machine, rotary cutting, E. S. & C. R. Gor-	397,125 397,115 397,323 397,170 397,329 397,366 397,188 897,297 397,319
	Valve for oil well stand pipes, discharge, R. M. Dunn. Valve gear, R. Wilby. Valve, slide, F. C. Cleaver. Vehicle dash board, C. L. Baker. Vehicle spring, E. Jarrell. Velocipede pedal, T. B. Jeffery. Vending apparatus, F. M. Leavitt. Vending apparatus, J. W. Vaughn Veneer machine, rotary cutting, E. S. & C. R. Gorham	397,125 397,115 397,323 397,170 397,329 397,366 397,188 957,297 397,319
	Valve for oil well stand pipes, discharge, R. M. Dunn. Valve gear, R. Wilby. Valve, slide, F. C. Cleaver. Vehicle dash board, C. L. Baker. Vehicle spring, E. Jarrell. Velocipede pedal, T. B. Jeffery. Vending apparatus, F. M. Leavitt. Vending apparatus, J. W. Vaughn. Veneer machine, rotary cutting, E. S. & C. R. Gorham. Ventilator, E. A. Goodell.	397,125 397,115 397,323 397,170 397,329 397,366 397,188 397,189 397,181 397,122
	Valve for oil well stand pipes, discharge, R. M. Dunn. Valve gear, R. Wilby. Valve, slide, F. C. Cleaver. Vehicle dash board, C. L. Baker. Vehicle spring, E. Jarrell. Velocipede pedal, T. B. Jeffery. Vending apparatus, F. M. Leavitt. Vending apparatus, J. W. Vaughn Veneer machine, rotary cutting, E. S. & C. R. Gorham	397,125 397,115 397,323 397,170 397,329 397,366 397,188 397,189 397,181 397,122
	Valve for oil well stand pipes, discharge, R. M. Dunn. Valve, slide, F. C. Cleaver. Vehicle dash board, C. L. Baker. Vehicle spring, E. Jarrell. Velocipede pedal, T. B. Jeffery. Vending apparatus, F. M. Leavitt. Vending apparatus, J. W. Vaughn Veneer machine, rotary cutting, E. S. & C. R. Gorham Ventilator, E. A. Goodell. Violin rest, J. Bohmann.	397,125 397,115 397,323 397,170 397,329 397,366 397,188 857,297 397,319 397,181 397,122 397,454
	Valve for oil well stand pipes, discharge, R. M. Dunn. Valve gear, R. Wilby. Valve, slide, F. C. Cleaver. Vehicle dash board, C. L. Baker. Vehicle spring, E. Jarrell. Velocipede pedal, T. B. Jeffery. Vending apparatus, F. M. Leavitt. Vending apparatus, J. W. Vaughn. Veneer machine, rotary cutting, E. S. & C. R. Gorham Ventilator, E. A. Goodell. Violin rest, J. Bohmann. Vise, W. H. Remsen.	397,125 397,115 397,323 397,170 397,329 397,366 397,188 897,297 397,319 397,181 397,122 397,454
	Valve for oil well stand pipes, discharge, R. M. Dunn. Valve gear, R. Wilby. Valve, slide, F. C. Cleaver. Vehicle dash board, C. L. Baker. Vehicle spring, E. Jarrell. Velocipede pedal, T. B. Jeffery. Vending apparatus, F. M. Leavitt. Vending apparatus, J. W. Vaughn. Veneer machine, rotary cutting, E. S. & C. R. Gorham Ventilator, E. A. Goodell. Violin rest, J. Bohmann. Vise, W. H. Remsen.	397,125 397,115 397,323 397,170 397,329 397,366 397,188 897,297 397,319 397,181 397,122 397,454
3	Valve for oil well stand pipes, discharge, R. M. Dunn. Valve gear, R. Wilby. Valve, slide, F. C. Cleaver. Vehicle dash board, C. L. Baker. Vehicle spring, E. Jarrell. Velocipede pedal, T. B. Jeffery. Vending apparatus, F. M. Leavitt. Vending apparatus, J. W. Vaughn. Veneer machine, rotary cutting, E. S. & C. R. Gorham Ventilator, E. A. Goodell. Violin rest, J. Bohmann. Vise, W. H. Remsen. Wash board, A. R. Kibbe.	397,125 397,115 397,323 397,170 397,329 397,366 397,188 597,297 397,319 397,181 397,122 397,454 397,470 397,430
3	Valve for oil well stand pipes, discharge, R. M. Dunn. Valve gear, R. Wilby. Valve, slide, F. C. Cleaver. Vehicle dash board, C. L. Baker. Vehicle spring, E. Jarrell. Velocipede pedal, T. B. Jeffery. Vending apparatus, F. M. Leavitt. Vending apparatus, J. W. Vaughn Veneer machine, rotary cutting, E. S. & C. R. Gorham Ventilator, E. A. Goodell. Violin rest, J. Bohmann Vise, W. H. Remsen. Wash board, A. R. Kibbe. Washing machine, I. F. Field.	397,125 397,115 397,323 397,170 397,366 397,368 397,319 397,319 397,319 397,454 397,454 397,470 397,430 397,349 397,349
3	Valve for oil well stand pipes, discharge, R. M. Dunn. Valve gear, R. Wilby. Valve, slide, F. C. Cleaver. Vehicle dash board, C. L. Baker. Vehicle spring, E. Jarrell. Velocipede pedal, T. B. Jeffery. Vending apparatus, F. M. Leavitt. Vending apparatus, J. W. Vaughn Veneer machine, rotary cutting, E. S. & C. R. Gorham Ventilator, E. A. Goodell. Violin rest, J. Bohmann Vise, W. H. Remsen. Wash board, A. R. Kibbe. Washing machine, I. F. Field.	397,125 397,115 397,323 397,170 397,366 397,368 397,319 397,319 397,319 397,454 397,454 397,470 397,430 397,349 397,349
3	Valve for oil well stand pipes, discharge, R. M. Dunn. Valve gear, R. Wilby. Valve, slide, F. C. Cleaver. Vehicle dash board, C. L. Baker. Vehicle spring, E. Jarrell. Velocipede pedal, T. B. Jeffery. Vending apparatus, F. M. Leavitt. Vending apparatus, J. W. Vaughn Veneer machine, rotary cutting, E. S. & C. R. Gorham Ventilator, E. A. Goodell. Violin rest, J. Bohmann Vise, W. H. Remsen. Wash board, A. R. Kibbe. Washing machine, I. F. Field. Washing machine, E. E. Willis. Watchmaker's tool, Leach & Figarotta.	397,125 397,323 397,323 397,366 397,366 397,389 397,319 397,181 397,122 397,454 397,470 397,430 397,430 397,319
3	Valve for oil well stand pipes, discharge, R. M. Dunn. Valve, slide, F. C. Cleaver. Vehicle dash board, C. L. Baker. Vehicle spring, E. Jarrell. Velocipede pedal, T. B. Jeffery. Vending apparatus, F. M. Leavitt. Vending apparatus, F. M. Leavitt. Vending apparatus, J. W. Vaughn Veneer machine, rotary cutting, E. S. & C. R. Gorham Ventilator, E. A. Goodell. Violin rest, J. Bohmann Vise, W. H. Remsen. Wash board, A. R. Kibbe. Washing machine, I. F. Field. Washing machine, I. F. Field. Washing machine, I. F. Figarotta. Watchmaker's tool, Leach & Figarotta.	397,125 397,115 397,323 397,320 397,366 397,188 397,319 397,181 397,181 397,490 397,440 397,449 397,349 397,319
3	Valve for oil well stand pipes, discharge, R. M. Dunn. Valve, slide, F. C. Cleaver. Vehicle dash board, C. L. Baker. Vehicle spring, E. Jarrell. Velocipede pedal, T. B. Jeffery. Vending apparatus, F. M. Leavitt Vending apparatus, J. W. Vaughn Veneer machine, rotary cutting, E. S. & C. R. Gorham Ventilator, E. A. Goodell. Violin rest, J. Bohmann Vise, W. H. Remsen. Wash board, A. R. Kibbe. Washing machine, I. F. Field. Washing machine, E. E. Willis. Watchmaker's tool, Leach & Figarotta. Watch, stem winding and setting, H. Schutz. Watches, etc., demagnetizing, J. Greaves.	397,125 397,115 397,323 397,170 397,329 397,366 397,188 397,319 397,112 397,122 397,454 397,454 397,454 397,454 397,454 397,454 397,454 397,454
3	Valve for oil well stand pipes, discharge, R. M. Dunn. Valve, slide, F. C. Cleaver. Vehicle dash board, C. L. Baker. Vehicle spring, E. Jarrell. Velocipede pedal, T. B. Jeffery. Vending apparatus, F. M. Leavitt Vending apparatus, J. W. Vaughn Veneer machine, rotary cutting, E. S. & C. R. Gorham Ventilator, E. A. Goodell. Violin rest, J. Bohmann Vise, W. H. Remsen. Wash board, A. R. Kibbe. Washing machine, I. F. Field. Washing machine, E. E. Willis. Watchmaker's tool, Leach & Figarotta. Watch, stem winding and setting, H. Schutz. Watches, etc., demagnetizing, J. Greaves.	397,125 397,115 397,323 397,170 397,329 397,366 397,188 397,319 397,112 397,122 397,454 397,454 397,454 397,454 397,454 397,454 397,454 397,454
3	Valve for oil well stand pipes, discharge, R. M. Dunn. Valve, slide, F. C. Cleaver. Vehicle dash board, C. L. Baker. Vehicle spring, E. Jarrell. Velocipede pedal, T. B. Jeffery. Vending apparatus, F. M. Leavitt Vending apparatus, J. W. Vaughn Veneer machine, rotary cutting, E. S. & C. R. Gorham Ventilator, E. A. Goodell. Violin rest, J. Bohmann Vise, W. H. Remsen. Wash board, A. R. Kibbe. Washing machine, I. F. Field. Washing machine, E. E. Willis. Watchmaker's tool, Leach & Figarotta. Watch, stem winding and setting, H. Schutz. Watches, etc., demagnetizing, J. Greaves.	397,125 397,115 397,323 397,170 397,329 397,366 397,188 397,319 397,112 397,122 397,454 397,454 397,454 397,454 397,454 397,454 397,454 397,454
3 2 3	Valve for oil well stand pipes, discharge, R. M. Dunn. Valve, slide, F. C. Cleaver. Vehicle dash board, C. L. Baker. Vehicle dash board, C. L. Baker. Vehicle pediction of the vehicle dash board, C. L. Baker. Vehicle spring, E. Jarrell. Velocipede pedal, T. B. Jeffery. Vending apparatus, F. M. Leavitt. Vending apparatus, J. W. Vaughn Veneer machine, rotary cutting, E. S. & C. R. Gorham Ventilator, E. A. Goodell. Violin rest, J. Bohmann Vise, W. H. Remsen. Wash board, A. R. Kibbe. Washing machine, I. F. Field. Washing machine, I. F. Field. Watchmaker's tool, Leach & Figarotta. Watches, etc., demagnetizing, J. Greaves. Water closets, siphon valve for, C. H. Harkins. Wheel. See Wheelbarrow wheel.	397,125 397,115 397,323 397,170 397,329 397,366 397,188 397,181 397,181 397,182 397,454 397,470 397,430 397,430 397,319 397,191 397,191 397,359
3	Valve for oil well stand pipes, discharge, R. M. Dunn. Valve, slide, F. C. Cleaver. Vehicle dash board, C. L. Baker. Vehicle dash board, C. L. Baker. Vehicle pediction of the vehicle dash board, C. L. Baker. Vehicle spring, E. Jarrell. Velocipede pedal, T. B. Jeffery. Vending apparatus, F. M. Leavitt. Vending apparatus, J. W. Vaughn Veneer machine, rotary cutting, E. S. & C. R. Gorham Ventilator, E. A. Goodell. Violin rest, J. Bohmann Vise, W. H. Remsen. Wash board, A. R. Kibbe. Washing machine, I. F. Field. Washing machine, I. F. Field. Watchmaker's tool, Leach & Figarotta. Watches, etc., demagnetizing, J. Greaves. Water closets, siphon valve for, C. H. Harkins. Wheel. See Wheelbarrow wheel.	397,125 397,115 397,323 397,170 397,329 397,366 397,188 397,181 397,181 397,182 397,454 397,470 397,430 397,430 397,319 397,191 397,191 397,359
3 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Valve for oil well stand pipes, discharge, R. M. Dunn. Valve gear, R. Wilby. Valve, slide, F. C. Cleaver. Vehicle dash board, C. L. Baker. Vehicle spring, E. Jarrell. Velocipede pedal, T. B. Jeffery. Vending apparatus, F. M. Leavitt. Vending apparatus, J. W. Vaughn Veneer machine, rotary cutting, E. S. & C. R. Gorham Ventilator, E. A. Goodell. Violin rest, J. Bohmann Vise, W. H. Remsen. Wash board, A. R. Kibbe. Washing machine, I. F. Field. Washing machine, E. E. Willis. Watchnaker's tool, Leach & Figarotta. Watch, stem winding and setting, H. Schutz. Watches, etc., demagnetizing, J. Greaves. Water closets, siphon valve for, C. H. Harkins. Wheel. See Wheelbarrow wheel. Wheels, forming vehicle, T. B. Jeffery.	397,125 397,125 397,323 397,370 397,323 397,363 397,383 397,182 397,181 397,122 397,454 397,470 397,471 397,319 397,319 397,319 397,319 397,319 397,319
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