ENGINEERING INVENTIONS.

A car brake and starter has been patented by Messrs. Amos M. Vereker and Stephen M. Yeates, of Dublin, Ireland. This invention covers devices which act automatically to store up force while acting as a brake to stop the car, so that it will be available for starting the car again when required.

A railway clamp plate has been patented by Mr. Thomas J. Bush, of Lexington, Ky. This invention covers a special construction of plate in combination with interlocking bolts inserted into diagonal intersecting holes made in the cross tie, being an improvement on a former patented invention of the same inventor.

A car coupling has been patented by Mr. Gustav J. Selk, of Monico, Wis. This invention provides a coupler which can be readily attached to any car, and which can be used in connection with the old pin coupler without alteration, automatically coupling with an opposing coupler, while the cars may be coupled either from the sides or the top.

A safety attachment for railway car heaters has been patented by Mr. Edwin C. Rowe, of Bellefonte, Pa. This invention relates to that form of car stoves in which the jar of the collision or tilting of a car automatically dumps the grate and also the bottom of the stove, dropping the hot coals entirely through the bottom of the car and out upon the ground.

A car coupling has been patented by Mr. Samuel A. Young, of Washington, D. C. This invention covers a novel construction to effect the automatic dropping of the pin on the entrance of the link, and also simple means for adjusting the outer end of the secured link, in order that it may properly enter drawheads of different heights.

A motor for street cars has been patented by Mr. William H. Patton, of Pueblo, Col. Its construction is such that the drive power may be operated at full speed at all times, and its motion transmitted to the axles in any desired degree, or so as to revolve the same in either direction, the power being afforded by either gas or steam engine or other motor. and the invention covering various novel features and combinations of parts.

*** AGRICULTURAL INVENTIONS.

A coupling for cultivators has been patented by Mr. Peter Rader, of Kirklin, Ind. This invention relates especially to corn cultivators, and covers a device for coupling the shovel beams to the arch of two-horse cultivators, being light, strong, and inexpensive, and adapted to be adjusted horizontally on the arch.

A manure scraper for plows has been patented by Mr. Adolyph Zerrenner, of New York City. It consists of a straight vertical runner with its rear end widened and concaved outwardly to form a deflector, and adapted to be secured to a plow beam with the ver tical runner directly below and approximately parallel with the beam, the device being easily attached and detached and adjusted to the beams of different plows.

..... MISCELLANEOUS INVENTIONS.

A tobacco box has been patented by Mr. Austin L. Gresham, of Kingsland, Ark. It is so made that the tobacco will be in sight and yet be protected from the atmosphere and from dust, flies, etc., while the tobacco will be as readily accessible as in the old style of boxes.

A hand loom has been patented by Mr. Charles N. Newcomb, of Omaha, Neb. It is intended especially for weaving rag carpets, and in its general construction is much as usual, but the invention covers various novel features of combination and the arrangement of parts.

A folding stacker has been patented by Mr. Charles Saunders, of Cape Vincent, N. Y. It is made in sections which may be folded upon themselves for removal from place to place, but the construction is such as to admit of a proper adjustment and support of the stacker sections by a single operating rope or cord.

A broom holder has been patented by Mr. Charles W. Love, of Fairpoint, Ohio. It is made of one piece of wire, so formed and bent as to have a trefoil base and a right-angularly projecting pair of curved gripping jaws or fingers with coils therein, to be secured to the wall and conveniently hold a broom or brush, etc.

A bung has been patented by Mr. Michael R. Mayer, of Zanesville, Ohio. A bung provided with a lug is hinged to the bung hole, a plate being hinged to the vessel provided with a lug and arranged to lie over and upon the hinged bung, a locking bolt engaging the lugs of the bung and plate.

A mail bag has been patented by Mr.

A harness buckle has been patented lower part of the guide frame, a part on the car pro by Mr. John H. Neill, of Sinclairville, N.Y. It is adapted more particularly for use on the crupper and hip straps of harness, being so made as not to catch the horse's tail, and so the line will not be caught under it, and at the same time to prevent the line from being caught under the end of the hip strap.

A miner's lamp has been patented by Mr. John L. Morris, of Middleport, Pa. Combined with the lamp is a double hook formed of a doubled or looped wire having its ends bent over into outwardly projecting beaks or points, one of which is longer than the other, whereby the lamp is more readily inserted in the hat and more steadily held in place.

A wagon jack has been patented by Mr. Anthony O. Stiveson, of Pomeroy, Ohio. This in-vention covers a novel construction and combination of parts in a jack having a stationary standard firmly mounted in a base block, making a wagon jack which is convenient and effective and has an extensive range of

An apparatus for purifying and separating fatty substances by electricity has been patented by Mr. Heinrich F. D. Schwahn, of Kansas City, Mo. Combined with a closed cylinder provided with steam inlet pipes in connection with a boiler is an electric separator suspended therein, in connection with a battery, with other novel features.

A spring roller has been patented by Mr. Eucher Gres, of Tombstone, Arizona Ter. It is of that class wherein a casing secured to the curtain roller incloses a drum and spiral spring, one end of the spring being attached to the pivot on which the casing turns, the invention covering a novel construction and combination of parts

A water back for gas heaters has been patented by Messrs. John T. and Errett E. Phillips, of New Castle, Pa. It is applicable for use in connection with the ordinary form of gas heater, and provides for a proper moistening of the atmosphere of the apartment, and also for a decrease in the amount of gas required for heating.

A fire escape and water tower has been patented by Mr. Maurice J. Hart, of New Orleans, La It is to be located at street corners, and has floors or platforms with movable bridges for establishing connection with the buildings, and is furnished with a stand pipe with lateral branches for conveying water to different heights for fire extinguishing purposes.

A baling press has been patented by Mr. Abijah Simpson, of Lapeer, Mich. It is a simple and inexpensive device for compressing hay, straw, cotton, and similar material, there being combined with the baling box and plunger a shaft in the forward part of the case, with a loosely mounted drive wheel and a sweep pivoted on the shaft, with other novel features.

A tent pin extractor has been patented by Mr. Henry M. Hyde, of Princeton, Ill. It consists in a rectangular box-like frame adapted to engage a tent peg, having its forward end beveled, and a detachable connection between the frame and the handle of a mallet, whereby a tent pin may be readily drawn from the ground.

A buckle has been patented by Mr. William J. Walters, of Prospect, N.Y. It is a suspender buckle in which the frame has a cross bar and a clamp sliding on the side bars and pressing the web of the suspender upon the fixed cross bar, the clamp being connected with the suspender straps, holding the web of the suspender firmly as the pull is increased.

A buckle has been patented by Mr. Charles R. Harris, of Williamsport, Pa. The frame of the buckle has applied to it a sliding roughened or toothed cross bar for holding on a suspender web or band passing through the buckle, there being also a face bar applied to the buckle below the toothed or backcross bar, for use in connection with the latter.

A box loop has been patented by Mr. Martin L. Hickle, of Dyson's. Ohio. It is for retaining the free ends of straps secured by a buckle, the loop being formed with its top plate made to open to enable the strap to be conveniently placed in and removed from it, and provided with a catch or fastening by which it may be secured closed.

A galvanic battery has been patented by Mr. Horatio J. Brewer, of New York City. Combined with the cell is a division plate, dividing the cell into two.compartments, one larger at its upper end to form sufficient space for the head of the negative electrode and for conveniently packing the negative ma terial around the negative electrode, with other novel features

A thill coupling has been patented by Mr. Samuel Forter, of Marysville, Kansas. It consists of a bolt passing through the apertured ears of the clip and through the shaft end, the bolt having on one end an extension on which is formed a bar extending

jecting between the side beams and adapted to strike the stop, the device being readily folded up and adapted for use in lieu of the ordinary ladder.

An air ship has been patented by Mr. Charles H. Morgan, of Gunnison, Col. It is constructed with a series of longitudinal tubes adapted to hold concentrated gas, bent to a spherical or birdlike shape. secured at their extremities to end ribs, together with a series of transverse oval ribs, between which and the longitudinal tubes is fitted an inner inclosing silk or metallic wall, with various other novel feature

A hand grip tester has been patented by Mr. John M. Reiners, of New York City. It has opposing dials supported by standards, a pinion pivoted between the dials carrying indicating fingers, a rack sliding in the standards, a spring adapted to bear against the standard and arm, making a simple and accurate device for registering the grip of the human hand.

A logometer has been patented by Mr. Charles Sperry, of New York City. It provides a registering mechanism to be operated and regulated by mechanism indicating uniform time, on vessels, in combination with a speed-indicating mechanism, the register showing the distance the vessel has covered since starting, thereby making a complete logometer to constantly indicate uniform time, the speed of and the distance run by the vessel.

A brake for children's carriages has been patented by Mr. James H. Peterson, of Brooklyn, N.Y. Combined with the axle and hub of one wheel is a bracket adapted for attachment to the axle, apertured to receive one end of a brake strap, a brake strap being adapted to encircle the hub, so the brake can be quickly applied from the handle, and the carriage may be left upon an inclined surface without danger of changing position.

SCIENTIFIC AMERICAN BUILDING EDITION. DECEMBER NUMBER.

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Special.

THE DESPAIR OF SCIENCE.

Rheumatism and neuralgia, two remorseless demons of human suffering, have puzzled the masters of medical science. They are finally agreed that the first is a blood disease and that the second is an affection of the nerves. For their cure until recently the faculty prescribed sim-ilar remedies. Principal reliance was placed on external applications in both affections. Lately, several of the most distinguished physicians of Philadelphia have prescribed nitro-glycerine to neuralgic patients.

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The charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

Inventors of small articles of merit, who need money to perfect inventions, or who wish to sell patents, end descriptions to A. W. Webster, Ansonia, Conn.

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- All Books, App., etc. cheap. School of Electricity, N.Y. Parties desiring to manufacture and introduce the

'Logometer" (noticed on page 362 as a speed indicator for vessels) in the United States or foreign countries, may apply to the present address of the inventor, Charles Sperry, Port Washington, L. 1., New York.

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The Railroad Gazette, handsomely illustrated, published weekly, at 73 Broadway, New York. Specimen copies free. Send for catalogue of railroad books.

The Knowles Steam Pump Works, 113 Federal St., Boston, and S Liberty St., New York, have just is-sued a new catalogue, in which are many new and improved forms of Pumping Machinery of the single and duplex, steam and power type. This catalogue will be mailed free of charge on application.

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The Holly Manufacturing Co., of Lockport, N. Y., will send their pamphlet, describing water works machinery, and containing reports of tests, on application. Lathes for cutting irregular forms a specialty. ad. p. 349.

Curtis Pressure Regulator and Steam Trap. See p. 364. Pedestal tenoner. All kinds woodworking machinery. C. B. Rogers & Co., Norwich, Conn.

Billings' new Hand Vise, with parallel jaws. Drop Forgings. Billings & Spencer Co., Hartford, Conn.

We are sole manufacturers of the Fibrous Asbestos Removable Pipe and Boiler Coverings. We make pure asbestos goods of all kinds. The Chalmers-Spence Co.,

Carey F. Kizer, of Westville, Ohio. This invention parallel with the bolt, and having on its outer end a covers a special formation and construction of the mouth of the pouch, whereby it may be readily and easily closed and opened, requiring no straps and but one staple, the fastening being secure and durable.

A cash box has been patented by Mr. Benjamin C. Foster, of Baltimore, Md. It is made of sheetmetal, in two sections, hinged at their edges, the parts being arranged in a novel way, with reference to convenience, safety, compactness, and easy portability, in the keeping of bills and fractional currency.

A fence has been patented by Mr. Jacob M. Bosart, of Sumner, Ill. This invention provides a fence wherein wire may be conveniently used in addition to rails, wherein but few posts are buried in the ground, and whereby the fence may be set up and taken down again with celerity and ease.

A lounge has been patented by Mr. George Hoffman, of Mount Vernon, N. Y. It has a reversible back, so that when desired the lounge may be easily and quickly changed from a right to a left hand lounge, and vice versa, and there are various novel

curved angular arm adapted to engage the outer face of one of the ears of the clip.

An invertible microscope has been patented by Mr. Edward Rausch, of Rochester, N. Y. The stand has an arm adapted to receive a doubly reflecting prism, the arm being arranged to hold the main tube in two positions, and to receive and hold the prism. making a microscope which may be employed either as invertible or vertical instrument without any material change in the adjustment.

A magic lantern has been patented by Mr. William H. Ridding, of Brooklyn, N.Y. It consists of an extensible frame with a condenser holder and slide holder, and having an objective holder connected with the slide holder by a bellows, there being a centrally apertured cap adapted to fit over the condenser holder and receive the casing inclosing the source of light, with other novel features.

A portable elevator has been patented by Mr. Samuel C. Derby, of Ashley, Mich. Combined with a guide frame having parallel side beams features of construction and the combination of parts. and a car mounted to slide thereon is a stop on the

truited. -Plants for Room Decoration. The Scientific American Architects and Builders Edition is issued monthly. \$2.50 a year. Single copies, 25 cents. Forty large quarto pages, equal to about two hundred ordinary book pages; form-ing, practically, a large and splendid MAGAZINE OF ARCHITECTURE, richly adorned with elegant plates in colors and with fine engravings, illustrat-ing the most interesting examples of Modern Architectural Construction and allied subjects. The Fullness, Richness, Cheapness, and Conve-nience of this work have won for it the LARGEST CIRCULATION of any Architectural publication in the wold. Sold by all newsdealers.

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NEW BOOKS AND PUBLICATIONS

SCREW THREADS AND METHODS OF PRO-DUCING THEM. By Paul N. Hasluck. London : Crosby, Lockwood & Co. 1887. Pp. 79.

In this little work, which as regards form is strictly of vest pocket size, is given a practical treatise on this important subject, adapted for the mechanic. Dies and die stocks, screw cutting on lathes with chasers and on engine lathes, and tap making are all succinctly and clearly treated. The illustrations are numerous; they are fifty in number. Eight tables of Whitworth and other gauges, decimal equivalents, etc., follow. The book may be confidently recommended as a true vade mecum to the thinking machinist.

THE PRESERVATION OF FISH. By J. C. Ewart. M.D. London : Charles Grif-fin & Co. 1887. New York : Scribner & Welford. Pp. ii, 45.

This valuable and interesting little monograph treats of the prevention of putrefaction in fish. The relative keeping qualities of fish caught in different ways, as by trawl or hook, are examined and conclusions reached as to the best method of catching fish for market. The general conclusions are in favor of the hook. Some remarkable instances of the disregard fish pay to the hook are quoted. Codfish are cited that after being held for three weeks on a set line seemed as lively and happy after the expiration of the period of .captivity as ever. The great point seems to be that the fish needs to have unimpeded gill action. As long as his breathing apparatus is untouched, he seems not to mindthehook. Byron's lines about Izaak Walton.

" I wish the cruel old coxcomb in his gullet Had a hook fixed with a small tront to pull it,'

lose much of their force in the light of the experiences cited by Mr. Ewart. On the whole, the book may be recommended to all fishers as of very general interest and as disclosing a comparitively new line of research.



HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters, or no attention will be paid thereto. This is for our Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information, and not for publication.
 Beferences to former articles or answers should give date of paper and page or number of question.
 Inq uirles not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all, either by letter or in this department, each must take his turn.

though we endeavor to reply to all, either by letter or in this department, each must take his turn.
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Minerals sent for examination should be distinctly marked or labeled.

(1) H. P., Jr.-For browning gun barrels: Mix 16 parts sweet spirits niter, 12 parts saturated solution of sulphate of iron, 12 parts chloride of antimony. Bottle and cork the mixture for a day, then add 500 parts water, and thoroughly mix. Clean the barrel to a uniform grain free from grease and finger stains. Wipe the barrel with the staining mixture on a wad of cotton. Let it stand for 24 hours, scratch-brush the surface and repeat twice. Rub off the barrel the last time with leather moistened with olive oil. Let it dry for a day and rub down with a cloth moistened with oil topolish. There is an excellent book on gun work, the "Gunsmith's Manual." which we can furnish for \$2.

(2) B. H. K. asks addresses of manufacturers of traction engines, for which we refer him to the announcements in our advertising columns.

(3) I. P.-Soundings in the Pacific Ocean have been made to the depth of from 5,000 to 6,000 fathoms. The deepest sounding known was made in the South Atlantic Ocean, being 7,706 fathoms, about 83/ miles. Iron was used for the sinker; both lead and iron sink rapidly to the greatest depths. The pressure at a depth of 5 miles is 11,000 pounds per square inch.

(7) W. T. P. - Water gauge glasses should not necessarily break oftener after clea uning than otherwise.; Iron rods or wire should not be used in cleaning the glasses. Better use a pine stick with a wad of cotton cloth upon the end, not large enough to press the glass, or a string with a wad tied in the middle, so that the wad may be pulled both ways. The peroxide scale on iron rods or wire is hard and liable to make minute scratches upon the inside of the tubes. There is always a strain upon the inside surface from defective annealing, which by the least scratch will cause fracture.

(8) C. M. H.--To compute the centrifugal force of a fly wheel: Divide its velocity in fee per second by 4.01, also square of quotient by diameter of circle. This quotient is the centrifugal force, assume ing the weight of the rim as 1. Then this quotien multiplied by the weight of the rim in pounds will give the centrifugal force in pounds. For approximate accuracy the center of the rim may be taken as the point of measurement. Divide the whole centrifuga force by the numbers of arms for the force on each arm, or by the area of all the arms in square inches for the force per square inch in each arm

(9) H. F. B.-The rubber for band saw wheels should be made in rings and stretched on. You may also wind the rubber in thin strips around the groove with rubber cement. The rubber should be what is called pure gum in the trade. Gum and ce ment can be procured through the rubber trade. After winding and cementing the strips as a solid piece, and tying the end down, the wheel should be placed in a warm place to dry, for a day or two. Leather is some times used when rubber cannot be readily procured. You cannot glue rubber to stand.

(10) I. B. S. writes : In a railway curve say of two miles, the outside rail would be about 150 feet longer than the inside rail; now, how does the lo comotive make the above curve, and the outside drivers travel 150 feet more than the inside drivers when the two driving wheels are compelled to make the same number of revolutions? A. The wheels slip on the rails, the slip occurring with the wheels having the least friction as governed by the pull of the engine. As, for instance, when the engine is pulling hard around a curve, the inner wheels slips. When running free with steam shut off, a slight difference in the condition of the rails may make the slip on either side. When two or three pairs of driving wheels are connected, the slip takes place on all alike. With the standard railroad gauge, the difference in the length of the inner and outer rail on a whole circle curve, great or small, will only be about 291/2 feet. Very few curves are greater than 1/6 of a circle, which will make only about 44 inch slip for the whole length of a 1/2 circle curve.

(11) C. H. P. writes : I have a well, distant about 300 feet from a stream of water. The bottom of the well is about 10 feet deeper than the stream; the well is used to supply a 15 horse power boiler, but the supply is insufficient. Can'I siphon water from the stream? If so, how? A. Provided that you do not have to make the apex of the siphon more than 28 feet above the stream, you can lay the pipe, protected from freezing, from the stream to the highest point. There insert a tee, and continue the pipe to below the surface of the water in the well. Connect the outlet of the tee with the pump. If convenient, place a valve each side of the tee in the main pipe, to control the direction of the supply. Make all air tight, open the valves and pump the air out, when the water from the stream will flow to both pump and well. The pump will always keep the siphon free from air. Use the same size pipe as now used for the well connection.

(12) F. M. P. writes: Is there anything that I can apply to a crank pin bearing of a steam engine to keep it from cutting when it gets hot? bearing is brass against steel. Also will said bearing have a tendency to wear to an oblong shape? A. Use powdered graphite (black lead) in small quantity, mixed with the oil. The trouble may be due to the poor quality of the oil used. Much of the lubricating oil on the market is unfit for engine bearings. By mix ing the best lubricating oil that you can get with sweet lard oil, you will much improve your lubricant, and probably get rid of your trouble. The crank pin has a slight tendency to wear out of round by the unequal pressure and abrasion from heating.

(13) H. M. M. asks how to cook hominy to give it a snow white appearance. A. Use hominy made from white corn only. Boil in a porcelain-lined vessel with water free from iron.

(14) G. H. P.-Naphtha and gasoline are not easily managed in a blowpipe for glass. Use the best lard oil with a wick 34 inch in diameter. Use a common brass blowpipe fixed to the stand or bench, with a rubber pipe extending down to a tee piece having rubber valves so arranged as to blow with two common house bellows alternately operated by the feet. or you may make a small holder of an India rubber bag with a weight upon it, using only one bellows for

TO INVENTORS.

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

INDEX OF INVENTIONS For which Letters Patent of the United States were Granted November 29, 1887, AND EACH BEARING THAT DATE. [Seenote at end of list about copies of these patents.]

[See note at end of list about copies of these patents.]	Fences, machine for making wire and picket, E.
Advertising vehicle, J. F. Nichols	E. McCulley
Animal trap, E. Wood	Fertilizer distributer, W. Josleyn
Antiseptic solution, C. T. Kingzett	Files, machine for cutting the edges of flat, C. M.
Anvils, tire appliance for, W. Webster 373,869	Fairbanks
Arc light, C. B. Noble	Firearm, revolving, J. C. Howe \$13,893
Automatic gate, D. B. Beaty	Fireplace heater, J. B. Oldershaw
Axle box, C. H. Shattuck	Beach
Bag, J. S. Boyd	Fires in malt, grain, or other mills, mechanism
Bar. See Clothes bar. Mosquito bar.	for extinguishing, P. J. Parsons
Barrel heater, A. Hime 374,069	Fishing hook, C. D. Lockhead 373,991
Bed bottom, G. S. Lowndes	Flush tank, F. Cuntz
Bed pan, C. F. Forshaw	Force of a blow, coin operated apparatus for indi-
Belting, machine for stretching, G. F. Page 373,847 Beveling and scarfing machine, Parker & Gun-	cating the, P. Everitt
bing	Hiatt
Binder, temporary, W. Nash	Fruit drier, A. Blatchly 373,808
Blind, sliding window, R. M. Wilson 374,105	Furnace. See Hydrocarbon furnace. Liquid fuel
Block. See Snatch block.	furnace.
Blower, fan, W. D. Smith	Furnace door operator, J. De Lambert
Body protector, W. Gray	Furnaces and steam heating, device for moisten- ing the air for hot air, A. W. Schulenburg 373,858
Boiler tube cleaner, H. L. Currier	Gauge. See Square gauge.
Bolt holes, device for tapping stay, J. T. Con-	Garment protector, A. F. Langdon
neily	Garment stand, W. H. Knapp 373,988
Boot jack, C. M. Littleton 374,076	Gas burner, regenerative, T. Gordon 374,058
Boot or shoe insole, J. M. Dame	Gas burner tip cleaner, J. J. Lawlor
Boots and shoes, manufacture of, Wood & Brown 374.029	Gas burners, cut-off for, F. X. Wagner
Boots or shoes, device for holding, W. W. Watts. 374,023 Bottle stopper, G. A. Fullerton	Gas extinguisher, automatic, J. Heroux
Bottle top, I. Pomeroy	Gas meter, piston, A. C. Christensen 373,923
Box. See Axle box. Cash box. Journal box.	Gate. See Automatic gate.
Knockdown box. Musical box. Telephone	Gate, J. B. Holton
call box.	Gearing, H. Essex
Box loop, M. L. Hickle	Gib and key, T. Young
Brake. See Carriage brake. Vehicle brake.	
	McLaren
Brick for paving, C. J. Dobbs	McLaren
Brick for paving, C. J. DODB	Graphophonic records, paper cylinder for, C. S. Tainter
Buckle, R. L. Barney \$74,033 Buckle, C. R. Harris \$373,976 Buckle, D. L. Smith \$374,009, \$74,010	Graphophonic records, paper cylinder for, C. S. Tainter
Buckle, R. L. Barney 374,033 Buckle, C. R. Harris 373,976 Buckle, D. L. Smith	Graphophonic records, paper cylinder for, C. S. Tainter
Buckle, R. L. Barney 374,033 Buckle, C. R. Harris 373,976 Buckle, D. L. Smith 374,009, 374,010 Buckle, W. J. Walters 374,022 Buckle and blank, turn, C. H. Williams 373,871	Graphophonic records, paper cylinder for, C. S. Tainter
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Buckle, R. L. Barney 374,033 Buckle, C. R. Harris 373,975 Buckle, D. L. Smith 374,010 Buckle, D. L. Smith 374,022 Buckle, W. J. Walters 374,022 Buckle and blank, turn, C. H. Williams 373,871 Burner. See Vapor burner. 373,901 Butter oaset, A. G. Moyer 374,115 Caloric engine, D. I. Eckerson 373,820 Caloric engine, G. M. & I. N. 'Hopkins 374,123 Can stopper, automatic, W. H. Thayer (r) 10,886	Graphophonic records, paper cylinder for, C. S. Tainter
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call box.	Gearing, H. Essex 374,146
Box loop, M. L. Hickle	Gib and key, T. Young
Brake. See Carriage brake. Vehicle brake.	Goods from shelves, device for lifting, L. M.
Brick for paving, C. J. Dobbs 374,118	McLaren
Buckle, R. L. Barney	Graphophonic records, paper cylinder for, C. S.
Buckle, C. R. Harris	Tainter
Buckle, D. L. Smith	Grate, fire, Allyn & Evans 373.875
Buckle, W. J. Walters	Grinding mill, E. Weiss
Buckle and blank, turn, C. H. Williams 373,871	Grip tester, hand, J. M. Reiners \$74,003
Burner. See Vapor burner.	Gun, spring, J. F. Wilson 374,104
Butter case, A. G. Moyer	Hanger. See Coat hanger.
Button of stud, W. W. Covell 374,115	Harness pad, W. S. Webster
Caloric engine, D. I. Eckerson 373.820	Harrow, L. W. Stevens 374,159
Caloric engine, G. M. & I. N. Hopkins	Hat luring or pouncing machine, D. W. Gitchell. 373,988
Can stopper, automatic, W. H. Thayer (r) 10,886	Hats, luring or lustering, D. W. Gitchell 373,889
Car brake, J. J. Endres	Heater. See Barrel heater. Car heater. Fire-
Car brake and starter, E. J. F. Quirin 374,084	place heater. Steam, hot water, and hot air
Car coupling, Kirby & Singer	heater.
Car coupling, J. C. Reed	Heating apparatus, air, W. D. Smith 374,094
Car coupling, F. Roop	Heel stiffener machine, Fox & Lombard
Car coupling, Rundell & Doggett 373,854	Hinge, J. Long
Car coupling, S. A. Young 374,000	Hinge, G. W. Warner
Car, dumping, T. Rodger	Hitching post, E. A. Kinne 373,832
Car heater, J. Tyler	Hoisting apparatus, A. Ray
Car heaters, safety attachment for railway, E. C.	Hoisting machinery, A. Ray
Rowe	Holder. See Lathe tool holder. Sash holder.
Car motor, street, W. H. Patton	Tongue holder.
Car motor, street, A. L. Rich	
Car starter and brake, C. Merckelbagh	
Cars, pipe coupling for heating railway, W. F.	Horseshoe, W. J. Phillips 373,904
Grassler	Horseshoe nails, machine for finishing, W. W.
Cars, shackling device for street. W. W. Sargent. 373,909	
Cars, ventilating apparatus for railway, G. Leve 373,898	Hose coupling, Gleich & Krause 373,825
Card shuffling apparatus, Tingley & Stetson 373,953	Hydrocarbon furnace. L. B. White
Carriage brake, child's, J. H. Peterson	Indicator. See Draught indicator. Railway sta-
Carrier. See Mail, parcel, or cash carrier. Parcel	tion indicator.
carrier. Parcel or cash carrier.	Indicator and advertising apparatus, M. M. Hoo-
Case. See Butter case.	ton
Cash box, B. C. Foster	Insecticide, W. A. Garner
Cash register and indicator, W. H. Maxwell (r) 10,885	Jack. See Boot jack.
Casket handle, W. H. Blackford	Jet apparatus, H. D. R. Gumtow
Castings, device for truing metal, H. Rung 373,855	Joint. See Stovepipe joint.
Cement, manufacture of, S. Lowden	Journal box. C. E. Torrance
Chain, W. D. Ewart	Knockdown box, M. A. Hamilton 373,828
Chain and chain making, J. A. Jeffrey	Lace tipping machine, shoe, H. Thurston
Circuit closer, C. B. Bosworth	Ladder, W. Horsefield
Circuit opener, automatic, J. P. Tirrell	Ladder, sectional, Hyde & Jones
Circular shears for cutting shells and tubes, B.	Lamp, cycle, H. Serrell
Gruhl	Lamp, electric arc, C. A. Homans
Cleaner. See Boiler tube cleaner. Feed water	Lamp for decorating and illuminating purposes,
Cleaner. See Boller tube cleaner. Feed water	I H Barth 972 052

	55
raught indicator for vehicles, W. H.Brown raught regulator, S. E. Burke	
ress form, W. M. Knapp	373,989
ress shield, C. M. A. Campbell	
rier. See Fruit drier. rill. See Rock drill.	
rill. See Rock drill. rilling machine lubricator, C. J. Herrberg	373 830
rum, R. Wurlitzer	
asel, studio, A. K. Cross	
lectric generator regulator, Sellon & Mordey	
lectric lighting, application of accumulators to T. P. Conant	278 662
lectric machines, commutator connection for	
dynamo, J. W. Easton	
lectric machines, winding armatures of dynamo	
C. E. Scribner levator. See Water elevator.	. 3 73 ,94 8
mulsion to protect fruit trees, T. W. Smith	374.011
ngine. See Caloric engine. Gas engine. Steam	
engine.	
ngines, steering gear for traction, R. P. Thomp-	
son xcavating apparatus, odorless, R. A. McCauley.	
astening device, J. L. Steffey	
aucet and connection, bung, H. P. Gray	
eed water cleaner, F. Trowbridge	37 3, 8 67
eeding stock, device for, W. Beaty ence post, H. Mater	
ences, machine for making wire and picket, E.	
E. McCulley	374,079
ences, stay for wire, W. J. Adam	373,917
ertilizer distributer, W. Josleyn	
iles, machine for cutting the edges of flat, C. M. Fairbanks	
irearm, revolving, J. C. Howe	\$73,893
ireplace heater, J. B. Oldershaw	37 3,846
ire extinguisher, automatic chemical, E. W	
Beach ires in malt, grain, or other mills, mechanism	919'918
for extinguishing, P. J. Parsons	374,157
ishing hook, C. D. Lockhead	373,991
lush tank, F. Cuntz	
orce of a blow, coin operated apparatus for indi- cating the, P. Everitt	
ruit assorters, feed regulator for automatic, T.	
Hiatt	374.153
ruit drier, A. Blatchly	373,808
urnace. See Hydrocarbon furnace. Liquid fue furnace.	l
urnace door operator, J. De Lambert	873.966
urnaces and steam heating, device for moisten-	
ing the air for hot air, A. W. Schulenburg auge. See Square gauge.	
auge. See Square gauge.	
arment protector, A. F. Langdonarment stand, W. H. Knapp	
as burner, regenerative, T'. Gordon	
as burner tip cleaner, J. J. Lawlor	374,075
as burners, cut-off for, F. X. Wagner	
as engine. C. J. B. Gaume as extinguisher, automatic, J. Heroux	
as meter, piston, A. C. Christensen	
ate. See Automatic gate.	
ate, J. B. Holton	
earing, H. Essex	374,146
ib and key, T. Young oods from shelves, device for lifting, L. M.	313,991
McLaren	
raphophonic records, paper cylinder for, C. S.	•
Tainter	374.133
rate, fire, Allyn & Evans	
rip tester, hand, J. M. Reiners	373.875
	378 .875 374,10 1
un, spring, J. F. Wilson	378.875 374,101 874,003
anger. See Coat hanger.	378.875 374,101 874,003 374,104
anger. See Coat hanger. arness pad, W. S. Webster	378.875 374,101 874,003 374,104 374,024
anger. See Coat hanger. arness pad, W. S. Webster arrow, L. W. Stevens	378.875 374,101 874,003 374,104 374.024 374.024 874,159
anger. See Coat hanger. arness pad, W. S. Webster	378.875 374,101 874,003 374,104 374,024 374,024 374,159 373,988
anger. See Coat hanger. arness pad, W. S. Webster	378.875 374,101 874,003 374,104 374.024 374.024 874,159 373,988 373,889
anger. See Coat hanger. arness pad, W. S. Webster	378.875 374,101 874,003 374,104 374.024 374.024 874,159 373,988 373,889
anger. See Coat hanger. arness pad, W. S. Webster	378.875 374,101 874,003 374,104 374,024 874,159 373,988 373,889
anger. See Coat hanger. arness pad, W. S. Webster	373.875 374,101 874,003 374,104 374.024 374.024 374,159 373,889 373,889 374,094
anger. See Coat hanger. arness pad, W. S. Webster	373.875 374,101 374,003 374,104 374,024 374,159 373,889 373,889 374,094 373,821 373,837
anger. See Coat hanger. arness pad, W. S. Webster	373,875 374,101 374,003 374,003 374,004 374,024 374,024 373,889 373,889 373,889 373,821 373,837 373,837 374,008
anger. See Coat hanger. arness pad, W. S. Webster	373.875 374,101 374,003 374,004 374,024 374,024 373,889 373,889 373,889 373,889 374,094 373,821 373,831 374,098 374,098
anger. See Coat hanger. arness pad, W. S. Webster	373,875 374,101 374,003 374,104 374,104 374,104 374,104 374,109 373,889 373,889 374,094 373,821 373,837 374,094 373,837 374,085
anger. See Coat hanger. arness pad, W. S. Webster	373,875 374,101 374,003 374,104 374,104 374,104 374,104 374,024 373,889 373,889 373,889 373,839 374,094 373,831 373,837 374,028 373,832 374,028 374,026 374,026
anger. See Coat hanger. arness pad, W. S. Webster	373,875 374,101 374,003 374,104 374,104 374,104 374,104 374,024 373,889 373,889 373,889 373,839 374,094 373,831 373,837 374,028 373,832 374,028 374,026 374,026
anger. See Coat hanger. arness pad, W. S. Webster	373,875 374,101 374,104 374,104 374,104 374,159 373,888 373,889 374,094 373,821 373,837 374,098 373,837 374,098 374,055 374,086
anger. See Coat hanger. arness pad, W. S. Webster	373,875 374,101 374,104 374,104 374,024 374,159 373,889 374,094 373,831 373,837 374,094 373,831 374,094 374,095 374,085 374,085 374,085
anger. See Coat hanger. arness pad, W. S. Webster	373,875 374,101 374,104 374,104 374,109 373,888 373,889 374,104 373,889 373,889 374,094 373,881 373,887 374,094 373,887 374,088 373,895 374,086 373,975 373,904
anger. See Coat hanger. arness pad, W. S. Webster	373,875 374,101 374,104 374,104 374,024 374,159 373,889 374,094 373,881 374,094 373,831 374,094 374,085 374,085 374,085 374,085 374,085 374,085 374,085 374,085 374,085 373,995
anger. See Coat hanger. arness pad, W. S. Webster arrow, L. W. Stevens at luring or pouncing machine, D. W. Gitchell ats, luring or lustering, D. W. Gitchell eater. See Barrel heater. Car heater. Fire- place heater. Steam, hot water, and hot air heater. eating apparatus, air, W. D. Smith eel stiffener machine, Fox & Lombard inge, G. W. Warner itching post, E. A. Kinne oisting apparatus, A. Ray oisting machinery, A. Ray oisting machinery, A. Ray oider. See Lathe tool holder. Sash holder. Tongue holder. ook. See Coat and hat hook. Fishing hook. orometer, electrical. B. M. Hammond orseshoe, M. J. Phillips. orseshoe nails, machine for finishing, W. W. Miner	373,875 374,101 374,104 374,104 374,104 374,159 373,889 373,889 373,889 373,887 373,887 373,887 373,887 373,887 373,887 373,887 373,986 373,996 373,996
anger. See Coat hanger. arness pad, W. S. Webster	373,875 374,101 374,104 374,104 374,104 374,129 373,888 373,889 374,034 373,889 374,034 373,881 373,887 374,038 373,837 374,085 373,905
anger. See Coat hanger. arness pad, W. S. Webster	373,875 374,101 374,104 374,104 374,104 374,129 373,888 373,889 374,034 373,889 374,034 373,881 373,887 374,038 373,837 374,085 373,905
anger. See Coat hanger. arness pad, W. S. Webster	373,875 374,101 374,104 374,104 374,104 374,129 373,889 374,034 373,889 374,034 373,881 373,887 374,035 373,935 374,085 373,904 373,996 373,995
anger. See Coat hanger. arness pad, W. S. Webster	373,875 374,101 374,104 374,104 374,024 374,159 373,889 373,889 374,094 373,881 373,837 374,094 373,837 374,085 374,085 374,085 374,085 374,085 374,085 374,085 373,975 373,995 373,995 373,995
anger. See Coat hanger. arness pad, W. S. Webster	373,875 374,101 374,104 374,104 374,024 374,159 373,889 373,889 374,094 373,881 373,837 374,094 373,837 374,085 374,085 374,085 374,085 374,085 374,085 374,085 373,975 373,995 373,995 373,995

(4) T. H. writes: I want to fill a cistern with a force pump, a distance or height of nineteen feet. Which will require most pressure-to fill from the bottom or top of cistern, and what is the difference? A. It takes a trifle less power to fill at the bottom, the difference in pressure per square inch being equal to forty-three one-hundredths of a pound for each foot of distance between the surface of the water in the tank and the filling spout at the top of the tank.

(5) W. S. C. asks: What is meant by the crank of an engine being ahead of the steam? A. Crank is ahead of the steam when it passes the center before the steam port opens.

(6) J. C.-You may cast solid Babbitt boxes on an iron spindle turned smooth and with a slight taper. Paint the spindle with whiting and water and heat to thoroughly dry the whiting before inserting in the iron box. Cast, and when cold the spindle as you mention. 2. Whether there are any coke ovens will easily drive out. There are machines for repairing valve seats and disks to be had through the machinist supply trade. Make buffing wheels of sole leather. The form of the iron you have to finish should suggest the form of the buff wheel surface.

filling. (15) L. P. McC. asks: 1. Is there anything I can apply to the cement coating in my cistern C to harden it, or render it so that it will not make the rain water hard? A. Probably your cistern is coated with a poor quality of cement, which is partially soluble in Ci water. There is nothing better than a lining of pure Portland cement. Clean and scrape the watter that the cost of pure C_{C} Portland cement. 2. What is the number of asteroids now discovered? A. There are over 260 asteroids known. We have not the complete list to the present time.

(16) D. P. asks about the wages of iron puddlers in and around Pittsburg, and whether

any of them receive from \$10 to \$12 per day. A. Puddlers work hard and get high wages: for a good work- Cu man to earn from \$4 to \$6 in a day is not uncommon, and exceptionally it may go as high for a single day where coke is manufactured for sale without the gas being utilized. A. Yes; in nearly all of them. 3. Whether ccal increases in bulk when transformed into coke. A. The bulk increases 20 to 25 per cent, and Do weight decreases from 30 to 55 per cent.

Cleaner. See Boller tube cleaner. Feed water	mamp for decorating and muminating purposes,
cleaner. Gas burner tip cleaner.	J. H. Barth 373,958
Clock winding mechanism, A. E. Hall 374,061	Lamp or lantern, C. G. Dyott 374,124
Clothes bar, A. L. Mihills 373,843	Lamp wick, F. M. Lytle 373,935
Coat and hat hook, F. Taylor	Land roller, E. C. Derby 374,117
Coat hanger, W. B. Bisbee 374,035	Lathe tool holder, J. L. Bogert 373,878
Combing machines, appliance for preventing un-	Leaf spring, D. P. Clark 374,041
equal wear of leathers of drawing-off rollers	Light. See Arc light.
of, Greenwood & Farrar 373,890	Liquid fuel furnace, C. M. Gearing 374,057
Conduit or hose, J. Shackleton	Lock. See Trunk lock.
Cord or rope, F. M. Beckford 373,959	Loom for weaving double piled fabrics, R. Handy 374,064
Corkscrew, E. D. Williams 373,872	Loom letting-off motion, J. Pinder 374,083
Corset, T. P. Taylor	Loom shedding mechanism, A. D. Norcross 373,941
Cotter pins, machine for finishing, J. Adt 374,136	Loom shuttle, A. B. Taylor 373,913
Cotton, etc., machine for cleaning, J. 'f. Turney 374,160	Looms, shuttle binder for, W. Kothe 373,896
Coupling. See Car coupling. Hose coupling.	Lounge, G. Hoffman
Thill coupling.	Lubricator. See Drilling machine lubricator.
Crimping machine, J. Phillips 374,082	Pulley lubricator.
Crushing and pulverizing mill, F. M. Davis 373,817	Mail, parcel, or cash carrier, J. F. Muir 373,997
Cultivator, M. Bruner, Jr 373,963	Malt, grain, and other substances, process of and
Cultivator tooth, H. C. Pratt 374,130	apparatus for cooling and drying, F. W.
Cultivator, vineyard, H. B. Reed 373,906	Wiesebrock
Cup. See Oil cup.	Manure spreader, H. Watkins 374,184
Damperregulator, F. Leclere	Measure, shoemaker's, A. J. Delander 373,886
Displaying public announcements, apparatus for,	Medicating water and administering the same,
L. Tampier 373,951	apparatus for, L. A. & C. C. Harker
Door check, Johnson & Brown 373,984	Meter. See Gas meter.
Door opener, electric, A. C. Woehrle 374,028	Mill. See Crushing and pulverizing mill. Grind-
Doubletree, S. D. Bortell 374,139	ing mill.
Doubling machine, A. Galbraith 374,055	Mining coal, etc., machine for, P. A. Arp 374,137
Dovetailing machine, E. Totman	Moulding appliance, J. Parmelee