Business and Personal.

The charge for Insertion under this head is One Dollar a line reach insertion; about sight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in the following week's usue

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Handle turning machinery. Trevor Mfg. Co., Lock

Air compressors for every possible duty. Clayton Air Compressor Works, 26 Cortlandt Street. New York.

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Nickel-in-slot machines perfected and manufactured

Electrical supplies, Waite Mfg. Co., Bridgeport, Conn. Cheapest Water Power.-See top of 1st column, page

170. Also top of 2d column, page 239. Look, it will pay. Centrifugal Pumps for paper and pulp mills. Irrigating

and sand pumping plants. Irvin Van Wie, Syracuse, N. Y. Screw machines, milling machines, and drill presses. The Garvin Mach. Co., Laight and Canal Sts., New York.

Electric Bargains-Magnet wire, castings, carbons, battery materials. Imperial Elec. Co., Box 15, Cleveland, O.

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Split Pulleys at Low prices, and of same strength and appearance as Whole Pulleys. Yocom & Son's Shafting Works, Drinker St., Philadelphia, Pa.

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HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information and not for publication.

References to former articles or answers should give date of paper and page or number of question.

Inquirles not answered for reasonable time should be repeated; correspondents will bear in mind that some auswers require not a little research, and though we endeavor to reply to all either by letter or in this department, each must take his turn.

Buyers wis ingret purchase any article not advertised

or in this department. each must take his turn.

Buyers wis ingto purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same.

Special Written information on matters of personal rather than gen ral interest caunot be expected without remuneration.

Scientific American Supplements referred to may be had at the office. Price 10 cents each.

Books referred to promptly supplied on receipt of price.

Minerals sent for examination should be distinctly marked or labe ed.

(6037) R. R. says: Will you please give a good formula for a shoe dressing for ladies shoes? A. 1. French dressing for shoes: Logwood extract, 3 ounces dissolve in 2 quarts of water; borax, 3 ounces; dissolve in soft water, 2 quarts; and add 34 ounce shellac, boil to dissolve; bichromate of potash, 🔏 ounce; dissolve in soft water, 1/4 pint; and add 3 ounces ammonia water, mix all together. 2. The following is a German recipe: Dissolve 31/2 ounces of shellac in half a pint of alcohol. Rub smooth 25 grains of lampblack with 6 drachms of cod liver oil and mix. A few drops are to be applied to the leather with a sponge.

(6038) D. S. S. writes: In the diagram, Query 5985, page 269, current volume Scientific AMERICAN, I think th re is an error. When the switch arm is moved to b, it forms two?circuits, one over the line and one short circuit through the telephone. Also at the other end of the line the current would divide, part going through the bell and part through the telephone, and I think the bell would fail to ring. By arranging two cut-outs to cut out the telephones, I think it would work better. A. The high resistance of the telephones is relied upon to cause the current to pass through the belis. If the telephones have a low resistance, the plan will not work without considerable battery.

R. S. asks: Will you please answer the following questions in Notes and Queries: What is the cause of rust that forms on zinc etc ing plates? The only use that has been made of them has been to mould from for electro plates, and pull a few proofs of them on the press, and then clean off with gasoline. The plates are kept in a vault and steam heat is on all the time to keep it dry. Can this corrosion be prevented? How? And can the plates be cleaned without injury to them? A. The rust or corrosion is generally caused by moisture. In some cases galvanic action may be set up. Vaseline would probably protect the plates without injuring them, but it must be entirely removed before the plates can be used for printing. Benzine can be used for removing ink from the plates.

(6040) J. E. B. writes: The question having arisen to what depth a foundered iron vessel would sink, A claims that it will only sink a certain distance, and then remain there, suspended, as it were. while B says that it will go clear to the bottom and lie there, no matter how deep, as the pressure increases equally on all sides as it sinks. The question of currents is not to be taken into consideration. The writer would not to be taken into consideration. also be pl ased if you could inform him how the great itset hard.

depths of the oceans are determined? A. Everything that sinks beneath the surface of the ocean goes to the bottom at whatever depth. Even the siit and mud carried into the ocean from the rivers finds its way to the bottom of the ocean. Although the pressure at great depths is immense, 0.43 of a pound for every foot in depth, the density of water, owing to its slight compressibility under great pressure, is but very little greater at the bottom of the deep ocean than at the surface. Fish, shell fish, and the minute life organisms of the sea live at the greatest depths. B is correct. Steel sounding lines and iron balls are used for the greatest depths. To scilitate the opertion of sounding, the ball is disengaged when it strikes the bottom and the line measured back on the reel.

(6041) J. H. asks: Would it affect the ronning of the simple electric motor described in "Experimental Science" if the core were not one continuous wire, but three pieces hooked together? A. It is immaterial whether the iron wire of the armature core is in one piece or not. It is not necessary to fasten the pieces together.

(6042) C. T. W. asks: At what tem erature would water boil in a perfect vacuum? A. Water boils in a vacuum at 86° Fah.

(6043) E. H. S. asks: 1. How many pounds pressure must 70° air be subjected to, to have a temperature of 35° when allowed to expand? A receptacle holding 10 cubic feet of air naturally, how many cubic feet will be forced into it when it is compressed to 15 pounds per square inch? How many at 30 pounds per square inch? A. Air at a pressure of 5 pounds at 75° will drop to 35° when expanded. Practically there is a small loss in effect that requires about 8 pounds pressure for practical operation; 10 cubic feet in addition to the air already in the cylinder will produce 15 pounds gauge pressure; 20 cubic feet for 30 pounds pressure. By compression the air becomes warmer and will show the pressures named on the gauge before the above quantities are compressed. The figures are for isothermal con-

(6044) A. A. S. asks: Can a vessel used to measure the rainfall be bought? If so, at about what price? I am told that a good carpenter can make one. Please give me a few pointers on the subject. Never having seen one, anything concerning them will be appreciated by your subscriber. A. Rain gauges with instructions may be purchased from Queen & Co., P iladelphia, Pa., for a few dollars, or any tiusmith can make a rain gauge as follows : Make a common tin funnel such as used in every household and by liquor dealers, 6 inches in diameter at the top, and place a cylindrical rim around the top with a sharp edge at the top exactly 6 inches in diameter and 114 inches high. Also a rim on the outside of the cone 3 inches in diameter and 1 inch high to just slip into a tin cylinder 3 inches in diameter on the inside by 10 inches in height, with a flat bottom. Place the funnel and cylinder togeth r and set 2 feet above the ground, fastened to pr vent movement by the wind. The measurement of the depth of rainfall caught in the funnel and deposited in the cylinder will be just four times thedepth of the rainfall. Use at in slip of wood marked with inches and tent s for a measure

(6045) W. P. A. says: We are considering the advisability of burning shavings, sawdust, and small kindling in our boiler furnaces instead of coal, as heretofore. Which is the best way of feeding this into the furnaces, by haud or automatically, and if automatically, what device is the best? A. Automatic feeders bave been made for blowing sawdust and shavings into the fire under boilers. We do not advise its use, on account of its want of reliability and safety. The setting of boilers and furnaces for sawdust, bagasse, shavings and dust fuel are illustrated and described in Scientific AMERICAN SUPPLEMENT, Nos. 501, 624, 625, 10 cents each mailed. We have no record of parties making the auto-

(6046) S. B. W. asks whether the atmosphere surrounding the earth is heated by convection or radiation. A. The atmosphere is heated by both radiation and convection. It not only absorbs the radiant heat of the sun as it passes to the earth, it also absorbs the heat of the warm earth surface by contact and circulation, which is the mode of convection.

(6047) J. S. says: Will you please inform me what kind of finid I can use to write on glass? A. Diamond ink.—Diamond ink is made by mixing with hydrofluoricacid enough barium sulphate to give it consistency, so that it will not spread, and show well on the glass. Ammonium fluoride may also be added. After the writing has stood some time it is washed or dusted off, and the etching appears. Use a glass pen.

(6048) L. L. M. asks a good and inexpensive way to make a small aquarium, about $15\times10\times$ 8 inches. A. Asmalland well proportioned aquarium might be about 20 inches long by 4 inches wide by 14 inches deep. Make the frame of stout tin; cut eight strips 14 inches long and four strips 20 inches long. They may all be about 11/8 inches wide; now angle them pair of clamps, and you have the required number for the frame, i. e., four uprights at 14 inches; a piece across top and bottom at each end, 14 inches; and four pieces, 20 inches, for top and bottom at sides; solder them firm y together, being careful to get the frame square. You had better strengthen the corners by angling some short pieces and soldering firmly over them; these will also hide the joints. These pieces may be fancifully cut, unless you intend to case the frame afterward. Having put the frame together, you should have a flange round the inside of the bottom part. Cut a piece of galvanized sheet iron, rather stout in substance, to fit. Bedit firmly in with red lead cement, red and white lead mixed like nutty. Tack it here and there with solder to the frame Before putting in the bottom, make the holes and ar rangements for fountain and waste, also runaway, and whatev r you require. You may now put in the glass, 28 ounces, or even 21 ounces will stand the pressure very well: but an accidental knock would be fatal. If you can use plate, it will be much better. Bed it firmly iu with lead, solder tabs of tin or copper close up at top and bottom. Clear away the superfluous lead, which wil squeeze out between the frame and glass neatly, and let

TO INVENTORS.

An experience of forty-four years, and the preparation of more 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. A synopels 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.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted May 8, 1894,

AND EACH BEARING THAT DATE. [See note about of list about copies of these patents.]

1	[See note affend of list about copies of these pate	ents.]
	Adding machine, F. Sweet. Aerated liquids, apparatus for producing and containing, C. Hatkon. Alt brake apparatus, J. H. O'Hara. Alt compressing apparatus, M. Flood. Antifriction roller, F. H. Richards. Arch, W. O'Hein. Arch, W. O'Hein. Avomiser, W. Eggers. Auger, earth, Ream & Herbolsheimer. Axie box, T. Lo Casto. Baby jumper, J. A. W. Seaberg. Bag. See Faper bag. Bag. See Faper bag. Bag Bock, F. B. Windar. Balance, spring, A. Shepard. Bando H. O. Model brooke. Barjo H. O. Model brooke. Bastiery, See Galvanic battery. Beating for connecting rods, adjustable, W. & F. Brockbausen.	519,866
İ.	Air brake apparatus, J. H. O'Hara	619,681
1	Air compressing apparatus, m. F100d	619,591
1	Atomizer, W. Eggers	519,498 519,643
1	Axle box, T. Lo Casto	519,403 519,593
	Bag. See Paper bag. Bag lock, F. E. Windsor.	519,598
i	Balance, spring, A. Shepard	519,363 519,507
ŗ	Banjo II. C. Middle brooke	519,409
	Battery plate, storage, C. P. Elleson Bearing for connecting rods, adjustable, W. & F.	519,602
Ì	Bed bottom, spring, L. Wildermuth	619,368
1	Bell, alarm, A. H. Langdon.	519,581 519,587
1	Bicycle, R. J. Gatling	519.384 519.557
ĺ	Bearing for connecting rods, adjustable, W. & F. Brockbausen Bed bottom, agring, L. Wildermuth. Heehive, B. Taylor. Bell, alarm, A. H. Langdon. Beverage diapensing apparatus, L. & F. Kohout. Bicycle, R. J. Gatling. Bicycle, L. B. Sheldon. Bicycle clamping device, L. J. Crecelius. Heycle step, E. A. Jones.	519,667 519,579
Ŀ	Billiard cue chalker, G. Southwell	519,356 519,650
1	Bicycle clamping device, L. J. Crecenus	
	Boiler setting, smokeless, J. W. Bates	519,658
1	Bolt, North & Sessions	519,411 519,540
1	Bottle, composite, A. Dryfoos	519,801 519,510
l	Boiler setting, s mokeless, J. W. Bates. Boit. See Door boit. Boit. North & Sessions. Book leaf holder, J. Meyer. Bottle, composite. A. Dryfoos. Bottle stoppersiw. B. Stevens. Box. See Letter box. Paper box. Box. S. Hurlbut. Brake. See Car brake.	519,578
	Brake. See Car brake. Brick kiln. C. Krahe	519,577
Í	Brick machine, Rankin & Tempest	519,547
Į	Box, S. E. Hurlbut. Brake. See Car brake. Brick kiln. C. Krahe	519,428
	Butter mould, Dorsey & Brenneisen	619,496 619,689
-	Button holder, W. Lerch	519,582 519,586
	Burner. See Hydrocarbon burner. Butter mould, Dorsey & Brenneisen. Button, T. W. Crozier. Button holder, W. Lerch. Cable replacer, J. Z. Murphy Cable traction, overhead, W. G. Berg. Calking hub with soldering nipple or ferrule, G. W. Young. Car brake, F. P. Musser. Car coupling, E. N. Anderson. Car coupling, B. Bonnans. Car coupling, A. R. Heath. Car coupling, A. R. Heath. Car coupling, A. R. Heath. Car fender, G. Bersch. Car fender, G. Bersch. Car fender, Safety, G. C. Schmidt. Car heater. G. W. Rodgers. Car life-guard, street, J. Campbell. Car motor, electrohydraule, C. R. Emery. Car seat locking and turning apparatus, J. S. Winsor. Cars, electrical propulsion of railway, J. J. Heli-	519,561
i	W. Young Car brake, F. P. Musser.	519,372 519,591
-	Car coupling, B. Bonnaus	519,600 519,600
1	Car coupling, T. Shea.	519,480 519,562
i	Car fender, A. H. Jelly	519,472 519,648
ļ	Car heater, G. W. Rodgers. Car life-guard, street, J. Campbell	519,644 519,402
į	Car motor, electrohydraulie, C. E. Emery	PTA'463
	WinsorCars, electrical propulsion of railway, J. J. Hell-	519 674
	Cars, electrical propulsion of railway, J. J. Heli- mann. Carding engine, J. C. Potter	519,640
i	Cash delivering device, S. E. Fish. Cash register, G. F. Cook.	519,449 519,567
	Chair. See Child's or invalld's Chair. Chart hanger, W. S. Cranmer	519,467
	Chuck, drill, R. J. Holland.	519,464
١	Clocks, gravity escapement for, H. Conant	519,421 519,378
	Clothes line fastener, C. S. Buckwalter	519,628 619,486
1	Coffee pot, W. A. Barrington	519,667 519,649
	Coffin handle, I. G. Kregel	519,678 519,335
	Collar shaping apparatus, horse, A.F. Dunavan	519,381
1	Condenser, J. M. Westerlin	519,654 519,580
	Core, casting, O. C. Little	519,588 619,404
i	mann Carding engine, J. C. Potter. Case. See Shipping case. Cash delivering device, S. E. Fish. Cash register, G. F. Cook. Chair. Fase Child's or invalid's chair. Chart hanger, W. S. Cranmer. Child's or invalid's chair, L. A. Chichester. Child's or invalid's chair, L. A. Chichester. Child's or invalid's chair, L. A. Chichester. Chuck, drill, R. J. Holland. Cigar tip cut er, A. A. Hookins. Clocks, gravity escapement for, H. Conant. Clothes drier, Casper & Darling. Clothes line fastener, C. S. Buckwalter. Coal drill, G. H. Bittenbender. Coffin attachment. C. D. Shrader. Coffin handle, I. G. Kregel. Cottine, G. L. Composition, Condenser, J. M. Westerlin. Cooking device, G. Kelsey. Concentrating machine, I. Besly. Condenser, J. M. Westerlin. Cooking device, G. Kelsey. Core, casting, O. C. Little. Corn popp r. L. R. Hiffner. Cotton opener dust trunk, T. R. Marsden. Coupling. See Car coupling. Thill coupling. Crusher. See Stone and ore crusher. Cultivator stra der ow, wheel J. I. Hoke. Cup and bas piece, combined, H. R. T. Coffin. Culfing iron, c. L. Thompson. Current transformer, alternating, C. S. Bradley. Current transformer, L. Atzert. Dish cover, T. York.	, 919,40/
1	Cultivator attachment, J. Meler	519,408 519,631
, 	Curling iron, G. L. Thompson.	519,529 519,653
- [Current transformer, alternating, C. S. Bradley. Curtain guide and stop, G. C. Sawade	519,878 519,647
	Derrick, W. E. Whitcomb.	519,364 519,855
.	Dish cover, T. York	519,417 519,482
1	Door bolt, double, W. Johnston	519.687 519.551
-]	Desk, adjustable, L. Atzert. Dish cover, T. York. Display device, automatic, B. J. Smith. Door bolt, double, W. Johnston. Dredge bucket, A. W. Robinson. Drier, See Clothes drier. Drill. See Coal drill. Driving mechanism. Ashbarry & Barnes.	,
9	Driving mechanism, Ashberry & Barnes	
	Dis polymo relication 7 7 Page 1	519,513 519,522
1	Dye, polyazo yellowish, J. J. Brack. Dyeing machine, G. H. Craven. Elector and mainsuring machanism. Posserborn	519,522 519,623 519,323
	Driving mechanism, Ashberry & Barnes. Dys, polyazo yellow J.J. Brack. Dye, polyazo yellowish, J.J. Brack. Dyelng machine, G. H. Craven. Ejector and mainspring mechanism, Rosenberg & Hurst. Ejector fluid, N. Power.	519,522 519,623 519,323
	Dye polyazo yellowish J. J. Brack Dyeing machine, G. H. Craven. Ejector and mainspring mechanism, Rosenberg & Hirst. Ejector, fluid, N. Power Ejectric accumulator or secondary battery, A. J. Smith.	519,522 519,623 519,323
	Dye polyazo yellowish J. J. Brack Dyeing machine, G. H. Craven Ejector and mainspring mechanism, Rosenberg & Hurst. Ejector, fluid, N. Power Ejectric accumulator or secondary battery, A. J. Bmith Electric currents of high potential, generating and utilizing, C. S. Bradley.	519,522 519,623 519,323
1	Dye polyaso yellowish J. J. Brack Dyeing machine, G. H. Craven. Ejector and mainspring mechanism, Rosenberg & Hunter and mainspring mechanism, Rosenberg & the transpring mechanism, Rosenberg & the transpring mechanism, Rosenberg & the transpring mechanism, Rosenberg Electric control of high potential, generating and utilizing, C. S. Bradley But the transpring of the transpring mechanism, Rosenberg Electric motors, operating, J. S. Baucroft, Electric motors, pages and processes and	519,522 519,623 519,323
t	Dye, polyaso yellowish, J. J. Brack. Dyeting machine, G. H. Craven. Ejector and mainspring mechanism, Rosenberg & Hinst. Ejector, fluid, N. Power. Ejector, accumulation of high potential, generating, and utilising, C. S. Bradley. Ejector, fluid, flu	519,522 519,623 519,323
t t	Elector fluid, N. Power Elector fluid, N. Power Elector accumulator or secondary battery, A. J. Electric currents of high potential, generating and utilizing, C. S. Bradley Electric motors, operating, J. S. Bancroft, Electric which J. F. Mosfroy, Electrolysis, H. Blumenberg, Jr. Hectromagnetic tool, C. F. Carpenier, Elevator, See Transportable elevator, Elevator, Controller W. C. Smith.	519,522 519,623 519,562 519,568 519,618 519,482 519,377 519,686 519,388 619,400 519,862 519,459
1	Elector fluid, N. Power Elector fluid, N. Power Elector accumulator or secondary battery, A. J. Electric currents of high potential, generating and utilizing, C. S. Bradley Electric motors, operating, J. S. Bancroft, Electric which J. F. Mosfroy, Electrolysis, H. Blumenberg, Jr. Hectromagnetic tool, C. F. Carpenier, Elevator, See Transportable elevator, Elevator, Controller W. C. Smith.	519,522 519,623 519,562 519,568 519,618 519,482 519,377 519,686 519,388 619,400 519,862 519,459
t 7 11 1	Ejector, fluid, N. Power Elector, fluid, N. Power Elector, accumulator or secondary battery, A. J. Elector, currents of high potential, generating, Elector, accumulating, C. S. Bradley, Elector, accumulating, T. B. Baucroft, Elector, accumulating, T. B. Baucroft, Elector, J. F. Moëlroy, Electrolysis, H. Blumenberg, Jr. Electromagnetic tool, C. F. Carpenter, Elevator, See Transportable elevator, Elevator, See Transportable elevator, Elevator controllar, W. C. Smith Engine, Nee Carding engine, Steam engine, Winding engine, Engine strachment, D. B. & F. M. Woodsum. Entralls, machine for cutting and cleaning, Revels & Elect.	519,522 519,623 519,523 519,562 519,618 519,482 519,377 519,686 519,482 519,459 519,459
t 7 11 1	Ejector, fluid, N. Power Elector, fluid, N. Power Elector, accumulator or secondary battery, A. J. Elector, currents of high potential, generating, Elector, accumulating, C. S. Bradley, Elector, accumulating, T. B. Baucroft, Elector, accumulating, T. B. Baucroft, Elector, J. F. Moëlroy, Electrolysis, H. Blumenberg, Jr. Electromagnetic tool, C. F. Carpenter, Elevator, See Transportable elevator, Elevator, See Transportable elevator, Elevator controllar, W. C. Smith Engine, Nee Carding engine, Steam engine, Winding engine, Engine strachment, D. B. & F. M. Woodsum. Entralls, machine for cutting and cleaning, Revels & Elect.	519,522 519,623 519,523 519,562 519,618 519,482 519,377 519,686 519,482 519,459 519,459
t 7 11 1	Ejector, fluid, N. Power Elector, fluid, N. Power Elector, accumulator or secondary battery, A. J. Elector, currents of high potential, generating, Elector, accumulating, C. S. Bradley, Elector, accumulating, T. B. Baucroft, Elector, accumulating, T. B. Baucroft, Elector, J. F. Moëlroy, Electrolysis, H. Blumenberg, Jr. Electromagnetic tool, C. F. Carpenter, Elevator, See Transportable elevator, Elevator, See Transportable elevator, Elevator controllar, W. C. Smith Engine, Nee Carding engine, Steam engine, Winding engine, Engine strachment, D. B. & F. M. Woodsum. Entralls, machine for cutting and cleaning, Revels & Elect.	519,522 519,623 519,523 519,562 519,618 519,482 519,377 519,686 519,482 519,459 519,459
t 7 11 1	Ejector, fluid, N. Power Elector, fluid, N. Power Elector, accumulator or secondary battery, A. J. Elector, currents of high potential, generating, Elector, accumulating, C. S. Bradley, Elector, accumulating, T. B. Baucroft, Elector, accumulating, T. B. Baucroft, Elector, J. F. Moëlroy, Electrolysis, H. Blumenberg, Jr. Electromagnetic tool, C. F. Carpenter, Elevator, See Transportable elevator, Elevator, See Transportable elevator, Elevator controllar, W. C. Smith Engine, Nee Carding engine, Steam engine, Winding engine, Engine strachment, D. B. & F. M. Woodsum. Entralls, machine for cutting and cleaning, Revels & Elect.	519,522 519,623 519,523 519,562 519,618 519,482 519,377 519,686 519,482 519,459 519,459
t 7 11 1	Ejector, fluid, N. Power Elector, fluid, N. Power Elector, accumulator or secondary battery, A. J. Elector, currents of high potential, generating, Elector, accumulating, C. S. Bradley, Elector, accumulating, T. B. Baucroft, Elector, accumulating, T. B. Baucroft, Elector, J. F. Moëlroy, Electrolysis, H. Blumenberg, Jr. Electromagnetic tool, C. F. Carpenter, Elevator, See Transportable elevator, Elevator, See Transportable elevator, Elevator controllar, W. C. Smith Engine, Nee Carding engine, Steam engine, Winding engine, Engine strachment, D. B. & F. M. Woodsum. Entralls, machine for cutting and cleaning, Revels & Elect.	519,522 519,623 519,523 519,562 519,618 519,482 519,377 519,686 519,482 519,459 519,459
t 7 11 1	Ejector, fluid, N. Power Elector, fluid, N. Power Elector, accumulator or secondary battery, A. J. Elector, currents of high potential, generating, Elector, accumulating, C. S. Bradley, Elector, accumulating, T. B. Baucroft, Elector, accumulating, T. B. Baucroft, Elector, J. F. Moëlroy, Electrolysis, H. Blumenberg, Jr. Electromagnetic tool, C. F. Carpenter, Elevator, See Transportable elevator, Elevator, See Transportable elevator, Elevator controllar, W. C. Smith Engine, Nee Carding engine, Steam engine, Winding engine, Engine strachment, D. B. & F. M. Woodsum. Entralls, machine for cutting and cleaning, Revels & Elect.	519,522 519,623 519,523 519,562 519,618 519,482 519,377 519,686 519,482 519,459 519,459
t 7 11 1	Ejector, fluid, N. Power Elector, fluid, N. Power Elector, accumulator or secondary battery, A. J. Elector, currents of high potential, generating, Elector, accumulating, C. S. Bradley, Elector, accumulating, T. B. Baucroft, Elector, accumulating, T. B. Baucroft, Elector, J. F. Moëlroy, Electrolysis, H. Blumenberg, Jr. Electromagnetic tool, C. F. Carpenter, Elevator, See Transportable elevator, Elevator, See Transportable elevator, Elevator controllar, W. C. Smith Engine, Nee Carding engine, Steam engine, Winding engine, Engine strachment, D. B. & F. M. Woodsum. Entralls, machine for cutting and cleaning, Revels & Elect.	519,522 519,623 519,523 519,562 519,618 519,482 519,377 519,686 519,482 519,459 519,459
t 7 11 1	Ejector, fluid, N. Power Elector, fluid, N. Power Elector, accumulator or secondary battery, A. J. Elector, currents of high potential, generating, Elector, accumulating, C. S. Bradley, Elector, accumulating, T. B. Baucroft, Elector, accumulating, T. B. Baucroft, Elector, J. F. Moëlroy, Electrolysis, H. Blumenberg, Jr. Electromagnetic tool, C. F. Carpenter, Elevator, See Transportable elevator, Elevator, See Transportable elevator, Elevator controllar, W. C. Smith Engine, Nee Carding engine, Steam engine, Winding engine, Engine strachment, D. B. & F. M. Woodsum. Entralls, machine for cutting and cleaning, Revels & Elect.	519,522 519,623 519,523 519,562 519,618 519,482 519,377 519,686 519,482 519,459 519,459
t 7 11 1	Ejector, fluid, N. Power Elector, fluid, N. Power Elector, accumulator or secondary battery, A. J. Elector, currents of high potential, generating, Elector, accumulating, C. S. Bradley, Elector, accumulating, T. B. Baucroft, Elector, accumulating, T. B. Baucroft, Elector, J. F. Moëlroy, Electrolysis, H. Blumenberg, Jr. Electromagnetic tool, C. F. Carpenter, Elevator, See Transportable elevator, Elevator, See Transportable elevator, Elevator controllar, W. C. Smith Engine, Nee Carding engine, Steam engine, Winding engine, Engine strachment, D. B. & F. M. Woodsum. Entralls, machine for cutting and cleaning, Revels & Elect.	519,522 519,623 519,523 519,562 519,618 519,482 519,377 519,686 519,482 519,459 519,459
t 7 11 1	Ejector, fluid, N. Power Elector, fluid, N. Power Elector, accumulator or secondary battery, A. J. Elector, currents of high potential, generating, Elector, accumulating, C. S. Bradley, Elector, accumulating, T. B. Baucroft, Elector, accumulating, T. B. Baucroft, Elector, J. F. Moëlroy, Electrolysis, H. Blumenberg, Jr. Electromagnetic tool, C. F. Carpenter, Elevator, See Transportable elevator, Elevator, See Transportable elevator, Elevator controllar, W. C. Smith Engine, Nee Carding engine, Steam engine, Winding engine, Engine strachment, D. B. & F. M. Woodsum. Entralls, machine for cutting and cleaning, Revels & Elect.	519,522 519,623 519,523 519,562 519,618 519,482 519,377 519,686 519,482 519,459 519,459
t 7 11 1	Ejector, fluid, N. Power Elector, fluid, N. Power Elector, accumulator or secondary battery, A. J. Elector, currents of high potential, generating, Elector, accumulating, C. S. Bradley, Elector, accumulating, T. B. Baucroft, Elector, accumulating, T. B. Baucroft, Elector, J. F. Moëlroy, Electrolysis, H. Blumenberg, Jr. Electromagnetic tool, C. F. Carpenter, Elevator, See Transportable elevator, Elevator, See Transportable elevator, Elevator controllar, W. C. Smith Engine, Nee Carding engine, Steam engine, Winding engine, Engine strachment, D. B. & F. M. Woodsum. Entralls, machine for cutting and cleaning, Revels & Elect.	519,522 519,623 519,523 519,562 519,618 519,482 519,377 519,686 519,482 519,459 519,459
t 7 11 1	Ejector, fluid, N. Power Elector, fluid, N. Power Elector, accumulator or secondary battery, A. J. Elector, currents of high potential, generating, Elector, accumulating, C. S. Bradley, Elector, accumulating, T. B. Baucroft, Elector, accumulating, T. B. Baucroft, Elector, J. F. Moëlroy, Electrolysis, H. Blumenberg, Jr. Electromagnetic tool, C. F. Carpenter, Elevator, See Transportable elevator, Elevator, See Transportable elevator, Elevator controllar, W. C. Smith Engine, Nee Carding engine, Steam engine, Winding engine, Engine strachment, D. B. & F. M. Woodsum. Entralls, machine for cutting and cleaning, Revels & Elect.	519,522 519,623 519,523 519,562 519,618 519,482 519,377 519,686 519,482 519,459 519,459
t 7 11 1	Ejector, fluid, N. Power Elector, fluid, N. Power Elector, accumulator or secondary battery, A. J. Elector, currents of high potential, generating, Elector, accumulating, C. S. Bradley, Elector, accumulating, T. B. Baucroft, Elector, accumulating, T. B. Baucroft, Elector, J. F. Moëlroy, Electrolysis, H. Blumenberg, Jr. Electromagnetic tool, C. F. Carpenter, Elevator, See Transportable elevator, Elevator, See Transportable elevator, Elevator controllar, W. C. Smith Engine, Nee Carding engine, Steam engine, Winding engine, Engine strachment, D. B. & F. M. Woodsum. Entralls, machine for cutting and cleaning, Revels & Elect.	519,522 519,623 519,523 519,562 519,618 519,482 519,377 519,686 519,482 519,459 519,459
t 7 11 1	Ejector, fluid, N. Power Elector, fluid, N. Power Elector, accumulator or secondary battery, A. J. Elector, currents of high potential, generating, Elector, accumulating, C. S. Bradley, Elector, accumulating, T. B. Baucroft, Elector, accumulating, T. B. Baucroft, Elector, J. F. Moëlroy, Electrolysis, H. Blumenberg, Jr. Electromagnetic tool, C. F. Carpenter, Elevator, See Transportable elevator, Elevator, See Transportable elevator, Elevator controllar, W. C. Smith Engine, Nee Carding engine, Steam engine, Winding engine, Engine strachment, D. B. & F. M. Woodsum. Entralls, machine for cutting and cleaning, Revels & Elect.	519,522 519,623 519,523 519,562 519,618 519,482 519,377 519,686 519,482 519,459 519,459
t 7 11 1	Rector, fiuld, N. Power Electric accumulator or secondary battery, A. J. Smith Electric currents of high potential, generating and utilizing, C. S. Bradley Electric motors, operating, J. S. Bracroft Electric motors, operating, J. S. Bracroft Electric writch, J. F. McEirov Electrolysis, H. Blumenberg, Jr Electrolysis, H. Blumenberg, Jr Electrolysis, H. Blumenberg, Jr Electrolysis, E. Blumenberg, Jr Electrolysis,	519,522 519,623 519,523 519,562 519,618 519,482 519,377 519,686 519,482 519,459 519,459

ı	Furnaces, promoting combustion in, J. B. Davids, 5	19.325
١	Furnaces, promoting combustion in, J. B. Davids. 5 Gauge. See Micrometer gauge. Gauge for bias outers, N. Steen. 5 Gaivanic battery, C. W. A. Hertel 5 Game board, J. B. David 5 Game or smusement, J. B. Davids. 5 Garment, body, F. W. Warner. 5 Gas burning furnace for steam boilers, G. E. Bel-	19.600
	Galvanic battery, C. W. A. Hertel	19.330
4	Game or amusement, J. B. Davids.	19.326
i	Gas burning furnace for steam boilers, G. E. Bel-	10,000
!	Gas burning furnace for steam boilers, G. E. Bei- mor	19,813 19,413
.	Gear, bevel, G. B. Grant	19,506 19,506
1	Governor, A. J. Pierce	19,412 19,323
.	Grease trap, I. Heffron	19.501 19.653
	Guns, safety breech-lock for, J. B. G. A. Canet 5	19 661
ļ	Hanger. See Chart hanger. Pipe hanger. Trol-	
1	Harrow, ricing, W. F. Cochran	19,821
1	Harvesting machine knotter, J. F. Steward	12,395
Į	Heater, J. H. Adams	19,5 00 19,3 5 8
ì	Hinge for step-ladders, etc., J. & C. Koehler	19,525
١,	Holdback, D. Warner.	19,868
į	Handle. See Coffin handle. Hanger. See Chart hanger. Pipe hanger. Trolley W. F. Cochran. Harrow. Hdng. W. F. Cochran. Harrow. Hdng. W. F. Cochran. Hartow. Hartow. Hartow. Heating apparatus, oil-vapor. E. Strauss. Hinge for step-la dders, etc., J. & C. Kochler. Holst, pneumatic, H. Schweim. Holok and eye, Meyers & Stoveken. Hook and eye, Meyers & Stoveken. Hydrocarbon burner, E. Betz. Hydrocarbon burner, T. B. Nickerson. Hydrocarbon burner, R. Reid. Ince, manufacture of artificial, R. M. Taylor. Index, F. P. Sweitzer. In sect powder distrubuter, S. E. Hotchkiss. Iron. See Curling iron. Ironing board, J. Y. Moore. Joist crowning machine, F. J. Randall. Keg or analogous package, F. H. Waite. Kilin. See Brick kiln.	19,612
6	Hoop dressing machine. H. F. Campbell	19,401 19,458
۱	Hose coupling band, adjustable, E. R. Arthur	19,812 19,660
	Hydrocarbon burger, E. Betz	19,375 19,339
Ó	Hydrocarbon burner, R. Reid.	19,752
3	Index, F. P. Sweitzer	19,622
3	In sect powder distributer, S. E. Hotchkiss	19,471
. I	Ironing board, J. Y. Moore	19,410 19,682
3	Keg or analogous package, F. H. Waite	19,486
8	Kilin. See Brick kilins, tiles, pottery, etc., T. Folivias machine stop-off motion, Chambers & Doud.	10 244
2	Knitting machine stop-off motion, Chambers &	129,344
2	Lamp carbon holder, arc. E. Lavens.	519,890 519,334
8	Lamp, miner's, W. F. McMasters	519,616 519,4 9 6
1	Lantern, hurricane, W. Lighbody	19.408 19.508
7	Knitting machine stop-off motion, Chambers & Doud. Lamp carbon holder, arc. E. Lavens. Lamp, miner's, W. F. McMasters. Lamp, rotatable signal, F. W. Dressel. Lantern, hurricane, W. Lighbody. Leg, artificial, W. R. Honsuele. Letter box, S. A. Groff. Lifter, See Pan lifter. Lighting implement, W. H. Sheppard. Liquid containing and discharging device, A. H. & T. A. Schlueter.	19,427
7	Lighting implement, W. H. Sheppard	19,354
8	& T. A. Schlueter	19,478
Ō	Lock. See Bag lock. Lock key attachment. J. F. Von Hunefeld	19.695
ا	Locomotive boiler, D. L. Barnes	19,315 19 407
8	Loom Jacquard attachment, S. Bentley	19,374
1	Lumber drying apparatus, G. T. Schultze	19,352
1	Metals, electrodeposition of, H. Thofebra	519.545
O	Mixer or bester, A. C. Mitchell	519.584 519.584
8	Mould. See Butter mould. Moulds, apparatus for forming sand, R. Richter.	519,350
7	Mop or brush holder, A. D. Granger	519,329 519,500
7 10 17 18	Mortising machine, Holmes & Peterson	519,502
8	Mower sharpener, lawn, Adams & Doswell	19,441
6	Necktie fastener, C. McNeil	519,477
6000	Nut, axle, Deats & St wart	519.469 519.692
86	Lighting implement, W. H. Sheppard. Liquid containing and discharging device, A. H. & T. A. Schlueter. Lock Bee Bag lock. Locomotive boiler, D. L. Barnes. Locomotive, compound, C. J. Mellin Locomotive, compound, C. J. Mellin Locomotive, and the Locomotive boiler, D. L. Barnes. Lubricator, W. A. Seibel. Lumber drying apparatus, G. T. Schultze. Measuring instrument, distance, J. L. Buford. Metals, electrodeposition of, H. Thofehrn. Micrometer gauge, H. McBride. Micrometer gauge, H. McBride. Micro or beater, A. C. Mitchell Moulds. apparatus for forming sand, R. Richter. Moulds. apparatus for forming sand, R. Richter. Monor brush holder, A. D. Granger. Mortar, producing hydraulic, C. Bloemendai. Mottising machine, Holmes & Peterson. Motor. See Car motor. Pump motor. Mower sharpener, iswn, Adams & Doswell. Musical instrument tail piece, R. L. Turner. Necktie fastener, C. McNell. Nut, axle, Deats & St wart. Odometer, adjustable, T. Schroeder. Oil from cotton seed, apparatus for extracting, W. T. Forbes. Oil storing and feeding apparatus. L. C. Snell. Ore roasting furnace, H. F. Brown. Ore, utilizing iron, J. Reese. Organ, reed, J. W. Trainer.	519,424
2	Oil storing and feeding apparatus, L. C. Snell	519, 439 519,317
Ţ	Ore, utilizing iron, J. Reese	519,391 510 951
ũ	Organs, automatic coupler, for pneumatic, J. V.	519,889
Ö	Oven shelves, device for operating, F. Kaempen,	,
2	Over at B. W. Gassaway	519,606 519,670
18	Oversboe attachment, A. J. BarberOxygen, apparatus for making, F. Fanta	619,658 519,627
2	Packing, metalc, P. W. Willans. Pan lifter, W. Reisse Pantaloon protector, L. D. Jones. Paper pag. E. Thompson Pap	519, 314 519,549 519, 681
0	Pantaloons protector, L.D. Jones	519,633 510,308
	Paper bag machine, W. B. Purvis	519,328 619,349 519,461
14 10	France how blanks, machine for bending C. W.	
ø	Paper box machine, C. W. Gav.	519,671 519,531
77	Paper folding or plaining machine, W. L. Allen Paper, method of and machine for feeding, R. S.	519,400
37 18	Oder	519,341 519,343
¥.	Paper vessels, fastening device for, W. Fogle-	519,571
ž		519,614
78 28 88		519,393
57	Rose. Photographic plate, T. C. Roche	519,611
8		519,675
35 85	Pill machine. A. G. Brown	519,525
0 16	Pipe. See Tobacco pipe. Pipe, device for filling joints of metal, J. F. Glea-	-
54 80	BOD	519,672
Ķ	Son. Pipe fitti g apparatus, J. W. Cooney Pipe hanger, A. Bryant. Plaster, composition of matter for, J. D. Pres-	519,568 51 ,318
57 57	ton	519,548
	Piug strip, multiple, H. G. Rounds	519,663
08 31 29	Pot. See Corree pot. Pottery machine for forming oval ware. A.	
29 53	Lowry. Powder bolding and delivering device. J. C.	519,510
78 47		M9.3%
	Pulley, Conyngham & Gibbons.	519,498
64 55	Printing press, multicolor, W. C. Wendte. 519,461, Pulley, Conyngham & Gibbons. Pulley, separable. A. C. Hodge. Pulverizer, manure, Hayrood & Roach. Pump governor feed, J. Thomas. Pump, hand, J. Clark.	519,331 519,629
17 83	Pomp, hand, J. Clark	519,360 519,444
87 51	Pump rods, brace and guide for windmill, A. S.	519,608 510 514
	Punching tool, F. P. Brooks	519.626
13 22	Rack. See Towel rack.	519,659
23 23		519,5 1 8
62	Werner	519,558
18	kadden	519,688 519,380
82		519,328
77	Railway, contacting device for electric, Graham	
-	Railway from I) Worrie	519,577
86 38	Railway from I) Worrie	519.577 519.511 519.484
86 38 (0) 82	Railway frog. D. Horrie. Railway spike, G. W. Thompson. Railway switch C. F. Wilson. Railway veblele skid, J. Barthelmess. Ramle or other fibrous growths, apparatus for	519.577 519.511 519.464 519.624
86 38 00 82	Railway frog. D. Horrie. Railway spike, G. W. Thompson. Railway switch C. F. Wilson. Railway vehicle skid, J. Barthelmess. Ramle or other fibrous growths, apparatus for treating, W. T. Forbes. Ramie treating abuneratus W. T. Forbes.	519.577 519.511 519.484 519.624 519.624
86 88 00	Railway frog. D. Horrie. Railway spike, G. W. Thompson. Railway switch C. F. Wilson. Railway vehicle skid, J. Barthelmess. Ramle or other fibrous growths, apparatus for treating, W. T. Forbes. Ramie treating abuneratus W. T. Forbes.	519.577 519.511 519.484 519.624 519.624
86 38 00 82	Railway frog. D. Horrie. Railway spike, G. W. Thompson. Railway switch. C. F. Wilson. Railway vehicle skid, J. Barthelmess. Ramie or other fibrous krowths, apparatus for treating, W. T. Forbes. Ramie treating apparatus, W. T. Forbes. Razor, safety, E. L. Schmitz. Razor strop composition, J. Hessel. Reflector, adjustable, P. W. A. Paasch.	519.577 519.511 519.484 519.624 519.624
86 38 00 88 88 88 88	Railway frog. D. Horrie. Railway spike, G. W. Thompson. Railway switch. C. F. Wilson. Railway switch. C. F. Wilson. Railway vehicle skid, J. Barthelmess. Ramie or other fibrous growths, apparatus for treating, W. T. Forbes. Ramie treating apparatus, W. T. Forbes. Razor, safety, E. L. Schmitz. Razor strop composition, J. Hesel. Reflector, adjustable, P. W. A. Paasch. Refirigerator, ice rack, F. K. Ranney. Refligert. See Cash register.	519.577 519.511 519.464 519.624 519.624 519.428 619.479 619.586 619.586 519.432
86 38 00 88 88 88 88	Railway frog. D. Horrie. Railway spike, G. W. Thompson. Railway switch. C. F. Wilson. Railway switch. C. F. Wilson. Railway vehicle skid, J. Barthelmess. Ramie or other fibrous growths, apparatus for treating, W. T. Forbes. Ramie treating apparatus, W. T. Forbes. Razor, safety, E. L. Schmitz. Razor strop composition, J. Hesel. Reflector, adjustable, P. W. A. Paasch. Refirigerator, ice rack, F. K. Ranney. Refligert. See Cash register.	519.577 519.511 519.484 519.624 519.624 519.625 619.636 619.636 619.636 519.432 519.666
868002 59 88 85773284	Railway frog. D. Horrie. Railway spike, G. W. Thompson. Railway switch. C. F. Wilson. Railway switch. C. F. Wilson. Railway vehicle skid, J. Barthelmess. Ramie or other fibrous growths, apparatus for treating, W. T. Forbes. Ramie treating apparatus, W. T. Forbes. Razor, safety, E. L. Schmitz. Razor, safety, E. L. Ramey. Refister ator, ice rack, F. E. Ramey. Refister. See Cash register. Rein support, E. W. Craine. Robe holder, F. E. Woodruff. Roller. See Antifriction roller.	519.577 519.511 519.684 519.624 519.624 519.423 519.423 619.583 629.583 519.432 519.666 519.666
8680000 59 88 8567792	Railway frog. D. Horrie. Railway spike, G. W. Thompson. Railway switch. C. F. Wilson. Railway switch. C. F. Wilson. Railway vehicle skid, J. Barthelmess. Ramie or other fibrous growths, apparatus for treating, W. T. Forbes. Ramie treating apparatus, W. T. Forbes. Razor, safety, E. L. Schmitz. Razor, safety, E. L. Ramey. Refister ator, ice rack, F. E. Ramey. Refister. See Cash register. Rein support, E. W. Craine. Robe holder, F. E. Woodruff. Roller. See Antifriction roller.	519.577 519.511 519.684 519.624 519.624 519.423 519.423 619.583 629.583 519.432 519.666 519.666
868002 59 88 85773284	Railway frog. D. Horrie. Railway spike, G. W. Thompson. Railway switch. C. F. Wilson. Railway switch. C. F. Wilson. Railway vehicle skid, J. Barthelmess. Ramie or other fibrous growths, apparatus for treating, W. T. Forbes. Ramie treating apparatus, W. T. Forbes. Razor, safety, E. L. Schmitz. Razor, safety, E. L. Ramey. Refister ator, ice rack, F. E. Ramey. Refister. See Cash register. Rein support, E. W. Craine. Robe holder, F. E. Woodruff. Roller. See Antifriction roller.	519.577 519.511 519.684 519.624 519.624 519.423 519.423 619.583 629.583 519.432 519.666 519.666
86800 59 88 85773428445640823	Railway frog. D. Horrie. Railway spike, G. W. Thompson. Railway switch. C. F. Wilson. Ramie treating apparatus. W. T. Forbes. Rason, safety. R. L. Schmitz. Razor strop composition, J. Hesel. Reasor, safety. R. L. Schmitz. Razor strop composition, J. Hesel. Refrigerator, ice rack. F. M. Ranney. Refrigerator, ice rack. F. M. Ranney. Reflister. See Cash register. Rein support. E. Woodruff. Roller. See Antifriction roller. Rolling angle bars, macbine for, Hammarberg & Rerglof. Rule, plumb, F. Holt. Safety apparatus. H. K. Whitner. Sash Issteaer, J. F. Miltonberger, et al.	519.577 519.511 519.624 519.624 519.625 519.625 619.479 619.479 619.482 519.482 519.482 519.482 519.482 519.482
86800 59 88 85773428445640823	Railway frog. D. Horrie. Railway spike, G. W. Thompson. Railway switch. C. F. Wilson. Ramie treating apparatus. W. T. Forbes. Rason, safety. R. L. Schmitz. Razor strop composition, J. Hesel. Reasor, safety. R. L. Schmitz. Razor strop composition, J. Hesel. Refrigerator, ice rack. F. M. Ranney. Refrigerator, ice rack. F. M. Ranney. Reflister. See Cash register. Rein support. E. Woodruff. Roller. See Antifriction roller. Rolling angle bars, macbine for, Hammarberg & Rerglof. Rule, plumb, F. Holt. Safety apparatus. H. K. Whitner. Sash Issteaer, J. F. Miltonberger, et al.	519.577 519.511 519.624 519.624 519.625 519.625 619.479 619.479 619.482 519.482 519.482 519.482 519.482 519.482
868000 59 88 8577342844500621440848	Railway frog. D. Horrie. Railway spike, G. W. Thompson. Railway switch. C. F. Wilson. Railway vebicle skid, J. Barthelmess. Ramie or other fibrous growths, apparatus for treating. W. T. Forbes. Ramor strong. W. T. Forbes. Rason, safety, E. L. Schmitz. Refrigerator, ice rack, F. E. Ranney. Refrister. See Cash register. Rein support, E. W. Craine. Robe Buider, F. E. Woodruff. Roller. See Antifriction roller. Roller, See Antifriction roller. Rolling angle bars, macbine for, Hammarberg & Berglof. Rule, plumb, F. Holt. Safety apparatus, H. K. Whitner. Sash fastener, window, R. Kirsch. Sash holder, C. Koenemann. Sash, window, S. Fuchs. Sash wold, W. H. Miller. Sasn et, W. H. Miller. San et, Whitner, Wanner.	519.517 519.511 519.624 519.624 519.625 519.626 519.628 619.689 619.689 519.686 619.689 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686
868002 59 88 85773428145646821442837846	Railway frog. D. Horrie. Railway switch C. W. Thompson. Railway switch C. F. Wilson Ramie or other fibrous growths, apparatus for treating, W. T. Forbes. Ramie treating apparatus, W. T. Forbes. Razor strop composition, Hesei. Reflector, adjustable, P. W. A. Paasch Refligerator, ice rack, F. E. Ramey Reflister. See Cash register. Rein support, E. W. Craine. Robe holder, F. E. Woodruff Roller. See Antifriction roller. Rolling angle bars, macbine for, Hammarberg & Berglof. Rule, plumb, F. Holt. Safety apparatus, H. K. Whitner. Sash fastener, window, R. Kirsch. Sash holder, C. Koenemann. Sash, window, S. Fuchs. Sasw set, W. H. Miller. Saw set, Whitus & Wilks. Sa wstone, M. Litchford. Saw toot, insertible diamond, R. Marquart.	519.517 519.511 519.624 519.624 519.625 519.626 519.628 619.689 619.689 519.686 619.689 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686
868002 59 88 85773428145646821442837846	Railway frog. D. Horrie. Railway switch C. W. Thompson. Railway switch C. F. Wilson Ramie or other fibrous growths, apparatus for treating, W. T. Forbes. Ramie treating apparatus, W. T. Forbes. Razor strop composition, Hesei. Reflector, adjustable, P. W. A. Paasch Refligerator, ice rack, F. E. Ramey Reflister. See Cash register. Rein support, E. W. Craine. Robe holder, F. E. Woodruff Roller. See Antifriction roller. Rolling angle bars, macbine for, Hammarberg & Berglof. Rule, plumb, F. Holt. Safety apparatus, H. K. Whitner. Sash fastener, window, R. Kirsch. Sash holder, C. Koenemann. Sash, window, S. Fuchs. Sasw set, W. H. Miller. Saw set, Whitus & Wilks. Sa wstone, M. Litchford. Saw toot, insertible diamond, R. Marquart.	519.517 519.511 519.624 519.624 519.625 519.626 519.628 619.689 619.689 519.686 619.689 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686 519.686
868002 59 88 85773428145646821442837846	Railway frog. D. Horrie. Railway switch C. F. Wilson Railway vebicle skid, J. Barthelmess. Rame or other fibrous growths, apparatus for treating, W. T. Forbes. Ramie treating apparatus, W. T. Forbes. Razor, safety, E. L. Schmitz. Razor strop composition, J. Hessel. Reflector, adjustable, P. W. A. Paasch Refrigerator, ice rack F. E. Ranney. Reflector, delustable, P. W. A. Paasch Refrigerator, ice rack F. E. Ranney. Reflector, See Nach register. Reflector, See Antifriction roller. Roller, See Antifriction roller. Roller, See Antifriction roller. Rule, plumb, F. Holt. Safety apparatus, H. K. Whitner. Sash fastener, J. F. Miltonberger, et al. Sash fastener, window, R. Kirsch. Sash holder, C. Koenemann. Sash, window, S. Fuchs. Saw set, W. H. Miller. Saw set, W. Whitner. Saw set, W. Whitner. Saw set, W. Wilse. Sa watone, M. Litchford. Saw tooth, insertible diamond, R. Marquari. Scales, pivot bearing for platform. E. Tannewits. Screen. See Window screen. Screwmaking machines, device for separating turnings from finished screws in, J. A. Bid-	519.577 519.514 519.484 519.624 519.624 519.422 519.422 619.479 619.689 519.482 519.482 519.483 519.483 519.483 519.483 519.483 519.483 519.483 519.483 519.483 519.483 519.483 519.483 519.483 519.483 519.483 519.483 519.483
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868002 59 88 85773284446006244038784 2765847167998466779	Railway frog. D. Horrie. Railway spike, G. W. Thompson. Railway switch. C. F. Wilson. Railway vebicle skid. J. Barthelmess. Rame or other fibrous growths, apparatus for treating, W. T. Forbes. Ramor strop composition, J. Hessel. Razor, safety, E. L. Schmitz. Razor strop composition, J. Hessel. Refiscer. see Cash register. Refiscer. See Cash register. Rein support, E. W. Craine. Robe budder, F. E. Woodruff. Roller. See Antifriction roller. Roller. See Antifriction roller. Rolling angle bars, macbline for, Hammarberg & Rergiof. Refiscer. Refiscer. See Cash register. Sash fastener, Window, R. Kirsch. Sash satener, window, R. Kirsch. Sash satener, window, R. Kirsch. Sash window, S. Fuchs. Sash swindow, S. Fuchs. Saw set, W. H. Miller. Sa watooth, insertible diamond, R. Marquart. Scales, plvot bearing for platform. E. Tampewitz. Screem. See Window screen. Serwing sheet metal cans, mechanism for, J. A. Steward. See dejinting machine, device for separating turnings from finished screws in, J. A. Bidwell. Seawing machine, J. T. Jones. Sewing machine shuttle cop holder, J. T. Jones. Sewing machine buttle cop holder, J. T. Jones. Sewing machine thread gripping mechanism, W. A. A. Mack. Shade fixture, window, H. R. Smiley. Sheet metal stamping machine, J. Carroll.	519.577 1519.501 1519.502 1519