let on a hard wood block. Although the steel when cold or window glass that will retain the electricity. What kind would break like glass with this treatment, when slightly warmed it will yield to moderately heavy blows unin-

(5164) W. S. writes: 1. I hear that it costs \$2 a day to take cameras into the World's Fair

camera taking a picture over  $4\times5$  in the grounds? A. They do not, except in the case of photographers representing illustrated journals. Such photographers must obtain a special permit from the official photographer. 3. How many caustic potash batteries would it take to run a ¾ horse power electric motor. Cell contains 2 copper plates  $4\times5$  inches, and 1 zinc plate  $4\times5$  inches. Batteries It will probably r quire not less than 20 cells. 4. What size wire would it be necessary to wind the motor to adapt it to the caustic potash battery? A. No. 20 wire will probably be about right. The motor should have a resistance of from 20 to 30 ohms, depending upon the manner in which the battery is connected up. 5. Does A. No. 6. How many hours will a bichromate plunge battery work 6 cells, size of plates 11/2 inch by 4 inches? Will it work a motor for 5 hours,? What is the voltage and amperage? A. 5 to 6 hours. The E. M. F. of each cell is 2 volts. The amperage depends upon the resist ance in the circuit.

(5165) W. S. P. writes: 1. In regard to the induction coil in the home medical battery, what kind of wire is used in the primary coil, and how many feet? A. It will probably require 5 or 6 feet of No. 36 wire. 2. What number of wire or what kind is used in the secondary coil? How many feet in the secondary coil? A. 12 or 15 layers of No. 36 silk-covered magnet wire, 150 to 200 feet. 3. Do you think Grenet battery fluid is as good as elect opoion fluid for a Fuller bichromate battery? A. It is the same thing. 4. Is the Grenet fluid any good when it becomes black? A. No. 5. Could you give me some directions for making 3 pints of electropoion fluid? A. Make a saturated solution of bichromate of sodium in water, and slowly add onefifth its bulk of commercial sulphuric acid.

(5166) C. T. V. asks: 1. What kind of little over one-fifth electricity is that generated by the dynamo? A. Dy- safe for good iron and a web wheel without flaws. namic. 2. Why is so much precaution exercised in the stringing of fire alarm wires when only one wire is exposed to the dampness? A. Because the ground constitutes the other conductor, and any leakage from the wire to the ground impairs the efficiency of the line. 3. Can electricity, when grounded, be compared with water in regard to seeking its level? A. The earth is generally considered as an electrical reservoir; therefore the water analogy might be regarded as the proper one.

(5167) D. C. B. asks: 1. What is the E. M. F. of a nickel-plating dynamo of 40 gallons capacity? A. 7 or 8 volts. 2. About what size wire should I use on an electro-magnet to be used with this machine? A. This depends altogether on the size of the wire on the armsture, but of course it will be necessary to use large wire, on account of the heavy current gener ated by the machine. 3. What is the cause of reverse current in plating dynamos, and how remedied? A. The secondary current from the plating vat. 4. It is a series wound machine with a Siemens armature. I think its name is the "Little Giant." What change

ing would adapt at for general experimental purposes ? A. Windthe armature with finer

the power of the machine then? A. Without more data we cannot reply to this query. 6. Should the commutators of a dynamo change brushes when the poles of the armature are directly opposite the poles of the field magnet? A. It depends upon the winding of the armature. If the wires run from the coil straightout to the armature, the change should take place about haf way between the poles. 7. Is plaster of Paris a good insulator? A. When dry it is a fair insulator.

(5168) W. E. S. asks: 1. Will you give me the formula for charging a Bunsen battery? A. Make a saturated solution of bichromate of sodium in water; to this slowly add one-fifth its bulk of commer cial sulphuric acid. 

at 680° Fah. 3. Can it be moulded smooth? A. It can be cast smoothly in metal moulds. 4. In what number of the Scientific American does it tell how to make an induction coil? A. You will find a full description of an induction coil in SUPPLEMENT, No. 160.

(5169) H. W. B., Jr., writes: I have seen described in the Notes and Queries of your paper a battery composed of sheets of zinc and copper 1th blotting paper in between; will you tell me what the paper is wet with, how thick should the zincs and coppers and the paper be to secure the best results? What would be the voltage, amperage and resistance of one composed of ten sheets of zinc and ten of copper, 10 inches by 6 inches ? A. One half of the sheets in the battery referred to should be saturated with a solution of zine and the other half with a solution of sulphate of copper. The blotting paper saturated with the sulphate of copper should be in contact with the copper, and that saturated with the he in contact with the a zinc plates may be one-eighth of an inch, and for the copper any thickness will do, provided it is stiff enough to maintain its contact with the blotting paper. The voltage is about the

1 volt, but the amperage is very small, owing to the resistance of the battery. Probably you will be able to secure a current of 3 or 4 amperes with such a battery.

(5170) G. R. asks the cause of holes about the size of a tackhead and larger on the sides of a stereotype plate, such as used on newspapers, after the tails are cut off. These holes form whether metal is poured hot or cold. which in the operation of casting does not escape from

the casting box.

(5171) A. Z. writes : 1. In Wimshurst electric machine described in "Experimental Science," could vulcanite be used for rotary disks? Would they be better than glass? A. Vulcanite can be used for this purpose, but it deteriorates with time. 2. Is standard supporting journal and axles of wood or metal? A. They are of wood. 8. Are tinfoil strips connecting brushes in electric connection with axle? A. No. 4. In trying to make Leyden jars we can hardly find any bottles or jars

of glass or how prepared will answer the purpose? A. Use soda glass. Leadglass is a conductor of electricity, although a very poor one. The glass jar should be very thoroughly dried and varnished with shellac before being coated with tinfoil.

(5172) O. C. C. asks: 1. Please tell me the gross weight, charged, of a primary battery maintaining (for motor power) after a fifteen minutes' run about 1/4 horse power. A. 50 to 60 pounds. 2. The shortes period in which such a battery (after say 15 minutes service) will regain its prime strength? A. The battery will not of itself recover its original strength; it must be recharged. The process of fully recharging requires to be coupled up like a bichromate plunge battery. A. from 6 to 7 hours. 3. Which are the lighter and most serviceable-rubber or glass cells? A. Rubber cells.

(5173) T. T. writes: Recently during a thunder storm here a church was struck by lightning. The steeple was struck first, then the interior was visited leaving a long streak where it had scorched the wall the battery make more fumes than the bichromate cell? paper. It was afterward noticed that it followed an irregular gold stripe in the wall paper from the ceiling to the floor. Can you explain why this occurred? A. A very slight conductor serves to lead lightning in any direction, on account of its extremely high E. M. F.

(5174) M. C. P. writes: I wish to ask you question in regard to my wood saw that I have just rigged up. It has a balance wheel weighing from 100 to 125 pounds, 26 inches in diameter, is a web wheel. I have been running it at about 1600 revolutions per minute. I run it with a horse power; the speed is sometimes higher, sometimes lower. Now, is it dangerous to run it at that speed? The machinist who cast the wheel said it was of good quality. My saw is 20 inches in diameter, and if I reduce the speed I am afraid it will not saw well. If it is not asking too much, please give me some information in regard to the matter. A. The tensional breaking strength of cast iron in the usual foundry practice cannot be trusted at more than 16,000 pounds per square inch. The safe load is made at one-sixth of the breaking strength per square inch or 2,666 pounds. The strain on the rim of your fly wheel at a speed of 1,600 revolutions per minute is 3,000 pounds per square inch, or a margin of a

(5175) T. D. McC. asks: 1. In the Blake transmitter, is the fine wire wound next to core or on the outside? A. In the Blake transmitter the fine wire of the induction coil is wound upon the coarse wire. 2. Does primary circuit in an induction coil always refer to the inner circuit? A. Not necessarily, but according to the usual construction, the primary or coarse wire coil is placed on the core inside of the secondary coil.

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### INDEX OF IN

For which Letters Patent of the United States were Granted

June 27, 1893

### AND EACH BEARING THAT DATE

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

Alarm. See Fire alarm Abum, C. F. Geyer		Alarm. See Fire alarm.	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Animals from jumping,  Animals from jumping,  Annea ng w re, urnace or, c onne	i	Album, C. F. Gever	500 00
Annea ng w re, urnace or, c onne 50 Asphalt disintegrating boiler, A. Haskins 50 Axie and box wagon, J. Raddin Axie nut, J. Bermel 50 Bayasse furnace, Cohen & Herrmann 50 Baling press, hand, F. Posey 50 Balloon ship, G. T. L. Gahrielii 50 Bath, G. Elliott 50 Bath, G. Elliott, 60 Bath, G. Elliott	ı	Animals from jumping	300,32
Annea ng w re, urnace or, c onne	1		500,152
Axie and box. wagon, J. Raddin Axie nut, J. Bermel	ŀ.	Annea ngwre, urnace or c onne	500 410
Axie and box. wagon, J. Raddin Axie nut, J. Bermel	١.	Asphalt disintegrating boiler, A. Haskins	500 495
Axle nut, J. Bermel.  Axle, roller bearing vehicle, S. J. Campbell.  So Bayasse furnace, Cohen & Herrmann  Ballog press, hand, F. Posey.  Balloon ship, G. T. L. Gahrielii.  Battery.  G. Elliott.  Battery.  Bed slat support, G. Luppert.  Bell slarm, A. ruegger.  So Bending roll, W. Lewis.  Bicycle saddle, J. H. Sager.  Solletoop, F. J. Bringham.  Billetoop, F. J. Bringham.  Billietoop, F. J. Br		A TIP AND NOT, WAPON I READIN	
Balloon ship, G. T. L. Gahrielii	ľ	Axle nut. J. Bermel	500 464
Balloon ship, G. T. L. Gahrielii	Ι,	Axle, roller hearing vehicle, S. J. Campbell	500,249
Balloon ship, G. T. L. Gahrielii	:	Bagasse furnace, Cohen & Herrmann	500,378
Second Se	:	Baling press, hand F. Posev	500 425
Second Se	÷	Balloon ship, G. T. L. Gahrielii	500 326
Second Se	i	Bath, G. Elliott	500,020
tery.  Bed slat support, G. Luppert.  Bed slat support, G. Luppert.  N. P. Flu  Bell, alarm, A. ruegger.  Belleyele frame, A. Winton.  Biltyele seat, supplementary, J. H. Sager.  Biltyele seat, J. H. H. H. Sager.  Biltyele seat, J. M. Hartman.  Biltyele seat, J. M. Hartman.  Blast furnace, J. M. Hartman.  Blast furnaces, J. M. Hartman.  Bloer. See Asphalt disintegrating boiler. Sectional boiler.  Bolter, See Asphalt disintegrating boiler. Sectional boiler.  Book, Indexed, A. F. Dean.  Book, Indexed, A. F. Dean.  Bottle, solf orsearcer, J. W. Carter.  Boltette, solf for securing corksj in, K. Kirschner, Jr.  Boutele stopper, G. F. Atwood.  Bottles, tool for securing corksj in, K. Kirschner, Jr.  Brake, See Dice box. Musicbox. Paper box. Resistan b  Brace. See  Bracket, J. R. arry.  Brake, See Car brake. Vehicle brake.  Brake handle, S. A. Burns.  Brick machine, D. H. Rice  Brick machine, D. H. Rice  Brick machine, D. H. Rice  Brick machine, P. P. Davidson  Brushing machine, J. A. Quinn.  M. Buther, J. A. Legger.  Buttons of mother-of-pearl, drilling machine for	:	Battery. G	000,210
Bed slat support, G. Luppert.  Bee swarmer, catcher, and separator, combined,  N. P. Flu  Bell, slarm, A. ruegger	i.	terv.	
N. P. Flu Bell, alarm, A. ruegger	į.	Bed slat support, G. Luppert	500 406
N. P. Flu Bell, alarm, A. ruegger	Г	Bee swarmer, catcher, and separator, combined.	000,200
Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt	ı	N. P. Flu t	1
Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt	Ľ	Bell, alarm, A. ruegger	500.187
Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt	ı	Bending roll, W. Lewis.	500,296
Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt	ı	Bicycle frame, A. Winton	500.177
Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt	:	Bicycle saddle, J. H. Sager 500 156	500 158
Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt		Bic scle seat, supplementary, J. H. Sager	500.167
Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt	•	Billetioop, F. J. Bringham	500 111
Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt	3	Billiard cha k cup, H. Van Hoevenbergh	500 260
Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt	:	Bit. See Expansive bit.	000,000
Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt	-	Bit stock, W. S. Parman	500 153
Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt	-	Bituminous substances, apparatus for reducing,	000,200
Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt	:	refining, and separating, W. A. Doble	500 474
Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt	÷	Blacking machine, boot or shoe, T. H. Lever	500 502
Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt	-	Blast furnace, J. M. Hartman	500.387
Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt	-	Blast furnaces, iron notch for, J. M. Hartman	500.338
Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt	1	Blind stile mortiser and borer, W. H. Brownfield.	500.278
Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt	i.	Board. See Game board.	
Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt	ı	Boat. See Steam passenger boat.	
tional boiler.  Bolt, J. A. Leggatt			
Bolt, J. A. Leggatt. 50 Bolt cutter, C. L. Beers 50 Book, indexed, A. F. Dean 50 Bottle pour-out or discharger, J. W. Carter 50 Bottle pour-out or discharger, J. W. Carter 50 Bottle stopper, G. F. Atwood 50 Bottles topper, G. F. Atwood 50 Bottles, tool for securing corks in, K. Kirschner, Jr. 50 Bouquet boider, C. A. Burbank 50 Boutoniero, H. W. Fishel 50 Boutoniero, H. W. Fishel 50 Brace. See Bracket, J. R. arry 50 Brace. See 6 Bracket, J. R. arry 50 Brake, See Car brake. Vehicle brake 50 Brick machine, S. A. Burns 50 Brick machine, S. A. Burns 50 Brick machine, Fe-press, D. C. Arnold 50 Brush holder, S. H. Libby 50 Brushing machine, A. Sague 50 Bucket, dumping, J. A. Quinn 50 Burner, See Oil burner 50 Burner, See Oil burner 60 Burner, See Oil burner 60 Buttons of mother-of-pearl, drilling machine for	1	Boller. See Asphalt disintegrating boiler. Sec-	
Brace. See Bracket, J. R. arry. Vehicle brake. Brake. See Car brake. Vehicle brake. Brake handle, S. A. Burns. Brick machine, D. H. Rice Brick machine, Perpess, D. C. Arnold. Bridge Rate, L. Naplon. Brush holder, S. H. Libby. Brush making to 1 M. Young. Brushing machine, A. Sague. Bucket, dumping, J. A. Quinn. Burner, See Oil burner. Buehings, manufacture of, W. H. Bache. Buttons of mother-of-pearl, drilling machine of	l	Boller. See Asphalt disintegrating boiler. Sec-	
Brace. See Bracket, J. R. arry. Vehicle brake. Brake. See Car brake. Vehicle brake. Brake handle, S. A. Burns. Brick machine, D. H. Rice Brick machine, Perpess, D. C. Arnold. Bridge Rate, L. Naplon. Brush holder, S. H. Libby. Brush making to 1 M. Young. Brushing machine, A. Sague. Bucket, dumping, J. A. Quinn. Burner, See Oil burner. Buehings, manufacture of, W. H. Bache. Buttons of mother-of-pearl, drilling machine of		Boller. See Asphalt disintegrating boiler. Sec-	
Brace. See Bracket, J. R. arry. Vehicle brake. Brake. See Car brake. Vehicle brake. Brake handle, S. A. Burns. Brick machine, D. H. Rice Brick machine, Perpess, D. C. Arnold. Bridge Rate, L. Naplon. Brush holder, S. H. Libby. Brush making to 1 M. Young. Brushing machine, A. Sague. Bucket, dumping, J. A. Quinn. Burner, See Oil burner. Buehings, manufacture of, W. H. Bache. Buttons of mother-of-pearl, drilling machine of		Boller. See Asphalt disintegrating boiler. Sec-	
Brace. See Bracket, J. R. arry. Vehicle brake. Brake. See Car brake. Vehicle brake. Brake handle, S. A. Burns. Brick machine, D. H. Rice Brick machine, Perpess, D. C. Arnold. Bridge Rate, L. Naplon. Brush holder, S. H. Libby. Brush making to 1 M. Young. Brushing machine, A. Sague. Bucket, dumping, J. A. Quinn. Burner, See Oil burner. Buehings, manufacture of, W. H. Bache. Buttons of mother-of-pearl, drilling machine of		Boller. See Asphalt disintegrating boiler. Sec-	
Brace. See Bracket, J. R. arry. Vehicle brake. Brake. See Car brake. Vehicle brake. Brake handle, S. A. Burns. Brick machine, D. H. Rice Brick machine, Perpess, D. C. Arnold. Bridge Rate, L. Naplon. Brush holder, S. H. Libby. Brush making to 1 M. Young. Brushing machine, A. Sague. Bucket, dumping, J. A. Quinn. Burner, See Oil burner. Buehings, manufacture of, W. H. Bache. Buttons of mother-of-pearl, drilling machine of		Boller. See Asphalt disintegrating boiler. Sec-	
Brace. See Bracket, J. R. arry. Vehicle brake. Brake. See Car brake. Vehicle brake. Brake handle, S. A. Burns. Brick machine, D. H. Rice Brick machine, Perpess, D. C. Arnold. Bridge Fate, L. Naplon. Brush holder, S. H. Libby. Brush making to 1 M. Young. Brushing machine, A. Sague. Bucket, dumping, J. A. Quinn. Burner, See Oil burner. Buehings, manufacture of, W. H. Bache. Buttons of mother-of-pearl, drilling machine of		Boller. See Asphalt disintegrating boiler. Sec-	
Brace. See Bracket, J. R. arry. Vehicle brake. Brake. See Car brake. Vehicle brake. Brake handle, S. A. Burns. Brick machine, D. H. Rice Brick machine, Perpess, D. C. Arnold. Bridge Fate, L. Naplon. Brush holder, S. H. Libby. Brush making to 1 M. Young. Brushing machine, A. Sague. Bucket, dumping, J. A. Quinn. Burner, See Oil burner. Buehings, manufacture of, W. H. Bache. Buttons of mother-of-pearl, drilling machine of		Boller. See Asphalt disintegrating boiler. Sec-	
Brace. See Bracket, J. R. arry. Vehicle brake. Brake. See Car brake. Vehicle brake. Brake handle, S. A. Burns. Brick machine, D. H. Rice Brick machine, Perpess, D. C. Arnold. Bridge Fate, L. Naplon. Brush holder, S. H. Libby. Brush making to 1 M. Young. Brushing machine, A. Sague. Bucket, dumping, J. A. Quinn. Burner, See Oil burner. Buehings, manufacture of, W. H. Bache. Buttons of mother-of-pearl, drilling machine of		Boller. See Asphalt disintegrating boiler. Sec-	
Brace. See Bracket, J. R. arry. Vehicle brake. Brake. See Car brake. Vehicle brake. Brake handle, S. A. Burns. Brick machine, D. H. Rice Brick machine, Perpess, D. C. Arnold. Bridge Fate, L. Naplon. Brush holder, S. H. Libby. Brush making to 1 M. Young. Brushing machine, A. Sague. Bucket, dumping, J. A. Quinn. Burner, See Oil burner. Buehings, manufacture of, W. H. Bache. Buttons of mother-of-pearl, drilling machine of		Boller. See Asphalt disintegrating boiler. Sec-	
Brace. See Bracket, J. R. arry. Vehicle brake. Brake. See Car brake. Vehicle brake. Brake handle, S. A. Burns. Brick machine, D. H. Rice Brick machine, Perpess, D. C. Arnold. Bridge Fate, L. Naplon. Brush holder, S. H. Libby. Brush making to 1 M. Young. Brushing machine, A. Sague. Bucket, dumping, J. A. Quinn. Burner, See Oil burner. Buehings, manufacture of, W. H. Bache. Buttons of mother-of-pearl, drilling machine of		Boller. See Asphalt disintegrating boiler. Sec-	
Brace. See Bracket, J. R. arry. Vehicle brake. Brake. See Car brake. Vehicle brake. Brake handle, S. A. Burns. Brick machine, D. H. Rice Brick machine, Perpess, D. C. Arnold. Bridge Fate, L. Naplon. Brush holder, S. H. Libby. Brush making to 1 M. Young. Brushing machine, A. Sague. Bucket, dumping, J. A. Quinn. Burner, See Oil burner. Buehings, manufacture of, W. H. Bache. Buttons of mother-of-pearl, drilling machine of		Boller. See Asphalt disintegrating boiler. Sec-	
Brace. See Bracket, J. R. arry. Vehicle brake. Brake. See Car brake. Vehicle brake. Brake handle, S. A. Burns. Brick machine, D. H. Rice Brick machine, Perpess, D. C. Arnold. Bridge Fate, L. Naplon. Brush holder, S. H. Libby. Brush making to 1 M. Young. Brushing machine, A. Sague. Bucket, dumping, J. A. Quinn. Burner, See Oil burner. Buehings, manufacture of, W. H. Bache. Buttons of mother-of-pearl, drilling machine of		Boller. See Asphalt disintegrating boiler. Sec-	
Bridge Rate, L. Napion		Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt. Bolt cutter, C. L. Beers. Book, indexed, A. F. Dean. Bottle pour-out or discharger, J. W. Carter. Bottle, self-sealing, Hayes & Roberts Bottle stopper, G. F. Atwood. Bottles, tool for securing corksj in, K. Kirschner, Jr. Bouquet holder, C. A. Burbahk. Bottles of the Self-sealing, Hayes & Borberts Box. See Dice box. Musicbox. Paper box. Resistan	
Bridge Rate, L. Napion		Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt. J. A. Leggatt. Bolt cutter, C. L. Beers. Book, Indexed, A. F. Dean. Bottle pour-out or discharger, J. W. Carter. Bottle, self-sealing, Hayes & Roberts Bottle stopper, G. F. Atwood Bottles, tool for securing corksj in, K. Kirschner, Jr. Bouquet boider, C. A. Burbank Boutonniero, H. W. Fishel. Box. See Dice box. Musicbox. Paper box. Resistan b	500,143 500,184 500,262 500,260 500,499 500,395 500,469 500,196
Bridge Rate, L. Napion		Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt. J. A. Leggatt. Bolt cutter, C. L. Beers. Book, Indexed, A. F. Dean. Bottle pour-out or discharger, J. W. Carter. Bottle, self-sealing, Hayes & Roberts Bottle stopper, G. F. Atwood Bottles, tool for securing corksj in, K. Kirschner, Jr. Bouquet boider, C. A. Burbank Boutonniero, H. W. Fishel. Box. See Dice box. Musicbox. Paper box. Resistan b	500,143 500,184 500,262 500,260 500,499 500,395 500,469 500,196
Bridge Rate, L. Napion		Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt. J. A. Leggatt. Bolt cutter, C. L. Beers. Book, Indexed, A. F. Dean. Bottle pour-out or discharger, J. W. Carter. Bottle, self-sealing, Hayes & Roberts Bottle stopper, G. F. Atwood Bottles, tool for securing corksj in, K. Kirschner, Jr. Bouquet boider, C. A. Burbank Boutonniero, H. W. Fishel. Box. See Dice box. Musicbox. Paper box. Resistan b	500,143 500,184 500,262 500,260 500,499 500,395 500,469 500,196
Bridge Rate, L. Napion		Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt. Bolt cutter, C. L. Beers. Book, indexed, A. F. Dean. Bottle pour-out or discharger, J. W. Carter. Bottle stopper, G. F. Atwood. Bottles, tool for securing corksj in, K. Kirschner, Jr. Bouquet boider, C. A. Burbank. Bottle stopper, G. F. W. Fishel. Box. See Dice box. Musicbox. Paper box. Resistan b Brace. See Bracket, J. R. arry. Brake, See Car brake. Brake hadle, S. A. Rurns.	500,143 500,184 500,262 500,260 500,499 500,499 500,195 500,525 500,525
Buttons of mother-of-pearl, drilling machine for.		Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt. Bolt cutter, C. L. Beers. Book, indexed, A. F. Dean. Bottle pour-out or discharger, J. W. Carter. Bottle stopper, G. F. Atwood. Bottles, tool for securing corksj in, K. Kirschner, Jr. Bouquet boider, C. A. Burbank. Bottle stopper, G. F. W. Fishel. Box. See Dice box. Musicbox. Paper box. Resistan b Brace. See Bracket, J. R. arry. Brake, See Car brake. Brake hadle, S. A. Rurns.	500,143 500,184 500,262 500,260 500,499 500,499 500,195 500,525 500,525
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Buttons of mother-of-pearl, drilling machine for.		Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt. Bolt cutter, C. L. Beers. Book, indexed, A. F. Dean. Bottle pour-out or discharger, J. W. Carter. Bottle stopper, G. F. Atwood. Bottles, tool for securing corksj in, K. Kirschner, Jr. Bouquet boider, C. A. Burbank. Bottle stopper, G. F. W. Fishel. Box. See Dice box. Musicbox. Paper box. Resistan b Brace. See Bracket, J. R. arry. Brake, See Car brake. Brake hadle, S. A. Rurns.	500,143 500,184 500,262 500,260 500,499 500,499 500,195 500,525 500,525
Buttons of mother-of-pearl, drilling machine for.		Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt. Bolt cutter, C. L. Beers. Book, indexed, A. F. Dean. Bottle pour-out or discharger, J. W. Carter. Bottle stopper, G. F. Atwood. Bottles, tool for securing corksj in, K. Kirschner, Jr. Bouquet boider, C. A. Burbank. Bottle stopper, G. F. W. Fishel. Box. See Dice box. Musicbox. Paper box. Resistan b Brace. See Bracket, J. R. arry. Brake, See Car brake. Brake hadle, S. A. Rurns.	500,143 500,184 500,262 500,260 500,499 500,499 500,195 500,525 500,525
Buttons of mother-of-pearl, drilling machine for.		Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt. Bolt cutter, C. L. Beers. Book, indexed, A. F. Dean. Bottle pour-out or discharger, J. W. Carter. Bottle stopper, G. F. Atwood. Bottles, tool for securing corksj in, K. Kirschner, Jr. Bouquet boider, C. A. Burbank. Bottle stopper, G. F. W. Fishel. Box. See Dice box. Musicbox. Paper box. Resistan b Brace. See Bracket, J. R. arry. Brake, See Car brake. Brake hadle, S. A. Rurns.	500,143 500,184 500,262 500,260 500,499 500,499 500,195 500,525 500,525
Buttons of mother-of-pearl, drilling machine for.		Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt. Bolt cutter, C. L. Beers. Book, indexed, A. F. Dean. Bottle pour-out or discharger, J. W. Carter. Bottle stopper, G. F. Atwood. Bottles, tool for securing corksj in, K. Kirschner, Jr. Bouquet boider, C. A. Burbank. Bottle stopper, G. F. W. Fishel. Box. See Dice box. Musicbox. Paper box. Resistan b Brace. See Bracket, J. R. arry. Brake, See Car brake. Brake hadle, S. A. Rurns.	500,143 500,184 500,262 500,260 500,499 500,499 500,195 500,525 500,525
Buttons of mother-of-pearl, drilling machine for.		Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt. Bolt cutter, C. L. Beers. Book, indexed, A. F. Dean. Bottle pour-out or discharger, J. W. Carter. Bottle stopper, G. F. Atwood. Bottles, tool for securing corksj in, K. Kirschner, Jr. Bouquet boider, C. A. Burbank. Bottle stopper, G. F. W. Fishel. Box. See Dice box. Musicbox. Paper box. Resistan b Brace. See Bracket, J. R. arry. Brake, See Car brake. Brake hadle, S. A. Rurns.	500,143 500,184 500,262 500,260 500,499 500,499 500,195 500,525 500,525
Buttons of mother-of-pearl, drilling machine for.		Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt. Bolt cutter, C. L. Beers. Book, indexed, A. F. Dean. Bottle pour-out or discharger, J. W. Carter. Bottle stopper, G. F. Atwood. Bottles, tool for securing corksj in, K. Kirschner, Jr. Bouquet boider, C. A. Burbank. Bottle stopper, G. F. W. Fishel. Box. See Dice box. Musicbox. Paper box. Resistan b Brace. See Bracket, J. R. arry. Brake, See Car brake. Brake hadle, S. A. Rurns.	500,143 500,184 500,262 500,260 500,499 500,499 500,195 500,525 500,525
Buttons of mother-of-pearl, drilling machine for, E. Koenig		Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt. Bolt cutter, C. L. Beers Book, indexed, A. F. Dean Book, indexed, A. F. Dean Bottle pour-out or discharger, J. W. Carter. Bottle, self-sealing, Hayes & Roberts Bottles, tool for securing corks; in, K. Kirschner, Bottles, tool for securing corks; in, K. Kirschner, Boutonniero, H. W. Fishel. Box. See Dice box. Musicbox. Paper box. Resistan b Brace. See Bracket, J. R. arry. Brake. See Car brake. Vehicle brake. Brake handle, S. A. Burns. Brick machine, Perpress, D. C. Arnold. Bridge fate, L. Nsgulon. Brush holder, S. H. Jibby. Brush making to † M. Young. Brushing machine, A. Sague Bucket, dumping, J. A. Quinn. Buffer plate, F. P. Davidson.	500,143 500,184 500,260 500,260 500,499 500,489 500,195 500,525 500,525 500,315 500,290 500,114 500,219 500,219 500,227
k. Koenig		Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt. Bolt cutter, C. L. Beers Book, indexed, A. F. Dean Book, indexed, A. F. Dean Bottle pour-out or discharger, J. W. Carter. Bottle, self-sealing, Hayes & Roberts Bottles, tool for securing corks; in, K. Kirschner, Bottles, tool for securing corks; in, K. Kirschner, Boutonniero, H. W. Fishel. Box. See Dice box. Musicbox. Paper box. Resistan b Brace. See Bracket, J. R. arry. Brake. See Car brake. Vehicle brake. Brake handle, S. A. Burns. Brick machine, Perpress, D. C. Arnold. Bridge fate, L. Nsgulon. Brush holder, S. H. Jibby. Brush making to † M. Young. Brushing machine, A. Sague Bucket, dumping, J. A. Quinn. Buffer plate, F. P. Davidson.	500,143 500,184 500,260 500,260 500,499 500,489 500,195 500,525 500,525 500,315 500,290 500,114 500,219 500,219 500,227
		Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt. Bolt, J. A. Leggatt. Book, Indexed, A. F. Dean. Book, Indexed, A. F. Dean. Bottle bour-out or discharger. J. W. Carter. Buttle, Self-sealing, Hayes & Roberts Bottle stopper, G. F. Atwood. Bottles, tool for securing corksj in, K. Kirschner, Jr. Bouquet holder, C. A. Burbabk Boutenberg, H. W. Fishel. Box. See Dice box. Muslebox. Paper box. Re- sistan b Frace. Se Bracket, J. R. Brake. See Car brake. Vehicle brake. Brake handle, S. A. Burns. Brick machine, Perpess, D. C. Arnold. Bridge fate, L. Napion. Brush holder, S. H. Libby. Brush making to H. Young. Brushing machine, A. Sague. Bucket, dumping, J. A. Quinn. Buffer plate, F. P. Davidson. Burner. See Oil burner. Bushings, manufacture of, W. H. Bache. Buttons of mother-of-pearl, drilling machine for.	500,143 500,184 500,260 500,260 500,499 500,499 500,195 500,525 500,525 500,315 500,290 500,194 500,290 500,195 500,290 500,426 500,227 500,426 500,227
		Boller. See Asphalt disintegrating boiler. Sectional boiler. Bolt, J. A. Leggatt. Bolt, J. A. Leggatt. Book, Indexed, A. F. Dean. Book, Indexed, A. F. Dean. Bottle bour-out or discharger. J. W. Carter. Buttle, Self-sealing, Hayes & Roberts Bottle stopper, G. F. Atwood. Bottles, tool for securing corksj in, K. Kirschner, Jr. Bouquet holder, C. A. Burbabk Boutenberg, H. W. Fishel. Box. See Dice box. Muslebox. Paper box. Re- sistan b Frace. Se Bracket, J. R. Brake. See Car brake. Vehicle brake. Brake handle, S. A. Burns. Brick machine, Perpess, D. C. Arnold. Bridge fate, L. Napion. Brush holder, S. H. Libby. Brush making to H. Young. Brushing machine, A. Sague. Bucket, dumping, J. A. Quinn. Buffer plate, F. P. Davidson. Burner. See Oil burner. Bushings, manufacture of, W. H. Bache. Buttons of mother-of-pearl, drilling machine for.	500,143 500,184 500,260 500,260 500,499 500,499 500,195 500,525 500,525 500,315 500,290 500,194 500,290 500,195 500,290 500,426 500,227 500,426 500,227

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ı	Cable, chain, G. Lindenthal	267	Joint. See Rail joint.	<del></del>
.	Cable, chain, G. Lindenthal         500,           Cable protector, A. W. Lackey         500,           Calendar, watch charm, pocket, and wall display         500,           S. P. V. Arnold         500           amera.         See Photographic camera.	,000	O'Brien	500,269
7 [ 5 ]	Can fill Car brake, J. W. Cooper	,250 ,414	Knitting machine thread-controlling mechanism, E. J. Franck	
	Car coupling, W. S. Jennings	,501 ,342	Knitting machine transfer appliance, E. J. Knitting machines, autolisathateanicallick nech-	2. Do they allow a
-	Car coupling, W. B. Peoples et al.         500.           Car coupling, A. Testard.         500.           Car coupling, J. Timms (r)         11.	,420 ,224 ,348	anism for circular, Reid & Stevenson	500,351 500,396 500,497
t ,	Car coupling, walker & Bearord. 500. Car coupling, automatic, H. White. 500. Car, mining, Corrigan & Fulkerson. 500.	,309 ,114	Lamp, C. M. Cass. Lamp, Durner attachment, W. H. Robbins.	500,459 500,470 500,255
	Car seat, f. H. Henry. 500. Car vestibule, railway, T. L. McKeen. 500. Car wheel moulds core for IA. Hymas. 500.	204 413 500	Lamp, C. M. Cass.  Lamp burner attachment, W. H. Robbins.  Lamp, electric arc, W. Mathiesen.  Lamp, electric arc, C. A. Pfluger.  Lamp, flament, incandescent electric, J. Criggal.  Lamp, flash or signal, E. Wenis.  Lamps, hanging device for electric arc, C. A.	500,422 500,279 500,279
B t	Carriage jump seat, W. H. Sparks	354	Lamps, hanging device for electric arc, C. A. Pfluxer. Lantern, tubular, F. Dietz. Lasting machine, S. W. Ladd.	
	Package carrier. Cartridge shells, machine for trimming, C. R. Richards. Case. See Egg case. Cash carrier, H. M. Weaver. Cash register and indicator, E. F. Spaulding. Cash, petroleum, J. D. Sprunt. Chain, drive, C. W. Hunt. Chain link, drive, C. A. Taplin. Channeling and edge trimming machine, E. F. White. Chuck, W. G. Nelson Chuck, ash. R.	,511	Lasting machine, S. W. Ladd	500,141 500,234
	Cash carrier, H. M. Weaver. 500 Cash register and indicator. E. F. Spaulding 500 Cash, petroleum, J. D. Sprunt. 500	,164 ,245	Level, plumb, J. E. Worrell Light. See Headlight. Lightning arrester, M. M. Wood.	500,452 500,178
ì	Chain, drive, C. W. Hunt. 500. Chain link, drive, C. A. Taplin 500. Channeling and edge trimming machine, E. F.	,332 ,223	Lightning arrester, W. Wurdack Line holder and gu Loading device, C. W. Hays	500,454 500,328
e	White 500 Chuck. W. G. Nelson 500 Chute, ash, R. 500	),174 ),292	Lock. See Air lock. Locomotive, electric, F. M. Stevens	500,276 500,112
; - :	Circuit breaker, automatic, A. Wurts	), <b>45</b> 6 i		
1	Circuit for constant current machines, automatic short. A. Wurts Clamp. See Picture frame clamp. Cloth napping machine, C. F. X. Ott Clothes pounder, G. W. Ainsworth Clover huller screen shoe, J. N. Kailor Cock, ball, W. F. Lill Cock, ball, W. F. Lill Conderer, Fitts & Anderson Confectionery, etc., process of and apparatus for packing, J. R.	),347 ),461   126	Medical apparatus, electro, T. C. Hodgkinson Metal drill, F. H. Richards. Metal rolls, shield for, T. D. Morgan. Malic sheets, coating, Leroux & Fischhach Milk tester, centrifugal, N. G. Williams Mill. See Fanning mill. Windmill. Mirror, J. B. Willard.	500,539 500,218 500,345
t :	Coal drill, C. Grotz. 500 Cock, ball, W. F. Lill. 500 Cock, ball, W. F. Lill. 500	124 1265 1196	Malic sheets, coating, Leroux & Fischhach Milk tester, centrifugal, N. G. Williams Mill. See Fanning mill. Windmill.	500,237 500,312
e I	Confectiouery, etc., process of and apparatus for packing, J. R. Cooker, steam, W. F. Daggett	),118	Mirror, J. B. Willard  Mould press, H. E. Dennis  Motion mechanism, differential, J. Dronsfield	500,134
t	Dacking, J. R.   Cooker, steam, W. F. Daggett.   500	),434 ),159 ),431	mo ai motor. Current motor. Electric	
f I	Corset or dress stay, C. S. Cole	),471 ),162 ),238	Music, binder for sheet, C. S. Fowler.  Music box. Brachbausen & Riessner.  Music boxes, damping dev ce for, G. A. Brachbausen.  Music boxes, machine for making note plates for, B.	500,482
B n h	Coupling   See Car coupling   Thill coupling   Source   W. J. A. Am.   Source   Crimping machine, J. N. Heald   Source   Source	0.459 0,128	Music boxes, machine for making note plates for, Brachhausen & Rie Music boxes, note plate for, Brachhaus	500.870
e e	Cup. See Billiard chalk cup. Curling iron holder for gas fixtures, D. Heer	),232 ),465	Rio	500,380 500,231
h	Curling iron holder for gas fixtures, D. Heer	),229 0,201	Musica leaf turner, J. W. Darley, Jr. Musical instrument, C. A. Gregory. Musical instrument, reed for, H. Metzger Newspaper wrapping machine, L. M. Crowell, 177, 2560, 117	500,483 500,287
er a	JT. Cut-out, fusible, Young & Alden. 500 Cutter. See Bolt cutter. Envelope cutter. Damper, D. U. Cory. 500 Dehorning implement, T. W. Tyler. 500 Dental engine, R. D. King. 500 Dice box, co	J,490 ,	Oil human W T Putnam	500 950
_	Dehorning implement, T. W. Tyler	0,443 0,139 0,478	Ornaments and cutting their shanks, machine for forming, L. A. Eucker. Oven sliding drawer, bake, O. A. Wilcox. Package carrier, H. M. Weaver. Packing, piston, P. Reilly. Paint, fire or waterproof, J. E. & G. H. McAlpine Pan. Sac Evenyparing pan.	500,308 500,308
e	M. Abell. 500 Door hanger, Moore & Lundy	9,813	Paint, fire or waterproof, J. E. & G. H. McAlpine Pan. See Evaporating pan.	500,346 500,346
n e	Dice oox, co Dice, coin-controlled machine for throwing, B. M. Abell. 50 Door hanger, Moore & Lundy. 50 Door indicator, A. F. Brandenburg. 50 Door indicator, A. F. Brandenburg. 50 Door opener, A. Rapp. 50 Drawbar attachment, J. A. Hinson. 50 Drawing head evening mechanism, A. Falls. 50 Dredging and pumping apparatus, Wade & Cherry.	0,316 0,211	Pan. See Evaporating pan. Paper box. Reber & Sefton. Paper polishing machine, A. W. Case. Paper punching device, C. D. Then. Pavement, W. Schlichting. Pavements, making artificial stone, W. Bussard. Pea hulling machine, R. P. Scott et al.	500,191 506,442 506,273
0	Drawing head evening mechanism, A. Falls 500 Dredging and pumping apparatus, Wade & Cherry	0,120	Pavements, making artificial stone, W. Bussard Pea hulling machine, R. P. Scott et al	500,580 500,299 500,497
is	Dredging and pumping apparatus, Wade & Cherry Drill. See Coal drill. Metal drill.  Dusting apparatus, L. F. Neal. 500  Egg case, Reber & Sefton 500  Electric generator and motor, Stanley, Jr., & Kelly. 500  Electric heater, C. E. Roehl  Electric heater, C. E. Roehl  Electric indicator, W. B. Luce. 500  Electric lighter, B. Tropp. 500  Electric lighter, B. Tropp. 500  Electric machine, dynamo, F. H. Loveridge. 500  Electric machine or motor, dynamo, P. Lange. 500  Electric motor, C. S. Jones. 500  Electric motor, C. S. Jones. 500  Electric motor, and dynamo-  M. Hunter. 100  Electric hotor, and dynamo-  Electric hotor, and dynamo-  Electric la heater, 500	0,415 0,295	Pencil sharpener. slate, Smith & Walton Petroleum and making such composition, compo-	500,504 500,257
=	Kelly	0,301	Stion for purifying Canadian or similar, H. Frasch	500,252
n	Electric indicator, W. B. Luce. 500 Electric lighter, B. Tropp. 500 Electric lighting device W. H. Clawley 500	0, <b>357</b> : 0,109 :	Photographic camera, J. F. Farsons.  Photographic printing apparatus, Wynkoop &  Kemp.  Pi ker See Slate nieker	500,180
e e	Electric machine, dynamo, F. H. Loveridge	0,403 : 0,400 : 0,135 :	Picture back support, F. W. Strange	
1- A 11	Electric motor, and dynamo- M. Hunter Electrical heater,	1	Pipe fitting, J. McIntyre	500,412
18 T	Electrical heater, Elevator, M. M. Moore	0,344 0,241	Plant supporter, G. Kruger Planter check rower, corn, J. C. Planter, hand, C. O. Garman	. 500,140 . 500,198
8  88	Embroidering machine, E. & R. Cornely 500 Engine. See Dental engine. Fire engine. Ro-	0,251	Platform. See Woodchopper's platform. Plow, N. C. Sample.	500,513 500,244
i-	engine. En r ng dies, matrices, or other objective for L. F. Campi	0,317	Plow, gang or cultivator, J. T. Lucas	500,405 in the wind- 500,239 500,218 What would be
=	Envelope cutter, D. W. Swift	0,18 0,304 0,23 <b>3</b>	Post driver, T. S. Wagoner	. 500,170
	tar steam engine. Steam engine. Wind engine.  En r ng dies, matrices, or other objects for, L. F. Campi. 500 Envelope cutter, D. W. Swift. 500 Envaporating pan, H. W. Hescock. 500 Expansive bit, L. S. Hayden. 500 Extension table, F. P. Cohham. 500 Extension table, A. R. Fabrics for gloves or the like, making warp, S.	0,498 0,533	Power. See Tread power. Power driving mechanism, T. F. Gaffney	500,484
	Extension table, A. R. Fabrics for gloves or the like, making warp, S. Spooner	0,165 . 0,489 . 0,486	Preserving fruits or vegetables, M. B. Wever Press. See Baling press. Cotton press. Mould press.	500,450
	Feed apron. G. O. Wickers.	0.521 0.877 0.397	press.  Press for expressing moisture, P. H. Grimm.  Pressure regulator, J. G. W. Hartmann.  Pressure regulator, A. N. Lucas et al.  Pruning implement, D. Beh mer.  Protector. See Cable protector.  Pulley, clutch. F. L. McKillip.  Pullverizer and roller, soil, E. Over.  Pulverizer, soil, Barciay & Shively.  Pumping water, portable machinery for, H. J. Adams.  Adams.  Audams.  Punch, E. B. Cornell.  Push button, W. H. Berrigan, Jr., 2. Will zinc.	. 500,490 . 500,126 . 500,145
	Frence post, S. P. Babcock	0,392 0 <b>,1</b> 38	Pruning implement, D. Behmer	. 500,528 . 500,289
ì.	abl the traverse rods in machines for preparing and spinning, Cook & Harrison. 50 Elic cases darble cover for P. J. Pauly. 1.	0,113	Pulverizer, soil, Barclay & Shively. Pump, rotary force, F. Wankel.	. 500,109 . 500,361
]	Filtering and cooling water, means for J. M. Bruce Fincer moistener, H. T. Marshall	0,528 0,339	Adams.  Punch, E. B. Cornell.  Push button, W. H. Rerrigan Jr. 2. Will zinc	. 500,460 . 500,534 menting A. Zinc melts
56 19	Fire alarm, D. Hewitt	0,329 190 208	Rail Bryant & Kinkerter. Fire en	\$10,199 1990   Shemical, A. Brue 100,378
2 52 10	Flue and chimney cleaner, W. H. Bliss.       50         Flue expander, boiler, L. Biddle       50         Fork, H. P. Hull       50         Frame.       50         Funnel, W. D. Thompson       50	0,467 0,466 0,207	Rail Bryant & Kinkerter. Fire en Rail joint. F. H. Heath. Rail joint. Heath & Caldwell	, 500,388 , 500,890 , 500,266
95 64	Funnel, W. D. Thompson	0,517	Railway switch, S. J. Johnson	500,893
19 78 25	Gauge See Ring gauge Water gauge	0,284	Railways, inclosed conductor for electric, J. A. K. McGregor.  Railways or tramways, construction of permanent ways for, J. E. Billups  Railways, system for supplying electricity to, M. H. smith.  Ratchet brace for bits or drills, D. M. Fulton	500,506 500,368
26 79	Game board, F. H. Monks 50 Garment supporter, E. S. Smith 50	0 <b>,264</b> 0,409 0,437	Ratchet brace for bits or drills, D. M. Fulton	. 500,256 500,382
06	Gas, apparatus for the manufacture of, H. M.  Pierson	0,353 0, <b>424</b>	Ratchetwrench, Refrigerator, Metcalf & Do Register. See Cash registe Regulator. See Pressure regulator, Resawing machine, Surerus & Greenbill	
87 96 77	Gate. See Bridge gate.	0,161	Resawing machine, Surerus & Greenbill	500,167
58) 57 11		0,428		
60 53	Grain drill feed device, J. J. Esler	0,328 0,509	Rotary steam engine, W. C. Knight. Rounding machine, A. B. Wagner. Saddle, E. S. Cross. Sash fastener, W. E. Mayo. Sawing machine, cold, G. Ehrhardt.	. 500,396 . 500,519 . 500,472
74 02 87	Glue, making, Rauppach & Bergel 50 Governor, Brachhausen & Riessner Grain drill feed device, J. J. Esler 50 Grain steeping and washing apparatus, W. H. Prins Granary, portable, W. J. Adam. 50 Grate, J. Hall. 50 Grate, G. W. Walker. 50 Guano distributer, E. Wingate. Guard. See Velocipede mud guard. Handle.	0,458 0,493	Sawing machine, cold, G. Ehrhardt	
18 78	Guand distributer, it. wingate. Guard. See Velocipede mud guard. Handle. Handle attaching device for picks or other tools,	İ	S ifting, E. See Rev Screw cutting dies, machine for the meruserature	500,337 560,542 f a gravity, practically
40	A. Walker Hanger. See Door Harness, Snell & Weldon	0,516	H Scrubhing and mopping machine, Shively & Bar-	FOO OC
14 52 60	Harrow, revolving, Johnson & Syvrnd. 500 Harvester and binder, Whiteley & Bayley. 500 Harvester dropping or government attachment.	0,253 0,253 0,175	Seat. See Bicycle seat. Car seat. Carriage jump seat.	. 500,221 500 804
99	A. Line. 500 Barvesters, platform and hinder deck for grain, J. J. Dewey. 500	0 <b>,402</b> 0, <b>321</b>	Sectional boiler, W. H. Page. Sewing machine K Vogel.	500,507 509,518 509,236
55 59 9 <b>5</b>	Hay sling, J. Toney	0 <b>.168</b> 0 <b>,17</b>	Sewing machine shuttle, J. Robertson  A. The ho Sheet metal elbow, F.Dieckmann Sheller, See Corn sheller, Shur and manufacturing same W A O'Rrien.	500,430 500,233 lesonare caused by air,
25	Handle attaching device for picks or other tools,  A. Walker  Hanger. See Door  Harness, Snell & Weldon	0,228 0,486	Sheet metal elbow, F.Dieckmann	. 500,119 . 500,270
			Shoe. W. Hall  Duenckel. 52	Worden & Diven. 9 Hod, R. & R. J. Law.
15 90 44	Prym	ő.18 <b>6</b>		
17 19 26	Hot water circulating system, J. C. Norton	0,268	des Cressonnieres Solder, preparing, M. Guttner Sole channeling machine, C. P. Stanbon,	. \$00,585 . \$60,125 . \$60,438
63	Indicator, A. Utzinger	0,359 0.499	Spinning machine, J. A. Collins.  Spoke bending machine, P. Gendron.  Buring. See Vehicle andro Wesser and A.	7 500,865 - 500,818 - 500,888
40	Interfering strap, E. F. Palmer	0,209 '	Watchouse spring.	

Stamp, perforating, J. Stewart. Station indicator, S. S. Ackies. Station potential indicator, C. F. Scott Steam coil superheating, H. C. Potter. Steam engine, E. H. Alired. Steam generator, T. L. & T. J. Sturtevant. Steam passenger boat, A. McDougall Stirrup holder, safety, J. J. Rooney. Stone boats, metallic crook for, W. Allen, Stone composition, artificial, H. Gallinowsky. Stopper, See Bottle stopper. Stove hood, Call & Clark Stove, oil, C. H. Boeck. Strap. See Interfering strap. Street roller, R. C. Pope (r). Suspender end, J. M. Faust Switch. See Railway switch. Switching device, A. M. Levin. Table. See Extension table. Train table. Tack driving machine, J. E. Crisp. Tack driving machine, Crisp & Junkins. Tap bolder, W. G. Nelson. Telegraphy, C. Cuttriss. Telephone, magnetic, C. S. Forbea. Test tube, E. S. Hoare. Therapsutic device, electro, W. E. Washburn. Thill compling, J. & A. K. Warren. Tie. See Railway cross tie. Tire, pneumatic, H. B. Boyd. Trien, pneumatic, L. B. Boyd. Trien, pneumatic, J. W. Heysinger. Train table, A. J. Culbertson. Trannaplanting implement, B. F. Douthit. Tread power, C. F. Search. Trolley wipes, automatic disconnector for, R. N. Noyes. Truck, car, M. G. Hubbard. Truck for railway carriages, E. M. Turner.	500 950
Stamp, perforating, J. Stewart	500,457
Station potential indicator, C. F. Scott	500.543
Steam coll supernesung, H. C. Potter	500,462
Steam generator, T. L. & T. J. Sturtevant	500,166
Steam passenger noat, A. McDougall	500.512
Stone boats, metallic crook for, W. Allen,	500,363
Stone composition, artificial, E. Galinowsky	500,460
Stove hood, Call & Clark	500,258
Strap. See Interfering strap.	300,301
Street roller, R. C. Pope (r)	11,347
Suspender end. J. M. Faust	500,324
Suspenders, A.F.R. Arndt	500,524
Switching device, A. M. Levin	500,335
Table. See Extension table. Train table.	500.310
Tack driving machine, Crisp & Junkins	500,225
Tap holder, W. G. Nelson,	600,201 500 226
Telephone, magnetic, C. S. Forbes	500,481
Test tube, E. S. Hoare	600,172
Thill coupling, J. & A. K. Warren.	500,171
Tie. See Kanway cross tie.	500.468
Tire, pneumatic, I. W. Heysinger	500,205
Transplanting implement. B. F. Douthit	500,475
Tread power, C. F. Search	500,220
Trolley support, W. Duncan	500,263
Trolley wires, automatic disconnector for, R. N.	500 457
Truck, car, M. G. Hubbard	500,129
Truck for railway carriages, E. M. Turner	500,858 500,890
Trunks, etc., strengthening strip for, T. N. Rogers	500,352
Tug. barness, G. W. Hantley, Jr.	500.131
Tug, shaft, W. F. Sweet	500,441 500,21
Type writer cabinet, G. C. Billups.	500,186
Trolley wires, automatic disconnector for, R. N. Noyes. Truck, car, M. G. Hubbard. Truck for railway carriages, E. M. Turner. Trunk wardrobe, etc., combined, C. Heumader Trunks, etc., strengthening strip for, T. N. Rogers Tube. See Test tube. Trug, shaft, W. F. Sweet. Turg, shaft, W. F. Sweet. Turret clamping mechanism, F. H. Richards. Type writer cabinet, G. C. Bilups. Umbrells, folding, T. Hillabold. Valve, engine, F. Phillips.	500,213 500,185 500,330 500,271 500,477
Valve for hydrocarbon engines, B. Drysdale	500,477
Valve for petroleum or other motors, mixing, F. A. Lehmann	
	600.401
Valve for steam pipes, relief, T. W. Moran	600.401 500,506
Valve for steam pipes, rener, T. W. Moran. Valve seating machine, F. H. Richards. Valve seating tool, F. H. Richards	600,401 500,506 500,216 500,215
Valve seating machine, F. H. Richards Valve seating tooi, F. H. Richards Valve, steam, H. Grossmann Valve, steam activity F. A. Menking	606,401 500,506 500,216 500,215 500,492
valve for steam pipes, rener, T. w. moran. Valve seating machine, F. H. Richards. Valve steam, R. Grosmann. Valve, steam, R. Grosmann. Valve, steam actuated, E. A. Menking. Valve, seating, F. H. Richards.	606,401 500,506 500,216 500,216 500,492 600,407 600,214
valve for steam pipes, rener, T. w. Moran. Valve seating machine, F. H. Richards. Valve seating tool, F. H. Richards Valve, steam, H. Grosemann. Valve, steam actuated, E. A. Menking. Valves, seating, F. H. Richards. Vehicle brake, A. Bruegger. Vehicle seat back W. A. Nasym.	500,400 500,506 500,216 500,216 500,492 500,407 500,214 500,188 500,240
valve seating machine, F. H. Richards. Valve seating machine, F. H. Richards. Valve seating tooi, F. H. Richards Valve, steam, H. Grosemann. Valve, steam, actuated, E. A. Menking. Valves, seating, F. H. Richards. Vehicle brake, A. Bruegger. Vehicle seat back, W. A. Nason. Vehicle spring, L. Pentz	500,401, 500,506 500,216 500,215 600,492 600,407 500,214 500,188 600,240 500,184
valve sesting machine, F. H. Richards.  valve seating tooi, F. H. Richards.  valve steam, H. Grosemann.  valve, steam, actuated, E. A. Menking.  Valves, seating, F. H. Richards.  vehicle brake, A. Bruegger.  vehicle seat back, W. A. Nason.  vehicle spring, L. Pentz.  vehicle spring, E. B. Smith.  vehicle wheel, F. H. Bolte.	500,401,506 500,506 500,215 500,215 500,492 500,407 500,214 500,186 600,240 500,184 500,515 500,588
valve for steam pipes, rener, I. w. Moran. Valve seating machine, F. H. Richards. Valve steam, R. Grosmann. Valve, steam, R. Grosmann. Valve, steam actuated, E. A. Menking. Valves, seating, F. H. Richards. Vehicle brake, A. Bruegger. Vehicle spring, E. Pents. Vehicle spring, E. B. Smith. Vehicle wheel, F. H. Solte. Vehicle wheel, F. H. Bolte.	500,401 500,505 500,216 500,215 500,492 500,497 500,184 500,184 500,515 500,588 500,298
valve for steam pipes, rener, T. w. Moran. Valve seating machine, F. H. Richards. Valve, steam, H. Grosemann. Valve, steam actuated, E. A. Menking. Valves, seating, F. H. Richards. Vehicle brake, A. Bruegger. Vehicle seat back, W. A. Nason. Vehicle spring, L. Pentz. Vehicle spring, E. B. Smith. Vehicle wheel, F. H. Bolte. Vehicle wheel, F. H. Bolte. Vehicle wheel, F. H. Borts. Velocipede mud guard, A. Govan. Ventilator, H. W. Libbey	506,401 500,505 500,216 500,216 500,492 600,407 600,214 600,214 600,184 500,184 500,515 500,388 500,288 500,388
valve seating machine, F. H. Richards. Valve seating machine, F. H. Richards. Valve steam, H. Grossmann. Valve, steam, R. Grossmann. Valve, steam actuated, E. A. Menking. Valves, seating, F. H. Richards. Vehicle brake, A. Bruegger. Vehicle seat back, W. A. Nason. Vehicle spring, L. Pentz. Vehicle spring, L. Pentz. Vehicle spring, E. B. Smith. Vehicle wheel, F. H. Bolte. Vehicle wheel, F. H. Bolte. Vehicle wheel, F. H. Bolte. Velocipede mud guard, A. Govan. Ventilator, H. W. Libbey. Voltmeter, static, A. E. Kennelly. Voltmeter, static, A. E. Kennelly.	600,401 500,506 500,216 500,216 500,407 500,214 500,188 600,240 500,164 500,386 500,386 500,386 500,386 500,386
valve sor steam pipes, rener, T. w. Moran. Valve seating machine, F. H. Richards. Valve, steam, H. Grosemann. Valve, steam, R. Grosemann. Valve, steam actuated, E. A. Menking. Velvel, seating, F. H. Richards. Vehicle brake, A. Bruegger. Vehicle seat back, W. A. Nason. Vehicle spring, L. Pentz Vehicle spring, L. B. 8 mith. Vehicle wheel, F. H. Bolte. Vehicle wheel, F. J. L. Persil. Velocipede mid guard, A. Govan. Ventilator, H. W. Libbey. Voltmeter, static, A. E. kennelly. Wagon bolsters, standard for, J. B. Ripsom.	606,400,506,500,216,500,216,500,216,500,407,500,407,500,407,500,407,500,200,500,5
valve seating machine, F. H. Richards.  Valve seating machine, F. H. Richards.  Valve, steam, R. Grosemann.  Valve, steam actuated, E. A. Menking.  Valve, steam actuated, E. A. Menking.  Velucie seating, F. H. Richards.  Vehicle brake, A. Bruegger.  Vehicle seat back. W. A. Nason.  Vehicle spring, L. Pentz.  Vehicle spring, E. B. Smith.  Vehicle wheel, E. J. L. Persil.  Velociped mind guard, A. Govan.  Ventilator, H. W. Hibbey.  Volumeter, static, A. E. kennelly.  Wagon belivery, S. D. Reynolds.  Wagon spring, G. T. Chapman.  Warning machines, rise roll mechanism for A. E.	606,400,500,506,500,216,500,216,500,216,500,216,500,216,500,247,500,154,500,154,500,368,500,36
valve for steam pipes, rener, I. w. Moran. Valve seating machine, F. H. Richards. Valve seating mochine, F. H. Richards. Valve, steam, R. Grosmann. Valve, steam actuated, R. A. Menking. Velve, seating, F. H. Richards. Vehicle brake, A. Bruegger. Vehicle spring, L. Pentz. Vehicle spring, L. Pentz. Vehicle spring, L. Pentz. Vehicle spring, L. P. Smith. Vehicle wheel, F. H. Bolte. Vehicle wheel, F. H. Bolte. Vehicle wheel, F. H. Borte. Velocipede mud guard, A. Govan. Ventilator, H. W. libbey. Voltmeter, stattc, A. E. Kennelly. Wagon bolsters, standard for J. B. Ripsom. Wagon, delivery, S. D. Reynolds. Wagon spring, G. T. Chapman. Warping machines, rise roll mechanism for, A. E. Khoades.	606.400 500,506 500,215 500,215 500,499 600,274 600,214 600,214 600,214 500,134 300,515 500,238 500,338 500,338 500,238 500,238 500,238 500,238 500,238
Turet camping mechanism, F. H. Richards. Type writer cabinet, G. C. Bilupa. Umbrells, fidding, T. Hulabold. Valve, engine, F. Phillips. Valve for hydrocarbon engines, B. Drysdale. Valve for bydrocarbon engines, B. Drysdale. Valve seating machine, F. H. Richards. Valve seating took, F. H. Richards. Valve, steam, H. Grosenann. Valve, steam, H. Grosenann. Valve, steam actuated, E. A. Menking. Valves, seating, F. H. Richards. Velicle brake, A. Brugger. Vehicle spring, E. B. Smith. Vehicle wheel, F. H. Bolte. Vehicle wheel, F. H. Bolte. Vehicle wheel, E. J. L. Persil. Velocipede mud guard, A. Govan. Ventilator, H. W. libbey. Voltmeter, static, A. E. Kennelly. Wagon bolsters, standard for, J. B. Ripsom. Wagon, delivery, S. D. Reynolds. Wagon spring, G. T. Chapman. Warping machines, rise roll mechanism for, A. E. Rhondes. Washing machine, Sharpe & Coldren.	60.401 500,566 500,216 500,497 500,497 600,724 600,724 600,724 600,724 600,724 600,724 600,515 600,535 600,492 600,532 600,532 600,532 600,532
valve for steam pipes, rener, T. w. Moran. Valve seating machine, F. H. Richards. Valve steam, R. Grosemann. Valve, steam, R. Grosemann. Valve, steam actuated, E. A. Menking. Valves, seating, F. H. Richards. Vehicle brake, A. Bruegger. Vehicle seat back, W. A. Nason. Vehicle spring, L. Pentz. Vehicle spring, L. B. Smith. Vehicle wheel, F. H. Bolte. Vehicle static, A. E. Kennelly. Volumeter, static, A. E. Kennelly. Volumeter, static, A. E. Kennelly. Wagon bolsters, standard for J. B. Ripsom. Wagon, delivery, S. D. Reynolds. Wagon, delivery, S. D. Reynolds. Wagon spring, C. T. Chapman. Warping machines, rise roll mechanism for, A. E. Roberts. Watchease spring, N. J. Fellx. Water gauge, D. H. Roberts	60.401 500,566 500,215 500,497 500,497 600,214 600,214 500,214 500,214 500,214 500,214 500,214 500,214 500,214 500,214 500,214 500,214 500,215 500,410 500,52 500,52 500,52 500,52 500,52
valve sosting machine, F. H. Richards. Valve seating mochine, F. H. Richards. Valve seating tool, F. H. Richards. Valve, steam, H. Grossmann. Valve, steam actuated, E. A. Menking. Valves, seating, F. H. Richards. Vehicle brake, A. Bruegger. Vehicle seat back, W. A. Nason. Vehicle spring, L. Pentz. Vehicle spring, L. P. B. Smith. Vehicle wheel, F. H. Bolte. Velocipede mud guard, A. Govan. Ventilator, H. W. Libbey. Voltmeter, static, A. E. Kennelly. Wagon bolsters, standard for, J. B. Ripsom. Wagon belivery, S. D. Reynolds. Wagon spring, G. T. Chapman. Warping machines, rise roll mechanism for, A. E. Rhoades. Washing, machine, Starpe & Coldren. Watchease spring, N. J. Felix. Water gauge, D. H. Roberts. Water gauge, D. H. Roberts.	66.40 65.50 65
valve for steam pipes, rener, I. w. Moran. Valve seating machine, F. H. Richards. Valve seating mochine, F. H. Richards. Valve, steam, R. Grosmann. Valve, steam actuated, E. A. Menking. Valves, seating, F. H. Richards. Vehicle brake, A. Bruegger. Vehicle spring, E. P. H. Richards. Vehicle spring, E. P. Smith. Vehicle spring, E. P. Smith. Vehicle spring, E. P. Smith. Vehicle wheel, F. H. Bolte. Vehicle wheel, F. H. Bolte. Vehicle wheel, F. L. Poreil. Velocipede mid guard, A. Govan. Ventilator, H. W. L. E. Kennelly. Voltmeter, static, A. E. Kennelly. Wagon botsters, standard for J. B. Ripson. Wagon, delivery, S. D. Reynolds. Wagon spring, C. T. Chapman. Warping machines, rise roll mechanism for, A. E. Schoades. Watchease spring, N. J. Felix. Watchease spring, R. J. Roberts. Watchease spring, R. J. Felix. Watchease spring, R. J. Roberts.	66.56666666666666666666666666666666666
valve los seating machine, F. H. Richards. Valve seating machine, F. H. Richards. Valve seating tool, F. H. Richards. Valve, steam, H. Grosmanh. Valve, steam actuated, E. A. Menking. Valves, seating, F. H. Richards. Vehicle brake, A. Bruegger. Vehicle spring, E. P. H. Richards. Vehicle spring, E. P. Smith. Vehicle spring, E. P. Smith. Vehicle wheel, F. H. Boite. Vehicle wheel, F. T. Lepman. Ventilator H. W. Hibbey Voltmeter, static, A. E. Kennelly. Wagon bolsters, standard for J. B. Ripsom. Wagon, delivery, S. D. Reynolds. Wagon spring, G. T. Chapman. Warping machines, rise roll mechanism for, A. E. Rhoades. Washing machine, Sharpe & Coldren. Water kauge, D. H. Roberts. Water kauge, D. H. Roberts. Water wheel, A. F. Sparks. Weather strip, F. H. Mond. Weel dexterminator, J. S. Dunlap.	60. 400 500,506 500,506 500,407 500,407 500,00
valve for steam pipes, rener, T. w. Moran. Valve seating machine, F. H. Richards. Valve steam, R. Grosemann. Valve, steam, R. Grosemann. Valve, steam actuated, E. A. Menking. Velves, seating, F. H. Richards. Vehicle brake, A. Bruegger. Vehicle seat back, W. A. Nason. Vehicle spring, L. Pentz. Vehicle spring, L. B. Smith. Vehicle wheel, F. H. Bolte. Vehicle wheel, F. H. Bolte. Vehicle wheel, F. H. Bolte. Velocipede mud guard, A. Govan. Vehicle wheel, F. H. Bolte. Velocipede mud guard, A. Govan. Ventilator, H. W. Libbey Voltmeter, static, A. E. Kennelly. Wagon bolsters, standard for J. B. Ripsom. Wagon, delivery, S. D. Reynolds. Wagon spring, G. T. Chapman Warping machines, rise roll mechanism for, A. E. Rhoades. Washing machine, Sharpe & Coldren. Water gauge, D. H. Roberts. Water gauge, Volter & Broeker. Water wheel, A. F. Sparks. Weather strip, F. H. Mond. Weed exterminator, J. S. Dunlap. Well drilling machinery, J. G. Lee. Wheel. See Vehicle wheel. Wind engine S. W. Martin.	66.400 505.506 506.401 506.
valve for steam pipes, rener, T. w. Moran. Valve seating machine, F. H. Richards. Valve steam, R. Grosemann. Valve, steam, R. Grosemann. Valve, steam actuated, E. A. Menking. Valves, seating, F. H. Richards. Vehicle brake, A. Bruegger. Vehicle seat back, W. A. Nason. Vehicle spring, L. Pentz. Vehicle spring, L. P. Botte. Vehicle wheel, F. H. Botte. Vehicle wheel, F. T. L. Persil. Velocipede mud guard, A. Govan. Ventilator H. W. Libbey Voltmeter, static, A. E. Kennelly. Wagon bolsters, standard for, J. B. Ripsom. Wagon, delivery, S. D. Reynolds. Wason, delivery, S. D. Reynolds. Wason spring, G. T. Chapman. Warping machines, rise roll mechanism for, A. E. Rhoades. Washing machine, Starpe & Coldren. Water kauge, Votter & Broeker. Water kauge, Votter & Broeker. Water wheel, A. F. Sparks. Westher strip, F. H. Mond. Weel drilling machinery, J. G. Lee. Wheel. See Vehicle wheel. Water wheel. Winding thread on plates, machine for, J. C. & F. Winding thread on plates, machine for, J. C. & F. Winding thread on plates, machine for, J. C. & F. Winding thread on plates, machine for, J. C. & F. Winding thread on plates, machine for, J. C. & F.	66.400 550,700
valve for steam pipes, rener, T. w. Moran. Valve seating machine, F. H. Richards. Valve, steam, R. Grosemann. Valve, steam actuated, E. A. Menking. Valve, steam actuated, E. A. Menking. Velvels, seating, F. H. Richards. Vehicle brake, A. Bruegger. Vehicle seat back, W. A. Nason. Vehicle spring, E. B. Smith. Vehicle wheel, F. H. Bolte. Veluctorede mud guard, A. Govan. Ventilator, H. W. Libbey. Voltmeter, static, A. E. Kennelly. Voltmeter, static, A. E. Kennelly. Wagon bolsters, standard for J. B. Ripsom. Wagon, delivery, S. D. Reynolds. Wagon spring, G. T. Chapman. Warping machines, rise roll mechanism for, A. E. Rhoades. Water pange, Votter & Broeker. Water wheel, A. F. Sparks. Weather strip, F. H. Mond. Wede exterminator, J. S. Dunlap. Well drilling machinery, J. G. Lee. Wheel. See Vehicle wheel. Water wheel. Windingl thread on plates, machine for, J. C. & F. A. Spach. Windmill, H. A. French.	66.490 505.505 509.216 509.
valve seating machine, F. H. Richards. Valve seating machine, F. H. Richards. Valve seating mochine, F. H. Richards. Valve, steam, R. Grosmann. Valve, steam actuated, R. A. Menking. Valve, steam actuated, R. A. Menking. Velicle spring, E. P. H. Richards. Vehicle bring, L. Pentz. Vehicle spring, L. Pentz. Vehicle spring, L. Pentz. Vehicle spring, L. P. Smith. Vehicle wheel, F. H. Bolte. Vehicle wheel, F. H. Bolte. Vehicle wheel, F. H. Bolte. Vehicle wheel, F. L. Persil. Velocipede mud guard, A. Govan. Ventilator, H. W. Libbey Voltmeter, stattc, A. E. Kennelly. Wagon bolsters, standard for J. B. Ripsom. Wagon, delivery, S. D. Reynolds. Wagon, delivery, S. D. Reynolds. Wagon, delivery, S. D. Reynolds. Wagon spring, G. T. Chapman Warping machines, rise roll mechanism for, A. E. Eboades. Washing machine, Siarpe & Coldren. Watch sasse, pring, N. J. Fellx Water gauge, D. H. Roberts. Water wheel, A. F. Sparks. Weather strip, F. H. Mond. Weed exterminator, J. S. Duniap. Well drilling machinery, J. G. Lee. Wheel. See Vehicle wheel. Water wheel. Wind engine, S. W. Martin. Windmill, H. A. French. Window, cellar, L. Tremmel.	56.505.215.505
valve seating machine, F. H. Richards. Valve seating machine, F. H. Richards. Valve seating machine, F. H. Richards. Valve, steam, R. Grosemann. Valve, steam actuated, E. A. Menking. Velve, seating, F. H. Richards. Vehicle brake, A. Bruegger Vehicle brake, A. Bruegger Vehicle spring, E. P. H. Richards. Vehicle spring, E. P. Smith Vehicle wheel, F. H. Bolte. Vehicle wheel, F. T. Lepran. Ventilator H. W. libbey Voltmeter, static, A. E. Kennelly. Wagon bolsters, standard for J. B. Ripsom. Wagon, delivery, S. D. Reynolds. Wagon spring, G. T. Chapman. Warping machines, rise roll mechanism for, A. E. Rhoades. Washing machine, Sharpe & Coldren. Watchease spring, N. J. Fellx. Water gauge, D. H. Roberts. Water wheel, A. F. Sparks. Weather strip, F. H. Mend. Weed exterminator, J. S. Dunlap. Well drilling machinery, J. G. Lee. Wheel. See Vehicle wheel. Water wheel. Wind engine, S. W. Martin. Windmill, H. A. French. Windmill, H. A. French. Window, cellar, L. Tremmel. Wood chopper's platform, J. B. Brickley.	506.490 \$05.590 \$09.215 \$09.215 \$09.215 \$09.492 \$09
valve seating machine, F. H. Richards. Valve seating machine, F. H. Richards. Valve seating machine, F. H. Richards. Valve, steam, R. Grosemann. Valve, steam actuated, E. A. Menking. Valves, seating, F. H. Richards. Vehicle brake, A. Bruegger. Vehicle brake, A. Bruegger. Vehicle spring, L. Pentz. Vehicle spring, L. Pentz. Vehicle spring, L. B. Smith. Vehicle wheel, F. H. Bolte. Velotipede mud guard, A. Govan. Ventilator, H. W. Libbey. Voltmeter, static, A. E. Kennelly. Wagon bolsters, standard for J. B. Ripsom. Wagon, delivery, S. D. Reynolds. Wagon spring, G. T. Chapman. Warping machines, rise roll mechanism for, A. E. Rhoades. Washing machine, Sharpe & Coldren. Watch case spring, N. J. Fellz. Water gauge, D. H. Roberts. Water wheel, A. F. Sparks. Weather strip, F. H. Mond. Weed exterminator, J. S. Dunlap. Well drilling machinery, J. G. Lee. Wheel. See Vehicle wheel. Water wheel. Window, cellar L. Tremmel. Window, cellar L. Tremmel. Window, cellar L. Tremmel. Window, cellar L. Tremmel. Wood chopper's platform, J. B. Brickley. Wood machine for embossing, Staber & Abbey. Wort from Indian corn, preparation of, C. Rach.	506.400 506.500 506.500 506.402 506.402 506.402 506.402 506.602 506
valve for steam pipes, rener, T. w. Moran. Valve seating machine, F. H. Richards. Valve seating mochine, F. H. Richards. Valve, steam, R. Grosemann. Valve, steam actuated, E. A. Menking. Valve, steam actuated, E. A. Menking. Velvel, seathing, F. H. Richards. Vehicle brake, A. Bruegger. Vehicle spring, L. Pentz. Vehicle spring, L. Pentz. Vehicle spring, L. P. Shith. Vehicle wheel, F. H. Bolte. Vehicle wheel, F. T. L. Persil. Velocipede mud guard, A. Govan. Ventilator H. W. Libbey Voltmeter, static, A. E. Kennelly. Vagon bolsters, standard for, J. B. Ripsom. Wagon, delivery, S. D. Reynolds. Wagon spring, G. T. Chapman. Warping machines, rise roll mechanism for, A. E. Rhoades. Washing machine, Sharpe & Coldren. Water gauge, D. H. Roberts. Water gauge, D. H. Roberts. Water wheel, A. F. Sparks. Weather strip, F. H. Mead. Wed exterminator, J. S. Dumlap. Well drilling machinery, J. G. Lee. Wheel. See Vehicle wheel. Water wheel. Winding thread on plates, machine for, J. C. & F. A. Spach. Windmill, H. A. French. Window, cellar, L. Tremmel. Wood chopper's platform, J. B. Brickley. Wood, machine for embossing, Staber & Abbey. Wort from Indian corn, preparation of, C. Rach. Wrench. See Ratchet wrench.	505.400 500.700 500
valve for steam pipes, rener, I. w. Moran. Valve seating machine, F. H. Richards. Valve steam, R. Grosmann. Valve, steam, R. Grosmann. Valve, steam actuated, E. A. Menking. Valves, Seating, F. H. Richards. Vehicle brake, A. Bruegger. Vehicle brake, A. Bruegger. Vehicle spring, E. P. H. Richards. Vehicle spring, E. P. Smith. Vehicle spring, E. Pentz. Vehicle spring, E. P. Smith. Vehicle wheel, F. J. Botte. Vehicle wheel, F. J. L. Persil. Vehicle wheel, F. J. L. Persil. Vehicle wheel, F. J. L. Persil. Vehicle spring, E. P. Smith. Vehicle wheel, F. J. L. Persil. Vehicle wheel, F. J. L. Persil. Vehicle wheel, F. J. L. Persil. Voltimeter, static, A. E. Kennelly Wazon botsters, standard for J. B. Ripsom. Wazon, delivery, S. D. Reynolds. Wazon spring, G. T. Chapman. Warping machines, rise roll mechanism for, A. E. Rhoades. Wasching machines, Riserpe & Coldren. Watchease spring, N. J. Fellx. Mater gauge, Vetter & Broeker. Mater wheel, F. F. Sparks. Weather strip, H. J. G. Lee. Wheel, See Vehicle wheel, Water wheel. Wind engine, S. W. Martin. Wanding thread on plates, machine for, J. C. & F. A. Shach. Window, cellar, L. Tremmel. Window, See Ratchet wrench. Wersch. See Ratchet wrench. Wristband, E. D. Smith. Wars, device for catching and removing bunches from T. J. Sands.	66.40 50.50 50.71 50.71 50.49
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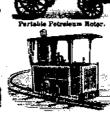


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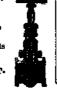
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