## Business and Persoual.

The Charge for Insertion under this head is One Dol lar a Line. If the Notices exceed Four Lines, One Dollar and a Half per Line will be charged.

"Wrinkles and Recipes" is the best practical Handbook for Mechanics and Engineers. Hundreds of valuable trade suggestions, prepared expressly by cele brated experts and by correspondents of the "Scientific American." 250 pages. Elegantly bound and flus-trated. A splendid Christmas gift for workmen and apprentices. Mailed, post paid, for \$1.50. Address H. N. Munn, Publisher, P. O. Box 772, New York city.

A valuable patent and improvements for sale cheap. A. McBride, Shirland, Pa.

The Burglar Alarm, mentioned in our issue of Oct. 23d as beingon exhibition at American Institute N. Y., was patented June 2, 1874, and is manufactured only by the Key Stone Portable Burglar Alarm Co., No 400 Chestnut St., Philadelphia, Pa.

Send prices of boring mills, drills, lathes, etc. V. X. Stevens Tool C chea E. Br Agricult'l Works, Clinton, Ill. Mach. sold on Com

Wanted-Address of every Millwright and new M'f'g firm in U.S.& Canada. A.B. Cook & Co., Erie, Pa.

That untiring industry in any given pursuit, and an intelligent employment of every legitimate means for success, gives eminence, is illustrated in the career of Geo. P. Rowell & Co. In the science of advertising, we might give this house the pre-eminence. With the newspaper fraternity they have the best standing in a business point of view. To the interests of advertisers they also devote a large amount of careful contrivance .- [Methodist Home Journal, Philadelphia, Pa.]

Agents Wanted-For Stephens' Combination Rule. See Advertisement elsewhere.

Dealers in Black Walnut, Fancy Woods, and Ve-neers, send prices to St Cloud Novelty Works, St. Cloud, Minn.

For Sale-6 ft. Planer, Chuck, & Tools, \$275; 5 ft. Planer, \$200; 17 in. x6 ft. Lathe, \$175; 48 in. Chucking Lathe, \$195; 36 in. Drill, \$125; 20 in. Drill, \$50; 12 in. x6 ft. Lathe, \$195; 36 in. Drill, \$125; 20 in. Drill, \$50; 12 in. x6 ft. Lathe, \$125. Shearman & Hilles, 45 Cortlandt St., N.Y. A Bargain-Jackson (Mich.) Ag'l Works for Sale.

Shingles and Heading Sawing Machine. See advertisement of Trevor & Co., Lockport, N. Y.

Fine Castings and Machinery, 96 John St., N.Y.

Experienced Draughtsman and Foreman wants Employment. B. L., 1632 Filbert St., Philadelphia, Pa. Wanted-A second hand Blake Crusher. Bowen P. Mercer, Baltimore, Md.

All Split-Pulleys weighing over 50 Pounds at the same finished price as Whole-Pulleys. J. Yocom's Foun-dries, Dr nker St., below 147 N. 2d St., Philadelphia, Pa.

Fishburn's Anti-Incrustation Powder - Sure remedy for removing and preventing Scaling in Boilers without Injury, 30c. per 1b. E. F. Landis, Sole Agent, Lancaster, Pa

Alden Engine, 3 cyl.Com. Balance Piston, doubles ower of Steam! Circulars free, Farrelly Alden, Pittsb'h. powerof Small Engines. N. Twiss, New Haven, Conn.

Patent Scroll and Band Saws, best and cheapes n use. Cordesman, Egan & Co., Cincinnati, Ohio.

Boult's Paneling, Moulding and Dovetailing Machine is a complete success. Send for pamphlet and sam-ple of work. B. C. Mach'y Co., Battle Creek, Mich. For best and cheapest Surface Planers and Universal Wood Workers, address Bentel. Margedar . & Co.

H milton, Ohio,

The Original Skinner Portable Engine (Improved), 2 to 8 H.P. L. G. Skinner, Erie, Pa. 1,2,&3 H.P. Engines. Geo.F.Shedd, Waltham, Ms.

Solid EmeryVulcaniteWheels-TheOriginal Solid Emery Wheel-other kinds imitations and inferior. Caution-Our name is stamped in full on all our best Stand ard Belting, Packing, and Hose. Buy that only. The best is the cheapest. New York Belting and Packing Company, 37 and 38 Park Row. New York.

Hotchkiss Air Spring Forge Hammer, best in the warket. Prices low. D. Frisble & Co., New Haven. Ct. Water, Gas and Steam Goods-Send eight stamps or Catalogue, containing over 400 flustrations, to Bailey, Farreli & Co., Pittsburgh, Pa.

The Baxter Engine-A 48 Page Pamphlet, containing detail drawings of all parts and full particulars ow ready, and will be mailed gratis. W. D. Russell 18 Park Place, New York.

For best Presses, Dies, and Fruit Can Tools, Bliss & Williams, cor. of Plymouth and Jay, Brooklyn, N. Y. For Solid Wrought-iron Beams, etc., see adver-tisement. Address Union Iron Mills, Pittsburgh, Pa.,

for lithograph &c.

Hotchkies & Ball, Meriden, Conn., Foundrymen and workers of sheet metal. Fine Gray Iron Castings to order. Job work solieited. For Sale-Second Hand Wood Working Machin-ery. D. J. Lattimore, 31st & Chestnut St., Phila., Pa.

Peck's Patent Drop Press. Still the best in use Address Milo Peck, New Haven, Conn. All Fruit-can Tools, Ferracute W'ks, Bridgeton, N.J

American Metaline Co., 61 Warren St., N.Y. City

For Solid Emery Wheels and Machinery, send to the Union Stone Co., Boston, Mass., for circular. Magic Lanterns and Stereopticons of all sizes and

prices. Views illustrating every subject for Parlor Amusement and Public Exhibitions Pays well on small investments, 72 Page Catalogue free. McAllister 49

will find a recipe for brown soap on p. 331, vol. 31. T. T. B. and M. can make emery belts forsand-papering spokes by following the directions on p. 394, vol. 33.-O. S. will find a recipe for paste that will adhere to tin on p. 26, vol. 34.-W. F. B.'s queriesshould be referred to a physician.—A. J. E. will find a recipe for plumber's solder on p. 58, vol. 30. It melts at 380° Fah.—J. K. W. will find a recipe for a blackboard composition on p. 91, vol. 30.-J. K. N. will find a description of the Stevens battery on p. 87, vol. 31.-F. O. X. will find simple directions for electroplating on p. 133, vol. 30.-1 B. G. is informed that we do not work out schoolboys' problems, and political questions are not in our line.—G. W. B. will find a simple process for nickel plating on pp. 155, 235, vol. 33.—A. B. D. will find directions for polishing woodwork on p. 315, vol. 30.-C. S. B. will find good recipes for rendering glass opaque on p. 264, vol. 30. The process for blackening gun barrels is described on p. 208 vol. 26. Files can be renewed by the process de-scribed on p. 361, vol. 31, which is a good one.-R. W. K. will find directions for a black finish on wood on p. 299, vol. 30.—C. J. M. can cut his glass jars by using the process described on p. 49, vol.33. -L. S. will find directions for making plaster casts look like marble on p. 68, vol. 29.—G. E. R. will gnd directions for bronzing iron castings on p. 283, vol. 31. This also answers J. L. T.-J. L. T. will find a description of the Chutaux battery on p. 27, vol. 34, and one of the Grenet, on p. 219, vol. 32.-J. C. T. willfind directions for waterproofing paper on p. 146, vol. 31.-J. N. will find a recipe for fish glue on p. 408, vol. 24.-W. C. will find a recipe for mica varnish on p. 241, vol. 32.-A. J. will find directions for grinding a parabolic mirror on p 276, vol. 30.-N. J. will find, on reference, that the proportions of a flywheel are described on p. 288 vol. 28.-P. R. will find a description of the hydraulic ram on p. 269, vol. 31. For an improved arrangement of flouring burrs, see another page of this issue .- J. P. can make battery carbons by the method described on p. 35, vol. 33.-W. C. E. will find that the lap and lead on a steam engine are fully described on p. 101, vol. 32.-D. P. will find directions for preserving wood from decay on p. 319, vol. 31.-M. J. will find directions for making an induction coil on p. 219, vol. 32.-F.C. will find a description of the process of obtaining albumen from blood on p. 344, vol. 31.-J. W. can waterproof his leather boots by the process described on p. 155, vol. 26.-N. K. will find a recipe forful minate of silver on p. 90, vol. 31.-J. C. K. can fireproof his shingles by the process described on p. 280, vol. 28.-F. J. willfind a description of the moon's variations on p. 251, vol. 31.-F. C. can harden tallow by the method described on p. 201, vol. 24.-F. N. will find a description of M. Coignet's artificial stone on p. 124, vol. 22.-J. Q. will find directions for making a hydrogen lamp on p. 242, vol. 31.-J.T. can tan skins with the fur on by the process described on p. 233, vol. 26.-F. J. will find a recipe for solder for gua barrels on p. 353, vol. 27 .- J. K. will find directions for stuffing and mounting animals on p. 250, vol. 30.-J. W. is informed that water glass is silicate of soda, frequently advertised in our columns. This also answers J. S.-C. T. will find a recipe for a black enamel on iron on p. 208, vol. 26.-J. W. C. will find a recipe for an indelible ink on p. 129, vol. 28, and for a black, on p. 112, vol. 27.-R. K. will find a re-cipe for marine glue on p. 43, vol. 32. Muriate of ammonia is prepared for inhalation by the process described on p. 315, vol. 31,-R. Y. will find a description of a pantagraph on pp. 99, 179, vol. 28.-W. C. will find the dimensions of the Great Eastern on p. 346, vol. 32. The proportions of safety valves are given on p. 363, vol. 29.-J. W. T. will find a description of salicylic acid on p. 324, vol. 32.-F.J. will find a description of the madstone (the virtues of which are believed in only by the ignorant) on p. 266, vol. 26.-W. C. T. can produce a black finish on German silver by the process de-tailed on p. 283, vol. 31.—N. T. will find directions for making gelatin relief plates on p. 272, vol. 32. -W. T. S. will find a description of the process of lithography on p. 298, vol. 31.-W. F. can barden his screw-cutting plates by the process detailed on p. 75, vol. 28.-N. P. can repair his millstones by using the cement described on p. 251, vol. 31.-M.

W. will find directions for making a sun dial on p. 409, vol. 29.-C. J. will find that a method of wire rope transportation is described on p. 370, vol.31. (1) T. W. D. asks: Will putty made of line

ed oil and Spanish whiting stand the weather A. Yes.

(2) J. L. McM. says: 1. I wish to engage in the manufacture of potash on a small scale. Will you please give me the details of the process? A. The substance known in chemistryas potassic carbonate is generally termed potash, because it was formerly obtained from wood ash, which, after lixiviation with water, was evaporated to drypess in cast iron pots. You give no intimation in regard to your source of supply; we can give no method, therefore, until we know from what material you expect to derive your potash. Below we give the sources whence potassa is industrially obtained : The inorganic sources of potassa.-1. The salt minerals of Stassfurt. 2. Felspar. 3. Sea water. 4. Saltpeter. The organic sources of potassa 5. Ashes of plants. 6. The residue of the molasses of beet root sugarafter distillation. 7. Seaweeds as a by-product of the manufacture of iodine. 8. The suint of the crude wool of sheep. (3) W. R. T. of Manchester, England, says How can I make iodine green, used by calico printers? A. lodine green is obtained by the following process: One part acetate of rosaniline, 2 iodide of methyl, and 2 methylic alcohol are heat ed together for several hours under a high press ure, or (on a small scale) in a sealed tube. When the operation is finished, the result is a mixture of violet and green nigments dissolved in methylic alcohol. The volatile substances having been driven off by distillation, the mixture of pigments is put into boiling water, wherein the green is completely dissolved, while the violet remains in- tubes. She has a 30 inch propeller. Please tell

(4) M. M. G. says: I find in use in Dela vare the leaves of a small bush that grows in the swamps and on the borders of lakes and ponds. It possesses the peculiar property of diminishing or preventing the accumulation of fat in persons disposed to obesity. I have been unable to find that it is known to the medical profession, and I do not know what its proper name is; it is called here the swamp shrub. It is a beautiful bush, growing to the hight of 21/2 or 3 feet, and bears a beautiful purple flower. It blooms in July and August, and is quite ornamental in comparison to the surrounding rubbish among which it grows. My at tention was called to it by several corpulent individuals, who stated that they could diminish their proportions at leisure at the rate of 5 or 6 lbs. per week. Being quite lusty, I was induced to try it, with the following result: In five weeks I diminshed my weight from 210 lbs. to 190 lbs., when my clothescommenced to feel uncomfortably large, and then I stopped. I took a dose of the infusion when convenient. When my fat accumulates, I take to drinking it; and in a short time the op-pressiveness of flesh diminishes. If there is anything in medicine that will do this, I am not aware of it. What is the botanical or medical name of the shrub? A. Your description is insufficient to enable us to determine the plant. Send specimen of shrub and its root, and, if possible, full description of its flower.

(5) G. W. D. asks: Can you give me a convenient and inexpensive process for removing the moisture from common air, without the use of heat? A. Force the air through vessels containing quicklime. The surface of exposure containing the quicklime should be large.

(6) L. C. asks: How can I reduce the black or brown oxide of mercury to a metallic state I have a quantity, which I have pounded in an iron mortar with water, and a portion of it has been reduced; afterwards I distilled it at a high heat, and but little came over. The remainder is a fine brownpowder. Can I reduce it by any means except by the wet process, and how? A. Take equal parts of powdered charcoal and dry carbonate of soda, and heat with the oxide until decomposition ensues. Metallic mercury will separate

(7) S. R. B. asks: 1. Have fishes an auditory apparatus? Do they hear distinctly? A. "The ear of the fish (almost always entirely within the cranium, on the sides of the brain) consists essentially of a vestibule and 3 semi-circular canals which receive the vibrations of the integuments and cranial walls; there is rarely anything that can be called an external ear, drum, or tympanic cavity; loud, sudden, and strange sounds frighten fish; in ancient, and even in modern times, they have been taught to come and receive food at the tinkle of a bell, or the pronunciation of pet names."-American Cyclopædia, vol. 7, p. 533.

(8) H. D. M. asks: Will you mention a good cheap way to powder copper (sheet or ingot) so that I can obtain the pure powder? A. There are four methods: 1. Granulate the copper by allowing the molten metal to fall through a sieve into cold water. 2. By dissolving up the copper in sulphuric acid, and adding scraps of iron, the copper will be precipitated in the metallic state. 3. By bringing the acid solution in the galvanie current in such a manner that spongy metallic copper will be precipitated at the negative pole. 4. By heating oxide of copper in a stream of hydrogen gas.

(9) C. F. T. asks: How can I dye powdered chalk or tripoli to a dark pink or carmine, so that vinegar or alcohol will not change the color? A. Userouge.

(10) A. asks: Can cider be pressed from the fruit, boiled down to one half, then stored away, so as to keep any length of time, and then be diluted and fermented, and distilled into a good article of apple brandy ? A. We see no objection to the process, provided that, during storage, air be excluded and the other usual precautions taken. Is the manufacture of oxalic acid from sawdust.

in a country where sawdust is cheap, practicable A. If the sawdust be mixed with a solution of caustic potassa, and exposed to a heat considerably above  $212^\circ$  Fab., it will be partially decomposed and converted into oxalic acid, which will befound in combination with the alkali. Much

me what speed I can get out of her. I carry 100 lbs. pressure. A. That question can best be an-swered after the boat is done. We will bazard a guess, however, that, if the boiler steams well, the speed of the boat will be about 616 miles an hour in still water. Let us hear from you after you have made a run.

(14) H. J. S. says: A. claims that if 100 tunspressure compresses 2 bales cotton to half their thickness, when placed side by side, about half the pressure or same force will equally compress said cotton if the bales are placed one on top of the other. I claim that it will not. Please decide. A. We incline to A.'s opinion.

(15) W. S. says: 1. I propose to build a cy-lindrical copper boiler, the shell to be made with a butt joint, a strip of copper being placed on the inside over the seam and riveted. Will this joint be asstrong as a double-riveled lap joint? A.Yes, if properly proportioned. 2. What is the greatest strain per square inch of section that should be placed upon copper, when used in a boiler? A. With a double-riveted joint, 3,200 lbs. 3. Can you give me a formula for calculating the strength of copper boilers, similar to the formulæ in use for iron boilers? A. Use the constant for working strength of copper, as above, in the formula for iron boilers. You will find rules given at length in " Wrinkles and Recipes."

(16) L. H. P. asks: Where can I find a rule for the proper number, size, and arrangement of tubes for a modern tubular boiler? A. You will find some useful hints in Forney's "Catechism of the Locomotive.

(17) C. W. C. says: I have a composition cylinder which I use for an hydraulic engine to blow an organ; but I have not pressure enough to give the required speed, which is 20 strokes per minute under 20 lbs. per inch press ure. I propose to use carbonic acid gas as a substitute for water, and to use a cylinder 2 feet by 4 feet filled to 200 lbs. per square inch pressure. Is the following calculation correctly based? Capacity of cylinder 24×48=21714.72 cubic inches; capacity of engine 3×3=21.204 cnbic inches=1014.6 half strokes+2=507.3 whole strokes. 507.3×200 (lbs. pressure of cylinder)+20 (lbs. pressure of engine)= 5073+20 strokes per minute+60 minutes per hour= 4 hours 13 minutes+. A. The calculation is correct: on the assumption that the pressure of the gas is inversely as the volume. You can scarcely expect to realize the performance as given by this calculation, which does not take into account some practical considerations. 2. Would the gas corode the engine? A. We think not.

(18) H. S. M. says: I am about to build a small boat. I have 2 engines, connected on one shaft at quarter centers, of 3 inches bore and 6 inches stroke, cutting off at ¾ stroke. The boiler is large enough to make all the steam they can use; it is of an upright tubular form. Will these engines do for a boatthat will carry the necessary machinery and about 15 persons? If so, please tell me the proper dimensions of the boat and wheel. A. Make a boat 30 feet long, and of 8 feet beam. Use a propeller 30 inches in diameter and of 42 inches pitch.

(19) L. S. C. says: 1. In the sugar-growing portion of Louisiana we use our boilers only two months in the year. During the other ten months we find that much injury, resulting from our damp climate, is sure to ensue. The under side, flues, and portions where the brickwork touches cannot well be painted. What can you recommend to protect such boilers? A. It might be well to remove the brickwork (a portion at a time, if more convenient) and clean and paint the whole boiler. Then, in replacing the brickwork, set it with hydraulic cement, taking care to make a tight joint. 2. As between two boilers, each of suitable ize to furnish 15 horse power, one being two flue, the other a plain cylinder, about what percentage more fuel would the latter require than the former, steam being used at 80 lbs., and fuel required to raise cold water to 80 lbs. not being coulted? A. The difference would be trifling, if each boiler was acting in an efficient manner.

(20) R. C. T. ssks: How much friction is there between iron and ice, as in skating? How do you calculate it? A. It can only be determined by experiment. If any of our readers have any data bearing on the subject, we would be glad to hear from them.

(21) A W. says: I have had experience in running stationary and locomotive engines, and I would like to qualify myself for the position of master mechanic. How shall I proceed ? A. There are schools in this vicinity and elsewhere, in one of which it might be well for you to spend a or two; and aiter that it would be advisable to go into a shop or drawing room. We think the expenses at one of these schools, including board. tuition, books, etc., would be at least \$400 a year.

investments, 72 Page Nassau St., New York

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 prio address H. B. Brown & Co., New Haven Conn Diamond Tools-J. Dickinson, 64 Nassau St., N.Y Temples and Oilcans. Draper, Hopedale, Mass.



P. M. will find directions for bronzing spring steel on p. 283, vol. 31. -L. W. R. should use a saturated solution of alum in making the hard cement with plaster of Paris. Door knobs are usually screwed into doors .- F. McN. can use paraffin varnish to preserve his tools from rust. See p. 283, vol. 31. -G. M. R. is informed that nitric acid a commonly used for etchingon steel. For directions for cleaning marble, see p. 330, vol. 32.-S. R of the oxalic acid of commerce is made in this way.

(11) L. R. asks: Is there an instrument that will indicate the degree of moisture in the earth? A. There is no instrument for this purpose? The moisture may be determined as follows: Weigh out 1/2 lb. of the earth immediately after taking it from the ground; transfer to an oven where the temperature is maintained at 212° Fah, until the earth is completely dried. After cooling, weigh; the difference in the two weights gives the amount of moisture.

(12) J. W. N. says: Open coal fires are cer-tainly desirable things; but as they are not very common, I infer that, for some reason, open coal grates have not yet been made successful. Please inform me wherein they fail. A. The coal grate fire is very common here. No failure.

(13) S. A. F. says: I am building a boat 28 feel over all, and 25 feet 6 inches on the keel: she is 5 feet 10 inches wide, and draws 14 inches

(22) W. A. asks: How large a boat can be driven with a pair of cylinders 4x6 inches, at the speed of 10 miles an hour, pressure of steam beirg 80 to 100 lbs.? What size of propeller wheel will be suitable for the boat and engines? A. You can use a boat 30 feet in length, and a propeller 32 inches in diameter. We think it doubtful, however, whether you will realize the speed named.

(23) C. M. B. asks: Will a float, with just sufficient buoyancy to support 10 lbs. in coldwater when not confined, support more weight if placed on the water in a steam boiler, with a pressure of steam of 200 lbs. to the inch? A. It will not supportquite as much, because water expands when heated, and has less weight for a given volume.

(24) A. M. asks: In grinding rolls bymeans forward and 30 inches aft. Her engine is 41/2x5 of an emery wheel, what should be the travel of the rolland of the wheel? A. It depends on the inches, with a surface condenser and a boiler 30 inches diameter by 54 inches high, with 40 two inch size of the rolls and the size of the emery wheel employed, and is easily discovered by experiment.

# Scientific American.

(25) H.W.H. asks: Is there any means by which I can find the pressure of steam in a boiler with the safety valve alone, without the use of a steam gage? A. You will find rules for such calculations in Bourne's "Handbook of the Steam Engine."

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

L. A. S.-It consists of heavy spar or sulphate of baryta, along with oxide of iron.-J. E. H.-It is pyrites.-R. W. H.-All the specimens are com-posed of scales of mica and small crystals of hornblende, which give them their sparkling character, imbedded in felspar and quartz .-- W M .--One specimen is pure quartz sand; the other is quartz sand mixed in with clay. Of no value for shipment.-G. W. L.-No.1 is mispickel. No. 2 is pyrites. Nos. 3 and 4, pyrites in quartz rock. No. 5 is quartz rock which, like the foregoing, is very possibly auriferous. It would require a larger quantity to determine this, and a careful gold assay would be required.

### COMMUNICATIONS RECEIVED.

The Editor of the SCIENTIFIC AMERICAN ac knowledges, with much pleasure, the receipt of original papers and contributions upon the follow ing subjects :

- On the Measurement of Light. By H. On the Talis of Comets. By C. E. M. On Spiritualism. By F. W. E.
- On Burning Coal Dust. By W. F.S. On Gear Indices. By B. P. G., by S. M., and by
- G. B. K.
- On Coprolite Beds. By E. K. On the Gateways of Nations. By W. T. S.
- On "Etheric "Force. By J. P. H.

Alsoinquiries and answers from the following: 8.-H. P.-J. A. B.-R. B. S.-W. S. O'C.-P. J. R.-J. C. H.-E. L. W.-H. J. T.-J. F. D.-E. J. D.

# 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 wouldfill 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 analogous to the following are sent: "Who sells aniline black? Where can flat-bottomed steamers be purchased? Who makes steel springs, suitable for use in a spring power? Who sells magnetic chains for medical purposes ?" All such personal inquiries are printed. 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.



Granted in the Week Ending December 14, 1875.

AND EACH BEARING THAT DATE.

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[Those	marked	(r) are re	eissued pat	ents.]

Acid-concentrating retort, J. Saunders 171,049
Alarm and indicator, J. Thorman 171,065
Animal power, W. P. Emmert 170,944
Antiseptic for timber, J. Huntington171,185, 171,186
Auger, core, O. W. Townsend
Baker and roaster, W. Wachs 171,200
Bale tie and hoop lacer, L. I. Bodenhamer 170,932
Barrel, D. Wright 171,077
Base ball base, J. C. O'Neill 171,088
Bed bottom frame, G. C. Perkins 171,042
Bed bottom.spring, A. D. Seaman 171,180
Bell call, E. C. Barton 171,084
Blackboard rubber, etc., B. Y. Conklin (r) 6,797
Blind slat adjuster, W. W. Byam 171,096
Boiler feeder, automatic. S. Cook 171,100
Boiler, upright tubular, N. C. Heaton 171,017
Boiler feeder, steam, P. N. J. Macabies 171,149
Bonnet fastener, E. K. Hall 171,015
Boot heel attachment, R. S. Van Zandt 171,199

Churn dasher, J. R. Underwood	141,094
	171,069
Clock electric F. Clark	171,152
Cloth. flocking. H. N. Slater	171,057
Clutch, A. Swingle	171,063
Clutch, machine, A. B. Bean (r)	6,791
Coach pad, S. A. Marker	171,150
Coffin J. M. Currier	171,140
Composition, metallic covering, J. Ferguson	171.004
Condenser, J. B. Root	171,175
Cooler and heater, M. L. Bush	170,986
Cordage machine, J. A. Peckham	
Corn popper F. J. Meyers	171 039
Corn popper, C. F. Wickwire	170,976
Corset, abdominal, C. A. Griswold	171,012
Curtain fixture, C. H. Miller	171.034
Cutter draft har J. P. Thompson	171.064
Dental drills, hand piece for, J. W. Gilbert	171.009
Dental plugger, E. S. Rider	171.170
Dental pluggers G. F. Green, 171,119, 120, 121	171,128
Dental tools.etc., handle for, R. B. Donaldson	171,106
Door spring, J. A. RODDINS	171 096
Dulcimer. etc., J. A. McKenzie	171.081
Ear muffle", B. Edgar	170,942
Elevator lock and dog, J. R. Fitzhous	170,945
Elevator dog, hay, J. R. Fitzhous	171,114
Engine and driving appliance, S. E. Stokes, Jr.	171 187
Engine, electro-magnetic, J. Bishop	171,087
Engine for twin propellers, G. B. Whiting	171,074
Engine, steam, J. B. Root	171,174
Engine, steam pumping, Cope and Maxwell	170,988 171,100
Evaporator. G. F. J. Colburn	170.990
Fan, automatic, A. F. Cloudman	170.989
Fan. electro.magnetic, G. F. Green	171,122
Fare register, W. H. Hornum	171,183
Fence barbed wire, H. N. Frentress	171,008
Fence post. I. L. Sherman	171.181
Fence wire, barbed, Dobbs and Booth	171,105
Fences, nail for wire, H. S. Smythe	171,184
Filter, E. S. Hutchinson	170,952
Filter, reversible, E. C. Houghton	171,020
Finearm revolving D Smith	171,050
Fire arms, safety lock for. F. Chillingworth	170.988
Fire escape, J. R. Lefferts	170,958
Fire escape, W. McAllister	171,030
Fireplace. R. Thompson	171,067
Flock-wasning machine, A. C. Russell	171,048 171,202
Fruit preserving jar, T. J. Price	171,044
Furnace, steam boiler, R. H. Gordon, Jr	170,948
Gage and bracket, sliding, W. S. Payn	170,964
Gas furnace A Parkes	171,181
Gas holder, L. Marks	171,028
Gas, manufacture of, J. P. Gill	171 117
	1111111
Gate, swinging, J. A. Moore	171,158
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey	171,158 171,025
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey Grain meter, B. M. Pulliam Grain tailuy. H. L. Townsend.	171,158 171,025 170,965 171,195
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey Grain meter, B. M. Pulliam Grain tally, H. L. Townsend Hair-heading machine, E. Hough	171,158 171,025 170,965 171,195 170,951
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey Grain meter, B. M. Pulliam Grain tally, H. L. Townsend Hair-heading machine, E. Hough Harness collar pad, M. Klein	171,158 171,025 170,965 171,195 170,951 171,144
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey Grain meter, B. M. Pulliam Grain tally, H. L. Townsend Hair-heading machine, E. Hough Harness collar pad, M. Klein Harrow, wheel, F. Bramer	171,158 171,025 170,965 171,195 170,951 171,144 171,092
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey Grain neter, B. M. Pulliam Grain tally, H. L. Townsend Hairheading machine, E. Hough Harness collar pad, M. Klein Harrows, hook for, Tracy and Platt Harrows, c. Grook (r)	171,158 171,025 170,965 171,195 170,951 171,195 171,144 171,092 171,197 6 799
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey Grain teter, B. M. Pulliam Grain tally, H. L. Townsend Harh-heading machine, E. Hough Harness collar pad, M. Klein Harrows, wheel, F. Bramer Harrows, hook for, Tracy and Platt Harvester, C. Crook (r) Harvester reel and rake. A. Stoler	171,158 171,025 170,965 171,195 170,951 171,144 171,092 171,197 6,798 171,188
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey Grain neter, B. M. Pulliam Grain tally, H. L. Townsend Harheading machine, E. Hough Harnows, wheel, F. Bramer Harrows, hook for, Tracy and Platt Harvester, C. Crook (r) Harvester reel and rake, A. Stoter Harvester reel rake, R. C. Taylor	171,158 171,025 170,965 171,195 170,951 171,144 171,092 171,197 6,798 171,188 170,971
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey Grain neter, B. M. Pulliam Grain tally, H. L. Townsend Har-heading machine, E. Hough Harnow, wheel, F. Bramer Harrows, hook for, Tracy and Platt Harvester, C. Crook (r) Harvester reel nake, A. Stoler Harvester reel nake, R. C. Taylor Harvesting machine, W. M. and G. H. Howe	171,158 171,025 170,965 171,195 170,951 171,195 171,195 171,197 6,798 171,188 170,971 171,021
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey Grain neter, B. M. Pulliam Grain tally, H. L. Townsend Hair-heading machine, E. Hough Harnows, olar pad, M. Klein Harrows, hook for, Tracy and Platt Harvester, C. Crook (r) Harvester reel rake, R. C. Taylor Harvesting machine, W. M. and G. H. Howe Hatholder and check, J. E. Smith (r)	171,158 171,025 170,965 171,195 170,965 171,195 170,951 171,144 171,092 171,197 6,798 171,188 170,971 171,021 6,796
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey Grain meter, B. M. Pulliam Grain tally, H. L. Townsend. Hair-heading machine, E. Hough Harros, collar pad, M. Klein Harrows, hook for, Tracy and Platt Harvoster, C. Crook (r) Harvester reel and rake, A. Stoler Harvester reel rake, R. C. Taylor Harvester gmachine, W. M. and G. H. Howe Hat holder and check, J. E. Smith (r) Hatventilator, J. B. Dillaway	171,158 171,025 170,965 171,195 170,965 171,195 171,195 171,1092 171,1092 171,109 171,108 170,971 171,021 6,796 171,102
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey Grain meter, B. M. Pulliam Grain tally, H. L. Townsend Hair-heading machine, E. Hough Harrows, collar pad, M. Klein Harrows, hook for, Tracy and Platt Harvester, C. Crook (r) Harvester reel and rake, A. Stoler Harvester reel rake, R. C. Taylor Harvester reel rake, R. C. Taylor Harvesting machine, W. M. and G. H. Howe Hat holder and check, J. E. Smith (r) Hat ventilator, J. B. Dillaway Heatre and feeder, R. Garstang (r)	171,153 171,153 171,025 170,965 171,195 170,951 171,144 171,092 171,103 170,971 171,021 6,796 171,108 170,971 171,021 6,802
Gate, swinging, J. A. Moore	171,153 171,153 171,025 170,965 171,193 170,951 171,144 171,092 171,188 170,971 171,021 6,796 171,108 170,972 6,802 171,947
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey Grain meter, B. M. Pulliam Grain tally, H. L. Townsend Hariness collar pad, M. Klein Harrows, wheel, F. Bramer Harrows, hook for, Tracy and Platt Harvester, C. Crook (r) Harvester reel and rake, A. Stoler Harvester and check, J. E. Smith (r) Hat holder and check, J. E. Smith (r) Hat chet, J. A. Tnayer Heater and feeder, R. Garstang (r) Hemp-hackling machine, F. D. Frost Hides, preserving, F. H. L. C. Sacc	171,153 171,153 171,025 170,965 171,195 170,951 171,144 171,092 171,197 6,798 171,197 6,798 171,091 171,091 171,021 6,796 171,103 170,972 6,802 171,947 171,177
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey Grain meter, B. M. Pulliam Grain tally, H. L. Townsend Hariose, Collar pad, M. Klein Harrows, wheel, F. Bramer Harrows, hook for, Tracy and Platt Harvester, C. Crook (r) Harvester reel and rake, A. Stoler Harvester reel rake, R. C. Taylor Harvester reel rake, R. C. Taylor Harvesting machine, W. M. and G. H. Howe Hat holder and check, J. E. Smith (r) Hat ventilator, J. B. Dillaway Hatchet, J. A. Thayer Heater and feeder, R. Garstang (r) Hemp-hackling machine, F. D. Frost Hides, preserving, F. H. L. C. Sacc Hoes, manufacture of grubbing, J. C. Klein	171,151 171,152 170,965 171,195 170,965 171,195 170,951 171,197 6,798 171,197 6,798 171,197 171,091 171,091 170,971 6,796 171,103 170,972 6,802 171,947 171,177 171,141
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey Grain meter, B. M. Pulliam Grain tally, H. L. Townsend Hariness collar pad, M. Klein Harrows, hook for, Tracy and Platt Harrows, hook for, Tracy and Platt Harvester, C. Crook (r) Harvester reel and rake, A. Stoter Harvester reel rake, R. C. Taylor Harvester neel and check, J. E. Smith (r) Hat vestilator, J. B. Dillaway Hatchet, J. A. Thayer Heater and feeder, R. Garstang (r) Hemp-hackling machine, F. D. Frost Hides, preserving, F. H. L. C. Sacc Hoes, manufacture of grubbing, J. C. Klein Horse powers, W. H. Butterworth	171,158 171,152 170,965 170,965 171,105 170,951 171,104 171,092 171,107 6,796 171,108 170,971 171,021 6,796 171,108 170,972 6,802 171,977 171,177 171,141 171,094 171,094
Gate, swinging, J. A. Moore	171,155 171,155 171,025 170,955 171,194 171,195 171,194 171,197 6,798 171,183 170,971 171,021 6,796 171,102 6,796 171,102 6,796 171,947 171,947 171,141 171,094 170,901 170,915
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey Grain meter, B. M. Pulliam Grain tally, H. L. Townsend Hair-heading machine, E. Hough Harrows, colar pad, M. Klein Harrows, hook for, Tracy and Platt Harrows, hook for, Tracy and Platt Harvester, C. Crook (r) Harvester, C. Crook (r) Harvester reel and rake, A. Stoter Harvester reel rake, R. C. Taylor Harvester gen and rake, A. Stoter Harvesting machine, W. M. and G. H. Howe Hat holder and check, J. E. Smith (r) Hat holder and feder, R. Garstang (r) Heater and feeder, R. Garstang (r) Heater and feeder, R. Garstang (r) Heos, manufacture of grubbing, J. C. Klein Horse powers, P. K. Dederick	171,155 171,025 170,955 171,195 171,195 171,195 171,195 171,195 171,197 6,798 171,188 170,971 171,097 171,097 171,097 171,173 171,947 171,179 171,188
Gate, swinging, J. A. Moore	171,153 171,025 170,951 171,195 170,951 171,195 171,197 6,796 171,102 171,197 6,796 171,103 170,971 171,021 6,796 171,103 170,972 6,802 171,947 171,173 171,097 171,007 171,00
Gate, swinging, J. A. Moore	171,153 171,025 170,965 171,195 171,195 171,197 6,798 171,184 171,197 6,798 171,183 170,971 171,021 6,796 171,103 170,972 6,802 171,971 171,972 171,971 171,972 171,971 171,971 171,972 171,971 171,971 171,972 171,971 171,97
Gate, swinging, J. A. Moore	171,153 171,025 170,965 171,195 170,951 171,197 171,095 171,197 6,796 171,197 171,097 171,097 171,097 171,001 171,097 171,097 171,103 170,972 6,802 171,97 171,177 171,141 171,093 171,168 170,934 170,934
Gate, swinging, J. A. Moore	171,153 171,152 171,025 170,965 171,194 171,195 171,194 171,197 171,197 171,171 171,021 6,796 171,102 171,971 171,021 6,802 171,947 171,1094 171,1094 171,1094 171,1094 171,1095 171,1168 170,959 171,059
Gate, swinging, J. A. Moore	171,153 171,152 171,025 170,965 171,162 171,195 171,171,174 171,095 171,174 171,092 171,174 171,021 6,796 171,103 171,021 6,796 171,103 171,972 6,802 171,977 171,171 171,171 171,171 171,188 171,161 171,095 171,095 171,075
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey Grain meter, B. M. Pulliam Grain tally, H. L. Townsend Hair-heading machine, E. Hough Harrows, colar pad, M. Klein Harrows, hook for, Tracy and Platt Harrows, hook for, Tracy and Platt Harvester, C. Crook (r) Harvester, C. Crook (r) Harvester reel and rake, A. Stoler Harvester reel rake, R. C. Taylor Harvesting machine, W. M. and G. H. Howe Hat holder and check, J. E. Smith (r) Hat holder and feeder, R. Garstang (r) Hatchet, J. A. Thayer Heater and feeder, R. Garstang (r) Hemp-hackling machine, F. D. Frost Hides, preserving, F. H. L. C. Sacc Hores powers, P. K. Dederick Horse powers, P. K. Dederick Hydrant street connection, Follard and Travis Ice machine, T. L. Rankin Implement, combined, P. Broadbooks Index tabs, gage for cutting, M. N. Lovell Iron and steel, making, E. A. and J. A. Jones. Jack, lifting, A. Duncan	171,155 171,155 171,025 170,965 171,144 171,095 171,144 171,092 171,174 170,971 171,021 6,796 171,102 6,796 171,102 6,796 171,027 6,802 171,977 171,071 171,094 171,094 171,109 171,109 171,109 171,109 171,109 171,095 171,024 171,024 171,025
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey Grain meter, B. M. Pulliam Grain tally, H. L. Townsend Hair-heading machine, E. Hough Harrows, collar pad, M. Klein Harrows, hook for, Tracy and Platt Harvester, C. Crook (r) Harvester reel and rake, A. Stoler Harvester reel and rake, A. Stoler Harvester reel rake, R. C. Taylor Harvester reel rake, R. C. Taylor Harvester reel rake, R. C. Taylor Hat vesting machine, W. M. and G. H. Howe Hat holder and check, J. E. Smith (r) Hat toutlet on the for the form of the form o	111,115 171,102 171,102 171,025 170,951 171,104 171,103 171,104 171,002 171,104 171,001 170,971 171,010 6,796 171,102 6,796 171,102 6,796 171,001 171,001 171,109 171,004 171,109 171,004 171,109 171,004 171,109 171,004 171,109 171,004 171,109 171,004 171,109 171,004 171,109 171,004
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey Grain meter, B. M. Pulliam Grain tally, H. L. Townsend Hair-heading machine, E. Hough Harrows, collar pad, M. Klein Harrows, hook for, Tracy and Platt Harvester, C. Grook (r) Harvester, C. Crook (r) Harvester reel and rake, A. Stoler Harvester reel rake, R. C. Taylor Harvester reel rake, R. C. Taylor Harvester reel rake, R. C. Taylor Hat volder and check, J. E. Smith (r) Hat holder and check, J. E. Smith (r) Hat holder and check, R. Garstang (r) Hat vontilator, J. B. Dillaway Heater and feeder, R. Garstang (r) Heater and feeder, R. Garstang (r) Heater and feeder, R. Garstang (r) Hoes, manufacture of grubbing, J. C. Klein Horse powers, P. K. Dederick Hydrant street connection, Folliard and Travis Ice machine, T. L. Rankin Implement, combined, P. Broadbooks Index tabs, gage for cutting, M. N. Lovell Iron and steel, making, E. A. and J. A. Jones. Jack, lifting, A. Duncan Jug and faucet, combined. A. French Key for locks, W. H. Guthrie	171.153 171.025 170.965 171.102 171.195 170.951 171.144 171.095 171.134 170.971 171.021 6.796 171.103 170.972 6.802 171.947 171.171 171.971 171.971 171.971 171.971 171.971 171.971 171.931 171.931 171.168 170.934 171.024 171.024 171.024 171.024 171.024 171.024
Gate, swinging, J. A. Moore	171,153 171,025 170,965 171,102 171,103 171,103 171,107 6,798 171,184 171,097 171,107 6,796 171,103 170,971 171,021 6,796 171,103 170,972 6,802 171,107 171,177 171,171 171,171 171,091 171,093 171,093 171,093 171,168 170,934 171,102 171,024 171,025 171,024 171,025 171,02
Gate, swinging, J. A. Moore	171,155 171,025 170,965 171,102 171,103 171,103 171,107 6,796 171,103 170,971 171,021 6,796 171,103 170,971 171,021 6,802 171,103 170,972 6,802 171,103 171,0971 171,107 171,177 171,171 171,171 171,168 170,934 171,024 171,024 171,024 171,024 171,027 171,024 171,027 171,024 171,027 171,024 171,027 171,024 171,027 171,027 171,024 171,027 171,027 171,024 171,027 171,027 171,026 171,027 171,0
Gate, swinging, J. A. Moore	171,153 171,153 171,025 170,965 171,102 171,103 171,103 171,104 171,092 171,103 170,971 6,796 171,103 170,971 6,796 171,021 6,796 171,021 171,071 171,021 171,031 171,104 171,094 171,105 171,025 171,04 171,078 171,078 171,078 170,978
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey Grain meter, B. M. Pulliam Grain tally, H. L. Townsend. Hair-heading machine, E. Hough Harrows, collar pad, M. Klein Harrows, hook for, Tracy and Platt Harrows, hook for, Tracy and Platt Harvester, C. Crook (r) Harvester, C. Crook (r) Harvester reel and rake, A. Stoler Harvester reel rake, R. C. Taylor Harvesting machine, W. M. and G. H. Howe Hat vesting machine, W. M. and G. H. Howe Hat vesting machine, F. D. Frost Hatchet, J. A. Thayer Heater and feeder, R. Garstang (r) Heater and feeder, R. Garstang (r) Hoes, manufacture of grubbing, J. C. Klein Horse powers, P. K. Dederick Hydrant street connection, Follard and Travis Ice machine, T. J. Broadbooks Hydrant street connection, Follard and Travis Ice machine, T. L. Rankin Implement, combined, P. Broadbooks Index tabs, gage for cutting, M. N. Lovell Iron and steel, making, E. A. and J. A. Jones. Jack, lifting, A. Duncan Jack, lifting, H. D. Haraden Jug and faucet, combined. A. French Key for locks, W. H. Guthrie Knobs screw for, W. F. Arnold Ladder, step, M. N. Lovell Lamp, C. E. Ball Lamp, J. A. Evarts.	171,153 171,153 171,025 170,965 171,102 171,195 171,114 171,092 171,174 171,092 171,174 171,092 171,174 171,071 171,071 171,071 171,103 171,177 171,114 171,094 171,177 171,171 171,188 170,959 171,0959 171,094 171,0959 171,094 171,0959 171,014 171,027 171,074 171,074 171,074 171,074 171,074 171,075 170,964 171,075 170,964 171,075 170,964 171,075 170,964 171,075 170,964 171,075 170,964 171,075 170,964 171,075 170,964 171,075 170,964 171,075 170,965 171,075 171
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey Grain meter, B. M. Pulliam Grain tally, H. L. Townsend Hair-heading machine, E. Hough Harrows, collar pad, M. Klein Harrows, hook for, Tracy and Platt Harrows, hook for, Tracy and Platt Harvester, C. Crook (r) Harvester, C. Crook (r) Harvester reel and rake, A. Stoler Harvester reel rake, R. C. Taylor Harvesting machine, W. M. and G. H. Howe Hat holder and check, J. E. Smith (r) Hat holder and feeder, R. Garstang (r) Hatchet, J. A. Thayer Heater and feeder, R. Garstang (r) Hemp-hackling machine, F. D. Frost Hides, preserving, F. H. L. C. Sacc Horse powers, P. K. Dederick Horse powers, P. K. Dederick Hydrant street connection, Follard and Travis Ice machine, T. L. Rankin Implement, combined, P. Broadbooks Index tabs, gage for cutting, M. N. Lovell Jack, lifting, A. Duncan Jack, lifting, H. D. Haraden Jug and faucet, combined. A. French Key for locks, W. H. Guthrie Knob swing joint, etc., E. M. Lockwood. Knobs, screw for, W. F. Arnold Lamp, C. E. Ball Lamp, Wack, A. M. Daniele Lamp wick, A. M. Daniele	171,155 171,155 171,025 170,965 171,102 171,195 171,194 171,092 171,174 171,092 171,174 171,092 171,174 171,071 171,021 6,796 171,102 171,972 6,802 171,972 6,802 171,972 6,802 171,972 171,972 171,971 171,109 171,109 171,109 171,109 171,024 171,025 171,024 171,025 171,024 171,025 171,02
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey Grain meter, B. M. Pulliam Grain tally, H. L. Townsend Hair-heading machine, E. Hough Harrows, collar pad, M. Klein Harrows, hook for, Tracy and Platt Harrows, hook for, Tracy and Platt Harvester, C. Crook (r) Harvester reel and rake, A. Stoler Harvester, C. Crook (r) Harvester reel rake, R. C. Taylor Harvester reel rake, R. C. Taylor Harvesting machine, W. M. and G. H. Howe Hat holder and check, J. E. Smith (r) Hat to the rand feeder, R. Garstang (r) Hat holder and feeder, R. Garstang (r) Heater and feeder, R. Garstang (r) Heater and feeder, R. Garstang (r) Hemp-hackling machine, F. D. Frost Hides, preserving, F. H. L. C. Sacc Horse powers, P. K. Dederick Horse powers, P. K. Dederick Hydrant street connection, Folliard and Travis Ice machine, T. L. Rankin Implement, combined, P. Broadbooks Index tabs, gage for cutting, M. N. Lovell Iron and steel, making, E. A. and J. A. Jones. Jack, lifting, A. Duncan Jack, lifting, H. D. Haraden Jug and faucet, combined A. French Key for locks, W. H. Guthrie Knob swing joint, etc., E. M. Lockwood Knobs, screw for, W. F. Arnold Ladder, step, M. N. Lovell Lamp, C. E. Ball Lamp, J. A. Evarts. Lamp wick, A. M. Danlele. Lathe for irregular forms, G. N. Westcott	171.153 171.153 171.025 170.965 171.144 171.195 171.951 171.144 171.095 171.144 171.095 171.102 171.103 170.971 171.021 6.796 171.103 170.972 6.802 171.947 171.173 171.947 171.174 171.093 171.001 171.093 171.003 171.004 171.014 171.014 171.035 171.034 171.035 17
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey Grain meter, B. M. Pulliam Grain tally, H. L. Townsend Hair-heading machine, E. Hough Harrows, kook for, Tracy and Platt Harrows, hook for, Tracy and Platt Harvester, C. Crook (r) Harvester reel and rake, A. Stoler Harvester reel and check, J. E. Smith (r) Hat holder and check, J. E. Smith (r) Hat holder and feeder, R. Garstang (r) Hat ventilator, J. B. Dillaway Hatchet, J. A. Thayer Heater and feeder, R. Garstang (r) Heater and feeder, R. Garstang (r) Heater and feeder, R. Garstang (r) Hores powers, F. H. L. C. Sacc Hoes, manufacture of grubbing, J. C. Klein Horse powers, P. K. Dederick Hydrant street connection, Folliard and Travis Ice machine, T. L. Rankin Implement, combined, P. Broadbooks Index tabs, gage for cutting, M. N. Lovell Iron and steel, making, E. A. and J. A. Jones. Jack, lifting, A. Duncan Jack, lifting, H. D. Haraden Jug and faucet, combined A. French Key for locks, W. H. Guthrie Knob swing joint, etc., E. M. Lockwood Knobs, screw for, W. F. Arnold Ladder, step, M. N. Lovell Lamp, C. E. Ball Lamp, J. A. Evarts. Lamp wick, A. M. Daniele. Lather for irregular forms, G. N. Westcott Leather-dressing machine, B. M. J. Blank	171.153 171.153 171.025 170.965 171.144 171.195 171.951 171.144 171.095 171.144 171.095 171.184 170.971 171.021 6.798 171.183 170.972 6.802 171.031 170.972 6.802 171.947 171.173 171.947 171.171 171.941 171.971 171.939 171.001 170.934 171.003 171.024 171.024 171.024 171.024 171.078 171.035 171.
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey Grain meter, B. M. Pulliam Grain tally, H. L. Townsend Hair-heading machine, E. Hough Harrows, kook for, Tracy and Platt Harrows, hook for, Tracy and Platt Harvester, C. Crook (r) Harvester reel and rake, A. Stoler Harvester reel and rake, A. Stoler Harvester reel and rake, A. Stoler Harvester reel and check, J. E. Smith (r) Hat holder and check, J. E. Smith (r) Hat holder and check, J. E. Smith (r) Hat holder and check, J. E. Smith (r) Hat ore and feeder, R. Garstang (r) Heater and feeder, R. Garstang (r) Heater and feeder, R. Garstang (r) Heater and feeder, R. Garstang (r) Hoes, manufacture of grubbing, J. C. Klein Horse power, W. H. Butterworth. Horse powers, P. K. Dederick Hydrant street connection, Folliard and Travis Ice machine, T. L. Rankin Implement, combined, P. Broadbooks Index tabs, gage for cutting, M. N. Lovell Iron and steel, making, E. A. and J. A. Jones. Jack, lifting, A. Duncan Jack, lifting, A. Duncan Jug and faucet, combined. A. French Key for locks, W. H. Guthrie Knob swing joint, etc., E. M. Lockwood Knobs, screw for, W. F. Arnold Lamp, C. E. Ball. Lamp, C. E. Ball Lamp, M. A. Evarts Lamp wick, A. M. Danielt Lathe for irregular forms, G. N. westcott Leather, prepared, O. Nichols Leather, prepared, O. Nichols	171,153 171,153 171,025 170,965 171,104 171,195 171,197 6,798 171,184 170,971 171,091 171,091 171,091 171,091 171,001 171,091 171,091 171,103 170,972 6.802 171,103 171,177 171,171 171,171 171,171 171,171 171,173 171,173 171,173 171,173 171,173 171,168 170,951 171,024 171,024 171,027 171,024 171,027 171,024 171,027 171,024 171,027 171,024 171,027 171,024 171,027 171,024 171,027 171,024 171,027 171,024 171,027 171,024 171,027 171,024 171,027 171,026 171,027 171,027 171,027 171,027 171,027 171,027 171,027 171,027 171,027 171,027 171,028 170,950 170,955 171,024 170,955 171,027 170,955 171,027 170,955 171,027 170,955 171,027 17
Gate, swinging, J. A. Moore	171,155 171,025 170,965 171,102 170,965 171,104 171,109 171,107 6,796 171,103 170,971 171,021 6,796 171,103 170,972 6,802 171,103 170,972 6,802 171,103 171,097 171,107 171,107 171,107 171,107 171,109 171,109 171,108 170,934 171,108 170,934 171,021 170,955 171,021 170,955 171,021 170,955 171,021 170,955 171,021 170,955 171,021 170,955 171,021 170,955 171,021 170,955 171,021 170,955 171,021 170,955 171,021 170,955 171,021 170,955 171,021 170,955 171,021 170,955 171,021 170,955 171,021 170,955 171,021 170,955 171,021 170,955 171,021 170,955 171,021 170,955 171,021 170,955 171,021 170,955 171,021 170,955 171,021 170,955 171,021 170,955 171,021 170,955 171,021
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey Grain meter, B. M. Pulliam Grain tally, H. L. Townsend Hair-heading machine, E. Hough Harrows, colar pad, M. Klein Harrows, hook for, Tracy and Platt Harrows, hook for, Tracy and Platt Harrows, hook for, Tracy and Platt Harvester cel and rake, A. Stoler Harvester, C. Crook (r) Harvester reel and rake, A. Stoler Harvester reel and check, J. E. Smith (r) Hatvesting machine, W. M. and G. H. Howe Hatholder and check, J. E. Smith (r) Hatventing machine, F. D. Frost Hatchet, J. A. Thayer Heater and feeder, R. Garstang (r) Heater and feeder, R. Garstang (r) Heater and feeder, R. Garstang (r) Hoes, manufacture of grubbing, J. C. Klein Hores powers, P. H. L. C. Sacc Horse powers, P. K. Dederick Hydrant street connection, Follard and Travis Ice machine, T. J. Builings Hydrant street connection, Follard and Travis Ice machine, T. L. Rankin Implement, combined, P. Broadbooks Inder tabs, gage for cutting, M. N. Lovell Juron and steel, making, E. A. and J. A. Jones. Jack, lifting, A. Duncan Jack, lifting, H. D. Haraden Jug and faucet, combined. A. French Key for locks. W. H. Guthrie Knobs screw for, W. F. Arnold Lamp, C. E. Ball Lamp, C. E. Ball Lamp, J. A. Evarts Leather dressing machine, B. M. J. Blank Leather, prepared, O. Nichols. Leather, water-repellent, E. F. Dieterichs Leather, water-repellent, E. F. Dieterichs Leather water-repellent, E. F. Dieterichs Leather, water-repellent, E. M. Meater Lather every, B. Hempstead	171,155 171,025 170,965 171,102 171,103 171,103 171,107 6,796 171,103 170,971 171,021 6,796 171,103 170,971 171,021 171,021 171,021 171,021 171,103 170,972 6,802 171,947 171,103 170,972 6,802 171,947 171,103 171,094 171,103 171,095 171,095 171,095 171,095 171,021 171,014 171,025 171,021 171,035 171,021 171,035 171,05
Gate, swinging, J. A. Moore Grain cradle, making, C. P. Kelsey Grain meter, B. M. Pulliam Grain tally, H. L. Townsend. Hair-heading machine, E. Hough Harrows, colar pad, M. Klein Harrows, hook for, Tracy and Platt Harrows, hook for, Tracy and Platt Harvester, C. Crook (r) Harvester, C. Crook (r) Harvester reel and rake, A. Stoler Harvester reel rake, R. C. Taylor Harvesting machine, W. M. and G. H. Howe Hat vesting machine, W. M. and G. H. Howe Hat vesting machine, F. D. Frost Hatetet, J. A. Thayer Heater and feeder, R. Garstang (r) Heater and feeder, R. Garstang (r) Hoes, manufacture of grubbing, J. C. Klein Horse powers, P. K. Dederick Hydrant street connection, Follard and Travis Ice machine, T. L. Rankin Implement, combined, P. Broadbooks Index tabs, gage for cutting, M. N. Lovell Iron and steel, making, E. A. and J. A. Jones. Jack, lifting, A. Duncan Jack, lifting, H. D. Haraden Jug and faucet, combined. A. French Key for locks, W. H. Guthrie Knobs screw for, W. F. Arnold Ladder, step, M. N. Lovell Lamp, C. E. Ball Lamp, J. A. Evarts. Lamp, J. A. Evarts. Lamp wick, A. M. Daniele Lathe for irregular forms, G. N. Westcott Leather-dressing machine, E. F. Dieterichs Leather, water-repellent, E. F. Dieterichs Leather, water-repellent, E. F. Dieterichs Leather, water-repellent, E. F. Dieterichs Leather, water-repellent, E. F. Dieterichs Leather, B. Hempstead Loom-shedding mechanism, R. Elliott (r)	171,155 171,165 171,025 170,965 171,144 171,095 171,144 171,092 171,147 170,971 171,021 6,796 171,103 170,971 171,021 171,021 171,021 171,021 171,021 171,03 171,947 171,114 171,094 171,116 170,959 171,04 171,04 171,07 1

Plow, W. K. Harrell (r)..... 6,804 Plow, H. H. Hubley...... 171,022 Plow, N. G. Pinney..... 171,166 
 Plow, J. Worrell.
 171,205

 Plow point, T. S. Urie.
 171,068

 Potato bug destroyer, I. W. Griscom
 171,011
 Printing press sheet delivery, A. E. Sardo...... 171,178 Shoe nail, D. D. C. Pillsbury..... 171,048 Skate, O. Edwards..... 170.943 Sled propeller, C. Schwager..... 171,179 Spinning spindle, J. C. Arnold..... 170.929 
 Spring, E. H. Tyler.
 170,978

 Spring, making spiral, S. L. Bower.
 170,978

 Springs, making spiral, S. L. Bower.
 171,089

 Steel, manufacture of, S. J. Slade.
 171,188

 Stereoscope, J. F. Steward.
 171,097
 Stove, cooking, L Vau Bunschoten...... 171,070 Washingmachine clamp, W. A. Duncan...... 171,108 Watchc-leaning fluid, A. Monnier...... 171,035 Watch center pinion, F. E. Smith...... 171,058 Water wheel, J. J. Bourgeois..... 171,088 DESIGNS PATENTED.

8,836.-COOK STOVE.-N. S. Vedder, Troy, N.Y. 8,855. - UOOK STOVE. - N. S. Vedder, Troy, N. Y. 883. - Stoves. - N. S. Vedder, Troy, N. Y. et al. 8,838. - COOK RANGES. - N. S. Vedder, Troy, N. Y. et al. 8,839. - Stoves. - N. S. Vedder, Troy, N. Y. et al. 8,840 & 8,841. - Stoves. - N. S. Vedder, Troy, N. Y. et al. 8,842. - COOK STOVE. - N. S. Vedder, Troy, N. P. et al. 8,843.—STOVES.—N. S. Vedder, Troy, N. Y., et al. 8,844.—Cook Stoves.—N. S. Vedder et al., Troy, N. Y. 8,845.—FAPER BOX.—I. Birgé, Philadelphia, Pa. (71,06) 6.794 8.846.—CUTLEBY HANDLES.—E. L. Brittin, Derby, Conn. 8.847.—Toy Balloon.—H. S. Kerr, Philadeiphia, Pa.

5,465.-R. L. Webb, New Britain, Conn., U. S. Box coffee mill. Dec. 4, 1875. 5,466.-F. N. Du Bols, New York city, U. S. Machine for making plumber's traps. Dec. 4, 1875. ,467 .- D. L. Chase, Boston, Mass., U. S. Steam governor. Dec. 4, 1875. ,468.-O. Jull, Orangeville, Ont. Turbine water wheel. Dec. 4. 1875. 5,469.-E. A. Rice, New York city, U. S. Seats for vehicles. Dec. 4, 1875. 5,470.-T. Snell et al., Toronto, Ont. Paint brush brid- Jer. Dec. 4, 1875.
 5,471.—I. Milette, Three Rivers. P. Q. Self-acting sluice doors and lock gates for canals. Dec. 4, 1675. 5,472.—S. Lee, Ottawa city, Ont. Shoe rack. Dec. 4, 1875. ,473.-D. N. B. Coffin, Jr., Newton, Mass., U. S., et al. Chain stopper. Dec. 9, 1875. 5,474.—A. S. Dennison *et al.*, Watertown, N. Y., U. S. Paper bag. Dec. 9, 1875. 5,475.—A. S. Dennison et al, Watertown, N. Y., U. S. Waterproof bag. Dec. 9, 1875. Machine gun. Dec. 9, 1875.
5,477.-D. N. B. Coffin, Jr., Newton, Mass., U. S., et al. Capstan and windlass. Dec. 9, 1875. 5,478.-J. Shedd, Waltham, Mass., U. S. Window blind fartener. Dec. 11, 1875. 5,479.—D. E. Lillis, Jackson, Miss., U. S. Foot treadle. Dec. 11, 1875. ,480.-A. Marland, Pittsburgh, Pa., U. S. Making nuts. Dec. 11, 1875. 5,481.—I. Casgrave, Chatham, Ont. Machine for pumping water out of vessels, etc. Dec. 11, 1875.
5,482.—H. Knight, Liverpool, England. Manufacture of certain oxides and sulphides. Dec. 11, 1875.
5,483.—J. Lang, Arnprior, Ont. Mop wringer. Dec. 11, 1000 1875. 5,484.-R. Forward, Cincinnati, Ohio, U. S. Padd<sup>1</sup>e wheel. Dec. 11, 1875. 5,485.—J. E. Nute *et al.*, New Glasgow, N. S. Pumping water from ship holds, erc. Dec 11, 1875. 5.486.-J. C. Schoonmaker, Hamilton, Ont. Combined stove pipe shelf and dryer. Dec. 11, 1875. 5,487 .- H. Reed, Vineland, N. J., U. S. Tanning apparatus. Dec. 11, 1875. .488.-W. Dippert, Des Moines, Iowa, U. S. Harness pad press. Dec. 11, 1875. 5,489 .- J. McLean, St. George. N. B. Scale pan, etc. Dec. 11, 1875. 5.490.-J. C. Schoomaker, Geddes, N. Y., U. S. Making lightning conductors. Dec. 11, 1875. 5,491.-J. E. Fisk, Salem, Mass., U. S. Whitening and buffingleather. Dec. 14, 1875. 5,492.-J. R. Lantz et al., Marrowbone, Ill., U. S. Adjustable wagon axle. Dec. 14, 1875. 5,493.—R. K. Boyle, New York city, U. S. Electric telegraph. Dec. 14, 1875. 5.494 .-- W. Ellard, Skeads Mills, Ont. Cutting belt nippers. Dec. 14, 1875. ,495.-A. C. Snowden, South Norwalk, Conn., U. S. Horse overshoes. Dec. 14, 1875.
 5,496.-E. Gray, Chicago, Ill., U. S. Transmitting musical sounds telegraphically, etc. Dec. 14, 1875.
 5,497.-W. H. Newton, Chicago, Ill., U. S. Hydraulic and peat excavators. Dec. 14, 1875. 5,498.-J. Foley, Orangeville, Ont. Printer's quoin. Dec. 14, 1875. 5,499.-G. Lupton, Indianapolis, Ind., U. S. Sheet metal pipe elbow. Dec. 14, 1875. Advertisements Back Page - - - - - \$1.00 a line. Inside Page - - - - - 75 cents a line. Engravings may head advertisements at the same rais per line, by measurement, as the letter press. Adver-Hements must be received at publication office as early as Friday morning to appear in next issue.

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Boot, etc., cutting welts in, T. K. Keith 170,955	Mechanical movement, W. H. Hornum 171,132	8,847TOY BALLOONH. S. Kerr, Philadelphia, Pa.	siness permanent and first-class. For further
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Bow and arrow, C. F. Teed 171,192	Mill. cider. E. Curtiss (r)	8,819BOTTLESB. Simon, Scranton, Pa.	J. KENNEDY & CO., Richmond, Ind.
Bread cutter, Walsh & Ahearn 171,072	Millstone, H. J. Fogh 171.115	8,850RANGEN. S. Vedder, Troy, N. Y.	Established in 1863.
Brick machine, T. H. Burridge 171,095	Molding machine, L. Houston 171.134	8,851.—STOVES.—N. S. Vedder, Troy, N.Y.	LOVEJOY, SON & CO.,
Brick machine, W. A. Graham 171,118	Mortise cutter, rectangular, J. Doyle 171,109		
Bridge gate, draw, O. Esche 171,003	Motion, transmitting, J. L. Scott 171,052	SCHEDULE OF PATENT FEES.	ELECTRUTIFERS alle STEREUTIFERS,
Brush holder, I. Heller 171,128	Nail plate feeder, W. H. Field 171,005	On each Caveat	15 Vandewater Street, New York, '
Burners, globe for, E. Evans 171,112	Nail for wire fences, H. S. Smythe 171,184	On each Trade mark\$25	
Can nozzle, oil, G. H. Perkins 171,164	Nut lock washers, making, K. H. Loomis 171,148	On filing each application for a Patent (17 years)\$15	JUBRICATING UIL.
Can top. lamp-filling, O. N. Perkins 171,165	Nuts, making hexagonal, G. Johnson 171,023	On issuing each original Patent	or Grit. No Charge for Barrel
Candle holder, C. Kirchof (r) 6,805	Ore jigger, A. Stroh 171,189	On appeal to Examiners-in-Chief	44 Prompt Shipment by N. Y. C., Pa.
Canister, J. S. Field 171,006	Ore washer, Allain and Dejean 170,978	On appeal to Commissioner of Patents	Cent. & Frie R. R.'s
Car axle box lubricator, J. Sidebotham 171,182	Packages with wire strapping, N. O. Hynson 170,953	On application for Reissue\$30	w. w. hAGOE, failulute, fa.
Car coupling, W. Robinson 171,172	Paper box, S. B. Conover 170,991	On filing a Disclaimer	AGENTS
Car, sleeping, J. Bolt 170,985	Paper box, J. L. Reber (r) 6,806	On an application for Design (3½ years)	WANTED WANTED
Cars etc , ventilating, J. F. Babcock 171,079	Paper-folding machine, rotary, S. D. Tucker 171,196	On application for Design (7 years)	Dal cities, to
Car hand motor, Steel & Austin 171,969	Paper, dampening, W. Bullock	On application or Design (14 years)	sell Stephens
Card-grinding machine, J. F. Wicks 171,075	Paper, ornamenting, La Monte and Hall 171.026		Comply Attor
Carpet lining, J. M. Perkins (r) 6,795	Paper pulp, compounding, G. Clarkson 171,099	CANADIAN PATENTS.	RULE,SQUARE
Carpet stretcher, Calhoon and Kimerer 170,987	Pegging machine, L. Goddu (r) 6,803		PLUMB, BEVAL
Carriage handle socket, A. McLaughlin 171,153	Pen, fountain, J. Johnston 170,954	LIST OF PATENTS GRANTED IN CANADA,	TER. etc. For
Carriage shaft eyes, forging, W. B. McElney 171,151	Pencil sharpener, I. T. Dyer 171,110	December 4 to December 14 1975	circular and
Carriage wheel, G. H. Crosby 170,994	Photographs, printing, B. Swasey 171,062	December 4 w December 14, 1010.	Therms, address
Casks, fastening bungs in, Ott & Woller 171,161	Piano action, upright, C. E. Rogers 171,046		CO., Manufac
Chair, A. B. Stevens 171,186	Pianoforte stringing device, C. E. Rogers 171,047	5,462D. W. De Forest, Brooklyn, N. Y., U. S. Mech	10 Standard U.S.
Chair, folding, F. A. Patch 171,040	Picks, etc., manufacture of, J. C. Klein 171,143	anism forpropelling sleds. Dec. 4, 1875.	wood and Ivo
Chuck, G. W. Moulton 171,160	Piles, extension cap for, J. C. Davis 171,102	5,464C. W. Williams, Rochelle, 111., U. S. Hay loader.	ry Rules, Riv-
Chuck and centerer, G. F. Ballon,	Piston springs, manufacturing, J. Mitchell 171,157	Dec. 1, 1855.	Crton, Conn,