

cylinder, with a cut-off arranged in such a manner that the steam chest will act as a reservoir for the surplus steam, and no steam to pass into the condenser, except as it goes through the low pressure cylinder? A. Yes.

(2) W. W. W. asks: Is it not dangerous to have a copper lightning rod run on the ridge of a shingle roof? Should it not be supported by insulators? Brick, slate, etc., are almost insulators, are they not? A. The rod should run in contact with the building. Insulators should not be used. Compared with metal, dry brick and slate are poor conductors of electricity.

(3) A. F. O. wishes a translation of the following prescription: R. Hydrarg. ammon., gr. xx., Hydrarg. chlor. mits, gr. xi., Petrolati, ʒj. A. Take of white precipitate 20 grains, of calomel 11 grains, of petrolatum 1 ounce.

(4) S. E. S. writes: I am in quest of some substance that will produce a moderate degree of cold; preferably something that will retain its crystalline form above 32° Fah. In looking through my back numbers of SCIENTIFIC AMERICAN, I find on page 35, issue of July 17, 1880, a crystal ice prepared by Dr. Calantariens. Can you give me the exact ingredients, and proportions, in its composition? A. We cannot give you the exact proportions used in Dr. Calantariens' process, but the following table may be of interest. The water should not be warmer than 50° Fah.

Mixtures.	Degree of cold produced.
Ammonium nitrate..... 1 part	46°
Water..... 1 "	
Ammonium chloride..... 5 "	40°
Potassium nitrate..... 5 "	
Water..... 16 "	46°
Ammonium chloride..... 5 "	
Potassium nitrate..... 5 "	53°
Sodium sulphate..... 8 "	
Water..... 16 "	57°
Sodium sulphate..... 3 "	
Dilute nitric acid..... 2 "	62°
Ammonium nitrate..... 1 "	
Sodium carbonate..... 1 "	50°
Water..... 1 "	
Sodium phosphate..... 9 "	47°
Dilute sulphuric acid..... 4 "	
Sodium sulphate..... 8 "	60°
Hydrochloric acid..... 5 "	
Sodium sulphate..... 5 "	64°
Dilute sulphuric acid..... 4 "	
Sodium sulphate..... 6 "	64°
Ammonium nitrate..... 5 "	
Diluted nitric acid..... 4 "	

(5) J. D. asks for the receipt for black bronze or dip on brass like sample sent, so it will fully cover all black, without showing the brass, and so it will remain on permanently, without rubbing off while handling. A. The black on the sample appears to be the result of dipping the wire into a solution of silver nitrate, then heating until it blackens, when the wire is dipped into lard oil and the excess of black rubbed off with a piece of cotton waste. It is not a permanent coat, however, but as much so as is possible to obtain.

(6) J. S. asks how to get rid of his neighbor's pigeons, which destroy all his flowers and plants, and are a pest to the whole neighborhood. A. There are several legitimate ways of getting rid of your neighbor's pigeons. Buy him out, sell out yourself, remove, or have the pigeons indicted by the grand jury as a nuisance.

(7) P. M. B. asks: Can anything be done to save large shade trees which have been almost destroyed by the surrounding earth having been impregnated with escaped gas (made from petroleum) from the city main? A. We know of nothing that will avail in such case. Preventing the leakage, if possible, opening up the ground, and substituting new earth to some extent might be advantageous if the trees are not yet too much injured.

(8) A. N. asks: Please tell me the proper pickle to clean sheet iron for tinning or galvanizing. Have tried oil of vitriol, which dissolves the iron and not the scale. The addition of salt is no benefit. Muriatic acid and water is better, but too expensive. A. Use the muriatic acid of commerce with water in the proportions by quantity of 5 of acid and 3 of water. Heat the plate and immerse it, while hot, in the solution. An immersion of a few seconds is sufficient.

(9) E. S. asks: Will you kindly refer me to an establishment where I can learn pattern making? A. You may learn pattern making best in a large machine shop in Detroit or Chicago. The trade is also carried on independently. If you are a good carpenter or cabinet maker, you can more readily learn to make patterns. If you know nothing of these trades, we recommend you to start with a cabinet maker in your own neighborhood and learn to use tools first.

(10) E. T. T. asks: What is the geometric center of a triangle? A. The geometrical center of a triangle is the assumed center of gravity for its surface, and may be found by bisecting the sides and drawing a line from the points of bisection to their opposite angles. The point of meeting of these lines is the geometric center.

(11) J. B. Q. asks: 1. What is the variation of the magnetic needle at the fourth meridian east from Washington? A. The variation of the compass for Addison Co. is 12° 38' west for this year, with an increase of 8 minutes for each subsequent year for a few years. 2. How are the compasses arranged on iron ships so as not to be affected by the iron? A. By the use of a disk of soft iron under or near the compasses, which neutralizes the effect of the local attraction upon the needle. It is called a "compensator." 3. Why does the magnetic pole move around the earth, and how long does it take to make a revolution? A. This has never been determined. The secular variation of the needle in the eastern part of the United States seems to have a period of about one hundred years, in which the variation attains a maximum and minimum. This indicates a local circuit of 400 years, or if the motion is

in a great circle with two poles, which is strongly indicated, the revolution of each magnetic pole in the great circle is probably about 800 years.

(12) J. E. W. asks if any substitute can be used in the place of arsenic for the manufacture of Turkey red, or is there arsenic in all reds used for wall paper? A. Turkey red is now principally produced by alizarine or madder, neither of which contains arsenic.

(13) F. I. P. writes: In your issue of April 26, you give a formula to prepare writing paper so that it will be waterproof and greaseproof. I have tried to prepare tissue paper by that formula, and after immersing it have hung it up today, and find the solution runs entirely (or most so) out of the paper, leaving it in the same condition as it was first. Can you give me any suggestion as to how to overcome this? Also, I wish to prepare a gold lacquer, tough enough to stand stamping, the same as used on the tin foil of champagne bottles. A. Perhaps the following will produce better results: Dissolve 8 ounces of alum and 3½ ounces of Castile soap in 4 pints of water, and 2 ounces of gum arabic and 4 ounces of glue separately in 4 pints of water. Mix the solutions, heat slightly, dip in single sheets, which hang up until dry. Dip several times if necessary. For a pale gold lacquer the following is good: 1 gallon methylated spirits of wine, 10 ounces of seed lac bruised, and half an ounce red sanders; dissolve and strain.

(14) C. N. asks for a formula for a walnut stain on poplar wood that will not raise the grain. A. Take 1 quart water, ¼ ounce washing soda, 2½ ounces Vandyke brown, ¼ ounce potassium bichromate. Boil for ten minutes and apply with a brush either in hot or cold state, or try this: spirits of turpentine 1 gallon, pulverized asphaltum 2 pounds; dissolve in an iron kettle on a stove, stirring continually. Can be used over a red stain to imitate rose wood. To make a perfect black add a little lamp black. The addition of a little varnish with the turpentine improves it.

(15) A. K. M.—We would advise you to try the use of potassium salts, either the sulphate or the chloride (muriate), with the fertilizers which you already employ.

(16) W. P. R. and C. I. B. ask how billiard cue tips are made, the kind of leather, and how prepared to give the required softness when ready for use. A. See SCIENTIFIC AMERICAN, April 26, 1884, for new way of fixing billiard cue tips. The leathers are cut by a sharp rimming tool running in a lathe, much the same as buttons are cut; hard leather is never used therefor, only the parts of the belly and shoulders of sole leather which are thick, soft, and spongy.

(17) M. F. S. asks for a receipt for making ribbon ink, such as is used on the type writers. A. Use Aniline black..... ¼ ounce.
Pure alcohol..... 15 "
Concentrated glycerine..... 15 "
Dissolve the aniline black in the alcohol, and add the glycerine.

(18) A. L. D. asks how long a strip of carpet can be laid in a room 40 feet long by 13 feet wide. The carpet to be one yard wide. A. If you refer to amount of carpet required, and if the carpet is of the kind called return match, it will take 60½ yards. If regular match, it will take 70½ yards. A diagonal across the room would measure about 42 feet 4 inches.

(19) I. N. K. asks: 1. How many pounds of coal are required to convert fifty pounds of water into steam? A. With good arrangement of boiler, one pound of coal should convert 8 or 9 pounds of water to steam. It will take therefore between 6 and 7 pounds of coal to convert 50 pounds of water. 2. And how many pounds will it raise one foot high in one minute? A. Under ordinary circumstances 4 pounds of coal are consumed to produce one horse power per hour. One horse power is equal to 33,000 pounds raised one foot in one minute, and 1½ horse (=6 pounds of coal) equal 49,500 foot pounds.

(20) R. H. B. asks: 1. How much hydrated oxide of magnesia should be used to a barrel of hard well water to soften it? A. The exact quantity of the magnesium salt naturally depends upon the degree of softness or hardness of your water. The quantity to be used would only be slight at best. 2. What proportion of powdered oxide of magnesia, sawdust, and water would give the best results for filtering? A. Use 5 per cent of the finely powdered magnesium oxide. 3. To what degree does it have to be heated to form hydrated oxide of magnesia? A. The degree of heat is immaterial; heat it as high as you please, but not lower than 212° Fah. 4. What quantity would be necessary for a filter for family use to soften ordinary hard well water by passing once through the filter? A. Use the same proportions as recommended above; it will require changing from time to time.

(21) L. F., Jr., asks how to make Cognac oil and bead oil, such as wholesale liquor dealers use. A. Oil of cognac is prepared by dissolving the fusel oil of brandy marc in strong rectified spirit, and then adding a sufficient quantity of concentrated sulphuric acid to form a sulphate; alcohol and excess of acid are removed by washing the newly formed compound with water. To 100 pounds marc add half a pound sulphuric acid; the oil is generally formed toward the end of the distillation, and is found floating in blackish drops on the surface of the distillate. According to a distinguished French chemist, this oil is a compound of potato oil and cænanth ether. Bead oil is a compound that we are not familiar with.

(22) G. B. asks: How is silk dissolved, so that it can be used as a solution by the process of Mueller, invented in Germany some years ago? A. Silk is soluble in the basic chloride of zinc, and also preparations in which it is soluble are given on page 1083 of SCIENTIFIC AMERICAN SUPPLEMENT, No. 68, and also on page 1229, SCIENTIFIC AMERICAN SUPPLEMENT, No. 77. We have at hand no information concerning Mueller's process.

(23) C. W. H. asks how to remove aniline red dye from the hands. He says: I have been accustomed to the use of such dyes for some years, but have never been able to find anything that would accomplish such purpose. I find, however, by the use of a certain compound of an alkali nature, that the color can be re-

moved almost instantaneously from the hands by its application; but what to me is a strange phenomenon, that upon washing the hands in cold water in order to remove the alkali, the red color is again restored. I am very desirous of learning why a color which to all appearances has been faded out, or destroyed, can again be entirely restored by the application of some other ingredients differing entirely from the original color in its nature. A. Colored substances consist of two elements, the chromogen and the chromopher; by the addition of an alkali the former, which is acid, is neutralized, so that the coloring becomes invisible, while when water is added its acid properties restore the coloring.

(24) G. W. asks for recipe for staining new mahogany a deep rich red without hiding the grain; also the best polishing material—and how to apply it—after the furniture is so stained. If a filler should be used, please give recipe. A. The following is used when furniture is repaired, and the old wood cannot be matched, so that the work presents a patched appearance. The pieces are washed with soap lyes, or dissolve quick lime in water and use in the same manner; but be careful not to let either be too strong, or it will make the wood too dark; it is best therefore to use it rather weak at first, and, if not dark enough, repeat the process till the wood is sufficiently darkened.

(25) B. S. H. asks: 1. Is there any ink which is black at the time of writing and which will gradually disappear? If so, how made, and how may it be made to appear again? A. Boil nut galls in a qua vitae; put some Roman vitriol and sal ammoniac to it, and when cold dissolve a little gum arabic, and it will, when written with, vanish in twenty-four hours. We do not think that it can be made to reappear. 2. Is there any simple method of making the carbonate of sodium from the chloride? A. Sodium chloride is a natural product, and is the basis for the manufacture of sodium carbonate, and therefore there is no simple method for the process asked for. The addition of carbonate of silver would probably bring about the desired result. 3. How may stove polish be taken off nickel plate so as to leave the surface bright? A. Remove the stove polish with warm soap suds. 4. How is the appearance of lightning produced in a theater? A. Lightning may be produced in theaters by means of lycopodium. A quantity of it is thrown from a bellows across some suitable flame.

(26) I. L. S. writes: 1. A steam pump working underground at a depth of 200 feet, forcing a column of water to surface filling a 2½ inch pipe: Is there more or less strain on pump, if forcing same amount of water through a 12 inch column pipe? A. The strain on the pump will be rather less with the large pipe, from reduced friction of the water on its sides. 2. A steam gauge registering 80 pounds, another 75 pounds, on same boiler, which is right? A. The only way to ascertain which is wrong is by testing them by a test gauge or column.

(27) S. T. H. asks (1) receipts for making red and green fire, such as used for tableau lights. A. For red lights, use a mixture of 84 parts potassium chlorate, 80 parts strontium nitrate, 51 parts calomel, 22 parts dextrine, 18 parts shellac, 4 parts Chester's copper. Green lights consist of:
Barium nitrate..... 80 parts.
Potassium chlorate..... 24 "
Sulphur..... 33 "
Calomel..... 16 "
Fine charcoal..... 3 "
Shellac..... 2 "

2. Can you inform me how many strings there are on a mandoline, and if they are played anything like a guitar? A. It is an instrument of the guitar kind, and there are several varieties, each with different tunings. The Neapolitan has four strings, tuned like those of the violin—G, D, A, E. The Milanese has five double strings, each pair in unison, tuned G, C, A, D, E.

(28) C. C. We think this will serve for the "silver cream" process you desire: Clean the copper plate, and rub it with a clean rag and a little of Levi's creme d'argent—cyanide of silver. Remove the superfluous cream with a clean rag, and the plate will be properly silvered.

(29) J. R. asks: 1. What paper is used in making paper boats? A. The paper is made specially for the purpose, in narrow rolls of varying thickness up to that of a thick cardboard, of flax, hemp, or wood fiber, according to the quality sought; it is laid in successive strips, over a former, with glue or paste. 2. How is papier mache rendered waterproof? A. The waterproofing is generally shellac or a varnish. 3. How are leaves bleached, such as ferns and oak? We have taken the SCIENTIFIC AMERICAN for ten years, and have not troubled you before. A. Leaves are bleached with a solution of chloride of lime and water, about one tablespoonful to a quart of water. Add a few drops of vinegar; subject for ten to twenty minutes, then rinse in clean water, and dry between blotting paper.

(30) H. D. writes: Will you please give length, diameter, thickness of plates, etc., for an upright tubular boiler 30 horse power, to be worked up to a pressure of 100 pounds to the square inch. A. Your boiler may be given the following dimensions: diameter, 48 inches; height, 9¾ feet; diameter of furnace, 43 inches; height of furnace, 33 inches; length of tubes, 84 inches; number of tubes, 2 inches in diameter, 120; thickness, five-sixteenths of an inch good iron to stand that pressure.

(31) J. J. W. asks: What height and width inside should a brick chimney be made, to give sufficient draught to burn tan bark after being bleached and not dried? Length of boiler being 14 feet over all, tubes 12 feet long, 36 in number, 2¼ inches diameter. Furnace being double, &c., double the size of an ordinary one. Have you any idea as to what number of bricks it would require to build same? A. About 60 feet high, or perhaps more, according to location for draught, and about 2 feet square inside at bottom. Wet tan burning requires large furnace or oven capacity, and exceptionally good draught. Such chimney will probably take about 30,000 bricks.

MINERALS, ETC.—Specimens have been received from the following correspondents, and examined, with the results stated:

R. B. J.—No. 1 contains pyrite (iron sulphide) in hornblende, and is apparently of no value. No. 2 is a silicate mineral, and does not contain any metal; it is probably one of the varieties of hornblende.

INDEX OF INVENTIONS
For which Letters Patent of the United States were Granted
June 3, 1884,
AND EACH BEARING THAT DATE.

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

Abrasive belt, F. W. Coy.....	299,747
Acid from the residues of ammonia soda manufacture, obtaining hydrochloric, L. Mond.....	299,880
Alarm. See Electric alarm. Fire alarm.	
Amalgamating apparatus, Van Derveer & Hege-man.....	299,700
Ashes, garbage, etc., conductor for, J. Berry.....	299,903
Axle bevel, F. W. Flynn.....	299,771
Axle cutter, vehicle, A. N. Ruiter.....	299,854
Baby walker, S. Levy.....	299,657
Bag. See Feed bag.	
Bag holder and weigher, C. Shirley.....	299,863
Ballots actuated by the pressure or expansion of fluid, mechanism for automatically casting and recording, C. A. Mayrhofer.....	299,663
Barrel making machine, S. Wright.....	299,896
Barrow, J. A. Dyble.....	299,527
Bed, litter, and chair, combined cot, C. P. Nash.....	299,670
Bed slats, machine for making, W. H. Moore.....	299,832
Bed, sofa, H. L. Albee.....	299,501
Bed, sofa, P. A. Emery.....	299,528
Bell, E. L. Brainard.....	299,724
Bell ringing apparatus, pneumatic, R. P. Garsed.....	299,636
Belt stretcher, Jones & Chilcote.....	299,735
Bicycle saddle bags, J. B. Wood.....	299,609
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Binder, temporary, H. L. Pratt.....	299,679
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Blotting pad, C. J. Bailey.....	299,716
Bobbin winder, E. Parkinson.....	299,845
Boiler. See Steam boiler.	
Boiler furnace, steam, G. T. Woods.....	299,894
Bolt. See Flour bolt. Lock bolt.	
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Boot or shoe, L. F. Norman.....	299,840
Boot, rubber, M. W. Whitney.....	299,890
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Buckle, double, C. H. & M. M. Freer.....	299,533
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Buckle, suspender, C. C. Shelby.....	299,587
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Cyclometer, R. Burns	299,733	Lock bolt, H. C. Neer	299,671	Smelting furnace, A. Gibson	299,534		
Cylinder engine, multiple, P. Brotherhood	299,731	Looms, positive shuttle motion for, F. K. Wright	299,610	Snatch block, T. R. Ferrall	299,531		
Dental vulcanizer, F. W. Seabury	299,861	Lubricating cup, automatic, B. W. Feitshausen	299,768	Snow plow, J. Q. Day	299,750		
Derrick, portable, Austin & Scoville	299,504	Lumber sorting apparatus, W. C. Stetson	299,694	Snuff and match box, P. Seiler	299,687		
Desk and seat, school, C. A. Merrill	299,826	Machine table, J. J. Sullivan	299,697	Soap, tobacco, C. L. F. Rose	299,584		
Door hangers, track for barn, J. H. Lawrence	299,811	Magnet electric machine, H. F. Joel	299,551	Speed governor, T. L. Calkins	299,618		
Door securer, etc., E. P. Conner	299,742	Manure pulverizer and distributor, P. Johnson	299,648	Speed indicator, R. J. Pratt	299,677		
Dredger discharge pipes, device for connecting and supporting the sections of, A. W. Von Schmidt	299,892	Match box, pocket, E. B. Lake	299,807	Speed movement, variable, C. L. Smith	299,590		
Drier. See Clothes drier.		Measuring and registering device for planing machines, J. R. Thomas	299,878	Spinning, drawing, and twisting machinery, scavenger mechanism for, E. W. Sargent	299,855		
Drying machine for grain, etc., E. H. Swain	299,683	Measuring the lineal feet of work done by a woodworking machine, apparatus for, F. C. Cooke	299,745	Spool, thread, W. J. Clark	299,739		
Duplicating engine, M. B. Kellogg	299,553	Meat and vegetables, machine for cutting, S. S. Cook	299,910	Spring. See Vehicle spring. Wagon bolster spring.			
Dust collector, W. Richardson	299,852	Metal bars, machine for straightening round, L. Brightman	299,727, 299,728	Spring motor, J. B. Powell	299,849		
Edgers, presser roll for gang, Lane & Stanwood	299,653	Meter. See Fluid meter.		Steam boiler, E. B. Badlam	299,505		
Egg beater, J. E. Welling	299,884	Mill. See Hominy mill. Roller mill. Windmill.		Steam boiler and furnace, Post & Sawyer	299,578		
Electric alarm applied to cots, etc., W. F. & W. H. Keep	299,649	Mining machine, B. A. Legg	299,855	Steam generator for street car or other locomotive engines, F. G. Wheeler	299,607		
Electro magnetic indicator, W. S. Johnson	299,552	Motor. See Spring motor.		Steam trap, H. Lancaster	299,809		
Elevator. See Hay elevator. Passenger or other elevator.		Nozzle, sheet metal screw, M. O'Connor	299,841	Stone, manufacture of artificial, B. Lande	299,810		
Elevator, M. N. Hutchinson	299,645, 299,646	Nut lock, R. Dodson	299,755	Stopper. See Bottle stopper. Fruit jar stopper.			
Elevator for coal, etc., Lesourd & Lotan	299,656	Nut lock, J. W. Hawk	299,640	Stove attachment, gasoline, J. Ringen	299,853		
Elevator safeguard, C. A. Hoffnagle	299,544	Nut lock, A. Neutacher	299,838	Straw carrier, L. W. Hasselman	299,537		
Elevators, automatic safety brake for, C. A. Hoffnagle	299,543	Oil cake press, T. De Armon	299,522	Straw stacker, Miller & Brown	299,933		
Embroidery holder, J. B. West	299,943	Oil cloth, machine for decorating, A. F. Buchanan	299,732	Switch thread, H. Borchardt	299,614		
End gate, vehicle, S. E. Chamberlain	299,907	Oil cup, E. Lunkenheimer	299,929	Table leaf support, S. W. Stillwell	299,874		
Engine. See Cylinder engine. Duplicating engine. Hot air engine. Rotary steam engine.		Ore pulverizer, rotary, J. B. Gagnon	299,772	Tag holder, W. Dickie	299,753		
Envelope machine, D. M. Lester	299,814	Ore sampling machine, T. T. Eyre	299,920	Tank. See Refrigerating corned beef tank.			
Faucet, F. McCabe	299,564	Ores, process of and furnace for smelting and reducing, J. K. Griffin	299,637	Target, flying, A. H. Hebbard	299,783		
Faucet, automatic ball safety, H. C. Montgomery	299,669	Organ, reed, H. Wegman	299,707	Target, flying, F. J. Moyer	299,885		
Feed bag for horses, W. H. Pack	299,674	Oven shelf, automatic, L. T. Newell	299,672	Tea pot, N. Plympton	299,848		
Fence, E. Fischer	299,770	Overalls, W. G. Venner	299,702	Telegraph, printing, W. J. McCausland	299,664		
Fence, barb, A. C. Decker	299,916	Oyster clamp, C. Drake	299,756	Telephone exchanges, metallic circuit for, J. C. & E. P. Warner	299,603		
Fence barb, wire, W. Edenborn	299,763	Pad. See Blotting pad.		Telephone system, C. H. Haskins	299,936		
Fence fastening device, wire, E. A. Cooper	299,911	Paddle wheel, feathering, M. H. Depue	299,752	Telephone time signal apparatus, Lytle & Carty	299,562		
Fence post, wrought iron, J. G. German	299,922	Paper box, J. F. Gooding	299,777	Telephone time signals, method of and apparatus for individualizing, Lytle & Carty	299,561		
Fertilizers, apparatus for drying, W. Wright	299,898	Paraffin freezer, W. C. Scofield	299,860	Tennis grounds, device for laying out, H. N. Covell	299,625		
Fertilizers, apparatus for drying and pulverizing blood, etc., for, J. Farmer	299,766	Passenger or other elevator, M. N. Hutchinson	299,547, 299,548	Thill coupling, S. Craig	299,912		
File, letter, G. Mason	299,819	Penholder and blotter, combined, J. F. Miller	299,668	Thill coupling, L. J. Dresser	299,917		
Fire alarm, electric, G. E. & E. R. Hovenden	299,546	Pencil clamp, J. Batchelor	299,922	Thill coupling, S. D. Lecompte	299,556		
Fire escape, L. Blessing	299,511	Pencil sharpener, slate, I. Brooke	299,729	Thill coupling, C. E. Struck	299,696		
Fire escape, J. H. Ellis et al.	299,764	Permutation lock, E. Stockwell	299,695	Thrasher and clover seed huller, combined grain, C. H. Horton (r)	10,485		
Fire escape, J. L. Mott, Jr.	299,838	Petroleum, refining, L. A. Baker	299,611	Threshing machine, C. Shirley	299,862		
Fire escape, H. Hensch	299,890	Pictures, producing, R. Snieder	299,692	Threads, yarns, etc., dressing compound for, J. S. Wattles	299,704		
Fire escape, J. Taylor	299,565	Picture support, Liersch & Erche	299,659	Tilting chair, H. Parry	299,846		
Fire plug and hydrant, H. Schneider	299,858	Pipe and hose coupling, F. E. Mertens	299,927	Tobacco, machine for attaching tags and labels to plug, Heatt & Hearn	299,541		
Fish can, bait, R. K. Evans	299,765	Pipe coupling, W. Martin	299,661, 299,662	Torpedoes, waterproof wafer for, C. Nelson	299,837		
Fish, treating the waste of salt, R. Brooks	299,515	Pitman, H. H. Travis	299,698	Toy, C. A. Volke	299,703		
Fishing bait kettle, W. H. Sherwood	299,690	Plane, S. E. Hilles	299,927	Toy, J. G. Webb	299,604		
Flour bolt, N. W. Uolt	299,790	Planter and guano distributor, seed, W. B. Jackson	299,549	Toy, A. Wilhelm	299,608		
Flour bolt, centrifugal, A. Heine	299,784	Planter, hand corn, J. T. Ricketts	299,679	Toy gun, J. L. Joyce	299,796		
Flour bolting machine, G. C. F. P. Janssen	299,647	Planter, seed, W. Stoddard	299,593	Tramway, A. H. Rowan	299,681		
Flour, etc., machine for bolting, L. J. F. W. Schaubau	299,684	Plaque and panel, L. A. De Planque	299,751	Trap. See Steam trap.			
Fluid meter, W. G. Chapin	299,737	Pliers, cutting, E. Stevens	299,872	Treadle motion, D. P. Foster	299,921		
Folding seat for school furniture, I. L. Stone	299,875	Flow attachment, M. J. Stafford	299,868	Truck, car, S. A. Bemis	299,510		
Frame for displaying goods, M. F. Sacks	299,586	Pocketbook, H. A. Chapin	299,908	Truck, car, C. E. Candee	299,735		
Fruit jar stopper, E. F. Poland	299,676	Portable furnace, Babbit & Morris	299,713	Truck, car, J. N. Hicks	299,786		
Fruit press, D. Lille	299,815	Press. See Oil cake press.		Tuyere and attachment therefor, J. M. Hartman	299,586		
Funnel, liquor, J. W. Bolton	299,513	Press for sacking bran, sawdust, etc., A. L. Battson	299,721	Tuyere stoppers, device for operating, H. W. Oliver, Jr.	299,572		
Furnace. See Boiler furnace. Portable furnace. Smelting furnace.		Propeller for vessels, screw, E. S. Hawley	299,538	Type writing machine, D. W. Dodson	299,754		
Furnace, J. A. Topliff et al.	299,881	Propeller, marine, E. T. Griffith	299,923	Type writing machine, Herrington & Millson	299,785		
Furnace grate, E. Breslau	299,616	Pulley, friction clutch, H. W. Hill	299,787	Valve, gate, J. Arthur	299,899		
Furnaces, feeding air to locomotive, J. N. Weaver	299,705	Pump, E. Barnes	299,718	Valve, gate, J. H. Strehl	299,594		
Furniture, P. L. Shepler	299,588	Pump, N. C. Page	299,574	Valve muffler, safety, H. G. Ashton	299,503		
Gauge. See Carpenter's gauge.		Pump, double-acting, J. McGwin	299,666	Vehicle canopy holder, H. Eichling	299,630		
Gauge, C. B. Osborn	299,843	Pump, double-piston, G. W. Holmes	299,788	Vehicle platform gear, C. C. Wilson	299,892		
Garment clasp, M. P. Bray	299,725, 299,726	Pump handle, J. A. Craig	299,748	Vehicle spring, J. Herbrand	299,641		
Gas burner, A. B. Lipsey	299,660	Punching and shearing machine, A. Albien	299,502	Vehicle spring, J. Percy	299,575		
Gas generator, P. English	299,919	Putting-out machine, J. W. Vaughn	299,701	Vehicle wheel, J. J. Bush	299,906		
Gas purifier and method of revivifying iron sponge, O. H. Shiras	299,589	Railway rail clamp, J. Lockhart	299,557	Velocipede, A. E. Wallace	299,883		
Gas regulator, D. Chambers	299,620	Rake. See Hay rake.		Velocipede, one-wheeled, B. G. Berlinghausen	299,617		
Gas regulator, C. S. King	299,801	Ratchet locking device, Lane & Stanwood	299,654	Vessel, metallic, A. O'Hara	299,673		
Gas tube connection, S. Barr	299,720	Razor stop, R. P. Smith	299,865	Vise, W. M. Whiting	299,589		
Gate. See End gate.		Refrigerating apparatus, W. A. Chase	299,622	Wagon bolster spring, J. R. Calhoun	299,518		
Gate, A. F. Purefoy	299,581	Refrigerating corned beef tank, H. Menslage	299,567	Wagon brake, T. W. Southard	299,566		
Gas setting, D. F. Adams	299,500	Regulator. See Gas regulator. Hot water regulator.		Wagon brake, A. J. Steele	299,683		
Generator. See Gas generator. Steam generator.		Rendering lard, etc., apparatus for, D. W. McElroy	299,821	Water closet and preserving the seals of the traps therefor, J. P. Hyde	299,792		
Glass in imitation of frosting, ornamentation of, D. F. Brown	299,516	Reservoirs, cleaning, J. D. Cook	299,744	Water closet connection, H. C. Weeden	299,905		
Glucose, manufacture of, L. Barbier	299,900	Rings of plastic compounds, process of and apparatus for making solid, E. Kipper	299,802	Water closet valve, P. White	299,888		
Grinding diamonds, etc., machine for dressing the faces of wheels for, I. Hermann	299,642	Roller mill, N. W. Holt	299,789	Water closets, etc., flushing apparatus for, H. C. Weeden	299,606		
Grindstone hangings, F. M. Stearns	299,870	Roofing slate fastening, B. M. O'Neill	299,842	Waters, purifying canals and basins connecting with tidal, A. J. L. Loretz	299,559		
Guard. See Car door guard. Window guard.		Rotary steam engine, J. H. McVay	299,824	Waterproof cloth, manufacturing gossamer, F. E. Hall	299,638		
Gun, machine, C. B. Scott	299,636	Rowlock, J. F. Cumming	299,521	Well poles, clamp for holding, B. Wheeler	299,887		
Gynecological chair, M. M. Copp	299,520	Rudder, propelling, J. L. F. Barbier	299,612	Wheel. See Bicycle wheel. Paddle wheel. Vehicle wheel.			
Hame staple, Toerper & Krein	299,880	Salt, washing and purifying, S. S. Garrigues	299,774	Wheel, R. Adams	299,711		
Hammers, nail holding attachment for, G. F. Barber	299,717	Sardine can, J. Wolff	299,710	Wheelbarrow and sled, combined, F. B. Kendall	299,798		
Handle. See Pump handle. Saw handle.		Sash fastener, R. Adams	299,712	Whip rack, W. P. Kellogg	299,797		
Harness crupper, F. J. Ingrish	299,793	Sash fastener, E. B. Attwell (r)	10,488	Windmill, A. Martin	299,563		
Harvester gavel deliverer, A. Miller	299,667	Sash fastener, G. S. Barnes	299,719	Windmill, J. O. Stayner	299,869		
Hat brim shaping apparatus, L. H. Hoyt	299,644	Sash holder, window, J. E. Dohen	299,525	Window guard, G. W. Clark	299,		