RECENTLY PATENTED INVENTIONS. Engineering.

EXCAVATOR. — Alexander McDonald, Cambridge, Mass. This is a machine for making ditches canals, tunnels, etc., and comprises a swinging supporting frame, revoluble picks mounted on shafts, and an endless carrier on the frame under the picks to receive and carry away the loosened material. The material is undermined by the picks and falls by gravity into the buckets of the carrier, and the swinging frame supporting the picks and the carrier may be swung above a horizontal line, so that the material can be removed to any desired

Railway Appliances.

CAR FENDER.—James W. McKinnon, New York City. This is a tilting fender slidingly mounted in guides under the car, the forward end of the fender being depressed when in its outer position. When the brake is applied the fender is automatically carried out beyond the front of the car, although it may be readily disconnected from the brake mechanism and projected outward independently thereof. The fender is ordinarily carried beneath the car platform, and may be readily attached to a car without interfering with the usual fittings of an electric or cable car.

STORM CURTAIN FOR STREET CARS. George Maust, Philadelphia, Pa. This improvement comprises an inclosure for car platforms, including standards extending from the dash to the roof, there being adjustable brackets on the standards and a stretcher carried by the brackets, while a curtain connected with the roof extends down over the stretcher. With this improvement the platform may be quickly housed in to protect its occupants from the weather, and when the curtains are not required they may be removed entirely out of the way.

Agricultural.

CULTIVATOR .- David A. Lenox and James A. Underwood, Salem, Mo. This cultivator has spring teeth adjustably attached to frames which may be moved either to the right or left to pass obstructions. The teeth are so made as to be very durable, and less liable to breakage than usual, and the depth to which the teeth enter the ground is regulated entirely by the draught, thus dispensing with lock levers and similar devices. The entire bed or body of the elevator carrying the teeth may be adjusted to compensate for any wear that the teeth may sustain.

WEED PULLER.-Frederick W. Read, Marquette, Mich. This is a simple implement, made preferably of a rod of steel, twisted to form a handle, twin shanks, and fork-like points, the tool to be worked something as an auger around the root of a plant or weed When the tool is buried deep enough, a quick upward movement removes the weed, foliage, and surrounding earth, facilitating the cleaning of a lawn from any object tionable plant.

PEA AND CORN SHELLER.—Benjamin F. O'Kelley, of Planter, and George W. O'Kelley, Jr. of Harmony Grove, Ga. This machine comprises a separating drum with which is connected a flail wheel separated from the drum by an annular partition, while a picker wheel acts in conjunction with the flail wheel there being a screen or sieve beneath the drum and flail wheel and independent hoppers leading to the drum and flail wheel. When the separation is made the peas or corn kernels are subjected to a blast of air to remove foreign matter, a second blast of air being delivered just prior to delivery to the receiving chute.

Miscellaneous.

MIXING APPARATUS.—Marie J. E. Laurans, Eugene J. B. Paul E. Jodelay, and Jules A. Tournel, Paris, France. This invention relates to apparatus for mixing water with an antiseptic liquid to form a dis infecting mixture, the mixture being made of uniform proportions and the pressure of the water utilized to produce the mixture or spray the disinfectant. The apparatus may be used for sprinkling streets, sidewalks, buildings, etc., and for a great variety of other pur

CIGARETTE MACHINE.—Domingo Perez v Buñol, Havana, Cuba. This machine fills the requisite quantity of tobacco into a receiver, and winds the wrapper around the tobacco filling. A conveying device separates and feeds the right quantity of tobacco to a re ceiver section, where it is compressed by a plunger, and the receiver is carried to a wrapping device, to which also a cut wrapper is brought, a finishing device tucking the wrapper ends inward when this is desired. Long cut tobacco may be used in the cigarettes made in the machine, or, by means of an accessory part, it may be made into fine cut before being fed into the receiver.

BICYCLE FRAME.—Henry and Frederick Mesinger, New York City. The principal mem bers of this frame are made of two pieces of wood united by suitable metallic joints and clips, the frame being designed to be of great durability and lightness while possessing ample strength. The frame conforms to the usual diamond shape, and the ends of the pieces are spread apart to form the forks for the rear wheel.

BRAKE BLOCK.—Augustus F. Schilly and Reuben Cave. Newcastle. Cal. This improvemen relates to brake blocks in which the shoe is removably connected to the block, and provides means for holding the shoe securely in place or readily removing it. Two hook sections are fixed to the brake block, and one of them is hinged so that it may move toward and from the shoe and lock with it.

THILL COUPLING. — Joel Johnson. Sunny Side, Ark. This is a coupling especially adapted for buggy shafts, permitting the disconnection of the shaft or pole in a quick and convenient manner, and leaving the knuckle carried by the thill iron in position for quick coupling ith the receiving members of the axle. A simple and efficient form of anti-rattler is also provided.

SEAT OR CUSHION. - Morris Strauss New York City. This invention provides an improved

construction whereby seats or cushions may be more readily upholstered, bands extending inwardly from the frame, and coiled supporting springs being connected to the bands, while there is an upholstery support on top of the springs, and coiled springs connect the lower convolutions of the supporting springs. The improved construction is applicable to seats and cushions of every de-

Door Bell.—Emerson C. Tibbals, Cobalt, Conn. This is a mechanical construction arranged to positively and regularly sound a bell upon releasing a push button, the latter operating a segmental gear wheel attached to a spring-pressed shaft, and a pawl and ratchet mechanism connecting the shaft with the striker, to operate the latter after the button is released. The bell preferably forms a cover or casing for the mechanism, to protect it from dust.

REAGENT FOR GOLD OR SILVER ORES. -Eloy Noriega, Mexico, Mexico. To facilitate the working of these ores, reducing the time for thorough amalgamation and effecting a saving of mercury, this invention provides for making a reagent by mixing a chloride, an acid, the sulphate of a metal, and the metal which forms the base of the sulphate, and subjecting the mixture to the action of steam until the resulting product is reduced and crystallized, the base of the chloride being stronger than that of the sulphate.

MUSIC BOX DRIVING GEAR.-Henry Langfelder, Jersey City, N. J. 'To drive music boxes for a considerable length of time without rewinding, this improvement provides for a segmental gear wheel in mesh with a train of gear wheels for driving the pin cylinder, the segmental gear wheel having a slotted arm and a pin engaging the slot in the arm, while a sliding bar carries the pin, and a cross bar connected with the sliding bar is adapted to compress one or more helica

Designs.

WOVEN FABRICS.—James Phillips, Jr., Fitchburg, Mass. Two design patents in this class have been granted this inventor, both for fabrics with tuft. like figures raised from the body and arranged in waved and parallel lines.

Note.-Copies of any of the above patents will be furnished by Munn & Co., for 25 cents each. Please send name of the patentee, title of invention, and date of this paper.

SCIENTIFIC AMERICAN

BUILDING EDITION.

OCTOBER, 1895.-(No. 120.)

TABLE OF CONTENTS.

- 1. Plate in colors of a handsome cottage at Rochelle Park, New Rochelle, N. Y. Two perspective elevations and floor plans. Cost \$9,000 complete. Mr. H. S. Rapelye, architect, Mount Vernon, N. Y. A pleasing design for a suburban residence.
- 2. Cottage at Kennebunkport, Me., recently erected for B. S. Thompson, Esq. Perspective elevation and floor plans. A very attractive residence in the English style of architecture. Mr. Henry P. Clark, Boston, architect.
- 3. A cottage at Flatbush, N. Y., recently erected at a cost of \$4,000. Perspective elevation and floor plans. John J. Petit, architect, Brooklyn, N. Y. An attractive design.
- 4. An all shingled cottage at Mount Vernon, N. Y. Perspective elevation and floor plans. A neat design in the Colonial style. Mr. Louis H. Lucas, New York City, architect.
- 5. A suburban cottage at Flatbush. L. I. recently erected at a cost of \$8,000 complete. Perspective elevation and floor plans. Messrs. Rowe & Baker, New York City, architects. An attractive design in the Colonial style.
- 6. A dwelling at Glenwood, Yonkers, N. Y. Perspective elevation and floor plans. Messrs. D. & J. Jardine, architects, New York City. A most unique design.
- Three perspective views and floor plans of a residence at New Rochelle, N. Y. Architects, Messrs. Stephenson & Greene, New York City. treated design.
- A Colonial residence at Mountain Station, N. J. Two perspective elevations and floor plans. Mr. H. C. Pelton, architect, New York City.
- 9. A house at New Haven, Conn., recently erected at a cost of \$3,500 complete. Two perspective elevations and floor plans. A modern economical cottage design. Architects, Messrs. Stilson & Brown, New Haven, Conn.
- 10. A Colonial cottage at Bronxville, N. Y., recently completed at a cost of \$4,600. Perspective eleva-New York City.
- 11. Miscellaneous Contents: Buff brick.-Tower tanks for water works, illustrated.-An old Baltimore firm.-Compo-Board instead of plaster-Translucent fabric, a substitute for glass.-Ventilation and heating of school buildings. - Ornamental glass.—A light and strong lifting jack, illustrated.
 —An improved circular saw, illustrated.—An improved wood working machine, illustrated .-Stamped steel ceilings, side walls and wainscotmg, illustrated.-Spring hinges.-Mallory's standard shutter worker and fly screen.-An improved nail set illustrated

The Scientific American Building Edition is issued nonthly. \$2.50 a year. Single copies, 25 cents. Thirtytwo large quarto pages, forming a large and splendid MAGAZINE OF ARCHITECTURE, richly adorned with elegant plates and fine engravings, illustrating the most interesting examples of Modern Architectural Construction and allied subjects.

The Fullness, Richness, Cheapness, and Convenience of this work have won for it the LABORST CIRCULATION of any Architectural Publication in the world. Sold by all newsdealers. MUNN & CO., PUBLISHERS

361 Broadway, New York.

Business and Personal.

The charge for Insertion under this head is One Dollar a line for each insertion; about eight words to a line. Adver tisements must be received at publication office as early as Thursday morning to appear in the following week's issue

"C. S." metat polisb. Indianapolis. Samples free. For pile driving engines. J. S. Mundy, Newark, N. J. Inventive mechanic wants position. P. R., Box 773, N.Y Presses & Dies. Ferracute Mach. Co., Bridgeton, N. J Handle & Spoke Mchy. Ober Lathe Co., Chagrin Falls, O Experienced wood pattern maker wants position

Screw machines, milling machines, and drill presses The Garvin Mach. Co., Laight and Canai Sts., New York. Emerson, Smith & Co., Ltd., Beaver Falls, Pa., will end Sawyer's Hand Book on Circulars and Band Saws free to any address.

The best book for electricians and beginners in elec tricity is "Experimental Science," by Geo. M. Hopkins By mail. \$4; Munn & Co., publishers, 361 Broadway, N. Y.

For the original Bogardus Universal Eccentric Mill, Foot and Power Presses, Drills, Shears, etc., address J.S. & G. F. Simpson, 26 to 36 Rodney St., Brooklyn, N. Y.

A capable mechanical engineer wisbes position as manager of some electric street railway interest. Is familiar with every detail of construction and can design and erect new work. Good references. Address Engineer, care of Scientific American office, New York.

Send for new and complete catalogue of Scientific nd other Books for sale by Munn & Co., 361 Broadway, New York. Free on application.



HINTS TO CORRESPONDENTS.

HINTS TO CORRESPONDENTS.

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

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

Inquiries not answered in reasonable time should the 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.

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

Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.

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

More referred to promptly supplied on receipt of price.

Minerals sent for examination should be distinctly

Winerals sent for examination should be distinctly marked or labeled.

(6642) A. H. writes: A steel spring (spiral) is wound as tightly as possible and then fastened with a piece of copper wire, in such a way that if the wire were unloosened, the spring would exert power which might now be considered as stored. This spring is, however, inserted in a jar of muriatic acid, which dis solves the iron but does not affect the copper band. What becomes of this latent energy? A. The spiral spring when wound up becomes heated, because work is done upon it. If released, it does work and becomes cool. The spring may be wound and left to attain the temperature of the air. Now, if released so as to do work, it will become cooler than before; but if dissolved in acid, no such reduction of temperature will occur, because it does no work. In other words, a coiled spring, when wound up,

has, properly speaking, no energy imparted to it by

such winding, but only the capacity of converting a por

tion of its own heat energy into mechanical energy. (6643) C. A. C. asks: How many feet per minute should milling work be fed to cutter? How fast should 3 inch milling cutter run or how many revolutions per given movement of bed? How are tangent bicycle wheels strung or trued up? A. As much depends upon the material to be milled as to speed of cutters and rate of feed, as will also the depth of the cut. There is a wide margin in the range of milling work, according to the condition of cutters, hardness of material and kind of lubrication. Ordinarily the peripheral speed of milling cutters may be for steel 36 feet or for a 3 inch mill 48 revolutions per minute, with a half inch feed per minute. For wrought iron 48 feet and 1 inch feed. Cast iron 60 feet and 156 inch feed per minute. light finishing cuts these figures may be increased by 30 per cent. Very small cutters should have less speed and large cutters of 5 or 6 inch diameter may have a greater speed than as above. It is not easy to impart instruction on the adjustment of bicycle wheel rims. The letting out and drawing in by the spoke nuts, on the proper sides, will bring the rim to its plane of revolution.

(6644) R. W. C. writes: By what branch solve and explain it. A tree one hundred feet high breaks off, and hanging to the stub, the top resting upon the ground at a distance of thirty feet from the base Required, the length of each part. A. The tree problem is solved by algebra, as follows: Let x=the height of the stump. We have: $(100-x)^2=x^2+(30)^2$. Solving, we find: x=45% feet (answer).

(6645) J. H. F. asks: How many volumes of gas at atmospheric pressure will one gallon of 74° Baume gasoline make when evaporated, with no admixture of air? How many volumes of air be ould be mixed with above gas to make proper explosive mixture for gasoline engine? What is maximum theoretical pressure of explosion of proper mixture of gasoline and air when exploded at constant volume with charge at atmospheric pressure and no loss of heat by radiation? Ditto, when charge compressed to 15 pounds above atmospheric pressure? Can you give rule or formula for determining above? Would there be much difference between theoretical and actual pressure? A. One gallon of gasoline produces from 60 to 80 cubic feet of vapor, according to the temperature and density of gasoline. From 5 to 6 volumes of air per volume of vapor is used, and even 12 volumes is claimed as the most economical mixture of air with gasoline vapor for explosive power effect. The explo-

sive pressure varies with the ratio of mixture of air and vapor, and also with the ratio of charge volume to the volume of the cylinder; in practice it varies from 90 to 150 pounds per square inch. Compression, as in the four cycle engine, adds its own pressure to the explosive effect and increases the mean piston pressure in a large degree. The theoretical pressure is somewhat greater than the actual pressure, owing to the uncertainty of per fect mixture in the gases and undefined limit of absorption of heat in the cylinder walls. See Donkin's work on "Gas and Petroleum Engines," \$6.50 by mail.

NEW BOOKS AND PUBLICATIONS.

THE FORCES OF NATURE: A STUDY OF NATURAL PHENOMENA. By Her-bert B. Harrop and Lewis A. Wallis. Columbus, Ohio: Harrop & Wallis. 1895. Pp. 159. 12mo. Illustrated.

The preface says: "There is a class of persons who have acquired a thorough knowledge of their special callings and who would become better acquainted with Mother Nature in all her aspects if this acquaintanceship might be brought about without tedious delving among learned volumes which they have probably neither the time nor the inclination to read. Bearing in mind these facts, we have attempted to supply all necessary explanations, and to solve the problems which these difficulties present, with what success remains to be seen."

ALTERNATING ELECTRIC CURRENTS. By Edwin J. Houston, Ph.D., and A. E. Kennelly, Sc.D. New York: The W. J. Johnston Company. 1895. Pp. 225. 16mo. 77 illustrations. Price \$1.

This is the first of ten volumes of an "Elementary Electro-Technical Series," designed to give concise and authoritative information concerning those branches of electro-technical science having a general interest. The subjects to be treated are alternating currents, electric heating, electro-magnetism, electricity in electro-therapeutics, are lighting, incandescent lighting, electric motors, electric street railways, telephony, and telegraphy. The authors state that though the several volumes form a series, each is, nevertheless, so prepared as to be complete in itself, and can be understood independently of the others. The authors of "Alternating Electric Currents" treat the fundamental principles underlying this difficult branch of electrical engineering in the simplest language and without the use of mathematics any further advanced than ordinary arithmetic.

TO INVENTORS.

An experience of nearly tifty years, and the preparation of more than one hundred thousand applications for pa-tents at bome 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 ex-tensive facilities for conducting the business. Address MUNN & CO., office SCIENTIFIC AMERICAN, 361 Broad-

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

October 15, 1895,

AND EACH BEARING THAT DATE.

(See note at end of list about copies of these patents.)

Air compressing apparatus, Griffiths & Nieder-
mayer
Air compressor hydraulic, J. H. Champ. 547.768
mayer
Alarm. See Fire alarm.
Alaim. See File alaim.
Amaigamating compound, C. N. vigneron 547,824
Bake pan, L. R. Smith 547,855
Balloon, navigable, W. N. Hutchinson 548.053
Band cutter and feeder. A. W. Denton 548.043
Beeding ettechment for cornice brekes I H
Crooker 549 Min
Donates and formed hos soller M. D. Boles P. (0.190
Bearing and journal box, roller, w. E. Paige 548,130
Bearing, ball, C. H. Cook
Bearing, ball. W. S. Ferguson
Rearing, detachable ball, C. H. Cook
Ped folding C M Wagner 517 975
Doll blonds A Nicholas
Bell, Dicycle, A. Nicuolas
Beil, Dicycle, E. D. Rockwell
Belting, R. Hoffman 547.788
Bicycle frame connection, W. J. Grinden 547.990
Alarm See Fire alarm. 547,824 Amalgamatine compound, C. N. Vigneron 547,825 Bake ran, L. R. Smith 548,943 Balloon, alwayable. N. Hutchinson 548,043 Band cutter and feeder, A. W. Denton 548,043 Beading ttachment for cornice brakes, J. H. 548,043 Bearing and journal box, roller, W. E. Palge 548,158 Bearing, ball, U. H. Cook 548,158 Bearing, detachable ball, C. H. Cook 548,158 Bed, folding, C. M. Wagner 547,858 Bell, bleycle, B. Nebolas 547,858 Belting, R. H. Hoffman 547,763 Belting, R. H. Hoffman 547,858 Bicycle frame connection, W. J. Grindeu 547,838 Bicycle frame connection, W. J. Grindeu 547,838 Bicycle wheel, C. A. Purvis 348,138
Binder cover temporary F D Hutchins 547 994
Binder temporary to Trambles 547 000
Diale Non Pulding blook Dislom blook
Dollar Oce Dillumy Diock. Philow Diock.
Doller. See Steam boller.
Boller, H. Biancolni
Bouers, circulation in steam, Hinckley & Pierce 547,787
Boot or shoe soles, appliance for buffing, H. A.
Bicycle frame connection, W. J. Grindeu
Boot soles, machine for nailing on, J. Albrecht 547.946
Boringtool Fowler & Hill 547 880
Pottle F I Foregren 547 015
DOUTE E. L. PUISE EIL
Bottle, T. C. Newman
Bottle or jug filling apparatus, J. J. Hagins 548,123
Bottle stopper. B. Dreyfuss
Bottle stopper, S. Oakman547,936
Box. See Cracker containing and display box.
Bracket. See Curtain bracket.
Brake. See Car brake.
Bread and preparing same, H. D. Perky
Building block, artificial, L. F. Griffin
0
Burner. See Gas burner. Gas are burner.
Button, spacer, A. J. Sbipley
Button, See Gas ourner. Gas are ourner. Button, spacer, A. J. Sbipley
Burton, spacer, A. J. Sbipley
Burtner. See Gas ourner. Gas are ourner. Button. spacer, A. J. Sbipley
Burton, spacer, A. J. Sbipley
Burtner. See Gas ourner. Gas are ourner. Button. spacer, A. J. Shipley. 548,143 Camera. See Dark room camera. 548,099 Can lining, preserving, H. Thompson. 548,099 Cane cutter, E. W. Ross. 548,009 Cane weaving loom. E. Morris. 548,009 Car brake, E. Prouty. 547,955
Burtner. See Gas burner. Gas are burner. Button. spacer, A. J. Sbipley
Burtner. See Gas ourner. Gas fire ourner. Samera. See Dark room camera. Can lining, preserving, H. Thompson. 548,099 Cane cutter, E. W. Ross. 548,009 Cane weaving loom. B. Morris. 548,009 Car brake, E. Prouty. 547,955 Car brake, street, H. T. Atkinson. 548,005 Car coupling. A. J. Coleman. 547,876
Burtner. See Gas burner. Gas fire burner. Button. spacer, A. J. Sbipley
Burtner. See Gas Durner. Gas fire Durner. Samera. See Dark room camera. Can lining, preserving, H. Thompson. 548,099 Cane cutter. E. W. Ross. 548,009 Cane weaving Joom. E. Morris. 54,804 Car brake, E. Prouty. 547,955 Car brake, Street, H. T. Atkinson. 548,025 Car coupling, A. J. Coleman. 547,875 Car coupling, A. J. Coleman. 547,875 Car coupling, J. Kling. 548,008
Burtner. See Gas burner. Gas are burner. Button. spacer, A. J. Sbipley. 548,143 Camera. See Dark room camera. Can lining, preserving, H. Thompson. 548,099 Cane cutter, E. W. Ross. 548,099 Cane weaving loom. E. Morris. 541,884 Car brake, E. Prouty. 547,965 Car brake, street, H. T. Atkinson. 548,095 Car coupling, J. Kling. 547,876 Car coupling, J. Kling. 548,086
Burtner. See Gas ourner. Gas are ourner. Samera. See Dark room camera. Can lining, preserving, H. Thompson. 548,089 Cane cutter. E. W. Ross. 548,009 Cane weaving loom. E. Morris. 548,009 Cane weaving loom. E. Morris. 548,009 Car brake, E. Prouty. 547,955 Car brake, E. Prouty. 548,025 Car coupling, A. J. Coleman. 548,025 Car coupling, J. Kling. 548,088 Car coupling, J. Somerville. 548,088
Burtner. See Gas burner. Gas are outner. Button. spacer, A. J. Sbipley. 548,143 Camera. See Dark room camera. 548,099 Cane Can lining, preserving, H. Thompson. 548,099 Cane cutter, E. W. Ross. 548,099 Cane weaving loom. E. Morris. 541,884 Car brake. E. Prouty. 547,965 Car brake. E. Prouty. 547,965 Car coupling, A. J. Coleman. 548,095 Car coupling, J. Kling. 548,086 Car coupling, J. Kling. 548,086 Car coupling, J. Kling. 548,086 Car coupling, J. Klong. 548,088 Car coupling, J. F. Thomas. 548,088 Car coupling, J. E. Thomas. 548,088 Car fender, H. Histand 547,982
Burner. See Cas ourner. Gas are ourner. Button. spacer, A. J. Sbipley. 548,143 Cam lining, préserving, H. Thompson 548,099 Cane cutter. E. W. Ross. 548,099 Cane weaving loom. E. Morris 541,884 Car brake. E. Prouty. 541,884 Car coupling, A. J. Coleman 547,875 Car coupling, J. Kling. 540,875 Car coupling, J. F. Thomas. 545,885 Car fender, H. Hiestand 545,942 Car fender, E. Hiestand 548,164 Zar fender, C. H. Hofmeister. 548,164
Burtner. See Gas burner. Gas are burner. Button. spacer, A. J. Sbipley. 548,143 Camera. See Dark room camera. Can lining, preserving, H. Thompson 548,099 Cane cutter, E. W. Ross. 548,009 Cane weaving loom. E. Morris 541,884 Car brake. E. Prouty. 547,965 Car coupling, A. J. Coleman 547,876 Car coupling, J. Kling. 548,086 Car coupling, J. Kling. 540,086 Car coupling, J. Kling. 547,876 Car coupling, J. Kling. 547,878 Car coupling, J. Kling. 547,878 Car coupling, J. Kling. 547,878 Car coupling, J. Kling. 548,088 Car coupling, J. Hobmas. 548,088 Car fender, H. Hiestand 547,982 Car fender, C. H. Hofmeister 588,164 Car fender, C. H. Hofmeister 588,164 Car fender, J. Landau. 588,013
Burner. See Cas ourner. Gas are ourner. Samera. See Dark room camera. Can lining, preserving, H. Thompson 548,099 Cane cutter. E. W. Ross. 548,099 Cane weaving loom. E. Morris 547,884 Car brake, E. Prouty. 547,965 Car coupling, A. J. Coleman 547,876 Car coupling, J. Kline. 540,877 Car coupling, J. Kline. 540,878 Car coupling, J. Kline. 540,878 Car center our coupling, J. Somerville. 547,878 Car center our coupling, J. Kline. 540,878 Car fender, H. H istand 547,878 Car fender, C. H. Hofmeister. 548,164 Car fender, C. H. Hofmeister. 548,164 Car fender, J. Landau 548,019 Car fender, J. Landau 548,019
Burtner. See Gas burner. Gas are burner. Button. apacer, A. J. Sbipley. 548,143 Camera. See Dark room camera. Can lining, preserving, H. Thompson 548,099 Cane cutter, E. W. Ross. 548,009 Cane weaving loom. E. Morris 54,894 Car brake. E. Prouty. 547,965 Car brake. street. H. T. Atkins on 548,005 Car coupling, A. J. Coleman 547,876 Car coupling, J. Kling. 548,088 Car coupling, J. Kling. 548,088 Car coupling, J. Somerville. 547,878 Car coupling, J. F. Thomas. 548,038 Car fender, H. Hi estand 547,985 Car fender, C. H. Hofmeister. 588,164 Car fender, J. Landau. 580,111 Car fender, A. J. Thornley Car lender, A. J. Thornley Car
Burtner. See Sourner. Gas are outrier. Button. spacer, A. J. Sbipley. 548,143 Camera. See Dark room camera. Can lining, preserving, H. Thompson 548,099 Cane cutter. E. W. Ross. 548,099 Cane weaving loom. E. Morris. 547,855 Car brake, E. Prouty. 547,955 Car coupling, A. J. Coleman 547,876 Car coupling, J. Klins. 540,267 Car coupling, J. Klins. 540,267 Car coupling, J. Klins. 540,267 Car coupling, J. F. Thomas. 547,878 Car fender, H. Hiestand 547,878 Car fender, C. H. Hofmeister. 548,164 Car fender, J. Landau 548,019 Car fiender, J. Landau 548,019 Car fiender, A. J. Thornely 548,019 Car fighting apparatus, electric, W. Biddle 547,855 Car fer planting apparatus, electric, W. Biddle 547,855 Car fender, J. Agan. 547,888
Burner. See Gas burner. Gas fre burner. Button. spacer, A. J. Sbipley. 548,143 Camera. See Dark room camera. 548,099 Cane curter, E. W. Ross. 548,009 Cane weaving loom. E. Morris. 548,089 Car brake. E. Prouty. 547,965 Car brake. Street, H. T. Atkins on. 548,095 Car coupling, A. J. Coleman. 547,876 Car coupling, A. J. Coleman. 547,876 Car coupling, J. Somerville. 547,876 Car coupling, J. Somerville. 547,878 Car coupling, J. Somerville. 547,878 Car fender, H. Hi estand 543,938 Car fender, C. H. Hofmeister. 588,048 Car fender, J. Landau. 580,011 Car fender, A. J. Thornley 588,010 Car fender, A. J. Thornley 588,010 Car fender, A. J. Thornley 588,010 Car spacer, J. Ragan. 547,839 Car spacer, J. Ragan. 547,839 Car spacer, Jandra silway. W. Watkins. 548, 809
Burner. See Sa burner. Gas are burner. Button. spacer, A. J. Sbipley. 548,143 Camera. See Dark room camera. 548,069 Can lining, preserving, H. Thompson 548,069 Cane weaving loom. E. Morris. 541,884 Car brake, E. Prouty. 547,965 Car brake, E. Prouty. 547,965 Car coupling, J. K. Ilms. 547,876 Car coupling, J. K. Ilms. 547,876 Car coupling, J. K. Ilms. 540,068 Car coupling, J. K. Thomas. 548,078 Car fender, H. H. estand 547,982 Car fender, E. H. Thomas. 548,078 Car fender, J. Landau 548,078 Car fender, J. Landau 548,078 Car fender, J. Thorney 548,019 Car lighting apparatus, electric, W. Biddle 547,835 Car speaker, J. Ragan. 548,838
Burner. See Cas ourner. Gas are ourner. Button. spacer, A. J. Shipley. 548,143 Cam leining, preserving, H. Thompson. 548,099 Cane cutter. E. W. Ross. 548,099 Cane weaving loom. E. Morris. 541,884 Car brake, E. Prouty. 547,885 Car coupling, J. Kling. 548,085 Car coupling, J. Kling. 548,087 Car fender, H. Hi stand 547,087 Car fender, L. Hadau. 548,088 Car fender, J. Landau. 548,088 Car fender, J. Thomps. 548,088 Car fender, J. Thomps. 548,088 Car fender, J. Thomps. 548,088 Car fender, J. Raganya. 547,089 Car seat descattationent, railway. J. Vates. 547,889 Car shifting application of the January Fig. 547,889
Burner. See Sourner. Gas are outrer. Button. spacer, A. J. Sbipley. 548,143 Camera. See Dark room camera. Can lining, preserving, H. Thompson 548,069 Cane cutter, E. W. Ross. 548,069 Cane weaving loom. E. Morris. 541,884 Car brake, E. Prouty. 547,965 Car coupling, A. J. Coleman 547,876 Car coupling, J. K. Iling. 548,089 Car coupling, J. K. Iling. 548,089 Car coupling, J. K. Thomas. 548,081 Car coupling, J. E. Thomas. 548,082 Car fender, H. H. is stand 547,982 Car fender, E. H. Chrimeister. 581,643 Car fender, J. Landau 548,083 Car fender, J. Landau 548,083 Car fender, J. Landau 548,083 Car fender, J. Thorniey 588,019 Car lighting apparatus, electric, W. Biddle 57,885 Car speacer, J. Ragan. 547,830 Car salety guard, railway, W. Watkins 548,013 Car seat desk attachment, railway, J. L. Yates. 547,830 Car selfting appliance for pleasure railways, J.
Burner. See Cas ourner. Gas are ourner. Button. spacer, A. J. Shipley. 548,143 Cam lining, preserving, H. Thompson. 548,099 Cane cutter. E. W. Ross. 548,099 Cane waving loom. E. Morris. 541,884 Car brake. E. Prouty. 547,885 Car coupling, J. Kline. 548,865 Car fender, H. He stand 547,867 Car fender, L. He stand 547,867 Car fender, J. Landsu. 548,868 Car fender, J. Landsu. 548,061 Car fender, J. Landsu. 548,061 Car fender, J. Randsu. 548,061 Car fender, J. Randsu. 548,061 Car fender, J. Randsu. 548,061 Car spacer, J. Ragan. 547,869 Car safety guard, railway. Watkins. 547,859 Car safety guard, railway. Watkins. 547,859 Car safety guard, railway. Watkins. 547,850 Car safety guard, railway. Watkins. 547,850 Car shitting appliance for pleasure railways. J. A. Griffiths. 560,000
Burner. See Bas burner. Gas are burner. Button. spacer, A. J. Sbipley. 548,143 Camera. See Dark room camera. Can lining, preserving, H. Thompson. 548,069 Cane cutter, E. W. Ross. 548,069 Cane weaving loom. E. Morris. 541,884 Car brake, E. Prouty. 547,965 Car coupling, J. K. Ilms. 548,087 Car coupling, J. K. Ilms. 548,087 Car coupling, J. K. Ilms. 548,087 Car coupling, J. K. Thomas. 548,087 Car coupling, J. E. Thomas. 548,087 Car fender, H. Hi estand 547,982 Car fender, E. Homeister. 548,168 Car fender, J. Landau. 548,088 Car fender, J. Landau. 548,089 Car lighting apparatus, electric, W. Biddle 547,885 Car spacer. J. Rag an. 547,830 Car seat desk attachment, railway, J. L. Vates. 547,830 Car sbifting appliance for pleasure railways, J. A. Griffiths. 548,199 Car signal, H. S. Teal 547,888
Burner. See Cas ourner. Gas are ourner. Button. spacer, A. J. Sbipley. 548,143 Cam lining, preserving, H. Thompson. 548,099 Cane cutter. E. W. Ross. 548,099 Car brake. E. Prouty. 547,895 Car brake. E. Prouty. 547,895 Car coupling, J. Kine. 548,895 Car fender, H. Hiestand 547,895 Car fender, C. H. Hofmeister. 582,164 Car fender, J. Landau. 548,015 Car finder, J. Landau. 548,015 Car finder, J. Landau. 548,015 Car finder, J. Handau. 548,015 Car spacer, J. Ragan. 548,019 Car safety guard, railway, W. Watkins. 547,889 Car safety guard, railway, W. Watkins. 547,889 Car sultting apparatus, electric, W. Biddle. 547,835 Car sultting appliance tor pleasure railways, J. A. Griffiths. 548,169 Car signal, H. S. Teal. 547,889 Car signal, H. S. Teal. 547,889 Car signal, H. S. Teal. 547,830
Burner. See Bas burner. Gas are burner. Button. spacer, A. J. Sbipley. 548,143 Camera. See Dark room camera. Can lining, preserving, H. Thompson 548,069 Cane cutter, E. W. Ross. 548,069 Cane weaving loom. E. Morris. 541,884 Car brake, E. Prouty. 547,965 Car coupling, J. K. Ilms. 548,087 Car coupling, J. E. Thomas. 548,087 Car coupling, J. E. Thomas. 548,087 Car fender, H. H. is stand 547,982 Car fender, E. H. Chronieys 548,010 Car fender, J. Landau. 548,087 Car fender, J. Landau. 548,087 Car fender, J. Ragan. 548,087 Car fender, J. Ragan. 548,087 Car fender, J. Ragan. 548,087 Car spincer, J. Ragan. 547,888 Car ventilator, B. F. Hugbson 547,887 Car carcasses. 4tc., apparatus for working up animal,
Burner. See Cas ourner. Gas are ourner. Button. spacer, A. J. Sbipley. 548,143 Cam leining, préserving, H. Thompson 548,099 Cane cutter. E. W. Ross. 548,099 Cane weaving loom. E. Morris 541,884 Car brake. E. Prouty. 547,895 Car coupling, J. Kline. 548,095 Car fender, H. Hiestand 547,895 Car fender, D. Hofmeister. 581,164 Car fender, J. Landau. 548,010 Car fender, J. Landau. 548,010 Car finder, J. Landau. 548,010 Car finder, J. Landau. 548,010 Car finder, J. Randau. 547,895 Car safety guard, raliway. W. Watkins. 548,010 Car safety guard, raliway. J. L. Yates. 547,880 Car safety guard, raliway. W. Watkins. 548,010 Car safety. 548,010 Car s
Burner. See Bas burner. Gas are burner. 2 Samera. See Dark room camera. 2 Camera. See Dark room camera. 2 Can lining, preserving, H. Thompson. 548,099 2 Cane weaving loom. E. Morris. 547,965 Car brake, E. Prouty. 547,965 Car coupling, J. Klins. 548,099 Car coupling, J. Klins. 548,099 Car coupling, J. Klins. 547,879 Car coupling, J. Klins. 547,879 Car coupling, J. Klins. 548,099 Car coupling, J. Klins. 548,099 Car fender, H. Hi-stand 547,982 Car fender, L. Homelster. 548,011 Car fender, J. Landau. 548,011 Car fender, J. Landau. 548,011 Car fender, J. Thornley. 548,011 Car fender, J. Ragan. 547,835 Car selpacer, J. Ragan. 547,835 Car selpacer, J. Ragan. 548,012 Car selpacer, J. Ragan. 547,835 Car selpacer, J. Ragan. 547,836 Car selpacer, J. Ragan. 547,836 Car selpacer, J. Ragan. 547,836 Car selpacer, J. Ragan. 547,837 Car selpacer, J. Ragan. 547,836 Car selpacer, J. Strait. 548,144
Burner. See Bas burner. Gas are burner. Samera. See Dark room camera. Can lining, preserving, H. Thompson. 548,089 Cane weaving loom. E. Morris. Car brake. E. Prouty. Car brake. E. Prouty. Car brake. E. Prouty. Car coupling, J. Kine 547,265 Car coupling, J. Kine 548,089 Car coupling, J. Kine 547,267 Car coupling, J. Kine 547,267 Car coupling, J. Kine 548,089 Car coupling, J. Kine 548,089 Car cepping, J. E. Thomas 548,089 Car fender, H. Hiestand 547,262 Car fender, J. Landsu Car fighting apparatus, electric, W. Biddle 547,889 Car safety guard, railway, W. Watkins Car safety guard, railway, W. Watkins Car self, J. Ray J. A. Griffiths Car seignal, H. S. Teal Car ventilator, B. F. Hughson Car ventilator, B. F. Hughson Car carriage curtain fastener, C. L. Ingalls 548,000 547,830 Carrosases, etc., apparatus for working up animal, H. C. F. Otte 547,831 Carriage curtain fastener, C. L. Ingalls 548,000
Burner. See Sa burner. Gas are burner. 2 Samera. See Dark room camera. 2 Camera. See Dark room camera. 2 Can lining, preserving, H. Thompson. 548,099 2 Cane weaving loom. E. Morris. 548,099 2 Car brake, E. Prouty. 547,965 Car coupling, J. K. Ins. 548,099 2 Car coupling, J. K. Ins. 547,879 Car coupling, J. K. Ins. 548,099 Car coupling, J. K. Ins. 547,879 Car coupling, J. K. Ins. 548,099 Car coupling, J. E. Thomas. 547,982 Car fender, H. Hi-stand. 547,982 Car fender, J. Thorney. 548,071 Car spingle, T. Ragan. 547,883 Car seldes attachment, railway, J. L. Yates. 547,883 Car soliting applance for pleasure railways, J. A. Griffiths. Car signal, H. S. Teal. 547,883 Car ventilator, B. F. Hughson. Caroessee, setc., apparatus for working up animal, H. C. F. Otte. 548,040 Carpet beater. T. J. Strait. 548,040 Care. See Key case. 548,040 Care. See Key case. 548,040 Case. See Key case. 548,040
Burtner. See Bas burner. Gas are burner. Samera. See Dark room camera. Can lining, preserving, H. Thompson. 548,099 Cane cutter. E. W. Ross. Car brake. E. Prouty. Car brake. E. Prouty. Car brake. E. Prouty. Car brake. E. Prouty. Car coupling, J. Kins. Car coupling, J. Kins. S48,099 Car coupling, J. Kins. S48,092 Car coupling, J. Kins. S48,093 Car coupling, J. E. Thomas. S48,093 Car fender, H. Hiestand S48,093 Car fender, H. Hiestand S48,093 Car fender, J. Landau. S48,093 Car safety guard, railway. W. Watkins Car seat desk attachment, railway. J. L. Yates. S48,093 Car safety guard, railway. W. Watkins Car seat desk attachment, railway. J. L. Yates. S48,093 Car seignal, H. S. Teal Car ventilator, B. F. Hugbson Car San haddent A. Ventilator A. Ventilator A. Ventilator A. Ventilator A.
Bracket. See Curtain bracket. Brake. See Car brake. Bread and preparing same, H. I. Perky. S47,360 Burder. See Gas burner. Gas fire burner. Button spacer, A. J. Stipley. Samera. See Dark room camera. San lining, preserving, H. Thompson. S48,090 Sane curter, E. W. Ross. S48,090 Sane weaving loom. E. Morris. Sar brake, E. Frouty. S47,361 Sar brake, E. Frouty. S47,362 Sar brake, E. Frouty. S47,363 Sar coupling, A. J. Coleman. S47,371 Sar coupling, J. Kling. S48,038 Sar coupling, J. Somerville. S47,788 Sar coupling, J. Somerville. S47,788 Sar coupling, J. Somerville. S47,788 Sar fender, H. Hiestand. S48,038 Sar fender, C. H. Hofmeister. S48,164 Sar signal, J. Ragan. S47,858 Sar replacer, J. Ragan. S48,038 Sar safety guard, railway. W. Watkins. S48,038 Sar safety guard, railway. W. Watkins. S48,038 Sar seat desk attachment, railway. J. L. Yates. S47,838 Sar seat desk attachment, railway. J. L. Yates. S47,838 Sar ventilator, B. F. Hughson. Sar signal, H. S. Teal. S47,838 Sar ventilator, B. F. Hughson. S47,839 Sar ventilator, B. F. Hughson. S47,830 Sar pet setter, T. J. Stratt. S48,148 S47,830 Sas hegister and indicator. C. Price. S47,839 Sas hegister and indicator. C. Price. S47,839 Sas hegister and indicator. C. Price. S47,839
Burtner. See Bas burner. Gas are burner. Samera. See Dark room camera. Can lining, preserving, H. Thompson. 548,099 Cane cutter. E. W. Ross. 548,099 Cane weaving loom. E. Morris. 547,895 Car brake, E. Prouty. 547,895 Car brake, E. Prouty. 547,895 Car coupling, J. Klins. 548,092 Car coupling, J. Klins. 548,093 Car coupling, J. E. Thomas. 548,093 Car dender, H. Hiestand 547,993 Car fender, H. Hiestand 547,993 Car fender, J. Landau. 548,093 Car fender, J. Landau. 548,093 Car fender, J. Landau. 548,019 Car lighting apparatus, electric, W. Biddle 547,895 Car safety guard, railway, W. Watkins 548,019 Car safety guard, railway, W. Watkins 548,019 Car seafety guard, railway, W. Watkins 548,019 Car seafety guard, railway, W. Watkins 548,010 Car seafety guard, railway w. Watkins 548,010 Car seafety guard, railway, J. L. Yates 547,898 Car seignal, H. S. Teal 547,898 Car seafety care. 547,898 Car seafety care. 547,898 Car seafety care. 547,898 Car seafety care. 548,140 Carples Carlotter and register, Durbam & Linck 547,772 Casb register and indicator, C. Price 547,898 Cask W. Stern 547,901
Burtner. See Bas burner. Gas are burner. Samera. See Dark room camera. Can lining, preserving, H. Thompson. 548,099 Cane cutter. E. W. Ross. 548,099 Cane weaving loom. E. Morris. 541,848 Car brake. E. Prouty. 547,848 Car brake. E. Prouty. 547,848 Car coupling, J. Kling. 548,089 Car coupling, J. Fromas. 548,389 Car fender, H. Hiestand 547,848 Car fender, E. Hofmeister. 548,149 Car fender, J. Landsu. 548,019 Car fender, J. Landsu. 548,019 Car fender, J. Ragan. 548,019 Car fender, J. Ragan. 548,019 Car safety guard, railway. W. Watkins. 548,189 Car safety guard, railway. W. Watkins. 548,189 Car safety guard, railway. W. Watkins. 548,189 Car safety guard, railway. W. Watkins. 547,889 Car safety guard, railway. W. Watkins. 547,889 Car ventilator, B. F. Hughson. 547,880 Car ventilator, B. F. Hughson. 547,880 Carpet beater. T. J. Strat. 548,190 Carpet beater. T. J. Strat. 548,040 Case. See Key case. Packing case. Cash register and indicator, C. Price. 547,880 Cask. W. Stern. 548,000
Burtner. See Bas burner. Gas are burner. Samera. See Dark room camera. Can lining, preserving, H. Thompson. 548,099 Cane cutter. E. W. Ross. 548,099 Cane weaving loom. E. Morris. 541,898 Car brake, E. Prouty. 547,955 Car coupling, J. K. Ilms. 547,895 Car coupling, J. K. Ilms. 547,897 Car coupling, J. K. Ilms. 548,098 Car coupling, J. K. Ilms. 547,898 Car coupling, J. K. Ilms. 548,098 Car coupling, J. K. Ilms. 548,098 Car dender, H. H. estand 547,998 Car fender, H. H. estand 547,998 Car fender, J. Landau 548,098 Car fender, J. Landau 548,098 Car seate desk attachment, railway, J. L. Yates. 547,898 Car seate desk attachment, railway, J. L. Yates. 547,898 Car seate desk attachment, railway, J. L. Yates. 547,898 Car seate desk attachment, railway, J. L. Yates. 547,898 Car seate desk attachment, railway, J. L. Yates. 547,898 Car seate desk attachment, railway, J. L. Yates. 547,898 Car seate desk attachment, railway, J. L. Yates. 547,888 Car seate desk attachment, railway, J. L. Yates. 547,888 Car seate desk attachment, railway, J. L. Yates. 547,888 Car seate desk attachment, railway, J. L. Yates. 547,888 Car seate desk attachment, railway, J. L. Yates. 547,888 Car seate desk attachment, railway, J. L. Yates. 547,888 Car seate desk attachment, railway, J. L. Yates. 547,888 Car seate desk attachment, railway, J. L. Yates. 547,888 Car seate desk attachment, F. L. Ingalls. 548,080 Casek. W. See Key case. Packing case. Cash indicator and register, Dunbam & Linck. 547,772 Cash register and indicator, C. Price. 547,889 Cask. W. Stern. 548,080
Burton. Spacer, A. J. Sbipley. 548,143 Camera. See Dark room camera. Can lining, preserving, H. Thompson. 548,099 Cane cutter. E. W. Ross. 548,099 Cane weaving loom. E. Morris. 541,884 Car brake. E. Prouty. 547,895 Car coupling, J. Kling. 548,895 Car fender, H. He stand 547,895 Car fender, E. Hofmeister. 548,169 Car fender, J. Landsu. 548,915 Car fender, J. Landsu. 548,019 Car fender, J. Randsu. 548,019 Car fender, J. Randsu. 548,019 Car fender, J. Randsu. 548,019 Car safety guard, railway. W. Watkins. 547,885 Car safety guard, railway. W. Watkins. 547,880 Car safety guard, railway. W. Watkins. 548,169 Car safety guard, railway. F. Vates. 547,880 Car safety guard, railway. W. Watkins. 548,169 Car safety guard, railway. G. L. Yates. 547,880 Car safety guard, railway. J. L. Yates. 547,880 Car safety guard, railway. G. L. J. Safety. 548,169 Car curting fastener, C. L. Ingalls. 548,184 Carpet beater. T. J. Strait. 548,040 Casting and conveying metals, apparatus for and 548,040
Burtner. See Bas burner. Gas are burner. Button. spacer, A. J. Sbipley
Burtner. See Bas burner. Gas are burner. Samera. See Dark room camera. Can lining, preserving, H. Thompson. 548,099 Cane cutter, E. W. Ross. 548,099 Cane weaving loom. E. Morris. 541,894 Car brake, E. Prouty. 547,965 Car coupling, J. K. Ilms. 548,095 Car coupling, J. K. Ilms. 548,096 Car fender, H. H. is stand 547,992 Car fender, L. H. Homeister. 582,164 Car fender, J. Landau. 548,096 Car finder, J. Landau. 548,096 Car lighting apparatus, electric, W. Biddle 547,895 Car splacer. J. Rag an. 547,895 Car seat desk attachment, railway, W. Watkins 548,199 Car selecty guard, railway, W. Watkins 547,895 Car selecty guard, railway, W. Watkins 548,995 Car

270		
C ain splice, drive, G. B. Nesmith	547.964	1
Cburn, L. C. Ryan	548.095 548,077	Ī
of, M.C. StoneCircuit closer and sprinkler combination, G. A.	547.970 547.825	N
Vall Clasp or safety pin, O. Voss Cock, ball, W. Scott. Condenser, steam, H. A. Wheeler. Convertible char, J. Kjellen.	547,825 547,905 547,968 548,105	M
Convertible chair, J. Kjellen Copy holder, J. McClure, Jr Cotton openers, etc., feeding device for, Mus-	548,067 548,080	Ŋ
Coupling. See Car coupling. Electromotor	547,934	N
coupling. Cracker containing and display box, O. D. Royer Crank, adjustable stroke, J. P. Johansson.	547.089	N
Crib, cradle, and settee, combined, E. Miller, Jr. Cultivator, J. P. Adair	548,005 548,107	1
Royer Crank, adjustable stroke, J. P. Johansson. Crib, cradle, and settee, combined, E. Miller, Jr Cultivator, J. P. Adair Curling iron, J. A. Radford Curtain bracket, E. T. Partyka Cut-off for pumps, etc., automatic, R. Thayer. Cutter. See Band cutter. Cane cutter. Cutter cylinder, J. Boyle Cyanides, recovering. B. Hunt. Damper or beat deflector, E. R. Fitch. Dark room camera, W. E. Lee Decorative films, roll for applying, W. H. Coe. Delivery apparatus, coin-freed, L. Ceechi Dental drill extractor, T. A. Balley Desk attachment, office, F. H. Cutler.	547,863 547,804 548,097	NAMEDIA
Cutter. See Band cutter. Cane cutter. Cutter cylinder, J. Boyle Cyanides, recovering. B. Hunt.	547,984 548,058	F
Dark room camera, W. E. Lee Decorative films, roll for applying, W. H. Coe	547,855 548,113	H
Dental drill extractor, T. A. Bailey Desk attachment, office, F. H. Cutler	547.872 548.114	E
& Bird	548,162	ŀ
Door shield, storm, M. Crupe Drills, etc. means for holding twist, Cox, Jr., & Armstrong	547.912 548,037	I
Armstrong Dye and making it, green, E. Elsaesser Electric cables, apparatus for placing, E. S. Reid. Electric generator, thermo, H. B. Cox	548,158 547,891 548,039	F
Electric generator, thermo, H. B. Cox Flectric beater, G. H. Whittingham Electric illumination by intermittent and per- manent interruption in vacuum, phosphores- cent D. M. Moore		F
cent D. M. Moore Electric light, apparatus for generating phosphorescent, D. M. Moore Electric lighting system, D. M. Moore	548,133 548.131	H
Mectrical and mechanical orage, combined, J. K.	548,128 547,847	E
Cravath Electrical illumination. D. M. Moore	548,129 548.134	Ī
cent. D. M. Moore	548.132	I
netic induction, regulation of. D. M. Moore Electromotor coupling, F. Marburg, Jr Elevator, F. S. Braid	548,130 547,930 547,765	Ė
elictrical phosphorescent illumination by magnetic induction, regulation of D. M. Moore Electromotor coupling, F. Marburg, Jr. Elevator, J. S. Trott Elevator guard, H. Walbaum, Jr. End vate for boys' express wagons, J. Edleblute Engine, See Fire engine.	547,765 547,972 548,147 547,774	I
Engine See Fire engine. Engine reversing mechanism, steam, L. D. Epperson	547,849	I
son. Engines, apparatus for working gas or oil motor, H. Schumm. Engines, automatic cut-off for, J. Gudeman	548.142 547,951	H
Envelope, letter sheet, J. Pusey Extractor. See Gold and silver extractor. Eyes[ass frame. S. Esstman. Fare register, J. B. Bentim. Farm gate. P. Staats.	547,879	F
Fare register, J. B. Benton. Farm gate. P. Staats Feed driving mechanism, Leland & Cheney Feedwater heater and purifier, J. T. Budd	547.981 547.815 548,167	E
Feedwater heater and purifier, J. T. Budd Felly expander, C. Hoffman Fence, M. Neff	547,910 547,789 547,858	E
Felly expander, C. Hoffman Fence, M. Neff Fence machine, wire, I. Koss Fence machine, wire, F. H. Warne. Fence making machine, slat and wire, C. Neate Fibers, treating textule vegetable, A. F. B.	547,998 547,945 547,857	E
Fibers, treating textile vegetable, A. F. B. Gomess	548.121 i 547.890	I
Fifth wheel, E. B. Smith Filing receptacle, F. Tramblay Filter, C. W. Isb ell	548,015 547,870 547,923	I
Gomess. 548,120, Fifth wheel, E. B. Smith Filting receptacle, F. Tramblay. Filter, C. W. Isbell Filtering material apparatus for unraveling and washing, Pobl & Linz. Firearm, breech-loading, Lundgren & Viau.	547.805 548.075	I
Fire cracker, E.S. Hunt	547,900 547,921 547,871 547,918	ŀ
Fire escape, P. J. Gates Flower pot turn-table, J. H. Kitson Fodder mill, A. F. Dayis	547,918 547,926 547,849 547,778]
Fire engine, band. Arkinson & Miller Fire escape, P. J. Gates Flower pot turn-table, J. H. Kitson. Fodder mil, A.F. Dayis. Folding seat. W. W. Frantz. Foot support, S. J. Adams. Frut press, W. C. Leet Furnace. See Gas producing farnace, Furnace door, E. W. Harris. Fuse, blasting, J. Watson Fuse, shell, G. M. Hathaway	547.778 548,024 548,166	5
Furnace. See Gas producing furnace. Furnace door, E. W. Harris	548,050 518,022	2020
Fuse, shell. G. M. Hathaway	548,050 548,022 547,852 547,799 547,916	200
wing	547,786	20101
Gas burner, C. Knapp Gas fre burner, R. D. Main Gas producing furnace, L. F. Shinners Gate. See End gate. Farm gate. Railway cross-	548,069 517,959 548,014	
ing gate.	547.832	
Gate, J. H. Andrus. Gate operating mechanism, head, F. C. Brown Gear cutting machine, G. N. Van Derhoef Generator. See Electric generator.		0.00
Generator. See Electric generator. Glue making machinery, P. C. Hewitt. Glue making machinery, sheet spacer for, P. C. Hewitt	548,055 548,057	1
Glue manipulating machinery, P. C. Hewitt	548,056 548,150	
Graduate or measure, J. H. Platt Grain for reducing machines, apparatus for pre- paring H. D. Perky.	547,862 548,087	200
paring, H. D. Perky Grate, Kelfel, Jr., & Zipp Grate, W. H. Page Grenade, band, G. M. Hatbaway	547,854 547,802 547,851 548,051	8
Grinder, A. Hartley Grinding and pulverizing machine, rotary, R. D. Langley Grinding blades of table cutlery, machine for, C.	548,072	67.07.0
E. Roberts Gun. machine, M. F. Smith	547.893 548,096	١
Guns, box magazine and carrier for magazine, W. Mason Guns, cartridge back for magazine, P. Mauser Guns, cartridge bolding pack for magazine, J. M.	548,003 547,932	1
Browning	547,986 547,933	
Guns, safety lock for breech bolts of. P. Mauser. Gutter, A. Neracher. Hame fastener, L. Auderson. Harvester ground wheel, J. Macpbail. Hat and coat rack, W. Matthies. Hat box attachment, M. A. Pelmer. Hat fastener, C. H. Burkhardt. Hat holder, J. J. Welcher. Hat sizing tanks, water purifier for, G. Wells Heading machine. C. W. Durchschlag. Heater, See Electric heater, Feedwater heater, Heel plate, C. N. Tyler. Helel wear plate, C. N. Tyler. Hinge, spring, J. Keene	548,082 547,831 547,794 547,856	
Hat box attachment, M. A. Palmer Hat fastener, C. B. Burkhardt Het holder, J. Weicher	547,856 547,803 547,843	
Hat sizing tanks, water purifier for, G. Wells Heading machine C. W. Durchschlag Heater See Electric heater Feedwater heater.	547,828 547,978 547,773	3
Heel plate, C. N. Tyler Heel wear plate, C. N. Tyler Hinge spring J. Keepe	547,822 547,821 548,064	1
Hook and over I C Corresponden	5.47 7.07	
Hook dress, S. H. Tolman Horseshoe, detachable, S. E. Hennagir.	548,020 548,163 547,887	,
Hulling coffee, etc., machine for, C. A. Hege Hydraulic motor, J. H. Champ Lee Cream freezer gearing S. G. North	548,051 548,035 548,083	
Hook dress, S. H. Tolman Horseshoe, detachable, S. E. Hennagir. Hosecoupling, H. F. Noyes. Hulling coffee, etc., m achine for, C. A. Hege. Hydraulic motor, J. H. Champ. Ice cream freezer gearing, S. G. North. Ice gripf or boots, etc., O. Hass. Indicator. See Cash indicator. Ingot mould, A. Reese.	548,052 547,966	
Insulator for trolley wire supports, J. W. Meaker Iron, treating sheet, E. Coyle	547.931 548,039	! *
Key case, H. E. Keyes	548,065	,
Kinetoscope for advertising and exhibition pur-	547,953	
poses, w.c. ranum Knife cleaning and polishing machine, H. T. Field. Knitting machine, Stiles & Drew. Labeling machine, W. W. Frantz.	548.046	
Date of Dord Dord Pord Dord Dord Dord Dord	F 48 800	
Laddon stop and artansian F Condensili		,
Lamp, electric arc. C. Beseler Catarent Lamp, heandescent electric, E. Cox Lasting jack, D. P. Pewthers Lathing. machine for manufacture of sheet metal, G. Hayes	548,137	
Leather rolling apparatus, G. F. Bogel	. 547,762	1
Bringham Leather, stuffing, B. P. Bradford Life-preserver, A. Von der Ropp Lifter See Pan lifter	. 548.031 . 547,985 547 poe	:
Liquid for removing stains from textile fahrics		ı '

Streatit	1 V	6
Locomotive, C. Sondermann	547,899 648,084	,
Log skidder, L. B. McEwen Loom, T. Greenwood Loom sbuttle, Sutcliffe & Marshall.	548,133 547,782 547,943	,
Locomotive. C. Sondermann. Locomotive bell ringer, Ochse & Malone Log skidder, L. B. McEwen Loom, T. Greenwood Loom shuttle, Sutcliffe & Marshall. Match safe, J. C. F. Kun kle Measurer, adjustable, R. Winchel Metal blooms, etc., apparatus for transferring, E. E. Slick. Metals crytacting, L. L. Hood	548,023 547,895	,
Mill. Seed Foddermill. Pulverizing mill, Saw-		,
Mining machine, H. H. Bliss	547,837 548,104	1
Motor. See Hydraulic motor. Spring motor. Toy gas motor. Mowing machine, C. S. Sharp	548.013	7
Motor. See Hydraulic motor. Spring motor. Toy gas motor. Toy gas motor. Mowing machine, C. S. Sharp. Music box damping device, E. P. Riessner. Music box damping device, E. P. Riessner. Music holder, F. A. Weiss. Nail, W. Shedlock. Note disk or sheet, G. A. Brachhausen Nut and bolt lock, W. L. Clark Nut lock, U. Clark Nut lock, J. P. Gamble. Ordnance breech mechanism, O. F. Leibert. Ord rosser stirrer, C. Pilon.	547,892 547,977 547,812	,
Note disk or sheet, G. A. Braconausen	547.838 548,152 548,151	,
Nut lock, J. P. Gambie. Ordnance breech mechanism, O. F. Leibert Ore roaster stirrer, C. Pilon	547,791 548,088 548,088	ĭ
Packing, Platts & Lowther	548,089 547,833	,
Pants leg bolder, W. S. Foster	547,989 547,969	,
Paper machine, crape, R. W. Bainbridge Pencil sharpener and polisher, W. L. E. Keuffel. Piano exercising attachment, J. H. Salmon	548,108 547,925 547,810 547,844	1
Pirlow block, J. J. Busenbenz. Pipes wrench, McCauley & Winfrey. Pipes air relief for fun discherge Lynch &	348,006	
Pipes, coupling between movable and fixed steam, C. P. Nutter Plane bandle attachment, J. H. Williams. Planing or scraping out round objects, instrument for, P. & P. Keltsch. Planter, corn, W. W. Schultz. Plow attachment, T. A. Neese. Pocket for garments, watch, G. Henley.	547,793 547,935	l,
Plane bandle attachment, J. H. Williams	547,829 547.924	1
Planter, corn, W. W. Schultz	548,141	Í
Pocket for garments, watch. G. Henley Pole climbers, safety device for, D. Mack. Power, electrical transmission of, W. D. Baldwin Power, mechanism for transmission of, J. M.	548.076 547,834	7
Mack Press. See Fruit press. Printing in colors and screens therefor, J. Gast	548.002 547,780	
Printing press ink distributer, G. W. Hunt Printing roller inker, F. A. Turner Propeller, J. Culin	547.922 547.973 543,041 547.907	1
Pulverization of various materials, tubular ball mill for, J. Davidsen.	547,907 548.115 548,016	1
Pump milling attachment, W. Mann. Pump rod connection, F. M. & P. H. Welshimer Pumping reaching current L. E. Miller	548,016 548,125 547,936 548,078	1
Punching machines, controlling device for power, G. L. Stuebner Puzzle apparatus. H. C. Cross.	548,017 547,771	-
G. L. Stuebner. Puzzle apparatus. H. C. Cross. Rack. See Hat and coat rack. Railway conduit system. electric, J. Hartman Railway crossing gate, W. Martin.	547,783 547,795	2
Railway fog signal, Jenkins & Illidge	548.061 547,914 547,928	
Rack. See Hat and coat rack. Railway conduit system, electric, J. Hartman Railway fog signal, Jenkins & Ulidge Railway, series electric, O. B. Finn Railway siknal compensator, A. G. Leonard Railway supply system, electric, J. Hartman Railway supply system, electric, J. Hartman Railway switch, street, I. W. Bliss. Railway system, electric, J. La Burt. Railway ite, m etallic, T. H. H. Messinger. 547,797, Railway tie, m etallic, T. H. H. Messinger. 547,797, Railway, triple track safety, D. S. Van Slyke Railways, staff apparatus for working, single line,	548,032 547,784 547,761	í
Railway syste m.electric, J. La Burt	548,070 547,798 547,823	1
l. A Timmis	547,820	
tric, H. M. Brinckerhoff	547,873 548.004 547,976	-
Register. See Casb register. Fare register. Rein support, W. A. Bruce	547,987	. 1
tric. H. M. Brinckerhoff. Range, J. Mattson Receptacles, feed for S. Wales Revister. See Casb register. Fare register. Reten support, W. A. Bruce. Res ervoirs, cistems, etc., apparatus for cleaning, W. M. Pratber. Revolving chair, J. M. Morgan. Rivet, W. C. Bull. Road making or repairing machine, M. G. Bun-	548,138 547,963 547,988	1
Road making or repairing teachine, in. o. bon nell. Rock crushing machine. G. W. Taft.	547,840 547,818	1
nell Rock crushing machine. G. W. Taft Rope clutch and coupling, A. C. Smith Rotary machine. V. F. Carpenter. Sack filling and sewing machine, automatic, Bibb A Timewell	547,896 548,112	. 1
Sack filling and sewing machine, automatic, Bibb & Timewell Sash fastener, L. L. Bettys. Sash fastener, G. S. Hall. Saw machine, D. Chase. Sawmill, gang band. T. T. Rainford. Saw resawing machine, band. E. C. Mershon. Saw set, J. A. Campbell Saw sharpening tool, P. F. Tappendorff. Saws, etc., tension device for, S. J. Leonard.	548,029 548,110 547,883 547,769	: =
Saw machine, D. Codas Sawmill, gang band. T. T. Rainford Saw resawing machine, band. E. C. Mersbon	547,769 548,091 547,796 548,033	
Saw sharpening tool, P. F. Tappendorff Saws, etc., tension device for, S. J. Leonard Sawing machine, W. V. Long Scraper, wheeled dumping, M. G. Bunnell547,841,	547,971 547,792 548,073	
Beal for packages, detective, W. H. & W. B.	547,842 547,806	İ
Sealing device, bottle, E. Gay	547.781	
Seat. See Folding seat. Vehicle folding seat. Seat or cushion, W. Vogler (r)	11.508	
Wagandt. Seat. See Folding seat. Vehicle folding seat. Seat or cushion, W. Vogler (r). Separator. See Steam separator. Sewing machine, J. C. Taft. Sewing machine, groove cutting attachment, F. W. Merrick Sewing machine ruffler. R. S. Barnum Sewing machine ruffler. R. S. Barnum Sewing machine ruffler or marker Goodrich	547.867 547.866	: 6
		1
& Barnum Sharpener, knife, P. M. Thompson. Shears. See Pruning shears. She or boot sum, J. H. Black. Shutter worker, W. P. Toomer. Shuttle filler, T. P. Butcher. Sign, street, A. D. Benbam. Signal, See Car signal. Rail way fog signal. Signaling apparatus, fog. J. B. Tarr. Signaling apparatus, interlocking, C. Hansel. Signaling or calling system, electrical succession.	547,919 547,819 547,982	
Shuttle filler, T. P. Butcher.	547,782 548,021 547,766 548,026	
Signal. See Car signal. Railway fog signal. Signaling apparatus, fog. J. B. Tarr	547.903 548.061] • [
Signaling or calling system, electrical succession, J. G. Smitb	547,942 547,881	
Slicer, vegetable, J.M. Summers	548,145 547,877 547,816	
Signaling apparatus, interlocking, C. Hansel. Signaling or calling system, electrical succession, J. G. Smitb	547,955 547,937 547,927	ļ
Spring. See Vehicle spring. Spring motor, G. A. Brachbausen Stand pipe, M. M. Moore	547,839 547,962	i i
Steam boiler, J. MacCormack	547,911 547,911 548,116	
Stocking supporter. H. L. Carpenter Stone dressing macbine, H. F. Hiller	547,846	1
Storage receptacle, J. McPherson	547,958 548,066	1
Switch. See Railway switch.	547,864	
Ny ringe, Evens & Vinzelberg. Tag or card holder, C. H. Little Telephone attachment, C. H. Bernhard Telephone system and cable, J. W. Marsh. Thill su pport, Harden & Dye. Thrashing machine cylinder and concave, J. G. Snyder. Thrashing machine grain separating screen, C. Closz. Elsa S. Elsa S. Elsa S. Elsa S. Elsa S.	548.014 547.957 548.027 547,960	
Thill support, Harden & Dye Thrashing machine cylinder and concave, J. G. Snyder	547,960 548,124 547,813	
Thrashing machine grain separating screen, C. Closz. 548,153, Thread holder, E. C. Seward.		١.
Closz	547,908 548,160 547,811	1
Tire upsetter, C. Roulay Tire, vebicle, C. E. Duryea Tire, vebicle wheel, J. M. Gilmore	547,980 548,117 548,047	
Tobacco pipe stem, W. M. Potts	548,007 547,913 548,106	į
Tire bolder, Scott & Crickenberger. Tire upsetter, C. Roulay Tire, vebicle, C. E. Duryea Tire, vebicle wheel, J. M. Gilmore. Tobacco pipe stem, W. M. Potts. Toms operating mechanism, A. C. Dinkey. Tooth, artificial, F. A. Wienand Top, spinning, J. S. Boyum Tower with rotating car, observation, A. Guerra. Toy, H. N. Van Tuyl Toy ags motor, J. Schoenner. Toy pistol, J. M. Ribert. Toy savings bank, F. J. Bohn Trap, B. P. Wallace Trolley rope and pole controller, C. A. Lord. Trolley wheel. H. Schmidt.	547,764 548,122 547,904	l é
Toy gas motor, J. Schoenner Toy pistol, J. M. Ribert Toy savings bank, F. J. Bobn	548,093 548,090 548,030	
Trap, B. P. Wallace Trolley rope and pole controller, C. A. Lord Trolley wheel. H. Schmidt	547,820 548,074 548,011	
Tubes, etc., apparatus for expanding, beading,	548,049 548,100	
Type distributing, setting, and justifying machine, J. W. Paige. Type justifying machine, automatic, Paige & North	547,860 547,861	
North Type setting, distributing, and justifying machine, J. W. Paige. Typesetting machine, C. R. Ferguson. Typewriting machine, L. S. Crandall. Valve, hibbed, P. Good.	547,859	
Typewriting machine, L. S. Crandall. Valve, hibbed, P. Good.	548,157 548,048	

	1		
)	Valve device, compound engine, C. W. Russell	548,140) 1
	Valve apareting layer for air broke pines T R		
١	Ide Valve, slide gate, J. Stone Valve, steam enrine, E. F. Spaulding. Vehicle folding seat, W. W. Frantz. Vehicle soring, S. D. Palmer.	548,05	3
	Valve, slide gate, J. Stone	547,81	
	Valide folding sout W W Frants	547 779	1
	Vehicle spring S D Palmer	548 08	
	Velocipede, C. F. Lavender	548,1d	5 1
	Velocipede, C. F. Lavender		
	Copeland	547,949	9 !
i	Velocipede or cycle pedal, A. C. Davison	548,04	3
Į	Veneering mould, W. E. Brock	547,60	!
ı	Ventilating apparatus, H. Iliowizi Ventilating attachment for heaters, W. Miller	549 07	3
ı	Ventilator. See Car ventilator.	040,01	٠, ١
ı	Wagon, W. O. Shadholt	547.89	4 1
ı	Wagon seat. W. Leech	547.99	5' -
1	Wagon seat, W. Leech	548,000	3 '
1	Water closet seat and cover C A Rissing	547 QQ	₹ F I
1	Welding machine, T. F. Rowland, Jr	547.93	ያ∣ •
	Welding machine, T. F. Rowland, Jr. Welding machine, tube, T. F. Rowland. Well boring mach ine, O. P. Benjamin.	547,940	!
H	Well or cistern cleaning machine, A. M. Taylor	548,103	!
١	Wheel. See Bicycle wheel. Fifth wheel. Trol-	949010	'∣า
1	ley wheel.		ē
	Wheel, pneumatic tired. T. Rouse	548,094	i g
	Winding machine spindle, Cooper & Brigham	547,770	, i .
,	Windmill, C. H. Irwin	547,954	1
	Window frame, N. Cartus	548,039	Ļ
•	Wire coiler, M. B. Lloyd	548,000	i 1
	Wire coiling machine. M. S. Lloyd. Wire tightener, detachable, L. Bickel. Wire tightening implement, J. M. West Woodworking machine. L. S. & J. N. Heald	547 760	
i.	Wire tightening implement. I. M. West	548.103	
1	Woodworking machine, L. S. & J. N. Heald	547,99	ĺ
	Wronch Soo Pino wronch		
١	Writing apparatus, J. Nord.	547,800) (
ı	Yoke, neck, H. Flatt	548,119	9 - [
			- 1 1
1			- 1 '
3	DESIGNS.		
.			-
1	Axle box, car, W. S. Adams	24.75	3 _
1	Badge, W. S. Settle	24,749	9 -
Į	Bottle, perfumery, A. M. Vail Buckle, cotton tie, J. F. Clark Fare registers, face plate for, J. B. Benton.	24,75	; ;
ľ	Fore registers face plate for J. R. Renton	24 75	5
	Glove case, A. H. Davison	24.75	i l
•	Clove case, A. H. Daviscr	24,76	5 4
	Stove top, gas, G. D. Roper	. 24,75	3 4
	Table, H. Johnson	. 24,75	2 2
,	•		- 1

TRADE MARKS.	
Flint or sand paper, Coryell Flint Paper Company. Magazines, Longmans, Green & Company Medicines. certain named, H. D. Brandretb	27,150 27,152
Pharmaceutical products, Farbenfabriken, vormals Fr. Bayer & Company. Polisbing powder, Reflecta Company. Rope dressing, A. A. Brigbam.	27,151 27,153

A printed copy of the specification and drawing of any patent in the foregoing list, or any patent in print issued since 1883, will be furnished from this office for 5 cents. In ordering please state the name and number of the patent desired, and remit to Munn & Co., 361 Broadway New York.

Cauadian parents may now be obtained by the inventors for any of the inventions named in the foregoing list, provided they are simple, at a cost of \$40 each. If complicated the cost will be a little more. For full instructions address Munn & Co., 341 Broadway, New York. Other foreign patents may also be obtained.

Advertisements.

ORDINARY RATES.

Inside Page. each insertion - - 75 cents a line Back Page. each insertion - - - \$1.00 a line B For some classes of Advertisements, Special and Higher rates are required.

Higher rates are required.

The above are charges per agate line—about eight words per line. This notice shows the width of the line, and is set in agate type. Engravings may head advertisements at the same rate per agate line, by measurement, as the letter press, Advertisements must be received at Publication Office as early as Thursday morning to appear in the ronowing week's issue. It is set in agate type. Emgravings may head adverements at the same rate per agate line, by measurem, as the letter press. Advertisements must be selved at Publication Office as early as Thursday rining to appear in the romowing week's issue.

Foot Power

Staf* Screw cutting

Automatic

Lin proved
Chucks, CutChucks, CutChucks, Second.
Combination Lathe Chucks. Flain Chycks, Geared
Chucks, Independent Lathe Chucks. Flain Chycks Ask for catalogue in English, Prench, Spanish or German.
First Prize at Columbian Exposition, 1839.

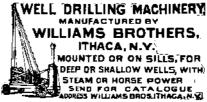


Lathes Automatic Cross Feed 9 and 12 inch Swing.

New Designs. Novel Features, Send for Catalogue B. SENECA FALLS MFG. COMPANY, 695 Water St., Seneca Falls, N. Y.

AMERICAN PATENTS. — AN INTEResting and valuable table showing the number of patents granted for the various subjects upon which petitions have heen filed from the beginning down to December 31. 1894. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 1002. Price 10 cents. To be had at this office and from all newsdealers.

POWER & FOOT SHAPERS, PLANERS, DRILLS, LATHES, MACHINE, SHOP DUTETS, TOOLS SEBASTIAN LATHE CO. 120 CULVERT ST. CINCINNATI. O.



ARTESIAN WELLS—BY PROF. E. G. Smith. A paper on artesian wells as a source of water supply. Essential geological conditions of artesian wells. Some chemical features of artesian well supply. Contained in SCIENTIFIC AMERICAN SUPPLEMENT. NO. 943. Price locents. To be had at this office and from all newsdealers.



We take pleasure in announcing that by arrangements nade with J. G. Pohlé, we are enabled to furnish our sustomers with the

POHLÉ AIR LIFT PUMP,

protected by numerous American and Foreign patents. This department of our business will be under the personal supervision of Dr. Poble, the inventor and pat'ee. THE ING ERSOLL-SERGEANT DRILL CO., Havemeyer Building, 26 Cortlandt St., New York,





BUY TELEPHONES

That are good—not "cheap things." The difference in cost is little. We guarantee our apparatus and guarantee our customers against loss by patent suits. Our guarantee and instruments are BOTH (100). WESTERN TELEPHONE CONSTRUCTION CO.,

440 Monadnock Block, CHICAGO. Largest Manufacturers of Telephones in the United States

HELLO, CENTRAL!

Do you use telephones? If so, we can give you just what you want. Our specialty is Blake Transmitters. There is a "best" in everything, and ours are the best. We supply complete telephones or all or any of the parts to construct a telephone. Write for illustrated catalogue.

PHCENIX INTERIOR TELEPHONE CO., 131 Liberty St., New York,

THE M. & B. TELEPHONE.

Absolutely Non-infringing. Absolutely Guaranteed. Absolutely the Best Exchange SWITCH BOARDS.
Illustrated Catalogue on application Free.

· · D Agents Wanted. THE U. S. TELEPHONE CONSTRUCTION CO. 131-133 S. Fourth St., Philadelphia.



THE MODERN ICE YACHT. - BY Geo. W. Polk. A new and valuable paper, containing full, practical directions and specifications for the construction of the fastest and best kinds of Ice Yachts of struction of the fastest and best kinds of Ice Yachts of the latest, most approved forms. Illustrated with en-gravings drawn to scale, showing the form, position, and arrangement of all the parts. Contained in SCIEN-TIFIC AMERICAN SUPPLEMENT, No. 624. Price 10 cents. To be had at this office and of all newsdealers.



If you want the best CHUCKS, buy Westcott's





"Climax" Stereotyper Moulding Press combined,

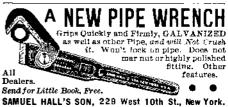


for making perfect Celluloid Sterentypes to be used in place of metal stereotypes. Also for making Rubber Stamps. Should be in use in every printing office. See SCI. AM., Dec. 30, 1833. Send for circular to

THE J. F. W. DORMAN CO.
217 E. German St., Baltimore, Md.

Manufacturers of
Rubber Stamps, Vulcanizers, Stereotype Machinery and Supplies.





TOWERS AND TANKS

PATENT SECTIONAL ALL IRON TOWERS of 4 and 12 Columns.

for Water Works, Cities, Towns, and Manufactories. PLAIN, ALL WOOD TOWERS

ELEVATED TANKS for Automatic Fire Sprinkler Plants MANUFACTURERS OF

IRON and STEEL TANKS. Louisiana Red Cypress Wood Tanks a Specialty.

W. E. CALDWELL CO., 219 E. Main Street, LOUISVILLE, KY., U. S. A.