## Business and Versonal.

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Baxter Steam Engine-For Illustrated Pamph lct, address Wm. D. Russell, Prest., 18 Park Place, 1 Baxter Steam Engines, Machinery Hall, U. S. C. Exhibition—in motion, and in charge of Wm. D. Russell, Pres.—Section D.10, Col. 74. Office, 18 Park Pl., N.Y. Hill's Patent Direct-Acting Steam Drop Hammer will be illustrated shortly in the Scientific American. Address Hill & Williams, Quincy, Ill., for circular.

"Double-Entry Book-Keeping Simplified"—The simplest and most practical book on the subject. Cloth, \$1. Boards, 75 cts. Scnt post paid. Catalogue frec. D. B. Waggener & Co., 420 Walnut St., Philadelphia.

For Sale—35 in.6½ ft.Lathe,\$400; 22½ in. 12 ft do. \$250; 20 in. 7 ft. Stover do., \$215; 18 in. 8 ft. do., \$150; 16 in. 7 ft. new do., \$300; 13½ in. 6½ ft. do. & Chuck, \$125; 16% in. 6% ft. do., \$140. Shearman, 45 Cortland St., N.Y.

For Sale—Bran new Engines, with gov'r, heater, pump & wheels 7x10, \$215; 8x12, \$390; 10x15, \$675; Bran new Boiler, S H.P., \$200; 2 H. P., \$150; 4 H. P., \$180 Shearman, 3 Cortlandt St., New York.

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Centennial Exhibition, Philadelphia.-Examine the Allen Governors, Machinery Hall, D. 9, Par. 71.

Machine-cut brass gear wheels, for models, &c. List frec. D. Gilbert & Son, 212 Chester St., Phila., Pa. Rubber Hydrant Hose, Hose Pipes and Couplings, best quality. Send for Prices to Bailey, Farrell & Co., Pittsburgh, Pa.

"Dead Stroke" Power Hammers—recently great 1y improved, increasing cost over 10 per cent. Prices reduced over 20 per cent. Hull & Belden Co., Danbury,Ct. Driving Belts made toorder, to accomplish work required. Send full particulars for prices to C. W. Arny, 48 North Third St.. Philadelphia, Pa.

Power& Foot Presses & all Fruit-can Tools. Fer-racute Wks., Bridgeton, N.J. & C.27, Mchy. Hall, Cent'l. Linen Hose for Factories—1, 1½, 2, & 2½ inch. Atlowestrates. Greene, Tweed & Co., 18 Park Place, N.Y.

Johnson's Universal Lathe Chuck—Awarded the highest Premium by the Franklin Institute of Phila., for "Durability, Firmness, and adaptation to variety of work." Lambertville Iron Works, Lambertville, N. J.

Safety and Economy—Eclipse Sectional Steam Boiler. First Class references. Lambertville Iron Works, Lambertville, N. J.

For Sale—24 in. x24 ft. Lathe, with Chuck; two is in. Lathes; one 7 ft.x24 in. Planer; two 8 in. Shapers. E. P. Bullard, 48 Beekman St., New York.

The French Files of Limet & Co. have the en dorsement of many of the leading machine makers of America. Notice samples in Machinery Hall, French Department, Centennial Exposition. Homer Foot & Co., Sole Agents, 22 Platt St., New York.

Trade Marks in England.—By a recent amendment of the English laws respecting Trade Marks, citizens of the United States may obtain protection in Great Britain as readily as in this country, and at about the same cost. All the necessary papers prepared at this Office. For further information address Munn & Co., 37 Park Row, New York city.

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Solid Emery Vulcanite Wheels—The Solid Orig-nal Emery Wheel—other kinds imitations and inferior. Caution.—Our name is stamped in full on all our best Standard Belting, Packing, and Hose. Buy that only. The bost is the cheapest. New York Belting and Packing Company, 37 and 38 Park Row, New York.

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Hydraulic Presses and Jacks, new and second hand. Lathes and Machinery for Polishing and Buffing Metals. E. Lyon, 470 Grand Street. New York.

Spinning Rings of a Superior Quality.—Whitins ville Spinning Ring Co., Whitinsville, Mass.

For best Bolt Cutter, at greatly reduced prices address H. B. Brown & Co., New Haven, Conn.

Diamond Tools-J. Dickinson, 64 Nassau St., N. Y. Temples and Oilcans. Draper, Hopedale, Mass.

Hamilton Rubber Works, Trenton, N. J., Manufacturers of & pavement Hose, and any size, also Belting, Packing, Car Springs, and Rubber for Mechanical use. Send for price list.

Hotchkiss Air Spring Forge Hammer, best in the narket. Prices low. D. Frisbie & Co., New Haven, Ct.

Patent Scroll and Band Saws, best and cheape in use. Cordesman, Egan & Co., Cincinnati, Ohio



M. J. G. can give a gloss to writing ink by dissolving a little refined sugar in it.—J. W. is confusing brass and bronze. The former is made with zinc, the latter with tin. The article on manganese bronze, p. 355, vol. 34, is perfectly correct. -C. W. T. will find particulars of a fast railway train in this country on p. 393, vol. 34. Mr. Brunel's 78 miles an hour was done on the Great West-ern Railway, England.—W. W. B. will find on pp. 320, 336, 352, vol. 34, a history of the progress of the past century.—A. V. W. can remove ink from writing paper by the process described on p. 154, -A. P. can calculate the proportions of screw-cutting gears by the method described on p. 107, vol. 34.—T. W. M. will find a description of the Gulf weed on p. 91, vol. 31.-G. T. W. will find an answer to his cannon and car question on p. 273, vol. 32. As to the relative speeds of the top and bottom of a wagon wheel, see p. 298, vol. 31.-K. L. C. will find a description of the operation of a fly wheel on p. 288, vol. 28.-J. F. S. will find on p. 329, vol. 33, a description of a battery suited to an electric light.-G. will find on p. 213, vol. 34, directions for making polishing starch for laundry use.-F. J. R. will find on p. 344, vol. 34, particulars of the fastest trains on record. -A.S. can prepare fulminate of mercury by the formula given on p. 234, vol. 30.—S. G. A. can measure high temperatures with a pyrometer. See p. 50, vol. 33.-E. E. N. will find directions for polishing metals on p. 57, vol. 34. For the best method of polishing plated work, see p. 251, vol. 33.-R. W. D. and oth crs will find an explanation of the different speeds of points on a carriage wheel on p. 298, vol. 31.-F. W. B. and A. L. will find directions for making colored fires on p. 203, vol. 34.—G. D. can purify water for drinking purposes by the process described on p. 395, vol. 32.—O. can lacquer his fine brass work. See p. 242, vol. 34.—W. J. McL. will find on p. 376, vol. 24, a description of the use of the steam plow in this country.-J. H. M. will find on p. 74, vol. 32, a recipe for balloon varnish.—E. B. R. will find on p. 214, vol. 32. a description of a boiler injector.-C. M. N. can bleach straw hats with sulphurous acid. See p. 11, vol. 32.—D. J. T. will find on p. 348, vol. 34, a description of the deepest well.—A. A. S. will find on p. 331, vol. 32, directions for measuring the piece of timber.—E. A. M. will find on p. 180, vol. 26, directions for proportioning cone pulleys.—E. O. R. can find on p. 186, vol. 34, a recipe for a depilatory.-E. D. R. will find on p. 186, vol. 34, directions for nickel-plating his brass instruments.—B. F. J. should consult a physician.—W. F. B. does not state what his boiler covering is made of.—P. F. E.'s question is merely metaphysical.—M. B. can bronze brass castings by the method described on p. 51, vol. 33.-D. H., C. W. S., J. B. H., C. F., B. L., W. B., R. J., R.N., E.N., S. V. N., M. D., W. K., and others who ask us to recommend books on industrial and scientific subjects, should address the booksellers who advertise in our columns, all of whom are trustworthy firms, for catalogues.

- (1) J. H. Jr., asks: 1. To what extent will a column of mercury expand when contained in a 1/2 inch pipe, 2 feet long, a gentle heat being applied? A. Mercury expands about 0.018 of its volumewhen heated from 32° to 212°. 2.Will mercury, when confined, expand with greatforce, like iron or other metal when slightly heated? A. Yes. 3. Will mercury injure iron in any way? A. Under ordinary conditions, no.
- When gunpowder is exploded, is it changed into gas? A. Yes. 2. Could a little be exploded in a strong iron vessel until a great pressure is obtained, and the gas then be used to drive an engine? A. Such plans have been proposed. Usually, however, the gunpowder is inimical to confinement.
- (2) F. C. S. says: 1. I am running a small engine of six horse power, but the boiler is rated at 12 or 15 horse. How many bushels screenings ought it to take to run the engine one day? The question is too indefinite. 2. What kind of grate ought we to use for screenings? A. One with narrow air spaces. 3. Which is the most economical, to keep a thick or thin layer of screenings for the fire? A. That depends somewhat upon the draft; and any one can readily settle the matter for his particular case by a few trials.
- (3) E. P. says: I have occasion to use permanganate of potassa solution in staining woodwork, and have had some trouble on account of its affinity for metals. Of what metal shall I make a tank 2 feet by 4 feet, and 8 inches deep, to contain permanganate of potassa solution? A. In contact with strong solutions of this salt, all of the more common metals are gradually oxidized and dissolved. Vessels of glass, porcelain, or porcelain-lined iron may be employed: or, in case these cannot be obtained of sufficient capacity. tanks or wells made of brick, and lined with large flags and good cement, could be made to serve your purpose.
- (4) J. C. O. asks: What effect will kerosene oil have on galvanized iron? A. If the oil contains no free mineral acids, it will not injure the iron. Galvanize your iron on both sides.
- (5) E. H. M. says: 1. I am running 5 pairs of stones, using hard coal screenings. Will the arrangement work equally for burning soft coal slack, tan bark, etc.? A. It does not necessarily follow that a furnace giving good results with refuse coal will also answer for wet tan and sawdust. 2. I get an intense heat, but am afraid my rules, published on p. 33, vol. 33, and p. 276, vol. boiler will not stand it, as I have only 20 feet of 34, relating to the power of small engines, be re- which gives nearly 25 square inches.

fire grate surface. Would it be better to double the grate surface, and keep a thinner fire? A. If you will send us a sketch of your furnace, we will be glad to give our opinion. From your account you seem to be doing very well.

- (6) S. H. asks: Is there any way of sawing east steel bars as large as 6x1½ inches, when hot? A. Bars of steel or iron of any size can be cut off, either hot or cold, with a circular frictional disk running at great velocity. The rim of such a saw should travel at about 20,000 feet per minute. E. E., of Pa.
- (7) W. K. P. asks: Will you please be kind enough to give me a good recipe for making red calcium lights, such as are used on stages, tableaux, etc.? A. Place the light in a suitable lantern provided with a large condensing lens. The color of the rays may then be varied to suit the fancy by interposing near their focal point pieces of thin, finely colored glass. The glass employed for this purpose should be small, well annealed, of uniform texture, and as thin as possible.
- (8) G. T. W. asks: If there be a hill three miles over and one across the base, would it take any more stakes or palings to build a fence over the bill, three miles, than to build one across the base, one mile, if the stakes or palings stand perpendicularly? A. No.
- (9) W. B. says: 1. Animal and vegetable oils will bleach in the spring when we have cool days (in the ordinary glass bleaching houses, such are familiar to all oil manufacturers, and which resemble an ordinary hot house) much faster than they will at midsummer, when the sun is stronger and the atmosphere hot. Why is this so? An ordinary observer would suppose that, the hotter the sun was, the faster the oil would bleach; but this is not the case. A. The bleaching quality of sunlight is chictly confined to the more refrangible rays of the upper or vio-let end of the spectrum. They seem to act by virtue of a peculiar reducing or deoxidizing power; while the heat rays, or those from the lower or red end of the spectrum, on the contrary, serve to stimulate oxidation and fermentation latter force is comparatively slow in its action in comparison with the activity of the former, and can therefore only slightly influence or retard the final results. 2. Can you tell me the reason why hothouses and forcing houses for plants are al ways ventilated at the top? A. You are mistaken as to the fact.
- (10) R.H. says: In making French mustard, have some trouble in bottling the same. After being bottled it ferments and forces the corks out and smells badly. What can I do to prevent this?

  A.After filling the bottles, place them loosely stoppered in a large vessel of water, which gradually raise to the boiling point. Then remove the bottles and seal them. It is common to allow the bottles to stand 48 hours before performing the above operation.
- (11) F. McA. asks: With what can I clean diamonds? A. You fail to state with what the stones are soiled. Try the following list of substances in the order named: Water, alcohol, ether, hot benzole or naphtha, bisulphide of carbon dilute acids, dilute alkalies, strong acids, strong alkalies, mechanical friction with putty powder, rouge, fine emery.
- (12) F. J. says: I wish to have cast a vessel somewhat like the air chamber of a hydraulic ram, but wider at the bottom, being 71/2 inches in diameter at base, 101/2 inches in widest part, and 12 inches high. What is the least thickness it should have to safely sustain a pressure of 75 to 80 lbs. to the square inch, if made of ordinary cast iron, and of cast malleable iron? A. It should not be less than 1/4 or 3/6 of an inch thick, in either
- (13) J. C. Jr. asks: 1. How can I make a cheap soda water fountain for family use? A. It would be safer for you to purchase one. 2. What is the composition of soda water? A. The so-called soda water is simply water that has been supercharged with carbonic acid gas under press-When allowed to escape from under pressure, a portion of the dissolved gas escapes into the air, causing the effervescence or briskness of
- (14) H. S. K. says: In making small anchovy casks, the staves are cut with a bilge, and leak. The brine oozes out through the pores of the oak because they are cut with the bilge. there any preparation that will make them tight? A. It is common to fill the pores of the wood with hot rosin. If this does not give satisfaction, try the following: Make a strong solution of gluc in hot water and add a sufficient quantity of tannin to precipitate all the glue. Wash this precipitate of tannate of gelatin (artificial leather) in running water for some time, dissolve it in boiling vinegar, and while hot flow the interior of the cask with the liquid. Allow it to partially dry, and then fill the cask with clean water, allow to stand for several hours, and finally remove the water, invert the cask, and allow to dry.
- (15) J. M. M. asks: 1. How can I bleach stearin at one operation? I am at present obliged to melt the stearin twice (for making candles); the first melting leaves it too yellow. method is perhaps one of the most practical and economical. 2. What is the cause of the yellowish tint? A. The color is due to a mechanical admixture of liquid oleic acid with the crystals of the solid stearic and margaric acids.
- (16) J. M. H. asks: Has there ever been invented any means to destroy the dead center in an engine? A. Yes. Rotary engines have no dead centers.
- (17) A. I. P. asks: 1. How can the two

- conciled? A. The first rule is for the actual horse power, and includes deductions for friction of pipes, friction of mechanism, condensation, radiation, etc. To apply the second rule, the average steam pressure, which would not be equal to the initial pressure, must be known.
- (18) R. B. says: I am about to organize a fire brigade, each man to be armed with, among other things, a knotted cord 20 feet long with a hook on the end, so that he can go upon the roof of a building and sustain himself by the hook and cord from the ridge pole. Can a rope be so prepared as to be non-combustible, that is, when in use as described? A. Probably the best thing you could use would be rope of galvanized iron wire, which is very strong and quite flexible. Knots can easily be made at intervals by weaving in a single strand of wire with the strands of the rope, so as to form the rings called by sailors Turk's heads. We cannot positively recommend any of the various fireproofing solutions when life depends on their efficacy. Tungstate of soda in solution is employed for fireproofing fabrics, but might not prevent charring, which would greatly weaken the rope. You might carry a core or strand of iron wire through the line, and use tungstate of soda in addition, the wire being strong enough to bear a man's weight in case the rope should be burnt through.
- (19) E. O. says: Can you tell me how to treat wood so as to make a good plate for an electrical machine? A. There is no good way. Use glass or ebonite
- (20) H. M. W. says: 1. In your article on the apparentsize of the moon, p. 305, vol. 34, you say that a 14 inch hole at 28 inches distance would bring it under an angle of half a degree. What arc we to understand 1° to be at that distance? A. Nearly 1/2 an inch, more correctly 0.47 inches. 2. In figuring I find 1° of a circle 11.46 inches in diameter to be  $\frac{1}{10}$  of an inch, which would make  $\frac{1}{2}$  inch at that distance occupy 2.5°. Am I correct? A. You are correct, and so were we. If a quarter inch hole at the distance of 6 inches is seen under an angle of 2.5°, it would at a distance of 28 inches be seen under an angle of 6x2.5° divided by 28, or 0.233 inch, for which we use 0.25 or ¼ inch, intending that the hole should slightly surpass the apparent size of the moon so as to allow the observer to see the edges.
- (21) A. B. asks: Does the temperature of zinc and mercury rise when a current of electricity passes through them? A. No.
- (22) F. I. M. says: 1. I have made a telegraph sounder and wound it with No. 20 (English gage) wire, 20 fect on cach spool. It works well enough by itself; but when I put it on a line with other instruments, it fails. I think the wire is too large. What number (American gage) of wire should I have, and how many feet on each spool? A. Nos. 20 to 23 are good sizes; but there should be about 150 or 200 feet. 2. Where can I get full instructions for making an induction coil? A. See p. 344, vol. 33, and p. 362, vol. 31.
- (23) C. S. M. asks: What is a birdseye riew? A. It is a view taken from above the obect, and is always a perspective, except when taken looking directly down.
- (24) W. says: I have a building to protect from lightning. The size of tin roof and cornice is about 80 x 114 feet, and the house is about 35 feet from a canal, about 60 feet wide and many miles long. Will a rod of ordinary construction, with the lower end of it in the water of the canal or in the wet mud at the bottom of it, have a sufficient contact to give full protection? If not, what do you recommend? A. It should be understood that all conductors offer some resistance to the passage of electricity, and that a current divides among several conductors in proportion to their conducting powers. The materials of a building are to some extent conductors, conse quently, unless the resistance of the rod and its connections with the earth are almost infinitely less than that of the building, some of the charge will pass by way of the latter. As a general thing the ordinary rod offers sufficiently long resistance or is a good conductor; but the earth connections in nine cases out of ten are faulty. Water is a better conductor than damp earth, to be sure; but the fact that an equal volume of water or of earth offers very many times greater resistance than metals seems to be overlooked. In order to reduce the resistance at the junction of the rod with the earth, the latter must have great surface contact with the former, and this is only effected by using exceedingly large metallic terminals for the rods. The statement of requirements referred to is not, in the main, extravagant.
- (25) M. S. S. asks: 1. Have the poles of the earth the same temperature? A. It is supposed so. 2. Have they the same length of night and day? A. Yes, when the sun is on the equator. 3. How near to the poles does the land extend? A. That has not yet been determined.
- (26) G. R. T. asks: Why does the moon go farther north and south than the sun? A. Be-cause the moon's orbit is inclined 5° 9' to the ecliptic, which causes her to go north of the equator 28° 36', and also the same distance south, while the sun goes only 23° 27'.
- (27) D. H. asks: 1. What pressure ought a boiler 18 inches long and of 6 inches diameter, made of  $\frac{1}{16}$  inch copper, to stand per square inch, if bound with hoops of same metal,  $\frac{1}{2}$  inch wide and 3 inches apart? A. It would be safe to carry from 75 to 80 lbs. 2. What size ought the cylinder to be in proportion to this boiler? A. Diameter  $\frac{3}{4}$  x 1½ inches stroke. 3. What should be the di ameter of the fly wheel? A. Make it 4 or 5 inches. What is the easiest method of cleaning old files?
- A. Use a wire scratch brush. (28) D. F. asks: How much steam will it take to lift 2,000 lbs. off a 5% inch pipe, inside diameter? A. Divide 2,000 by the area of the pipe

(29) R. F. says: Is it not a generally accepted theory that, in order to double any given speed of a vessel propelled by steam, it requires four times the power? If so, why is it that a piece of timber shaped to the model of the hull of a steamer and drawn through the water by means of a string passing over pulleys, and with weight attached sufficient to pull the hull readily, has its motion accelerated to just double the speed when twice the weight is applied to the cord? A. You confound force and power. Suppose, in your experiment, the strain of the cord is 1 lb. and the speed 1 mile per hour, in the first e, and that, on increasing the strain of the cord to 2 lbs, the speed is 2 miles per hour. Then the power exerted in the second case, where twice the strain moves with twice the velocity, is  $2\times2=4$ times the power exerted in the first case. This would be the deduction from the experiment as you have stated it; but your result is so much at variance with those obtained by other experimentors that we hesitate to accept it.

(30) B. N. G. asks: How much pressure of steam to the square inch will a tin can, that holds 1 quart and is made of medium quality tin, carry with safety? A. Do not exceed a pre

(31) F. B. R. says: In an argument as to economy of exhaust jackets around steam engine cylinders, A contends that the exhaust keeps the cylinder warm, while B argues that the exhaust continually sweeps away the heat from the cylinder down to the temperature of exhaust in noncondensing engines, say to 212° at least. We noticed in your description of "Maxim's engine," May 6, 1876, that you uphold A.'s view of the case Plense tell us if that is the true theory. A, An engine jacketed with exhaust steam would have some advantage over another in which the cylinder was exposed to the air; at the same time, as long as the temperature of the interior of the cylinder is greater than that of the exhaust steam the action described by B. must take place to some

(32) II. A. S. asks: 1. Of what size should cedarlogs befor an aqueduct, if bored with a 2 inch hole, to sustain a pressure of 100 feet of water? A. From 4 to 5 inches in diameter. 2. How thick should wrought iron pipe be for the same purpose? A. About  $\frac{7}{8}$  of an inch.

(33) E. E. C. asks: What pressure of gas would be required to throw the oil from a well 1,050 feet deep, 4 inches in diameter? A. A pressure per square inch equal to the weight of a col umn of oil with 1 inch cross section and 1.050 feet high, with a slight addition to overcome frie

(34) J. J. R. says: I have an ordinary furnace in the basement of a three story house. The furnace has a sheet iron cover which becomes hot and radiates in the cellar. Could I check the radiation by blanketing the cover with asbestos or other felting? A. Yes.

(35) J. E. T. asks: What is the horse power of a stream of water 10 feet deep and 10 feet wide, acting on an improved turbine under the most favorable circumstances? A. About 75 per cent of the full effect of the water.

(36) T. W. says: We steam our handles, which are made of ashwood, but find that a great many split and break in bending; is there any preparation we can put into the water to make the wood soften so it will not break? A. We think not. Good bending apparatus, thorough steaming, together with at least a fair quality of wood, will generally insure success.

(37) H. M. asks: 1. Can you tell me of an alloy, not containing copper, that would answer for the working parts of models? A. Typemetal, composed of lead and antimony, will answer for many purposes. 2. What is the melting point of copper? A. About 2,500° Fah.

At what speed must I run an emery wheel 3 inches in diameter? A. At from 3,000 to 3,500 revolutions per minute.

(38) M. M. H. asks: Will as much water fall into a vessel at an angle of 45° or 60°, driven by the wind, as when falling perpendicularly?

(39) F. C. R. asks: 1. Will a horizontal boiler 21/2 feet long by 14 inches diameter be large enough to furnish steam for an oscillating engine 21/4 inches liameter by 4 inches stroke, making 100 revolutions per minute? A. It is rather too small. 2. Would such a boiler, of black sheet iron, carry 40 or 50 lbs. of steam with safety? Thickness of iron is  $\frac{3}{35}$  of an inch. A. It will carry about 40 lbs., if well built.

MINERALS, ETC.—Specimens have been re he fol examined, with the results stated:

A. H. D. P.—The gas is probably carburetted hydrogen. The water contains a large percentage of chloride of sodium. This might be recovered by evaporation.-W. J. C.-Your specimens have been mislaid. Minerals should be sent in a separate package, labeled with the name and address of the sender.—W. W. K.—It is magnesium lime-stone.—E. E. H.—It is a variety of white pipe clay.

#### COMMUNICATIONS RECEIVED.

The Editor of the SCIENTIFIC AMERICAN acknowledges, with much pleasure, the receipt of original papers and contributions upon the following subjects:

On Crime and its Cause. By T.D. On the Potato Bug. By E. S G. On a Check Mark. By H. S. On Logwood. By L. S. On the Baroscope. By D. M. On Propelling Ships. By D. H. McC. On the Glacial Period. By C. C. F. On a Mirror. By M. McG. In Flax Growing in the West. By S. E. W. Also inquiries and answers from the following: W. M. A.-D. M.-I. S.-W. J. B.-J. C. D.-J. L. B.
-R. B.-B. A. A. B.-H. McM.-W. B. W.-P. H. W.
-N. P.-F. W.-W. A. R.-P. E. A.-C. E.

#### HINTS TO CORRESPONDENTS.

Correspondents whose inquiries fail to appear should repeat them. If not then published, they may conclude that, for good reasons, the Editor declines them. The address of the writer should always be given.

Enquiries relating to patents, or to the patentability of inventions, assignments, etc., will not be published here. All such questions, when initials

only are given, are thrown into the waste basket, as it would fill half of our paper to print them all; but we generally take pleasure in answering briefly by mail, if the writer's address is given

Hundreds of inquiries analogousto the following arc sent: "Who makes an ash felt covering for steam boilers? Who makes steam traps? Whose is the best theodolite? Why do not makers of malleable glass advertise in the SCIENTIFIC AMER-ICAN?" All such personal inquiries are printed, G as will be observed, in the column of "Business and Personal," which is specially set apart for that purpose, subject to the charge mentioned at the head of that column. Almost any desired information can in this way be expeditiously obtained.

[OFFICIAL]

#### INDEX OF INVENTIONS

FOR WHICH

Letters Patent of the United States were Granted in the Week Ending,

May 30, 1876, AND EACH BEARING THAT DATE. [Those marked (r) are reissued patents.]

A complete copy of any patent in the annexed list, including both the specifications and drawings, will be furnished from this office for one dollar. In ordering, please state the number and date of the patent desired, mit to Munn &Co., 37 Park Row. New York city

and remit to Munn &Co., 37 Park Row, New York	city.
Acid powder, J. V. Hecker	178,146
Air or stench trap, C. W. Garland	
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Bale tie, J. L. Randolph	
Bale tie wire, bending, H. W. Putnam	178.027
Barrels, protector in tapping, B. Brown	178,104
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Battery, galvanic, J. E. Watson	178,215
Bcd bottom, spring, W. I. Winne	178.038
Bed dusting rack, J. Foster	178,185
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Bed lounge, J. Hocy (r)	7,140
Bedstead, sofa, J. Reich	
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Bell, door, J. M. Hinchey	
Billiard tables, lighting, H. C. Hayt	
Bird cage, G. Günther	178,142
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Bolt, Robinson & Ferris	
Bone black, revivifying, J. Gandolfo	7,146
Book case, revolving, J. J. Crandall	
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Boot spring shank, S. P. Littlefield	177,945
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Bottle stopper, P. Miles	
Bridal bit, E. Lilienthal	178,013
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Bu ter worker, C. Plyers	178,078
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Car axic lubricator, J. M. McDonald	
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Car coupling, W. E. Leonard	178,169
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Carriage step, C. H. Gould (r)	
Chair, reclining, J. W. McDonough	
Chair seats, shaping, A. P. Johnson	178,157
Chunn Fronk & Viceling	
Churn, Frank & Kissling	178,020
Clamp, joiner's, G. A. Naumann	178,022
Clasp, garment, S. M. Allen	
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Clothes sprinkler, Ballou & Woerd	178,036
Coffee pot, C. Vanderbeck	
Comb, back, J. W. Fleischmann (r)	7,145
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Cultivator, tooth, J. Mitchell	178,190
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 Cuspadore, J. Pfund
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lydrant, J. Farnan	178,129
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Overalls, A. R. Jescrich	178,19
Pail and sieve, ash, F. G. Ford	178,10
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Ejector, steam, W. Ebbitt		Registering apparatus, J. S. Elliott	177,928
		Regulator, draft, W. H. Gerrish	
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Engine, hydraulic, W. Smith			
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Fifth wheel for vehicles, P. La Belle		Sawing machine, G. Lee	178,168
Fire extinguisher, J. Block		Scales, weighing, S. L. Plumb	178,188
		Scissors gage, E. Wiggins	
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Furnaces, sparkarrester, etc., for, H. Pindar		Separator, grain, J. P. Scott	
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		Shoe fastening, W. J. Vitt	
Gas regulator, G. W. Hambright		Shoe tips, making, J. A. Stockwell	
Gas stoves, oven for, J. R. Shirley			
Generator, lamp steam, H. Fritz		Show case, F. L. Stouffer	
Girder, metallic, J. L. Nostrand		Sifter, flour and meal, F. G. Ford	
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	178,110	Stoves, oven for gas, J. R. Shirley Straw cutter, R. N. Boren	177,966 178,102
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Hemp and flax brake, L. E. Burdin Hook fastening, suspension, W. H. Haines Horse boot, H. B. Cook. Horscshoe nails trimming. A. H. Caryl Hose goods, H. G. Hubbard Hydrant, J. T. Davis. Hydrant, J. Farnan	178,110 177,936 177,991 178,113 178,058 178,120 178,120	Stoves, oven for gas, J. R. Shirley Straw cutter, R. N. Boren Surcingle, P. B. Horton Suspenders, end fastening for, J. H. Murfey Table, ironing, N. Clark Teeth, artificial, W. P. Hall Telegraphs, duplex, T. A. Edison. 178,221, 178,222,	177,966 178,102 178,008 178,075 177,948 178,148 178,228
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Hemp and flax brake, L. E. Burdin Hook fastening, suspension, W. H. Haines Horse boot, H. B. Cook Horseshoe nails trimming. A. H. Caryl. Hose goods, H. G. Hubbard Hydrant, J. T. Davis Hydrant, J. Farnan Lice cream freezer, J. W. Olmsted Ise machine, J. F. Gesner Midicator, station, C. A. Evans Insect powder gun, C. B. Dickinson Iron ware, enameled, F. G. Niedringhaus et al. Japan or varnish, base for, W. P. Jenney	178,110 177,996 177,991 178,118 178,058 178,120 178,129 178,186 177,999 178, 128 178,050 177,953 178,153 178,065	Stoves, oven for gas, J. R. Shirley Straw cutter, R. N. Boren Surcingle, P. B. Horton Suspenders, end fustening for, J. H. Murfey Table, ironing, N. Clark. Teeth, artificial, W. P. Hall Telegraphs, duplex, T. A. Edison. 178,221, 178,222, Thill coupling, H. Dick. Tiles, making flooring, G. A. Stanbery Tire upsetter, E. B. Rose Tool, compound, M. Young Tool, blank, hand, L. T. Richardson Track clearer, J. Mabbs Truck, barrel, S. Allman Trunk corner clamp, E. A. G. Itoulstone (r)	177,966 178,102 178,008 178,075 177,948 178,143 178,223 178,122 177,969 178,082 177,977 177,959 178,172 177,914 7,149
Hemp and flax brake, L. E. Burdin. Hook fastening, suspension, W. H. Haines. Horse boot, H. B. Cook. Horscshoe nails trimming. A. H. Caryl. Hose goods, H. G. Hubbard Hydrant, J. T. Davis. Hydrant, J. Farnan. Ice cream freezer, J. W. Olmstcd. Ise machine, J. F. Gesner. Midicator, station, C. A. Evans. Insect powder gun, C. B. Dickinson Iron ware, enameled, F. G. Niedringhaus et al. Japan or varnish, base for, W. P. Jenney. Key hole guard, La Blanc & St. Pierre.	178,110 177,996 177,991 178,113 178,058 178,120 178,129 178,186 177,999 178,128 178,050 177,953 178,153 178,153	Stoves, oven for gas, J. R. Shirley Straw cutter, R. N. Boren Surcingle, P. B. Horton Suspenders, end fustening for, J. H. Murfey. Table, ironing, N. Clark Teeth, artificial, W. P. Hall Telegraphs, duplex, T. A. Edison. 178,221, 178,222, Thill coupling, H. Dick Tiles, making flooring, G. A. Stanbery Tire upsetter, E. B. Rose Tool, compound, M. Young Tool, blank, hand, L. T. Richardson Track clearer, J. Mabbs Truck, barrel, S. Allman Trunk corner clamp, E. A. G. Roulstone (r). Trunks, tray bolt for, G. Crouch	177,966 178,102 178,008 178,075 177,948 178,143 178,122 177,962 177,977 177,959 178,172 177,914 7,149
Hemp and flax brake, L. E. Burdin. Hook fastening, suspension, W. H. Haines Horse boot, H. B. Cook Horseshoe nails trimming. A. H. Caryl Hose goods, H. G. Hubbard Hydrant, J. T. Davis Hydrant, J. Farnan Ice cream freezer, J. W. Olmsted Ise machine, J. F. Gesner Todicator, station, C. A. Evans Insect powder gun, C. B. Dickinson Iron ware, enameled, F. G. Niedringhaus et al Japan or varnish, base for, W. P. Jenney Key hole guard, La Blanc & St. Pierre Kniferackand rest, A. R. Byrkit Knife scouring machine, H. Symonds	178,110 177,996 177,991 178,118 178,058 178,120 178,120 178,186 177,999 178,128 178,050 177,953 178,158 178,065 178,158	Stoves, oven for gas, J. R. Shirley Straw cutter, R. N. Boren Surcingle, P. B. Horton Suspenders, end fastening for, J. H. Murfey Table, ironing, N. Clark Teeth, artificial, W. P. Hall Telegraphs, duplex, T. A. Edison. 178,221, 178,222, Thill coupling, H. Dick. Tilcs, making flooring, G. A. Stanbery Tire upsetter, E. B. Rose Tool, compound, M. Young Tool, blank, hand, L. T. Richardson Track clearer, J. Mabbs Truck, barrel, S. Allman Trunk corner clamp, E. A. G. Roulstone (r) Trunks, tray bolt for, G. Crouch Truss, spermatic, H. A. Stephenson	177,966 178,102 178,008 178,075 177,943 178,143 178,122 177,969 178,082 177,977 177,959 178,172 177,914 7,149 178,117
Hemp and flax brake, L. E. Burdin. Hook fastening, suspension, W. H. Haines. Horse boot, H. B. Cook. Horschoe nails trimming. A. H. Caryl. Hose goods, H. G. Hubbard. Hydrant, J. T. Davis. Hydrant, J. Farnan. Ice cream freezer, J. W. Olmstcd. Ise machine, J. F. Gesner. Midicator, station, C. A. Evans. Insect powder gun, C. B. Dickinson. Iron ware, enameled, F. G. Niedringhaus et al. Japan or varnish, base for, W. P. Jenney. Key hole guard, La Blanc & St. Pierre. Kniferackand rest, A. R. Byrkit. Knife scouring machine, H. Symonds. Knives, handle for pocket, J. W. Gardner.	178,110 177,996 177,991 178,113 178,123 178,120 178,120 178,126 177,999 178,158 178,050 177,958 178,153 178,065 178,088 177,998	Stoves, oven for gas, J. R. Shirley Straw cutter, R. N. Boren Surcingle, P. B. Horton Suspenders, end fastening for, J. H. Murfey Table, ironing, N. Clark Teeth, artificial, W. P. Hall Telegraphs, duplex, T. A. Edison. 178,221, 178,222, Thill coupling, H. Dick Tics, making flooring, G. A. Stanbery Tire upsetter, E. B. Rose Tool, compound, M. Young Tool, blank, hand, L. T. Richardson Track clearer, J. Mabbs Truck, barrel, S. Allman Trunk corner clamp, E. A. G. Itoulstone (r) Trunks, tray bolt for, G. Crouch Truss, spermatic, H. A. Stephenson Turning and planing tool, metal, T. T. Lingard	177,966 178,102 178,008 178,075 177,943 178,143 178,122 177,969 178,082 177,977 177,959 178,172 177,914 7,149 178,117
Hemp and flax brake, L. E. Burdin. Hook fastening, suspension, W. H. Haines. Horse boot, H. B. Cook. Horscshoe nails trimming. A. H. Caryl. Hose goods, H. G. Hubbard Hydrant, J. T. Davis. Hydrant, J. Farnan. Ice cream freezer, J. W. Olmstcd. Ise machine, J. F. Gesner. Midicator, station, C. A. Evans. Insect powder gun, C. B. Dickinson Iron ware, enameled, F. G. Niedringhaus et al. Japan or varnish, base for, W. P. Jenney. Key hole guard, La Blanc & St. Plerre. Knife scouring machine, H. Symonds. Knives, handle for pocket, J. W. Gardner. Knitting machine, rotary, T. Langham.	178,110 177,996 177,991 178,118 178,058 178,120 178,129 178,186 177,999 178,158 178,050 177,953 178,158 178,065 178,112 178,088 177,998 178,167	Stoves, oven for gas, J. R. Shirley Straw cutter, R. N. Boren Surcingle, P. B. Horton Suspenders, end fastening for, J. H. Murfey Table, ironing, N. Clark Teeth, artificial, W. P. Hall Telegraphs, duplex, T. A. Edison. 178,221, 178,222, Thill coupling, H. Dick. Tilcs, making flooring, G. A. Stanbery Tire upsetter, E. B. Rose Tool, compound, M. Young Tool, blank, hand, L. T. Richardson Track clearer, J. Mabbs Truck, barrel, S. Allman Trunk corner clamp, E. A. G. Roulstone (r) Trunks, tray bolt for, G. Crouch Truss, spermatic, H. A. Stephenson	177,966 178,102 178,008 178,075 177,943 178,143 178,122 177,969 178,082 177,977 177,959 178,172 177,914 7,149 178,117
Hemp and flax brake, L. E. Burdin. Hook fastening, suspension, W. H. Haines Horse boot, H. B. Cook Horseshoe nails trimming. A. H. Caryl Hose goods, H. G. Hubbard Hydrant, J. T. Davis Hydrant, J. Farnan. Ice cream freezer, J. W. Olmstcd Ise machine, J. F. Gesner Midicator, station, C. A. Evans Insect powder gun, C. B. Dickinson Iron ware, enameled, F.G. Niedringhaus et al. Japan or varnish, base for, W. P. Jenney. Key hole guard, La Blanc & St. Pierre Knifersckand rest, A. R. Byrkit Knife scouring machine, H. Symonds Knives, handle for pocket, J. W. Gardner Knitting machine, rotary, T. Langham Laddles, stopper for pouring, W. H. Haws	178,110 177,996 177,991 178,118 178,058 178,120 178,129 178,128 177,990 178,128 178,050 177,955 178,158 178,065 178,112 178,088 177,998 178,179,998 178,108	Stoves, oven for gas, J. R. Shirley Straw cutter, R. N. Boren Surcingle, P. B. Horton Suspenders, end fustening for, J. H. Murfey Table, ironing, N. Clark Teeth, artificial, W. P. Hall Telegraphs, duplex, T. A. Edison. 178,221, 178,222, Thill coupling, H. Dick Tiles, making flooring, G. A. Stanbery Tire upsetter, E. B. Rose Tool, compound, M. Young Tool, blank, hand, L. T. Richardson Track clearer, J. Mabbs Truck, barrel, S. Allman Trunk corner clamp, E. A. G. Itoulstone (r) Trunks, tray bolt for, G. Crouch Truss, spermatic, H. A. Stephenson Turning and planing tool, metal, T. T. Lingard. Umbrella, G. & C. Lieb	177,966 178,102 178,008 178,075 177,945 178,143 178,228 178,122 177,969 178,072 177,977 177,971 177,914 7,149 178,117 178,117
Hemp and flax brake, L. E. Burdin. Hook fastening, suspension, W. H. Haines. Horse boot, H. B. Cook. Horschoe nails trimming. A. H. Caryl. Hose goods, H. G. Hubbard. Hydrant, J. T. Davis. Hydrant, J. T. Davis. Hydrant, J. Farnan. Ice cream freezer, J. W. Olmsted.  16e machine, J. F. Gesner. Midicator, station, C. A. Evans. Insect powder gun, C. B. Dickinson Iron ware, enameled, F. G. Niedringhaus et al. Japan or varnish, base for, W. P. Jenney. Key hole guard, La Blanc & St. Pierre. Knife rackand rest, A. R. Byrkit. Knife scouring machine, H. Symonds. Knives, handle for pocket, J. W. Gardner. Knitting machine, rotary, T. Langham Laddles, stopper for pouring, W. H. Haws. Lamp chimney, E. Tolman, Jr.	178,110 177,936 177,931 178,118 178,058 178,120 178,126 178,126 178,186 177,990 178,153 178,053 178,053 178,068 177,998 178,167 178,068 177,908 178,167 178,069	Stoves, oven for gas, J. R. Shirley. Straw cutter, R. N. Boren Surcingle, P. B. Horton Suspenders, end fustening for, J. H. Murfey Table, ironing, N. Clark Teeth, artificial, W. P. Hall. Tclegraphs, duplex, T. A. Edison. 178,221, 178,222, Thill coupling, H. Dick Tilcs, making flooring, G. A. Stanbery Tire upsetter, E. B. Rose Tool, compound, M. Young. Tool, blank, hand, L. T. Richardson Track clearer, J. Mabbs Truck, barrel, S. Allman Trunk corner clamp, E. A. G. Icoulstone (r) Trunks, tray bolt for, G. Crouch Truss, spermatic, H. A. Stephenson Turning and planing tool, metal, T. T. Lingard Umbrella, G. & C. Lieb Urn, tea and coffee, A. B. Stapler	177,966 178,102 178,005 178,075 177,948 178,123 178,122 177,959 178,082 177,977 177,959 178,172 177,914 7,149 178,117 177,971 178,171 178,171 178,173
Hemp and flax brake, L. E. Burdin. Hook fastening, suspension, W. H. Haines. Horse boot, H. B. Cook. Horschoe nails trimming. A. H. Caryl. Hose goods, H. G. Hubbard. Hydrant, J. T. Davis. Hydrant, J. T. Davis. Hydrant, J. F. Gesner. Ge machine, J. F. Gesner. Midcator, station, C. A. Evans. Insect powder gun, C. B. Dickinson Iron ware, enameled, F. G. Niedringhaus et al. Japan or varnish, base for, W. P. Jenney. Key hole guard, La Blanc & St. Pierre. Knife rackand rest, A. R. Byrkit. Knife scouring machine, H. Symonds. Knives, handle for pocket, J. W. Gardner. Knitting machine, rotary, T. Langham Laddles, stopper for pouring, W. H. Haws. Lamp chimney, E. Tolman, Jr.	178,110 177,996 177,991 178,118 178,058 178,120 178,129 178,128 177,990 178,128 178,050 177,955 178,158 178,065 178,112 178,088 177,998 178,179,998 178,108	Stoves, oven for gas, J. R. Shirley Straw cutter, R. N. Boren Surcingle, P. B. Horton Suspenders, end fastening for, J. H. Murfey Table, ironing, N. Clark Teeth, artificial, W. P. Hall Telegraphs, duplex, T. A. Edison. 178,221, 178,222, Thill coupling, H. Dick Tilcs, making flooring, G. A. Stanbery Tire upsetter, E. B. Rose Tool, compound, M. Young Tool, blank, hand, L. T. Richardson Track clearer, J. Mabbs Truck, barrel, S. Allman Trunk corner clamp, E. A. G. Roulstone (r) Trunks, tray bolt for, G. Crouch Turuss, spermatic, H. A. Stephenson Turning and planing tool, metal, T. T. Lingard. Umbrella, G. & C. Lleb Urn, tea and coffee, A. B. Stapler Valve gear, J. E. Giles	177,966 178,102 178,008 178,075 177,948 178,122 177,969 178,062 177,977 177,959 178,172 177,911 177,911 178,110 178,110 178,110 178,110 178,110 178,054
Hemp and flax brake, L. E. Burdin. Hook fastening, suspension, W. H. Haines. Horse boot, H. B. Cook. Horscshoe nails trimming. A. H. Caryl. Hose goods, H. G. Hubbard Hydrant, J. T. Davis. Hydrant, J. Farnan. Ice cream freezer, J. W. Olmstcd. Ise machine, J. F. Gesner. Micator, station, C. A. Evans. Insect powder gun, C. B. Dickinson Iron ware, enameled, F. G. Niedringhaus et al. Japan or varnish, base for, W. P. Jenney. Key hole guard, La Blanc & St. Plerre. Kniferackand rest, A. R. Byrkit Knife scouring machine, H. Symonds. Knives, handle for pocket, J. W. Gardner. Knitting machine, rotary, T. Langham Laddles, stopper for pouring, W. H. Haws. Lamp chimney, E. Tolman, Jr. Lamp extinguisher, G. W. Martin.	178,110 177,936 177,931 178,113 178,058 178,120 178,186 177,999 178, 128 177,953 178,055 178,155 178,065 176,112 178,068 177,998 178,089 178,089 178,089	Stoves, oven for gas, J. R. Shirley Straw cutter, R. N. Boren Surcingle, P. B. Horton Suspenders, end fastening for, J. H. Murfey Table, ironing, N. Clark Teeth, artificial, W. P. Hall Telegraphs, duplex, T. A. Edison. 178,221, 178,222, Thill coupling, H. Dick Tiles, making flooring, G. A. Stanbery Tire upsetter, E. B. Rose Tool, compound, M. Young Tool, blank, hand, L. T. Richardson Track clearer, J. Mabbs Truck, barrel, S. Allman Trunk corner clamp, E. A. G. Roulstone (r) Trunks, tray bolt for, G. Crouch Trunks, tray bolt for, G. Crouch Turning and planing tool, metal, T. T. Lingard Umbrella, G. & C. Lieb Urn, tea and coffee, A. B. Stapler Valve gear, J. E. Giles Valve, governor, E. Schirck	177,966 178,102 178,008 178,075 177,948 178,143 178,122 177,969 178,122 177,977 177,959 178,172 177,914 7,149 178,171 178,150 178,038 177,963
Hemp and flax brake, L. E. Burdin. Hook fastening, suspension, W. H. Haines. Horse boot, H. B. Cook. Horscshoe nails trimming. A. H. Caryl. Hose goods, H. G. Hubbard Hydrant, J. T. Davis. Hydrant, J. Farnan. Ice cream freezer, J. W. Olmstcd. Ise machine, J. F. Gesner. Midicator, station, C. A. Evans. Insect powder gun, C. B. Dickinson Iron ware, ensmeled, F. G. Niedringhaus et al. Japan or varnish, base for, W. P. Jenney. Key hole guard, La Blanc & St. Pierre. Knife scouring machine, H. Symonds. Knives, handle for pocket, J. W. Gardner. Knitting machine, rotary, T. Langham. Laddles, stopper for pouring, W. H. Haws. Lamp chimney, E. Tolman, Jr. Lamp extinguisher, G. W. Martin. Lamp steam generator and boiler, H. Fritz.	178,110 177,991 177,991 178,118 178,058 178,120 178,120 178,186 177,999 178,158 178,050 177,953 178,155 178,065 178,112 178,068 177,998 178,069 178,069 177,947	Stoves, oven for gas, J. R. Shirley Straw cutter, R. N. Boren Surcingle, P. B. Horton Suspenders, end fustening for, J. H. Murfey Table, ironing, N. Clark Teeth, artificial, W. P. Hall Telegraphs, duplex, T. A. Edison. 178,221, 178,222, Thill coupling, H. Dick Tiles, making flooring, G. A. Stanbery. Tire upsetter, E. B. Rose Tool, compound, M. Young Tool, blank, hand, L. T. Richardson Track clearer, J. Mabbs Truck, barrel, S. Allman Trunk corner clamp, E. A. G. Icoulatone (r) Trunks, tray bolt for, G. Crouch Truss, spermatic, H. A. Stephenson Turning and planing tool, metal, T. T. Lingard. Umbrella, G. & C. Lieb. Urn, tea and coffee, A. B. Stapler Valve gear, J. E. Giles Valve, governor, E. Schirck Valve, steam, J. L. Agnew	177,966 178,102 178,102 178,075 177,948 178,123 178,122 177,969 178,082 177,977 177,977 177,971 178,172 177,914 7,149 178,117 178,110 178,068 177,970 178,053 177,934
Hemp and flax brake, L. E. Burdin. Hook fastening, suspension, W. H. Haines Horse boot, H. B. Cook Horseshoe nails trimming. A. H. Caryl Hose goods, H. G. Hubbard Hydrant, J. T. Davis Hydrant, J. T. Farnan Ice cream freezer, J. W. Olmsted Ise machine, J. F. Gesner Midicator, station, C. A. Evans Insect powder gun, C. B. Dickinson Iron ware, enameled, F. G. Niedringhaus et al Japan or varnish, base for, W. P. Jenney Key hole guard, La Blanc & St. Pierre Kniferackand rest, A. R. Byrkit Knife scouring machine, H. Symonds Knitves, handle for pocket, J. W. Gardner Knitting machine, rotary, T. Langham Laddles, stopper for pouring, W. H. Haws Lamp chimney, E. Tolman, Jr Lamp extinguisher, G. W. Martin Lamp steam generator and boiler, H. Fritz Latch, door, O. H. Gilbert	178,110 177,936 177,931 178,113 178,058 178,120 178,126 178,126 178,186 177,999 178,153 178,053 178,053 178,068 177,948 178,068 177,947 177,947 177,943 177,943 177,943	Stoves, oven for gas, J. R. Shirley Straw cutter, R. N. Boren Surcingle, P. B. Horton Suspenders, end fastening for, J. H. Murfey Table, ironing, N. Clark Teeth, artificial, W. P. Hall Telegraphs, duplex, T. A. Edison. 178,221, 178,222, Thill coupling, H. Dick Tiles, making flooring, G. A. Stanbery Tire upsetter, E. B. Rose Tool, compound, M. Young Tool, blank, hand, L. T. Richardson Track clearer, J. Mabbs Truck, barrel, S. Allman Trunk corner clamp, E. A. G. Roulstone (r) Trunks, tray bolt for, G. Crouch Trunks, tray bolt for, G. Crouch Turning and planing tool, metal, T. T. Lingard Umbrella, G. & C. Lieb Urn, tea and coffee, A. B. Stapler Valve gear, J. E. Giles Valve, governor, E. Schirck	177,966 178,102 178,102 178,075 177,948 178,123 178,122 177,969 178,082 177,977 177,977 177,971 178,172 177,914 7,149 178,117 178,110 178,068 177,970 178,053 177,934
Hemp and flax brake, L. E. Burdin. Hook fastening, suspension, W. H. Haines. Horse boot, H. B. Cook. Horschoe nails trimming. A. H. Caryl. Hose goods, H. G. Hubbard. Hydrant, J. T. Davis. Hydrant, J. Farnan. Ice cream freezer, J. W. Olmstcd.  See machine, J. F. Gesner. Midicator, station, C. A. Evans. Insect powder gun, C. B. Dickinson Iron ware, enameled, F. G. Niedringhaus et al. Japan or varnish, base for, W. P. Jenney.  Key hole guard, La Blanc & St. Pierre. Knife rackand rest, A. R. Byrkit. Knife scouring machine, H. Symonds. Knives, handle for pocket, J. W. Gardner. Knitting machine, rotary, T. Langham. Laddles, stopper for pouring, W. H. Haws. Lamp chimney, E. Tolman, Jr. Lamp extinguisher, G. W. Martin. Lamp steam generator and boiler, H. Fritz. Latch, door, O. H. Gilbert. Leather-creasing machine, J. B. Stetson.	178,110 177,991 177,991 178,118 178,058 178,129 178,129 178,186 177,999 178,050 177,953 178,055 178,158 178,065 178,112 178,088 177,998 178,167 178,008 177,998 178,167 178,008 177,993 177,993 177,991	Stoves, oven for gas, J. R. Shirley. Straw cutter, R. N. Boren Surcingle, P. B. Horton Suspenders, end fastening for, J. H. Murfey Table, ironing, N. Clark Teeth, artificial, W. P. Hall Telegraphs, duplex, T. A. Edison. 178,221, 178,222, Thill coupling, H. Dick Tilcs, making flooring, G. A. Stanbery Tire upsetter, E. B. Rose Tool, compound, M. Young Tool, blank, hand, L. T. Richardson Track clearer, J. Mabbs Truck, barrel, S. Allman Trunk corner clamp, E. A. G. Roulstone (r) Trunks, tray bolt for, G. Crouch Truss, spermatic, H. A. Stephenson Turning and planing tool, metal, T. T. Lingard Umbrella, G. & C. Lieb Urn, tea and coffee, A. B. Stapler Valve gear, J. E. Giles Valve, gearm, J. L. Agnew Valve, steam, J. L. Agnew	177,966 178,102 178,008 178,075 177,948 178,143 178,122 177,969 178,092 177,977 177,974 177,974 178,110 178,110 178,110 178,054 177,970 178,054 177,970 178,054 177,970 178,054 177,963 177,963
Hemp and flax brake, L. E. Burdin. Hook fastening, suspension, W. H. Haines. Horse boot, H. B. Cook. Horscshoe nails trimming. A. H. Caryl. Hose goods, H. G. Hubbard Hydrant, J. T. Davis. Hydrant, J. Farnan. Ice cream freezer, J. W. Olmstcd. Ise machine, J. F. Gesner. Midicator, station, C. A. Evans. Insect powder gun, C. B. Dickinson Iron ware, enameled, F. G. Niedringhaus et al. Japan or varnish, base for, W. P. Jenney. Key hole guard, La Blanc & St. Plerre. Knife scouring machine, H. Symonds. Knives, handle for pocket, J. W. Gardner. Knitting machine, rotary, T. Langham Laddles, stopper for pouring, W. H. Haws. Lamp chimney, E. Tolman, Jr. Lamp steam generator and boiler, H. Fritz Latch, door, O. H. Gilbert. Leath?-creasing machine, J. B. Stetson. Loom, E. B. Bigclow.	178,110 177,996 177,991 178,118 178,058 178,129 178,129 178,186 177,999 178,050 177,953 178,153 178,165 178,065 178,112 178,083 177,998 178,065 178,067 177,947 177,947 177,939 177,931 177,939	Stoves, oven for gas, J. R. Shirley. Straw cutter, R. N. Boren Surcingle, P. B. Horton Suspenders, end fastening for, J. H. Murfey. Table, ironing, N. Clark. Teeth, artificial, W. P. Hall Telegraphs, duplex, T. A. Edison. 178,221, 178,222, Thill coupling, H. Dick Tiles, making fooring, G. A. Stanbery. Tire upsetter, E. B. Rose. Tool, compound, M. Young. Tool, blank, hand, L. T. Richardson. Track clearer, J. Mabbs Truck, barrel, S. Allman Trunk corner clamp, E. A. G. Itoulstone (r) Trunks, tray bolt for, G. Crouch Truns, spermatic, H. A. Stephenson. Turning and planing tool, metal, T. T. Lingard. Umbrella, G. & C. Lieb. Urn, tea and coffee, A. B. Stapler. Valve gear, J. E. Giles. Valve, governor, E. Schirck Valve, steam, R. T. Crane. Valve stems, ctc., turning, Crane et at.	177,966 178,102 178,008 178,075 177,948 178,122 177,979 178,122 177,977 177,959 178,172 178,172 178,117 177,913 177,913
Hemp and flax brake, L. E. Burdin. Hook fastening, suspension, W. H. Haines. Horse boot, H. B. Cook. Horschoe nails trimming. A. H. Caryl. Hose goods, H. G. Hubbard. Hydrant, J. T. Davis. Hydrant, J. Farnan. Ice cream freezer, J. W. Olmstcd.  See machine, J. F. Gesner. Midicator, station, C. A. Evans. Insect powder gun, C. B. Dickinson Iron ware, enameled, F. G. Niedringhaus et al. Japan or varnish, base for, W. P. Jenney.  Key hole guard, La Blanc & St. Pierre. Knife rackand rest, A. R. Byrkit. Knife scouring machine, H. Symonds. Knives, handle for pocket, J. W. Gardner. Knitting machine, rotary, T. Langham. Laddles, stopper for pouring, W. H. Haws. Lamp chimney, E. Tolman, Jr. Lamp extinguisher, G. W. Martin. Lamp steam generator and boiler, H. Fritz. Latch, door, O. H. Gilbert. Leather-creasing machine, J. B. Stetson.	178,110 177,996 177,991 178,118 178,058 178,129 178,129 178,186 177,999 178,050 177,953 178,153 178,165 178,065 178,112 178,083 177,998 178,065 178,067 177,947 177,947 177,939 177,931 177,939	Stoves, oven for gas, J. R. Shirley Straw cutter, R. N. Boren Surcingle, P. B. Horton Suspenders, end fustening for, J. H. Murfey Table, ironing, N. Clark Teeth, artificial, W. P. Hall Telegraphs, duplex, T. A. Edison. 178,221, 178,222, Thill coupling, H. Dick Tics, making flooring, G. A. Stanbery Tire upsetter, E. B. Rose Tool, compound, M. Young Tool, blank, hand, L. T. Richardson Track clearer, J. Mabbs Truck, barrel, S. Allman Trunk corner clamp, E. A. G. Itoulstone (r) Trunks, tray bolt for, G. Crouch Trunks, tray bolt for, G. Crouch Turning and planing tool, metal, T. T. Lingard Umbrella, G. & C. Lieb Urn, tea and coffee, A. B. Stapler Valve gear, J. E. Giles Valve, steam, J. L. Agnew Valve, steam, R. T. Crane Valve, steam, R. T. Crane Valve, throttle, Beal & Andrews	177, 966 178, 102 178, 003 178, 078 178, 078 177, 948 178, 178, 178, 178, 178, 178, 178, 178,
Hemp and flax brake, L. E. Burdin. Hook fastening, suspension, W. H. Haines. Horse boot, H. B. Cook. Horscshoe nails trimming. A. H. Caryl. Hose goods, H. G. Hubbard Hydrant, J. T. Davis. Hydrant, J. Farnan. Ice cream freezer, J. W. Olmstcd. Ise machine, J. F. Gesner. Midicator, station, C. A. Evans. Insect powder gun, C. B. Dickinson Iron ware, enameled, F. G. Niedringhaus et al. Japan or varnish, base for, W. P. Jenney. Key hole guard, La Blanc & St. Plerre. Knife scouring machine, H. Symonds. Knives, handle for pocket, J. W. Gardner. Knitting machine, rotary, T. Langham Laddles, stopper for pouring, W. H. Haws. Lamp chimney, E. Tolman, Jr. Lamp steam generator and boiler, H. Fritz Latch, door, O. H. Gilbert. Leath?-creasing machine, J. B. Stetson. Loom, E. B. Bigclow.	178,110 177,991 177,991 178,118 178,058 178,120 178,120 178,186 177,990 178,186 177,953 178,153 178,083 178,083 178,083 178,083 178,083 178,083 178,083 178,083 178,083 177,943 177,931 177,931	Stoves, oven for gas, J. R. Shirley. Straw cutter, R. N. Boren Surcingle, P. B. Horton Suspenders, end fastening for, J. H. Murfey. Table, ironing, N. Clark. Teeth, artificial, W. P. Hall Telegraphs, duplex, T. A. Edison. 178,221, 178,222, Thill coupling, H. Dick Tilcs, making flooring, G. A. Stanbery. Tire upsetter, E. B. Rose. Tool, compound, M. Young. Tool, blank, hand, L. T. Richardson. Track clearer, J. Mabbs Truck, barrel, S. Allman Trunk corner clamp, E. A. G. Itoulstone (r) Trunks, tray bolt for, G. Crouch Truss, spermatic, H. A. Stephenson. Turning and planing tool, metal, T. T. Lingard. Umbrella, G. & C. Lieb. Urn, tea and coffee, A. B. Stapler. Valve gear, J. E. Giles. Valve, governor, E. Schirck Valve, steam, J. L. Agnew Valve, steam, R. T. Crane. Valve stems, ctc., turning, Crane et al. Valve, throttle, Beal & Andrews. Varnish, W. P. Jenney.	177, 966 178, 102 178, 102 178, 008 178, 075 177, 948 178, 122 178, 122 178, 122 177, 977 177, 978 177, 978 177, 978 177, 977 178, 170 178, 170 178, 170 178, 170 177, 978 177, 978 177, 978 177, 978 177, 978 177, 978 177, 978 177, 978 177, 978 177, 978 177, 978 177, 978 177, 978 177, 978 177, 978
Hemp and flax brake, L. E. Burdin. Hook fastening, suspension, W. H. Haines. Horse boot, H. B. Cook. Horschoe nails trimming. A. H. Caryl. Hose goods, H. G. Hubbard. Hydrant, J. T. Davis. Hydrant, J. T. Davis. Hydrant, J. F. Gesner. Ge machine, J. F. Gesner. Milce cream freezer, J. W. Olmsted.  Ise machine, J. F. Gesner. Milce of the common station, C. A. Evans. Insect powder gun, C. B. Dickinson Iron ware, enameled, F. G. Niedringhaus et al. Japan or varnish, base for, W. P. Jenney.  Key hole guard, La Blanc & St. Pierre.  Knife scouring machine, H. Symonds.  Knives, handle for pocket, J. W. Gardner.  Knitting machine, rotary, T. Langham  Laddles, stopper for pouring, W. H. Haws.  Lamp chimney, E. Tolman, Jr.  Lamp steam generator and bolier, H. Fritz  Latch, door, O. H. Gilbert.  Leather-creasing machine, J. B. Stetson.  Loom, E. B. Bigclow.  Mangle, F. Krickhahn.	178, 110 177, 996 177, 991 178, 118 178, 058 178, 129 178, 129 178, 186 177, 998 178, 050 177, 953 178, 065 178, 158 178, 167 178, 108 178, 199 177, 930 177, 930	Stoves, oven for gas, J. R. Shirley. Straw cutter, R. N. Boren Surcingle, P. B. Horton Suspenders, end fastening for, J. H. Murfey. Table, ironing, N. Clark. Teeth, artificial, W. P. Hall Telegraphs, duplex, T. A. Edison. 178,221, 178,222, Thill coupling, H. Dick Tiles, making flooring, G. A. Stanbery. Tire upsetter, E. B. Rose. Tool, compound, M. Young. Tool, blank, hand, L. T. Richardson. Track clearer, J. Mabbs Truck, barrel, S. Allman Trunk corner clamp, E. A. G. Roulstone (r) Trunks, tray bolt for, G. Crouch Trunss, spermatic, H. A. Stephenson. Turning and planing tool, metal, T. T. Lingard. Umbrella, G. & C. Lleb. Urn, tea and coffee, A. B. Stapler. Valve, governor, E. Schirck Valve, governor, E. Schirck Valve, steam, J. L. Agnew Valve, steam, J. L. Agnew Valve, throttle, Beal & Andrews. Varnish, W. P. Jenney. Vehicle spring, I. W. Mead.	177, 966 178, 102 178, 002 178, 002 178, 002 178, 002 178, 002 177, 943 178, 122 177, 962 177, 977 177, 978 178, 170 178, 178 178, 178 178 178 178 178 178 178 178 178 178
Hemp and flax brake, L. E. Burdin. Hook fastening, suspension, W. H. Haines. Horse boot, H. B. Cook. Horscshoe nails trimming. A. H. Caryl. Hose goods, H. G. Hubbard Hydrant, J. T. Davis. Hydrant, J. Farna. Ice cream freezer, J. W. Olmstcd. Ise machine, J. F. Gesner. Midcator, station, C. A. Evans. Insect powder gun, C. B. Dickinson Iron ware, enameled, F. G. Niedringhaus et al. Japan or varnish, base for, W. P. Jenney. Key hole guard, La Blanc & St. Pierre. Knife scouring machine, H. Symonds. Knives, handle for pocket, J. W. Gardner. Knitting machine, rotary, T. Langham. Laddles, stopper for pouring, W. H. Haws. Lamp chimney, E. Tolman, Jr. Lamp steam generator and boiler, H. Fritz Latch, door, O. H. Gilbert. Leath-creasing machine, J. B. Stetson. Loom, E. B. Bigclow. Mail bags, attaching tags to, G. H. Fayman. Mangle, F. Krickhahn. Marker, land, J. Augspurger. 177,915,	178,110 177,996 177,991 178,118 178,058 178,129 178,129 178,186 177,999 178,050 177,953 178,158 178,065 178,112 178,088 177,998 178,167 178,008 177,998 178,167 177,993 177,93 177,93 177,93 178,150 178,150	Stoves, oven for gas, J. R. Shirley Straw cutter, R. N. Boren Surcingle, P. B. Horton Suspenders, end fastening for, J. H. Murfey Table, ironing, N. Clark Teeth, artificial, W. P. Hall Telegraphs, duplex, T. A. Edison. 178,221, 178,222, Thill coupling, H. Dick Tiles, making flooring, G. A. Stanbery Tire upsetter, E. B. Rose Tool, compound, M. Young Tool, blank, hand, L. T. Richardson Track clearer, J. Mabbs Truck, barrel, S. Allman Trunk corner clamp, E. A. G. Itoulstone (r) Trunks, tray bolt for, G. Crouch Trunks, tray bolt for, G. Crouch Turning and planing tool, metal, T. T. Lingard Umbrella, G. & C. Lieb Urn, tea and coffee, A. B. Stapler Valve gear, J. E. Giles Valve, governor, E. Schirck Valve, steam, J. L. Agnew Valve, steam, R. T. Crane Valve, steam, R. T. Crane Valve, throttle, Beal & Andrews Varnish, W. P. Jenney Vehicle spring, I. W. Mead Vehicle wheel, G. Hauck	177, 966 178, 102 178, 008 178, 078 177, 948 178, 938 178, 122 177, 949 177, 959 178, 172 177, 959 178, 172 177, 977 177, 977 178, 178 177, 977 177, 978 177, 979 178, 177 177, 978 177, 971 177, 973 177, 974 177, 975 177, 974 177, 975 177, 974 177, 975 177, 974 177, 975 177, 976 177, 976 177, 978 177, 978 177, 978 177, 978 177, 978 177, 978 177, 978 178, 178 178 178 178 178 178 178 178 178 178
Hemp and flax brake, L. E. Burdin. Hook fastening, suspension, W. H. Haines. Horse boot, H. B. Cook. Horscshoe nails trimming. A. H. Caryl. Hose goods, H. G. Hubbard Hydrant, J. T. Davis. Hydrant, J. Farnan. Ice cream freezer, J. W. Olmstcd. Ise machine, J. F. Gesner. Midicator, station, C. A. Evans. Insect powder gun, C. B. Dickinson Iron ware, enameled, F. G. Niedringhaus et al. Japan or varnish, base for, W. P. Jenney. Key hole guard, La Blanc & St. Pierre. Knife scouring machine, H. Symonds. Knives, handle for pocket, J. W. Gardner. Knitting machine, rotary, T. Langham. Laddles, stopper for pouring, W. H. Haws. Lamp chimney, E. Tolman, Jr. Lamp ettinguisher, G. W. Martin. Lamp steam generator and boiler, H. Fritz Latch, door, O. H. Gilbert. Leather-creasing machine, J. B. Stetson. Loom, E. B. Bigelow. Mail bags, attaching tags to, G. H. Fayman Mangle, F. Kricklahn Marker, land, J. Augspurger	178,110 177,996 177,991 178,118 178,058 178,120 178,120 178,186 177,999 178,158 178,050 177,953 178,158 178,068 178,167 178,068 178,089 178,089 177,947 177,930 178,197 177,930 178,197 177,930 178,197 177,920 178,150 178,151	Stoves, oven for gas, J. R. Shirley. Straw cutter, R. N. Boren Surcingle, P. B. Horton Suspenders, end fastening for, J. H. Murfey. Table, ironing, N. Clark. Teeth, artificial, W. P. Hall Telegraphs, duplex, T. A. Edison. 178,221, 178,222, Thill coupling, H. Dick Tiles, making flooring, G. A. Stanbery. Tire upsetter, E. B. Rose. Tool, compound, M. Young. Tool, blank, hand, L. T. Richardson. Track clearer, J. Mabbs Truck, barrel, S. Allman Trunk corner clamp, E. A. G. Roulstone (r) Trunks, tray bolt for, G. Crouch Trunss, spermatic, H. A. Stephenson. Turning and planing tool, metal, T. T. Lingard. Umbrella, G. & C. Lleb. Urn, tea and coffee, A. B. Stapler. Valve, governor, E. Schirck Valve, governor, E. Schirck Valve, steam, J. L. Agnew Valve, steam, J. L. Agnew Valve, throttle, Beal & Andrews. Varnish, W. P. Jenney. Vehicle spring, I. W. Mead.	177, 966 178, 102 178, 008 178, 078 177, 948 178, 938 178, 122 177, 949 177, 959 178, 172 177, 959 178, 172 177, 977 177, 977 178, 178 177, 977 177, 978 177, 979 178, 177 177, 978 177, 971 177, 973 177, 974 177, 975 177, 974 177, 975 177, 974 177, 975 177, 974 177, 975 177, 976 177, 976 177, 978 177, 978 177, 978 177, 978 177, 978 177, 978 177, 978 178, 178 178 178 178 178 178 178 178 178 178
Hemp and flax brake, L. E. Burdin. Hook fastening, suspension, W. H. Haines. Horse boot, H. B. Cook. Horschoe nails trimming. A. H. Caryl. Hose goods, H. G. Hubbard. Hydrant, J. T. Davis. Hydrant, J. T. Davis. Hydrant, J. Farnan. Ice cream freezer, J. W. Olmsted.  See machine, J. F. Gesner. Midicator, station, C. A. Evans. Insect powder gun, C. B. Dickinson. Iron ware, enameled, F. G. Niedringhaus et al. Japan or varnish, base for, W. P. Jenney. Key hole guard, La Blanc & St. Pierre. Knife scouring machine, H. Symonds. Knives, handle for pocket, J. W. Gardner. Knitting machine, rotary, T. Langham. Laddles, stopper for pouring, W. H. Haws. Lamp chimney, E. Tolman, Jr. Lamp steam generator and boiler, H. Fritz Latch, door, O. H. Gilbert. Leather-creasing machine, J. B. Stetson. Loom, E. B. Bigclow. Mail bags, attaching tags to, G. H. Fayman. Mangle, F. Krickhahn. Marker, land, J. Augspurger.  177,915, Mechanical movement, Jordan et al.	178, 110 177, 996 177, 991 178, 118 178, 058 178, 129 178, 128 178, 128 178, 128 178, 158 178, 158 178, 158 178, 167 178, 168 177, 998 178, 167 178, 168 177, 930 177, 930 177, 930 177, 930 177, 930 177, 930 177, 930 177, 931 177, 931 177, 931 177, 931 177, 931 177, 931 177, 931 177, 931 177, 931 178, 159 178, 159 178, 159 178, 159 178, 159 178, 158 178, 158	Stoves, oven for gas, J. R. Shirley. Straw cutter, R. N. Boren Surcingle, P. B. Horton Suspenders, end fastening for, J. H. Murfey. Table, ironing, N. Clark. Teeth, artificial, W. P. Hall Tclegraphs, duplex, T. A. Edison. 178,221, 178,222, Thill coupling, H. Dick Tilcs, making flooring, G. A. Stanbery. Tilc upsetter, E. B. Rose. Tool, compound, M. Young. Tool, blank, hand, L. T. Richardson. Track clearer, J. Mabbs Truck, barrel, S. Allman Trunk corner clamp, E. A. G. Itoulstone (r) Trunks, tray bolt for, G. Crouch Truss, spermatic, H. A. Stephenson. Turning and planing tool, metal, T. T. Lingard. Umbrella, G. & C. Lieb. Urn, tea and coffee, A. B. Stapler. Valve gear, J. E. Giles. Valve, governor, E. Schirck Valve, steam, J. L. Agnew Valve stems, ctc., turning, Crane et al. Valve stems, Ct., turning, Crane et al. Valve stems, Ct., turning, Crane et al. Valve stems, U. P. Jenney. Vehicle spring, I. W. Mead Vehicle wheel, G. Hauck Velocipede, R. W. Laurence.	177, 966 178, 102 178, 102 178, 008 178, 075 177, 948 178, 122 178, 122 177, 977 177, 979 178, 179 178, 170 178, 170 178, 170 178, 170 178, 170 177, 979 177, 979 177, 979 177, 979 177, 979 178, 170 178, 170 178, 170 178, 170 177, 925 177, 925 177, 925 177, 925 177, 925 177, 925 177, 925 177, 925 178, 178, 178, 178, 178, 178, 178, 178,
Hemp and flax brake, L. E. Burdin. Hook fastening, suspension, W. H. Haines. Horse boot, H. B. Cook. Horschoe nails trimming. A. H. Caryl. Hose goods, H. G. Hubbard. Hydrant, J. T. Davis. Hydrant, J. Farnan. Ice cream freezer, J. W. Olmsted. Ice machine, J. F. Gesner. Moicator, station, C. A. Evans. Insect powder gun, C. B. Dickinson Iron ware, enameled, F. G. Niedringhaus et al. Japan or varnish, base for, W. P. Jenney. Key hole guard, La Blanc & St. Pierre. Knife rackand rest, A. R. Byrkit. Knife scouring machine, H. Symonds. Knives, handle for pocket, J. W. Gardner. Knitting machine, rotary, T. Langham. Laddles, stopper for pouring, W. H. Haws. Lamp chimney, E. Tolman, Jr. Lamp steam generator and boiler, H. Fritz. Latch, door, O. H. Gilbert. Leath-Percasing machine, J. B. Stetson. Loom, E. B. Bigclow. Mail bags, attaching tags to, G. H. Fayman. Marker, land, J. Augspurger. 177,915, Meat cutter, J. Hughes. Mechanical movement, M. G. Mosher.	178,110 177,991 178,118 178,058 178,129 178,129 178,186 177,999 178,050 177,953 178,158 178,065 178,112 178,088 177,998 178,081 177,998 178,081 177,993 177,930 177,931 177,931 177,931 177,931 177,931 177,931 178,150 178,150 178,150 178,150 178,150 178,151 178,062	Stoves, oven for gas, J. R. Shirley. Straw cutter, R. N. Boren Surcingle, P. B. Horton Suspenders, end fastening for, J. H. Murfey. Table, ironing, N. Clark. Teeth, artificial, W. P. Hall Telegraphs, duplex, T. A. Edison. 178,221, 178,222, Thill coupling, H. Dick Tilcs, making flooring, G. A. Stanbery. Tire upsetter, E. B. Rose. Tool, compound, M. Young. Tool, blank, hand, L. T. Richardson. Track clearer, J. Mabbs Truck, barrel, S. Allman Trunk corner clamp, E. A. G. Roulstone (r) Trunks, tray bolt for, G. Crouch Truss, spermatic, H. A. Stephenson. Turning and planing tool, metal, T. T. Lingard. Umbrella, G. & C. Lieb. Urn, tea and coffee, A. B. Stapler. Valve gear, J. E. Giles. Valve, governor, E. Schirck Valve, steam, J. L. Agnew Valve, steam, R. T. Crane. Valve, throttie, Beal & Andrews. Varnish, W. P. Jenney. Vehicle spring, I. W. Mead. Vehicle wheel, G. Hauck Vel Mills.	177, 966 178, 102 178, 102 178, 008 178, 075 177, 948 178, 128 178, 122 177, 978 177
Hemp and flax brake, L. E. Burdin. Hook fastening, suspension, W. H. Haines. Horse boot, H. B. Cook. Horschoe nails trimming. A. H. Caryl. Hose goods, H. G. Hubbard. Hydrant, J. T. Davis. Hydrant, J. T. Davis. Hydrant, J. Farnan. Ice cream freezer, J. W. Olmsted.  See machine, J. F. Gesner. Midicator, station, C. A. Evans. Insect powder gun, C. B. Dickinson. Iron ware, enameled, F. G. Niedringhaus et al. Japan or varnish, base for, W. P. Jenney. Key hole guard, La Blanc & St. Pierre. Knife scouring machine, H. Symonds. Knives, handle for pocket, J. W. Gardner. Knitting machine, rotary, T. Langham. Laddles, stopper for pouring, W. H. Haws. Lamp chimney, E. Tolman, Jr. Lamp steam generator and boiler, H. Fritz Latch, door, O. H. Gilbert. Leather-creasing machine, J. B. Stetson. Loom, E. B. Bigclow. Mail bags, attaching tags to, G. H. Fayman. Mangle, F. Krickhahn. Marker, land, J. Augspurger.  177,915, Mechanical movement, Jordan et al.	178,110 177,991 178,118 178,058 178,129 178,129 178,186 177,999 178,050 177,953 178,158 178,065 178,112 178,088 177,998 178,081 177,998 178,081 177,993 177,930 177,931 177,931 177,931 177,931 177,931 177,931 178,150 178,150 178,150 178,150 178,150 178,151 178,062	Stoves, oven for gas, J. R. Shirley. Straw cutter, R. N. Boren Surcingle, P. B. Horton Suspenders, end fastening for, J. H. Murfey. Table, ironing, N. Clark. Teeth, artificial, W. P. Hall Telegraphs, duplex, T. A. Edison. 178,221, 178,222, Thill coupling, H. Dick. Tiles, making fooring, G. A. Stanbery. Tire upsetter, E. B. Rose. Tool, compound, M. Young. Tool, blank, hand, L. T. Richardson. Track clearer, J. Mabbs. Truck, barrel, S. Allman. Trunk corner clamp, E. A. G. Itoulstone (r) Trunks, tray bolt for, C. Crouch Truning and planing tool, metal, T. T. Lingard. Umbrella, G. & C. Lieb. Urn, tea and coffee, A. B. Stapler. Valve, governor, E. Schirck Valve, steam, J. L. Agnew. Valve, steam, B. T. Crane. Valve, steam, C. L. turning, Crane et al. Valve, throttie, Beal & Andrews. Varnish, W. P. Jenney. Vehicle spring, I. W. Mead. Velocipede, R. W. Laurence. Ventlating apparatus, W. H. Mills. Ventilator for windows, T. W. Bracher.	177, 966 178, 102 178, 102 178, 008 178, 075 177, 948 178, 122 177, 969 177, 977 177, 979 177, 979 178, 172 177, 978 177, 978 177, 978 177, 978 177, 978 177, 978 177, 978 177, 978 177, 988 177, 988 178, 171 178, 172 177, 978 178, 178 178 178 178 178 178 178 178 178 178
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Hemp and flax brake, L. E. Burdin. Hook fastening, suspension, W. H. Haines. Horse boot, H. B. Cook. Horschoe nails trimming. A. H. Caryl. Hose goods, H. G. Hubbard. Hydrant, J. T. Davis. Hydrant, J. T. Davis. Hydrant, J. F. Gesner. Ge machine, J. F. Gesner. Midicator, station, C. A. Evans. Insect powder gun, C. B. Dickinson Iron ware, enameled, F. G. Niedringhaus et al. Japan or varnish, base for, W. P. Jenney. Key hole guard, La Blanc & St. Pierre. Knife scouring machine, H. Symonds. Knites couring machine, H. Symonds. Knites, handle for pocket, J. W. Gardner. Kniting machine, rotary, T. Langham. Laddles, stopper for pouring, W. H. Haws. Lamp extinguisher, G. W. Martin. Lamp steam generator and boiler, H. Fritz. Latch, door, O. H. Gilbert. Leath-P-creasing machine, J. B. Stetson. Loom, E. B. Bigclow. Mail bags, attaching tags to, G. H. Fayman. Mangle, F. Krickhahn. Marker, land, J. Augspurger. 177,915, Meat cutter, J. Hughes. Mechanical movement, M. G. Mosher. Mechanical movement, H. Olsen. Mechanical movement, M. G. Mosher. Mechanical movement, K. Vogel	178, 110 177, 991 178, 113 178, 058 178, 129 178, 128 178, 129 178, 128 178, 128 178, 128 178, 958 177, 958 178, 167 178, 168 177, 998 178, 167 177, 93; 178, 199 177, 93; 178, 199 177, 930 178, 167 177, 931 178, 169 177, 947 177, 930 178, 169 177, 947 177, 931 178, 199 177, 920 178, 164 177, 916 178, 167 178, 167 178, 167 178, 167 178, 167 178, 167 178, 167 178, 167 178, 167 178, 178, 178, 178, 178, 178, 178, 178,	Stoves, oven for gas, J. R. Shirley. Straw cutter, R. N. Boren Surcingle, P. B. Horton Suspenders, end fastening for, J. H. Murfey. Table, ironing, N. Clark. Teeth, artificial, W. P. Hall Telegraphs, duplex, T. A. Edison. 178,221, 178,222, Thill coupling, H. Dick Tilcs, making flooring, G. A. Stanbery. Tire upsetter, E. B. Rose. Tool, compound, M. Young. Tool, blank, hand, L. T. Richardson. Track clearer, J. Mabbs Truck, barrel, S. Allman Trunk corner clamp, E. A. G. Roulstone (r) Trunks, tray bolt for, G. Crouch Truss, spermatic, H. A. Stephenson. Turning and planing tool, metal, T. T. Lingard. Umbrella, G. & C. Lieb. Urn, tea and coffee, A. B. Stapler. Valve gear, J. E. Giles. Valve, governor, E. Schirck Valve, steam, J. L. Agnew Valve, steam, J. L. Agnew Valve, steam, R. T. Crane. Valve stems, etc., turning, Crane et al. Valve, throttle, Beal & Andrews. Varnish, W. P. Jenney. Vehicle spring, I. W. Mead. Vehicle wheel, G. Hauck Ventilator for windows, T. W. Biacher. Vessels for buoys, etc., iron, T. F. Rowland. Wagon spring, P. Miller.	177, 966 178, 102 178, 102 178, 008 178, 075 177, 948 178, 128 178, 122 178, 128 178, 128 178, 128 177, 977 177, 979 178, 178, 178, 178, 178, 178, 178, 178,
Hemp and flax brake, L. E. Burdin. Hook fastening, suspension, W. H. Haines. Horse boot, H. B. Cook. Horscshoe nails trimming. A. H. Caryl. Hose goods, H. G. Hubbard. Hydrant, J. T. Davis. Hydrant, J. Farnan. Ice cream freezer, J. W. Olmstcd. Ise machine, J. F. Gesner. Midicator, station, C. A. Evans. Insect powder gun, C. B. Dickinson Iron ware, enameled, F. G. Niedringhaus et al. Japan or varnish, base for, W. P. Jenney. Key hole guard, La Blanc & St. Pierre. Knife rackand rest, A. R. Byrkit. Knife scouring machine, H. Symonds. Knitting machine, rotary, T. Langham. Laddles, stopper for pouring, W. H. Haws. Lamp chimney, E. Tolman, Jr. Lamp extinguisher, G. W. Martin. Lamp steam generator and boiler, H. Fritz. Latch, door, O. H. Gilbert. Loom, E. B. Bigclow. Mail bags, attaching tags to, G. H. Fayman. Marker, land, J. Augspurger. 177,915, Meat cutter, J. Hughes Mechanical movement, M. G. Mosher. Mechanical movement, M. G. Mosher. Mechanical movement, M. G. Mosher. Mechanical movement, K. Vogel Mill, bark, O. Coogan (r).	178,110 177,991 178,118 178,058 178,129 178,129 178,186 177,999 178,050 177,953 178,055 178,155 178,065 178,112 178,088 177,988 178,167 178,089 177,990 177,930 177,930 177,947 177,930 177,947 177,930 178,150 178,150 178,151 178,151 178,151 178,151 178,167 178,151 178,151 178,151 178,151 178,151 178,151 178,151 178,151 178,151 178,151 178,151 178,151 178,151 178,151 178,151 178,167 178,179 178,179 178,179 178,179 178,179 178,179 178,179	Stoves, oven for gas, J. R. Shirley. Straw cutter, R. N. Boren Surcingle, P. B. Horton Suspenders, end fastening for, J. H. Murfey. Table, ironing, N. Clark. Teeth, artificial, W. P. Hall Tclegraphs, duplex, T. A. Edison. 178,221, 178,222, Thill coupling, H. Dick Tiles, making flooring, G. A. Stanbery. Tire upsetter, E. B. Rose. Tool, compound, M. Young. Tool, blank, hand, L. T. Richardson. Track clearer, J. Mabbs Truck, barrel, S. Allman Trunk corner clamp, E. A. G. Icoulstone (r) Trunks, tray bolt for, G. Crouch Truss, spermatic, H. A. Stephenson. Turning and planing tool, metal, T. T. Lingard. Umbrella, G. & C. Lieb. Urn, tea and coffee, A. B. Stapler. Valve gear, J. E. Giles. Valve, governor, E. Schirck Valve, steam, B. T. Crane. Valve, steam, R. T. Crane. Valve stems, ctc., turning, Crane et al. Valve, stems, C., turning, Crane et al. Valve, bring, I. W. Mead. Vehicle wheel, G. Hauck Velocipede, R. W. Laurence. Ventilating apparatus, W. H. Mills. Vessels for buoys, ctc., fron, T. F. Rowland.	177, 966 178, 102 178, 102 178, 008 178, 075 177, 948 178, 128 178, 122 178, 128 178, 128 178, 128 177, 977 177, 979 178, 178, 178, 178, 178, 178, 178, 178,
Hemp and flax brake, L. E. Burdin. Hook fastening, suspension, W. H. Haines. Horse boot, H. B. Cook. Horscshoe nails trimming. A. H. Caryl. Hose goods, H. G. Hubbard Hydrant, J. T. Davis. Hydrant, J. Farnan. Ice cream freezer, J. W. Olmstcd. Ise machine, J. F. Gesner. Midicator, station, C. A. Evans. Insect powder gun, C. B. Dickinson Iron ware, enameled, F. G. Niedringhaus et al. Japan or varnish, base for, W. P. Jenney. Key hole guard, La Blanc & St. Pierre. Knife scouring machine, H. Symonds. Knives, handle for pocket, J. W. Gardner. Knitting machine, rotary, T. Langham Laddles, stopper for pouring, W. H. Haws. Lamp chimney, E. Tolman, Jr. Lamp steam generator and boiler, H. Fritz Latch, door, O. H. Gilbert. Leath-r-creasing machine, J. B. Stetson. Loom, E. B. Bigclow. Mail bags, attaching tags to, G. H. Fayman. Mangle, F. Krickhahn. Marker, land, J. Augspurger. 177,915, Meat cutter, J. Hughes Mechanical movement, J. Ordan et al. Mechanical movement, M. G. Mosher. Mechanical movement, H. Olsen. Mechanical movement, K. Vogel Mill, bark, O. Coogan (r). Mill feeder, J. D. Mines.	178,110 177,996 177,991 178,118 178,129 178,129 178,129 178,186 177,999 178,050 177,953 178,153 178,165 178,1665 178,112 178,083 178,083 177,998 178,167 177,990 177,93 177,93 177,93 177,93 177,93 177,93 178,150 178,150 178,151 178,062 178,151 178,062 178,151 178,062 178,151 178,062 178,151 178,062 178,151 178,062 178,151 178,062 178,151 178,062 178,151 178,062 178,151 178,062 178,151 178,062 178,151 178,062 178,151 178,062 178,151	Stoves, oven for gas, J. R. Shirley. Straw cutter, R. N. Boren Surcingle, P. B. Horton Suspenders, end fastening for, J. H. Murfey. Table, ironing, N. Clark. Teeth, artificial, W. P. Hall Telegraphs, duplex, T. A. Edison. 178,221, 178,222, Thill coupling, H. Dick Tilcs, making flooring, G. A. Stanbery. Tire upsetter, E. B. Rose. Tool, compound, M. Young. Tool, blank, hand, L. T. Richardson. Track clearer, J. Mabbs Truck, barrel, S. Allman Trunk corner clamp, E. A. G. Roulstone (r) Trunks, tray bolt for, G. Crouch Truss, spermatic, H. A. Stephenson. Turning and planing tool, metal, T. T. Lingard. Umbrella, G. & C. Lieb. Urn, tea and coffee, A. B. Stapler. Valve gear, J. E. Giles. Valve, governor, E. Schirck Valve, steam, J. L. Agnew Valve, steam, J. L. Agnew Valve, steam, R. T. Crane. Valve stems, etc., turning, Crane et al. Valve, throttle, Beal & Andrews. Varnish, W. P. Jenney. Vehicle spring, I. W. Mead. Vehicle wheel, G. Hauck Ventilator for windows, T. W. Biacher. Vessels for buoys, etc., iron, T. F. Rowland. Wagon spring, P. Miller.	177, 966 178, 102 178, 102 178, 008 178, 075 177, 948 178, 122 177, 978 177, 978 177, 978 177, 979 177, 979 178, 172 177, 978 178, 078 178 178, 078 178, 078 178, 078 178, 078 178, 078 178, 078
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