RECENTLY PATENTED INVENTIONS.

Bicycles.

STAND FOR BICYCLES.—FREDERIK C. V. ARP and SÖREN C. JENSEN, Blegdamsvej 8, Copenhagen, Denmark. The cycle-stand is hinged to the front fork and is arranged to be brought down forward of the front wheel so as to support the bicycle when desired and thus enable it to be held in an upright position. When the machine is to be ridden, the stand is folded alongside the front fork.

Railway Appliances.

LOCOMOTIVE-BOILER. — JOHN J. REGAN, Jersey City, N. J. The steam-boiler comprises an external shell and an internal shell disposed longitudinally therein and eccentrically thereto, and forming a water and steam compartment surrounding the internal shell. The internal shell is divided into a primary combustion-chamber, an auxiliary combustion-chamber and other chambers which are equipped with independent sets of smoke-flues. As the water circulates in the chambers and around the auxiliary combustion-chamber it is evident that a very quick generation of steam takes place without loss of fuel. Hence the greatest economy in fuel consumption is obtained with an extremely rapid generation of steam.

ELECTRIC SHIFTING DEVICE FOR RAILWAYS.—HENRY S. ESCH, Manhattan, New York city. The device is designed for use on trolley lines in connection with an improvement for an automatic track-switch which Mr. Esch has invented. The present invention provides an improved shifting device for moving the switch-point from an open to a closed position, or *vice versa*, whenever successive electric currents are sent to the device, and for causing an approaching car either to continue on the main line or to pass from the main line to a branch line.

RAIL-JOINT.—JOHN C. FURMAN, Strattanville, Pa. The invention relates to means for coupling together the continuous ends of rails in such a manner as to provide a strong, solid joint, which can be laid either upon the ties and spiked thereto, or placed between the ties without spikes; which strengthens the track and keeps the rails always firm; which entirely dispenses with bolts and nuts; and from which the rails can be easily detached.

SWITCH.—JOHN C. FLINT and MAURICE S. DEAN, Anaconda, Mont. It is a primary purpose of this invention to lengthen the life of a switch-point and to prevent the wheels climbing the switch-point when a switch is located on a curve. The switch has a switch-rail, the point of which extends beyond the ends of the opposite lead-rail; a head-rod for the switch and lead-rails and having an extension for connection with extension point; and a turnbuckle in the extension for lengthening or shortening it.

AUTOMATIC TRACK-SWITCH FOR ELECTRIC RAILWAYS—HENRY S. ESCH, Manhattan, New York city. This improved switch is completely under the control of the motorman to enable him to run the car in the desired direction. A frame provided with a bow-shaped channel receives a short portion of the trolley wire and maintains a bow-shaped loop therein. A contact-plate is located in the loop in alinement with the general direction of the trolley-wire and insulated therefrom. An electrode connects the contact-plate with electrical mechanism for operating the switch, another electrode being the trolley of the car. The attachment always stands in proper position for engagement by the trolley-wheel without jar or jerk, as the under side of the attachment is in alinement with the trolley-wire. As this underside also conforms to the shape of the groove of the trolley-wheel, the attachment cannot slip over nor the trolley-wheel jump off.

Metallurgical Improvements.

ORE-CONCENTRATOR. — RICHARD R. LEE, Pinos Altos, New Mexico. A circular pan is provided with a central revolving vertical shaft bearing radial arms which carry scrubbing-brushes that travel upon the bottom of the pan. The trough is made rigid end to end and its inner end is directly hinged to the bowl, so that while it may be lifted out of the way it never becomes clogged at the joint.

APPARATUS FOR TREATING GOLD ORES.—VINCENTE PAZOS Y SACIO, Yauli, Tuctu, Peru. The apparatus comprises a receptacle for holding the mercury and the ores; an electrolytic vessel adjacent to the receptacle and communicating therewith; and a porous cup located in the vessel. An annular plug fits tir-tight between the porous cup and the vessel by which it is contained. Separate electrolytic fluids are held in the porous cup and the vessel; and electrodes are located in the cup and the vessel. By means of this apparatus gold is extracted from its ores upon a large scale and the chemicals used are regenerated.

APPARATUS FOR EXTRACTING GOLD AND CONCENTRATING ORES AND METALS.—WILLIAM F. HEATHMAN, Santa Ana, Cal. The object of the invention is to concentrate ores, metals, and gold-bearing sands of every character, with the result that the product of such concentration may be reduced to a small but valuable compass, that a more marketable product is obtained, and that such metals as are embedded in the rock are saved. The invention is based upon the well-known principle of physics that the times occupied by different bodies or substances in falling through water are dependent upon their relative specific gravities and that a body of greater density will acquire a corresponding velocity.

Printers' Appliances.

GAS-CONDUCTING DEVICE FOR LINOTYPE MELTING-POTS.—GEORGE H. MESSEROLE, Brooklyn, New York city. In order to dispense with the use of rubber hose to supply gas to the burner of the melting-pot, the inventor employs metal piping so connected with the melting-pot as not to interfere in the slightest degree with the movement of the pot to and from the mold-wheel.

CASTING-BOX.—LEO GROSSMAN, Brooklyn, New York city. The object of Mr. Grossman is to provide a casting-box arranged to permit the casting of a number of stereotypes at the same time, so that a large number are produced quickly by the same machine. The novel feature of the casting-box is a cylindrical core which engages a number of drags. The cores are connected with the drags in alternation. As the metal is poured into the drags the plates are cast; and when this has been done the cores swing out of their drags and into adjacent ones, additional plates being cast, while the previous recast plates are removed from the top surfaces of the cores.

Traps.

BAIT-GUN.—OLIVER J. DE ROSHEY, Iron Mountain, Mich. The gun is intended to kill wolves. The construction is such that a cartridge is placed in the barrel and held in position by means of a breech-block carrying a needle. The trigger mechanism is provided with a bait-holder. The hammer is released practically as soon as the bait is touched.

ANIMAL-TRAP.—EDWARD MILLS, Jacksonville, Ill. The trap is designed to catch animals of any kind. In construction it comprises a cage, a door tending to close, and a peculiarly-arranged device normally holding the door in open position and released by the animal to permit the closure of the door.

Mechanical Devices.

CIGAR-TUCK CRIMPER.—JOHN HAINES, Manhattan, New York city. The lighting end of cigars of a certain class and workmanship have been manually crimped or tucked to distinguish them from others, and more effectually to combine the parts at the end to be lighted. This invention is a simple and regularly operated machine which crimps cigars more effectively than by hand, and which also tends to straighten the tucked or crimped section of the cigar during the tucking or crimping process.

DEVICE FOR REMOVING BURRS FROM WOOL.—LEOPOLD OFFERMANN, Lepsic, Germany. The device comprises a burr-removing roller having a series of spaced, toothed rings, between which are arranged bars similar to grate bars and depressed relatively to the teeth at those points where the wool is taken off from a feeding roller. Other portions of the bars adjacent to a barrier are extended beyond the teeth, so as to carry the burrs contained in the wool out of the reach of the teeth and cause them to be retained by the barrier, whereupon they can be removed by a clearer.

Tools and Hardware.

DEVICE FOR FASTENING METAL OR WOODWORK TO STONE.—THOMAS E. HICKS, Bronx, New York city. Mr. Hicks has provided means for securely connecting various articles made of wood or metal to stonework. Devices of this class are frequently called "expansion bolts." It has been Mr. Hicks' aim to provide a construction which can be readily applied without any danger of injury to the stone, thus avoiding a drawback found in the employment of the expansion bolts generally used.

CLOTHES-LINE PULLER.—GEORGE W. DIEPOLD, Long Island City, Queens, New York city. The pulley comprises a single piece of wire which is run through the longitudinal opening of a cylindrical handle, and the ends twisted together in such a manner as to form a hook and a fork to engage the line. The device enables one quickly to draw the line in or out for hanging or removing clothes.

DREDGING UTENSIL.—JONATHAN DUNGAN, Prospect Park, Pa. The invention relates to a class of utensils employed for dredging all kinds of granular, ground, or powered substances—such as salt, pepper, spices, sugar, flour or the like. The utensil comprises a hollow body having an annular flange on its inner surface. On this flange a perforated inner lid is seated. An outer cap piece is adapted to cover the inner lid. The lid and cap-piece have perforations which can be opened or closed by rotation of the cap-piece. The cap-piece is detachably held on the hollow body. The utensil protects its contents from dust, dampness, and atmospheric impurities, and preserves in full strength spices, salt, or pepper.

NOTE.—Copies of any of these patents will be furnished by Munn & Co. for ten cents each. Please state the name of the patentee, title of the invention, and date of this paper.

Business and Personal Wants.

READ THIS COLUMN CAREFULLY.—You will find inquiries for certain classes of articles numbered in consecutive order. If you manufacture these goods write us at once and we will send you the name and address of the party desiring the information. **In every case it is necessary to give the number of the inquiry.**

MUNN & CO.

Marine Iron Works. Chicago. Catalogue free.

Inquiry No. 1908.—For manufacturers of all kinds of heating and lighting devices.

For hoisting engines. J. S. Mundy, Newark, N. J.

Inquiry No. 1909.—For manufacturers of machinery used in cement works.

"U. S." Metal Polish. Indianapolis. Samples free.

Inquiry No. 1910.—For manufacturers of broom-making machinery.

WATER WHEELS. Alcott & Co., Mt. Holly, N. J.

Inquiry No. 1911.—For manufacturers of heating furnaces.

Stencil Machines.—A. J. Bradley, 101 Beekman St. N. Y.

Inquiry No. 1912.—For a gas, electric or gasoline generator of about 1½ horse power.

Handle & Spoke Mchy. Ober Mfg. Co., 10 Bell St., Chagrin Falls, O.

Inquiry No. 1913.—For manufacturers of electric motors for attaching to ordinary sewing machine stands.

Glass paper-weights for advertising. Write for prices. Lobmiller Co., Wellsburg, W. Va.

Inquiry No. 1914.—For manufacturers of dynamos.

Sawmill machinery and outfits manufactured by the Lane Mfg. Co., Box 13, Montpelier, Vt.

Inquiry No. 1915.—For manufacturers of a machine for making bricks out of sand by pressure.

Rigs that Run. Hydrocarbon system. Write St. Louis Motor Carriage Co., St. Louis, Mo.

Inquiry No. 1916.—For the present address of the Cryderman Coupling Co.

For sheet metal stampings and novelties try Standard Stamping Co., Seventh and Hudson, Buffalo, N. Y.

Inquiry No. 1917.—For brass balls for valves 1 inch and more.

Ten days' trial given on Daus' Tip Top Duplicator. Felix Daus Duplicator Co., 5 Hanover St., N. Y. city.

Inquiry No. 1918.—For manufacturers of hand laundry machinery.

Are you looking for anything in bent woodwork? Write Tucker Bicycle Woodwork Co., Urbana, Ohio.

Inquiry No. 1919.—For manufacturers of pressed fiber boxes or telescopes.

When you want everything printed on any particular subject write to U. S. Press Clipping Bureau, 153 La-Salle Street, Chicago.

Inquiry No. 1920.—For manufacturers of envelope-making machines.

Special and Automatic Machines built to drawings on contract. The Garvin Machine Co., 149 Varick, cor. Spring Streets., N. Y.

Inquiry No. 1921.—For manufacturers of acetylene gas outfits for lighting purposes.

Manufacturers of patent articles, dies, stamping tools, light machinery. Quadriga Manufacturing Company, 18 South Canal Street, Chicago.

Inquiry No. 1922.—For manufacturers of calendars or posters for advertising purposes.

Mile a Minute Bicycle Driving Mechanism. Patented Dec. 17, 1901. Patent now for sale, terms reasonable. C. V. Wold, 488 Hicks Street, Brooklyn, N. Y.

Inquiry No. 1923.—For manufacturers of steam turbines.

Designers and builders of automatic and special machines of all kinds. Inventions perfected. The W. A. Wilson Machine Company, Rochester, N. Y.

Inquiry No. 1924.—For manufacturers of cotton-seed oil mill machinery.

The celebrated "Hornsby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Refrigerating Machine Company. Foot of East 138th Street, New York.

Inquiry No. 1925.—For makers of canning machinery.

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

Inquiry No. 1926.—For manufacturers of knitting machinery for stockings.

WANTED—Patent articles of merit to manufacture and place on the market. Will buy or pay royalty. Give full particulars. Address Sidney Folder Co., Sidney, Ohio.

Inquiry No. 1927.—For manufacturers of foot power grinding machinery

PARTNER WANTED.—Will give joint interest in valuable patent for repairing pneumatic tires. Simple and effective. B. J. Piquet, Box 3, Woodbury, Nassau County, Long Island.

Inquiry No. 1928.—For dealers in mirrors and tiling.

EXPERIMENTAL MACHINE SHOP.—We are not using our shops at present. Well equipped with lathes shaper, woodworking machinery, etc. Will rent use and power very low. Fine place for automobile work. Billings Clapp Co., Boston, Mass.

Inquiry No. 1929.—For manufacturers of spice mill machinery.

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

Inquiry No. 1930.—For dealers in drilling rigs.

Inquiry No. 1931.—For manufacturers of aluminium goods.

Inquiry No. 1932.—For the manufacturer of the Belvidere carpet stretcher and tacker.

Inquiry No. 1933.—For a second-hand screw-cutting lathe, foot or countershaft, 9 inch swing, 3 feet or 4 feet bed.

Inquiry No. 1934.—For dealers in all kinds of electrical apparatus.

Inquiry No. 1935.—For eastern parties who enamel cast iron kitchen utensils.

Inquiry No. 1936.—For manufacturers of gum and candy slot machines.

Inquiry No. 1937.—For dealers in disk talking machine records.

Inquiry No. 1938.—For parties to make incandescent mantles.

Inquiry No. 1939.—For traction engines for hauling 40 tons of material over roads of not more than 5 per cent. grade, at 6 miles per hour.

Inquiry No. 1940.—For makers of carpet and rug looms.

Inquiry No. 1941.—For wholesale dealers in "Japanese Cat eyes" used in jewelry, esdecially the colored kinds.

Inquiry No. 1942.—For manufacturers of kerosene oil launches.

Inquiry No. 1943.—For parties to cast electro-magnets.

Inquiry No. 1944.—For a lace-making machine.

Inquiry No. 1945.—For parties manufacturing cloth cheese heads.

Inquiry No. 1946.—For the present address of the makers of the "Button Ram."

Inquiry No. 1947.—For parties engaged in drop forging and stamping sheet steel.

Inquiry No. 1948.—For manufacturers of small boilers and boiler heads 12 inches in diameter.

Inquiry No. 1949.—For manufacturer of telephones suitable for private use.

Inquiry No. 1950.—For dealers in stereopticon slides.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending

January 14, 1902,

AND EACH BEARING THAT DATE.

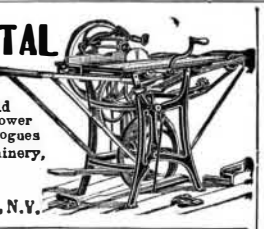
[See note at end of list about copies of these patents.]

Air currents, apparatus for measuring, J. Thompson 691,082
Alarm. See Burglar alarm.
Animal trap, E. L. Tschantre 691,301
Animal trap, K. W. Carlgren 691,335
Armor plates, manufacture or treatment of, B. K. Jamison 690,961
Armor plates, treatment of, B. K. Jamison. 690,962
Automobile car, K. Schiller 691,078
Awning rod bracket, R. Ward 691,026
Axle box, M. A. Perrigo 691,174
Axle box, car, J. L. Petithomme 691,175
Axle springs to vehicle frames, means for attaching, W. A. Maybach 691,156
Back pedaling brake, R. M. Keating 691,147
Bag holder, W. Y. Elliott 691,120
Ball playing device, J. S. Stevens 691,299
Bandage, water, C. H. Jones 691,270
Battery charging apparatus, M. R. Hutchison 691,144
Battery chute or well, E. W. Vogel 691,024
Bearing box, ball, O. Stutzman 691,202
Bearing, roller, J. A. Perkins 691,173
Bearing, wheel, I. Besly 690,916
Bed brace, J. L. Peacock 690,992
Bed rest, invalid, J. F. Wilkins 691,224
Bell, alarm or call, J. O. Lippincott 691,064
Belt fastener, C. Farez 690,938
Beverage dispensing apparatus, H. Schepke. 691,293
Binder, self, E. A. Johnston 690,964
Boat, screw propelled, H. T. Gay 691,258
Bobbin holder, T. J. Murdock 691,162
Boiler, R. L. Morgan 690,981
Boiler, N. P. Stevens 691,200
Boiler furnace, water tube steam, W. C. Wallace 691,089
Boilers, apparatus for supplying water to steam, H. A. Fleuss 690,941
Bolster frame, sham, L. Gully 691,134
Bolster spreader, sham roll, J. David 691,119
Bolt heading machine safety device, J. R. Blakeslee 690,919
Bolt pointing and threading machine, C. A. Johnson 691,316
Bolt pointing machine, J. Stephans 691,198
Bonding pin and making same, C. A. Holdridge 691,313
Boring machine, horizontal, G. A. Ensign. 691,121
Books, machine for casing in, A. L. Jacobs 690,959
Boot or like stretching and molding device, E. Salutrynski 691,076
Boot or shoe, C. Peters 691,291
Boot or shoe tree, H. A. Ballard 691,304
Boot or shoe tree, Ballard & Copeland 691,305
Bottle, non refillable, J. S. Bromhead 691,108
Bottle, non refillable, S. Love 691,152
Bottle stopper, H. S. Brewington 691,107
Box covering machine, P. S. Smith 691,329
Boxes, etc., system of jointing for joining up, C. D'Espine 691,049
Brake beam, J. H. Baker 691,095, 691,096
Branding iron, self heating, M. A. Lowe .. 690,971
Brick for track paving and fastening purposes, paving, W. H. Nelson 690,988
Brick mold, paving, W. H. Nelson 690,987
Brush, A. R. Wiens 691,032
Bung, non-removable, Zwickel & Grunbaum 691,227
Burglar alarm, W. H. Reiff 690,997
Button, A. A. Richmond 691,178
Cableway, W. F. Brothers 691,235
Caisson air lock, J. F. O'Rourke 691,069
Calculating device, A. L. Butt 690,924
Camera, interchangeable panoramic, R. H. Trumbull 691,020
Camera shutter tripper, R. Faries 690,939
Can. See Milk can.
Cap, A. E. Morse 690,982
Car brake, H. S. Stier 691,201
Car, convertible dump, H. S. Hart 691,137
Car coupling, G. S. Holmes 690,954
Car draft rigging, railway, E. S. Woods .. 691,038
Car fender, E. W. Jeter 691,315
Car wheel, composite, M. G. Keeran 690,967
Cart or car discharging device, W. Nossian. 691,167
Case for plats, maps, etc., C. E. McClintock 691,288
Casket ornament, E. R. Sargent 691,002
Cellulose, manufacture of threads, etc., from, Fremery & Urban 691,257
Chain, endless conveyer, J. Dick 690,934
Cheese press, M. McKinnon 690,985
Cherry stoner, C. P. Mosher 690,983
Churn shield, Whitely & Yocom 691,223
Chute, C. Law 691,279
Chute for buildings, dust, J. C. Kimsey 691,149
Circuit breaker, rotary, A. R. Luschka 690,973
Cistern device, automatic, C. H. Asling 691,230
Clock, electric, W. W. Frantz 691,256
Cloth cutting machine, long knife, E. M. Waring 691,090
Clutch, H. Moon 691,320
Clutch, friction, C. M. Wheaton 691,221
Coating preparation, H. A. Bentley 690,915
Coffee or tea pot, S. J. Freeman 691,052
Coin controlled apparatus, brake mechanism for, G. W. Rowse 691,181
Coke making plant, W. Kennedy 691,148
Collar shaper, A. J. Underhill 691,023
Collar turner and edger, E. Weber 691,029
Coloring tool, H. Schickler 691,184
Condenser, steam, W. E. Pardridge 691,170
Conveyer system, M. Garland 690,943
Coping, grave sectional, E. T. Owen 691,169
Cotton chopper, G. Berringer 691,102
Counter, J. S. Huey 691,142
Counterbalance for lift bridges, etc., J. D. Wilkens 691,035
Coupling device, M. A. Brown 691,109
Coupling frame, S. C. Rock 691,179
Crematory and heating system, combined, I. D. Smead 691,328
Cue, game, A. J. Gray 690,945
Cultivator, J. C. Tunnicliff 691,022
Cultivator or plow replanting attachment, W. Harstick 690,948

(*Continued on page 63*)

Curtain holder and pole ring, E. Marsky.. 691,155
Curtain holding device, spring actuated, J. H. Milans 690,980
Cutter head, G. Johnson, Jr.... 691,269
Cutter head, expansihle, E. S. Shimer.... 691,191
Cutter head setting gage, S. F. Wise.... 691,331
Cutting tool, pneumatic, J. W. Birkenstock. 691,334
Damper locking means, J. Schuessler.... 691,009
Delinting machine, J. Kasmeier.... 691,272
Dental plate air chambers, former for, L. Arndt 691,092
Detachable handle for cooking vessels, F. Dronne 691,050
Digging machine, root, E. Sandstrom.... 691,292
Ditching machine, Hoffman & Helm.... 691,141
Door stop and lock, combined, G. H. Sawin. 691,003
Draft timbers, means for attaching, Turnipseed & Williams 691,085
Dress titting stand, E. Kunst.... 691,062
Dressing for fish, etc., H. K. MacGregor.. 691,154
Drilling machine, A. S. Jones.... 690,965
Educational appliance, A. M. Catlin.... 691,113
Electric currents, transmitting, A. A. E. Sterzing 691,298
Electric lighting, P. C. Hewitt.... 690,953
Electric motor switch mechanism, A. W. Schramm 691,187
Electric motors, means for regulating, A. W. Schramm 691,188
Electrolytic solution, O. Meyer 691,158
Elevator, E. R. Gill.... 690,944
Elevator apparatus, C. Kottgen.... 691,276
Elevator safety appliance, G. Hail.... 691,310
Enameling metal ware, W. Jankowsky.... 691,268
End gate, Wheatley & Steen.... 691,031
Engine, W. Scantlebury, Sr.... 691,005
Engines, liquid fuel feed for explosive, A. W. Olds 690,989
Etchings, reproducing colored original, B. Mannfeld 690,974
Exercising apparatus, F. Schneider.... 691,295
Explosive engine, compound, F. W. Toedt. 691,083, 691,084
Eyeleting machine, E. L. Sibley.... 691,012
Fastener, F. R. White.... 691,222
Fastening device, G. W. McGill....691,164, 691,165
Feed cutters, pneumatic feed conveyer for, E. C. & A. J. Wilharms.... 691,034
Feeder, boiler, C. W. Hunt.... 690,957
Filing device for bank checks, etc, J. H. Rand 691,177
Filter press, E. Wernecke 691,030
Fire alarm appliance, Spring & Long.... 691,197
Firearm, F. K. Young.... 691,040
Firearm, breech loading, D. Hug.... 691,056
Firearm, recoil operated, G. A. Horne.... 690,955
Firearm sight, F. J. Choles.... 691,242
Firecracker loading machine, C. B. Bidwell. 691,103
Fire extinguisher, automatic, H. K. Milner. 691,283
Fireproof window, Voigtmann & Pomeroy. 691,211
Fishing reel, F. J. Rahbeth.... 691,073
Floors, etc., machinery for the manufactnre of coverings for, W. F. Graham.... 691,261
Flour screen or bolter brush, J. G. Peterson 690,994
Flue cleaner, A. A. Hull.... 691,057
Folding table, S. M. Snook.... 691,194
Fuel feeding apparatus, fine, R. C. Carpenter 691,337
Fuel, feeding fine, R. C. Carpenter.... 691,336
Furnace, E. Bennis 691,100
Furnaces, apparatus for supplying fuel to, E. Bennis 691,232
Furnaces, automatic heat controller for steam boiler, Darrin & McLean.... 690,931
Furnaces, reversing valve for heating, J. A. Dyblie 691,251
Garment clasp, B. F. Orewiler.... 690,990
Gas and producing same, pastile for making oxygen, G. F. Jaubert 691,058
Gas and water separator, I. L. Neely.... 690,986
Gas ignition device, automatic, P. Lehmann 691,280
Gas or oil engine, internal combustion, E. Thomson 691,017
Gas regulator, F. Schick 691,186
Gear, driving, Leech & Evans.... 691,151
Glass pot furnace, H. L. Dixon.... 691,250
Glove case, N. Fancher.... 690,937
Gloves, etc., fastener for, W. P. Devine.. 691,308
Golf club, H. B. Febiger.... 690,940
Golf club, W. M. Ransom.... 690,996
Grain drill, Packham & Oates.... 691,322
Grain drying apparatus, Tweedale & Harvey 691,209
Grain shocks, etc., cover for, V. Martin... 691,318
Grate, G. Saylor 691,004
Grinding machine, E. Rivett 690,999
Grinding or polishing cone, H. C. Miller, Jr. 691,066
Gun mounting, telescope, H. L. De Zeng, Jr. 691,248
Hammock support, I. E. Palmer.... 691,070
Handle. See detachable handle.
Hanger, H. C. Clayton.... 691,114
Harvesting machine needle, self binding, Candry & Deplanty 691,240
Hat pouncing machine, C. M. Tirard.... 691,018
Heel and bottom finishing machine, W. A. Blodgett 691,104
Hide coloring apparatus, A. Rigand.... 691,075
Hinge, butt, F. W. L. Schafer.... 691,077
Hoof pad, J. Camphell.... 691,111
Horseshoe, J. M. Myers.... 690,984
Hot air furnace, H. W. Baker.... 691,094
Hydraulic press, F. E. Keyes.... 690,968
Ice case, transportable, W. Worf.... 691,039
Ice machine, Butler & Hammond.... 691,238
Ice making apparatus, J. Humes.... 690,956
Inflatable article, C. W. Curlin.... 691,118
Ironing board, G. Dawe.... 690,932
Journal box, G. S. Marshall.... 690,975
Keg for white lead or other heavy materials, metallic, E. Norton.... 691,166
Keyless lock, C. F. Keller.... 691,273
Knife, J. E. Carlson.... 690,927
Lace fastener, shoe, E. E. Frutchey.... 691,128
Laces, etc., machine for manufacturing shoe, H. S. Pullman.... 690,995
Lacing hook, F. J. A. Perry.... 690,993
Ladder lock, automatic extension, L. Ferguson 691,051
Lamp, gas arc, Russell & Clausen.... 691,001
Lamp, hydrocarbon, S. B. Morss.... 691,068
Lamp, incandescent electrode vapor electric, P. C. Hewitt.... 690,952
Lamp socket, H. P. Clausen.... 690,928
Lamp socket, incandescent, N. Marshall... 690,976
Leather stretching machine clamp, R. L. Braucht 691,106
Leather treating machine, Ballard & Copeland 691,303
Leather working machine, H. A. Ballard.. 691,302
Leather working machine, Chain & Turner. 691,306
Leather working machine, Chain & Copeland 691,307
Leno-selvage motion, H. H. Sutcliffe.... 691,204
Lens grinding machine, F. G. Wilson.... 691,225
Lenses accurately in relation to their focal center while being cut, apparatus for cutting elliptical or other shaped, J. West 691,220
Lenses, apparatus for determining and marking focal center of spherical, J. West 691,217
Lenses, machine for forming and finishing edges of, J. West.... 691,219
Lenses while such lenses are being shaped and edged, apparatus for attaching holding devices to, J. West.... 691,218
Level and plumb, J. V. Janin.... 691,146
Level, spirit, D. Lesh.... 691,063
Life preserver, C. Gore.... 691,341
Life saving apparatus, I. W. Maccolini.... 691,153
Lighting device, R. S. Philbrook.... 691,071
Lime, cement, or like, kiln, I. Isserlis.... 691,145
Liquid concentrating apparatus, W. Venuleth 691,210
Lock, A. R. Fergusson 691,124, 691,125
Lock, E. F. Rogers 691,180
Loom, E. Wackerhagen.... 691,088
Loom picker, F. A. Wardwell.... 691,212
Loom weft replenishing mechanism, C. & G. Brun 691,043
Lumber jointing and sizing machine, R. S. Hill 691,267
Magnetic separator, F. A. M. Schiechel.... 691,007
Magnetic separator, G. Grondal.... 691,262
Mail bag catching and delivering mechanism, G. R. Moore.... 691,285
Mail marking machine, C. V. Fyke.... 690,942
Mailing package, ●. Marsteller.... 690,977

WOOD or METAL Workers

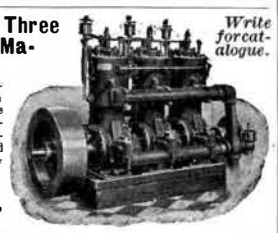


Without Steam Power should use our Foot and Hand Power Machinery. Send for Catalogues A—Wood-working Machinery, B—Lathes, etc.
SENECA FALLS MFG. CO.
695 Water St., Seneca Falls, N.Y.

ENGINE & FOOT LATHES. MACHINE SHOP OUTFITS, TOOLS AND SUPPLIES. CATALOGUE FREE. SEBASTIAN LATHE CO. 120 CULVERT ST. CINCINNATI, O.

THE STEAM TURBINE; THE STEAM Engine of Maximum Simplicity and of Highest Thermal Efficiency. By Prof. R. H. Thurston. A valuable series of articles having cuts of some of the more efficient engines of this type—the Parsons', De Laval, Dow, etc.; with exhaustive tables giving the result of tests and much general data on the subject. Contained in SUPPLEMENT Nos. 1306, 1307 and 1308. Price 10 cents each. For sale by Munn & Co. and all newsdealers

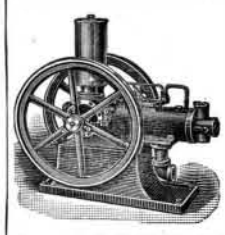
The "Wolverine" Three Cylinder Gasoline Marine Engine.



Write for catalogue.

The only reversing and self-starting gasoline engine on the market. Lightest engine for the power built. Practically no vibration. Absolutely safe. Single, double and triple marine and stationary motors from ¾ to 30 H. P.
WOLVERINE MOTOR WORKS, Grand Rapids, Mich.

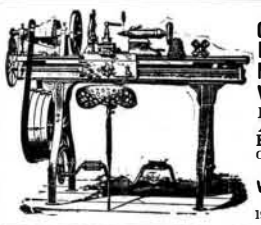
THE MIETZ & WEISS **KEROSENE and GAS Engine**



burns KEROSENE cheaper and safer than gasoline. Automatic, simple, reliable. No electric battery or flame used. Perfect regulation. Belted or directly coupled to dynamo for electric lighting, charging storage batteries, pumping and all power purposes.
Send for Catalogue.
A. MIETZ, 128-138 Mott St., New York.
Awarded Gold Medal Pan-American Exposition. Buffalo, 1901.

THE 2½ H.P. WEBER JUNIOR PUMPER

has a capacity of 50 gallons 125 feet and 100 gallons 67 feet. Equals 30 men pumping water. All complete ready to attach to pump. Uses gasoline in proportion to water pumped. Weight 800 lbs. Engine speed 375 revolutions. Can be used for other power purposes. Simple, safe and economical. Outside dimensions, 9 ft. long, 3 ft. wide, 5 ft. high. Capacity, 25 gallons per minute 250 feet.
Weber Gas and Gasoline Engine Co., P. O. Box 1114a. Kansas City, Mo.



FOR GUNSMITHS, TOOL MAKERS, EXPERIMENTAL & REPAIR WORK, ETC.
From 9-in. to 13-in. swing. Arranged for Steam or Foot Power, Velocipede or Stand-up Treadle.
Send for Catalogue.
W. F. & JNO. BARNES CO.
Established 1872.
1999 Ruby St., Rockford, Ill.

PALMER
MARINE and STATIONARY
MOTORS

2 and 4 CYCLE
are no experiment, as they are in successful operation in all parts of the world.
Launches in stock.
Send for Catalogue.
PALMER BROS., Cos Cob, Conn.

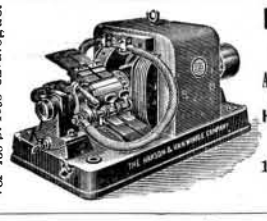
This modest cut and simple verse
Is but a plea in English terse.
To you who look for something good,
And, paying for it, really should
Not jeopardize your name or mon—,
For engine poor, too weak to run.
The Keim will never disappoint
In wagon, yacht or tiny joint.

JOHN R. KEIM, Buffalo, N. Y., U.S.A.

The Perfection of Pipe Threading
is admitted to be reached when our
No. 9½ PIPE THREADING MACHINE

is used. As a hand machine it is the only one known that will cut and thread an 8 inch pipe with ease and satisfaction. One valuable feature is that it has no arbitrary lead screw for determining style or pitch of thread to be cut. *Send for Catalogue.*
THE MERRELL MFG. CO.
501 Curtiss St., Toledo, Ohio.

Send your business card for 160 p. 1900 catalogue.



NICKEL AND Electro-Plating Apparatus and Material.
THE Hanson & VanWinkle Co., Newark, N. J.
136 Liberty St., N. Y.
30 & 32 S. Canal St., Chicago.

Presses for Sub-Press Work.

Five sizes. Sub-Presses and Tools to order.
Send for Catalogue.
BLAKE & JOHNSON,
P. O. Box 7, WATERBURY, CONN.

TELESCOPES SEND FOR CATALOGUE W. & D. MOGEY. BAYONNE CITY, N. J.

Match box, C. Schaer.... 691,183
Measuring devices, liquid, C. Dyer.... 690,936
Medicating water, tank for, C. W. Perkins. 691,290
Melting furnace, brass founder's, A. J. & E. H. Weatherhead 691,213
Menagraph, Smyth & Faust.... 691,013
Metal blanks, machine for forming, shaping, hardening, and tempering, E. E. Fay 691,253
Metal cutting, punching, and shaping machine, F. Bowen 691,234
Metal into molds, apparatus for pouring, J. V. Coleman 691,244
Milk cans, C. H. Bagley.... 691,093
Mill. See Windmill.
Mixer and kneader, L. Cohnhoff.... 691,115
Motor feed regulator, W. E. Gibbs.... 691,259
Muzzle, horse, H. Bark.... 691,097
Nail cutter and file, E. Forquignon.... 691,126
Neckwear, J. A. Turner 691,208
Nippers, G. J. Capewell 690,925
Nitro compounds, reducing, H. Gerresheim 691,132
Nut tapping machine, J. Stephans.... 691,199
Oar, bow facing, O. B. Shedd.... 691,080
Oil, extracting cotton seed, E. L. Johnson. 691,342
Oiler, saw, W. G. Clements.... 691,338
Ordnance, means for positioning and firing heavy, T. M. Foote 691,254
Ore crusher, E. E. Hanna 691,135
Ore roasting furnace, J. P. Cappeau.... 691,112
Packing tube, rolling, A. Sharp.... 691,190
Pail and lantern, combined dinner, W. Williams 691,036
Paper and making same, testing, K. Dieterich 691,249
Paper making machine, Barrett & Horne. 691,333
Paper making machinery, roller for, W. E. Sheehan 691,011
Paper package, toilet, F. Schilz.... 691,294
Paper pail covers or circulars, manufacturing lace, J. Hess.... 690,951
Paper pulp, apparatus for purifying, A. Aberg 691,091
Pattern cutting machine, J. Sullivan.... 691,203
Penholder, C. W. Barkley.... 691,098
Pencil holder, J. W. Pearson.... 691,172
Pencil sharpener, A. T. Fox.... 691,127
Pencil sharpener, automatic, C. S. Cox.... 691,117
Phonograph apparatus, A. B. Robinson.... 691,000
Pick, etc., prospector's, F. S. Goldsmith.. 691,309
Pictures, making, B. Hawley.... 691,138
Pigment and the production thereof from ferrous liquors, A. S. Ramage.... 691,324
Pile fabric, woven, W. T. Smith.... 691,193
Pillow or cushion, sofa, C. E. Bentley.... 690,914
Pipe connection, A. W. Cram.... 691,246
Pitman, P. D. Jones.... 691,059
Plaiting apparatus, A. W. Chambers.... 691,241
Plant chopper and thinner, A. H. Meade.... 691,282
Planter, corn, D. Somers et al.... 691,195
Planter, corn, S. McNaghten.... 691,321
Pliers, bending and cutting, S. M. Decker. 690,933
Plow bar, adjustable, J. H. Powell.... 691,323
Plow cultivator attachment, R. S. Bonner. 690,921
Propeller shaft reversing apparatus, J. Titus et al 691,300
Propulsion of ships, F. C. Homer.... 691,314
Pulverizing apparatus, W. F. McClellan... 691,163
Pumping and dredging apparatus, G. A. Farwell 691,123
Pumping engine, compensating high duty, De Laval & Ahorn 690,969
Push button switch, M. Guett 690,946
Rail joint, B. Wolhaupter.... 691,037
Rail joint, H. Tiedemann.... 691,207
Rail joint clamp, W. S. Jones.... 690,966
Rail joint connection, J. T. Blake.... 690,918
Railway, elevated, J. N. Valley.... 691,086
Railway spike, D. F. Vaughan.... 691,087
Railway switch, automatic, Schwarz & Drittler 691,010
Railway switch, three way, W. F. Bossert. 690,922
Railway switches, device for operating street, Schilling & Ridgway.... 691,008
Railway tie, J. J. Ridgway.... 690,998
Railway tie plate, W. S. Jones.... 691,317
Railway tie plate, B. Wolhaupter.... 691,332
Range finder, C. Davis.... 691,247
Razor, safety, F. J. Halbekann.... 690,947
Reflector, J. L. Creveling.... 691,048
Regulator. See Gas regulator.
Releasing mechanism, time, S. S. Colt.... 691,047
Repair tool, F. Hoover.... 691,055
Rock or ore breaker, Gates & Capen.... 691,339
Rolling apparatus, metal, J. Morgan.... 691,159
Rolling direct from fluid metal, apparatus for continuous, C. W. Bildt.... 690,917
Sad iron, A. Luethi 690,972
Saddle, harness, E. A. Spaulding.... 691,015
Saw, hand, W. C. Buell.... 691,237
Saw set, L. H. Price.... 691,072
Sawing machine, E. G. Herbert.... 691,139
Scale, liquid, W. Buschmann.... 691,110
Screw, jack, G. L. & S. W. M. Kollock.... 691,061
Seal press, A. B. Schofield.... 691,079
Seed drill scraper, W. Stephenson.... 691,016
Sewing machine fan attachment, G. Geer. 691,340
Sewing machine, needle feed chain stitch, H. J. Hancock 691,311
Sewing shank eyed butons, machine for, J. Mathison 690,978
Shaft coupling, J. Kennedy.... 691,274
Sharpener, knife or scissors, C. A. Payne.. 691,171
Shavings, apparatus for the production of spirally wound, C. Etzold.... 691,122
Sheet metal elbow, O. H. Lawrence.... 691,150
Sheet metal plates, machine for bending, Swohoda & Rothe 691,205
Shoe, M. J. Moloney 691,284
Siphon attachment, H. C. Tuller 691,021
Slide loop clip, I. Goures 691,133
Snap hook, W. A. Schleicher.... 691,185
Spool holding frame, P. D. Morton.... 691,287
Spring for pillows, cushions, etc., J. H. Masland 691,065
Square, carpenter's, Smith & Lemmon.... 691,192
Stacker, straw, M. Heineke.... 691,265
Stamp carrier and applier, postage, J. H. Lasserot 691,277
Stave drying apparatus, W. H. Hines.... 691,140
Steam boiler, Burger & Williams.... 691,044
Steam engine, R. T. Ahell.... 691,228
Steam for rotary motors, mechanism for admitting or shutting off, J. B. Zura.... 691,041
Steam generator, W. Morgans 691,286
Steel, preparing solutions for the treatment of, B. K. Jamison.... 690,963
Steel process, open hearth, Smith & Bedford 691,297
Steel trap, E. Lewis 690,970
Stencil sheet cutting and printing machine, W. S. Pain 690,991
Stocking, J. Shelton 691,327
Stone puller, Stroh & Hutchison.... 691,081
Stove or range, cooking, G. E. Wilbur.... 691,033
Stove regulating device, gas or vapor, G. Tresenreuter 691,019
Stove urn, A. T. Matthews.... 691,319
Switch mechanism, electric time, P. Sorensen 691,014
Telegraph apparatus, electric, P. Picard.... 691,176
Telephone circuit, W. K. Cook.... 691,245
Telephone switch and lock out mechanism for interconnecting lines, individual, Andriano & Herhstritt.... 691,229
Telephone system, F. E. Mayberry.... 691,281
Telephony, I. Kitsee 691,060
Thread cutter, C. P. McKim.... 691,289
Threshing machine, G. F. Connor.... 691,116
Threshing machine feed device, J. F. Welch. 691,215
Tile, roofing, J. W. Carnes.... 691,239
Time recorder, workman's, H. Dyson 691,252
Tin, regaining, P. Bergsoe 691,101
Tire equipment for vehicle wheels, rubber, J. G. Wehh 691,028
Tire, pneumatic, A. Ducasble.... 690,935
Tire valve cap, G. H. F. Schrader.... 691,296
Tobacco stemming machine, Spencer & Whitaker 691,196
Torpedo boat, T. J. Moriarty.... 691,160
Torpedo, railway, E. A. Schooley.... 691,326
Toy, J. H. Bowes 691,105
Toy, H. T. Gay 691,131
Toy, E. Hill.... 691,266
Toy, H. G. Sammons 691,325
Transit apparatus, tubular, B. H. Blood.. 690,920
Trap. See Animal trap.
Trimethyl hexahydrooxybenzylanilin and making same, G. Merling.... 691,157

(Continued on page 64)

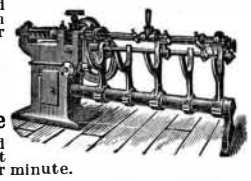
STEEL DUMP CARS

RAILS
TURNTABLES
and all Accessories Always in Stock.
ARTHUR KOPPEL. 66-68 Broad St., New York.

Queen Transits and Levels
High Grade Instruments with the Latest Improvements.
160 page Engineering Catalogue on application. THE QUEEN 240 page Mathematical Catalogue on application.
ENGINEERS' AND DRAFTSMEN'S SUPPLIES.
QUEEN & CO., Optical and Scientific Instrument Works,
59 Fifth Ave., New York. 1010 Chestnut St., Phila.

ROTARY PUMPS AND ENGINES. Their Origin and Development.—An important series of papers giving a historical resume of the rotary pump and engine from 1588 and illustrated with clear drawings showing the construction of various forms of pumps and engines. 38 illustrations. Contained in SUPPLEMENTS 1109, 1110, 1111. Price 10 cents each. For sale by Munn & Co. and all newsdealers.

Straightens It Out



no matter how tangled and twisted, and cuts it in required lengths—long or short, the
Long Cut Automatic Wire-Straightening and Cutting Machine
which straightens and cuts wire from the coil at the rate of 120 feet per minute.
F. B. SHUSTER CO., New Haven, Conn., U.S.A.

The Typewriter Exchange

1½ Barclay St., NEW YORK
124 La Salle St., CHICAGO
38 Bromfield St., BOSTON
817 Wyandotte St., KANSAS CITY, MO.
209 North 9th St., ST. LOUIS, MO.
432 Diamond St., PITTSBURGH, PA.
5 North Calvert St., BALTIMORE, MD.
536 California St., SAN FRANCISCO, CAL.
We will save you from 10 to 50% on Typewriters of all makes. *Send for Catalogue.*

WIRELESS TELEGRAPHY.—SCIENTIFIC AMERICAN SUPPLEMENT Nos. 1213, 1327, 1328 and 1329, contain illustrated articles on this subject by G. Marconi. Additional illustrated articles by other authors are contained in SCIENTIFIC AMERICAN SUPPLEMENT Nos. 1124, 1131, 1177, 1192, 1217, 1218, 1219 and 1304. These papers constitute a valuable treatise on wireless telegraphy. Price 10 cents each from this office, and all newsdealers.

NO WEIGHTS TO LOSE
Laboratory Balance. Direct Reading.
Apfel-Murdoch Company,
82 Lake Street, Chicago, Ill.

ANY interested in Art, Artistic Shading or Coloring will do well to write
The Air Brush Mfg. Co.
80 Nassau Street,
Rockford, Ill., U. S. A.

ARTESIAN
Wells, Oil and Gas Wells drilled by contract to any depth from 50 to 3000 feet. We also manufacture and furnish everything required to drill and complete same. Portable Horse Power and Mounted Steam Drilling Machines for 100 to 1200 feet. Write us stating exactly what is required and send for illustrated catalogue. Address
PIERCE WELL ENGINEERING AND SUPPLY CO.
136 LIBERTY STREET, NEW YORK, U. S. A.

A FOLDING CAMERA.—WORKING Drawings showing how to build a folding camera. A practical paper by an amateur for amateurs. 4 illustrations. Contained in SUPPLEMENT 1021. Price 10 cents. For Sale by Munn & Co. and all newsdealers.

SHOEMAKER'S BOOK on POULTRY and Almanac for 1902. 160 pages, over 100 illustrations of Fowls, Incubators, Brooders, Poultry Supplies, etc. How to raise chickens successfully, their care, diseases and remedies. Diagrams with full description of Poultry houses. All about Incubators, Brooders and thoroughbred Fowls, with lowest prices. Price only 15c.
C. C. SHOEMAKER, Box 283, Freeport, Ill.

THIS INCUBATOR

was named Sure Hatch by a vote of those who were using it. Their yearsort service by thousands of poultry raisers justifies the name. Any one can run it, because it runs itself. Any one can own it, because the price is right. Incubator and results guarantee d for ten years. Catalog, full of photo views and poultry information, sent free. Address nearest office.
Sure Hatch Incubator Co., Clay Center, Neb., or Columbus, O.

CYPHERS INCUBATOR,
World's Standard Hatcher.
Used on 26 Gov. Experiment Stations in U. S., Canada, Australia and New Zealand; also by America's leading poultrymen and thousands of others. Gold medal and highest award at Pan-American, Oct. 1901. 32-page circular free. Complete catalogue, 196 pages, 8x11 in., mailed for 10c.
Ask nearest office for book No. 134
CYPHERS INCUBATOR COMPANY,
Buffalo, N. Y., Chicago, Ill., Boston, Mass., New York, N. Y.

Now is the time to subscribe to the
SCIENTIFIC AMERICAN
for the year 1902
Subscription Price, - - $3 a Year
3 Months Trial, 50 cents

Again and again, for many years, under all conditions, by countless users, the

Remington Typewriter

has been tried and tested, and its superior merits proved.

Wyckoff, Seamans and Benedict
327 Broadway
New York

We Guarantee Our Telephones or Money Refunded.

2 Battery Call Telephones for $4.50
Good for 600 feet
Metallic Circuit.

2 Generator Call Telephones for $7.50
Good for 3 miles single Iron Wire.

"Batteries included." Sent C. O. D. if $1.00 sent with order.

FARR & FARR, 119 W. Jackson Boulevard, CHICAGO.

SENSITIVE LABORATORY BALANCE. By N. Monroe Hopkins. This "built-up" laboratory balance will weigh up to one pound and will turn with a quarter of a postage stamp. The balance can be made by any amateur skilled in the use of tools, and it will work as well as a $125 balance. The article is accompanied by detailed working drawings showing various stages of the work. This article is contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 1184. Price 10 cents. For sale by MUNN & Co., 361 Broadway, New York City, or any bookseller or newsdealer.

THE OMNIGRAPH Will Teach Telegraphy absolutely correct in the shortest possible time at a total cost of four dollars. TRANSMITTER, Key and Sounder. Expert operator with you all the time. Circular free. THE OMNIGRAPH MFG. CO. Dept. 52, 39 Cortlandt St., New York

Perfectly homogeneous, extremely dense and tough. Positively resists Electrolysis and other forms of disintegration.
White Metal clear through.
"BENEDICT-NICKEL"
Send for "Electrolysis of Condenser Tubes."
Tobin Bronze at manufacturers' prices.
BENEDICT & BURNHAM MFG. CO.
WATERBURY, CONN.
NEW YORK, 253 B'WAY BOSTON, 172 HIGH ST.

WE TEACH YOU FREE
$5. to $10. PER DAY.
Gold, Silver, Nickel and Metal Plating.
At home or traveling, using and selling Prof. Gray's Machines. Plates Watches, Jewelry, Tableware, Bicycles, all metal goods. NO EXPERIENCE. Heavy plate. Modern methods. No toys. We do plating, make outfits, all sizes. Complete, all tools, lathes, materials, etc., ready for work. The Royal, new dipping process, quick and easy. Write today. Pamphlet, samples, etc., FREE.
P. GRAY & CO., Plating Works, CINCINNATI, O.

Patents, Trade Marks, COPYRIGHTS, etc.,
Address MUNN & CO., Solicitors of Patents.
Office of the SCIENTIFIC AMERICAN
361 Broadway, New York.
Branch Office: 625 F St., Washington, D. C.
Hand-book Sent Free on Application.

Real Estate Wanted
and for sale. If you want to sell or buy (no matter where located) send description and cash price and get (FREE) my successful plan. W. M. OSTRANDER, North American Bldg., Philadelphia, Pa.

WILLIAMS' SHAVING SOAP
The most Creamy, Soothing, and Refreshing of all SHAVING SOAPS
SOLD EVERYWHERE
Williams' Shaving Stick, - - 25c.
Yankee Shaving Soap, (Round or Square), 10c.
Luxury Shaving Tablet, - - 25c.
Swiss Violet Shaving Cream, - - 50c.
Williams' Shaving Soap (Barbers'), 6 Round Cakes, 1 lb., 40c. Exquisite also for toilet.
(Trial Size) Williams' Shaving Tablet for 2c. stamp
" " " " Stick " 10c. "
The only firm in the world making a specialty of SHAVING Soaps
THE J. B. WILLIAMS CO., Glastonbury, Ct.
LONDON PARIS DRESDEN SYDNEY

Trolley pole base, Buckley & Phinney 691,236
Trolley pole controlling device for cars or vehicles, W. H. Kilbourn 691,275
Trolley tender, A. W. Ham 691,263, 691,264
Trommel, G. F. Waddell 691,025
Truss, hernial, R. Hummel 691,143
Tufting apparatus, S. Karpen 691,271
Tug attachment, shaft, A. S. Bailey 691,231
Tunnel, C. M. Jacobs 690,960
Type casting machine matrix carrier, G. H. Ziegler 691,226
Type writer alinement mechanism, C. Sears. 691,189
Typewriter tabulating atachment, J. A. Garland, Jr 691,130
Umbrella geat, S. S. Fretz 691,053
Valve, automatic relief and condenser, W. S. Montgomery 691,067
Valve, balanced puppet, A. Metz 690,979
Valve, compound engine, S. Munson 691,161
Valve for air compresors, piston, B. L. & W. P. Brinton 691,042
Vehicle body corner joint, J. F. Watts 691,027
Vehicle controlling device, motor, Hatcher & Packard 690,949
Vehicle, motor, G. F. Tadini 691,206
Vehicle running gear, M. Bruner 690,923
Vehicle steering mechanism, motor, F. R. Hiester 691,054
Vending machine, coin controlled, A. C. Carey 690,926
Ventilating apparatus, J. A. Hart 691,312
Veterinary remedy, R. H. Fox 691,255
Wagon, dumping, D. S. Watson 691,330
Wagon, sand, S. W. Albertson 690,913
Wasteband for pants, supplemental, S. Schelinsky 691,006
Warp threads, device for correcting improper registry of party colored, H. Hardwick 691,136
Washboard, P. J. Collmann 690,930
Washing machine, D. W. Bovee 691,233
Watchmakers' lathes, tail stock for, W. D. Clement 690,929
Water elevator, compresed air, Latta & Martin 691,278
Welding, electric, R. M. Hunter 690,958
Well casing head, oil, J. W. Frye 691,129
Wheat, machine for separating cockle from, Climenson & Winger 691,045
Wheel fastener, A. M. Beebe 691,099
Wicker chair, knockdown, C. Werthner 691,216
Windmill, A. H. Hau 690,950
Windmill power, C. Oberlander 691,168
Window, E. A. Sanders 691,182
Window, ventilating, E. A. Glesser 691,260
Wood, inlaying of, H. C. Webb 691,214
Woodworking machine safety device, T. B. Rice, Jr. 691,074
Wrench handle, F. L. Coes 691,046, 691,243

DESIGNS.

Axle center and fifth wheel plate, H. F. Weeks 35,589
Brush back and handle, H. J. Herbert 35,576
Button hooks, etc., handle for, F. Thielke 35,574
Cabinet, kitchen, J. A. Reid 35,584
Hot water bag closure, C. W. Meinecke 35,580
Lamp fixture, W. Hawks 35,581
Mirror frame, H. J. Herbert 35,575
Newspaper holder, G. Orenshaw 35,585
Penholder, N. Jacobson 35,577
Pincushion, G. Brown 35,578
Registers, ventilators, etc., top plate for, H. S. Hart 35,583
Rug, A. Petzold 35,587, 35,588
Sideboard ornament, Bomenblit & Pink 35,586
Skirt, lady's, C. C. Ondrak 35,579
Spoon, souvenir, J. A. Oswald 35,573
Stove door, J. P. Onerbacker 35,582
Vessel's hull, C. J. H. Flindt 35,590

TRADE MARKS.

Boots and shoes, J. J. Gaggin 37,636
Cigarette papers, Maison P. B. Job 37,640
Cigars, S. L. Johns 37,643
Covering material, certain named, Asbestos Manufacturing Co. 37,639
Dolls, Hamburger & Co. 37,632
Fabrics, textile, Eddystone Manufacturing Co 37,638
Flour, Bill, Bell & Co. 37,644
Fur neckwear, certain named, L. Baer 37,634
Hosiery, Pilling & Madeley 37,635
Leather, enameled, C. B. Rathbun 37,637
Medicine, certain named, W. C. Alpers 37,641
Milk or milk preserve, condensed, A. Sauer. 37,645
Paints and enamels, Phoenix Paint and Varnish Co. 37,649
Presses, fruit, Henis Fruit Press Co. 37,651
Remedies for coughs and colds, W. B. Thompson 37,642
Shower and bathing apparatus, certain named, E. Mulchers 37,652
Soap, Bell & Bogart Soap Co. 37,648
Spectacles and eyeglasses, American Optical Co. 37,633
Sporting goods, centain named, Draper & Maynard Co. 37,650
Starch, corn, laundry, and mill, Archer Starch Co. 37,646
Toilet articles and preparations, certain named, R. M. Holland 37,647

LABELS.

"Coronation Violet," for perfume, Caskell, Masey & Co. 8,891
"Cream Syrup," for syrup, California Mercantile Co. 8,893
"Devonshire Relish," for a table sauce, L. M. Roberts 8,895
"Farrar's Hygienic Protective Powder," for a protective powder, B. Ruppe 8,902
"Forno Dyspepsia Tablets," for dyspepsia tablets, Lincoln Chemical Co. 8,901
"Heart Food," for a breakfast product, E. Koch Co. 8,897
"Juan de Fuca," for cigars, Sanchez, Rodriguez & Co. 8,899
"Khasan's Roachynee," for an insect powder, M. Khasan 8,903
"Ox Heart," for candy, D. D. Long 8,892
"Revivor Bitters," for bitters, W. Moise & Co. 8,900
"Superba," for blueberries, Milliken, Tomlinson Co. 8,894
"Tiger Rolled White Oats," for rolled oats, Morris Oatmeal Co. 8,898
"World's Fair Bread," for bread, Heydt Bakery Co. 8,896

PRINTS.

"American Garment Cleaning Company, for cleaned garments, A. Durand 450
"Hasn't Scratched Yet," for a cleaning material, Keterlinus Litho Mfg. Co. 449
"I Do Love a Domestic," for sewing machines, M. C. Jameson 451
"Josephine Back, No. 606, Congress Playing Cards," for playing cards., United States Playing Card Co. 448
"Martha Washington Back, No. 606, Congress Playing Cards," for playing cards, United States Playing Card Co 447
"Napoleon Back, No. 606, Congress Playing Cards," for playing cards, United States Playing Card Co. 446

A printed copy of the specification and drawing of any patent in the foregoing list, or any patent in print issued since 1863, will be furnished from this office for 10 cents, provided the name and number of the patent desired and the date be given. Address Munn & Co., 361 Broadway, New York.

Canadian patents may now be obtained by the inventors for any of the inventions named in the foregoing list. For terms and further particulars address Munn & Co., 361 Broadway, New York.

BUY CHICAGO-BEAUMONT OIL CO'S

OIL STOCK

WITH SIX GUSHERS GUARANTEED ON OUR FAMOUS SPINDLE TOP PROPERTY.

OIL INSIDE OF TWENTY DAYS.

That is the report of the Well-Drilling Co. who are now down 700 feet with our first well. We own over 600 acres of land in the Texas Oil Belt. Six wells contracted for.

BUY STOCK NOW AT 50 CENTS ON THE DOLLAR.
(This is only one-half par value of the stock.)

Hon. Wm. Penn Nixon, Collector of the Port of Chicago, is prepared to vouch for the absolute reliability of the Chicago-Beaumont Oil Company. Mr. Nixon, after a thorough investigation of this company, accepted the office of president, and now invites every man seeking a good investment to become a part owner and share in the profits of a reliable and economically conducted enterprise, where the smallest shareholder, owning but a few dollars' worth of stock, has the same protection as the largest one.

THE PAR VALUE OF STOCK IN THE CHICAGO-BEAUMONT OIL COMPANY IS $10.00 PER SHARE.

$5.00 buys one share, $25.00 buys five shares, $50.00 buys ten shares, $100.00 buys twenty shares, $250.00 buys fifty shares, $500.00 buys one hundred shares, $1,000 buys two hundred shares.

YOU CAN BUY STOCK ON OUR "GUARANTEE PLAN" IF YOU DESIRE.

We will sell you stock at $5.00 per share, $3.00 down and balance payable as soon as a gusher is produced on our property. This is certainly a liberal offer, and is made simply to show the faith we have as to the value of our land as oil producing properties.

DISCOUNT FOR CASH. We allow a discount of ten per cent. if cash accompanies order for full amount of shares. No discount if stock is purchased on time.

PROSPECTUS. We will gladly mail you our prospectus on request, or better still, call at our offices. All orders must be accompanied by check, draft or money order.

THE CHICAGO-BEAUMONT OIL CO.
E. C. TRACY, SECRETARY.
SUITE 306, 115 MONROE ST. CHICAGO, ILL.

Troubled With Rats?
The only things that some alleged traps catch are the people who buy them. But rats and mice are "up against it" forever when they touch the bait-box of "THE" Rat and Mouse Trap. All metal, easily set, easily cleaned, substantial, durable, never failing, always satisfactory. Circulars free.
Patented May 21, 1901
J. K. OSBORNE MFG. CO., Harrison, N. J.

ELECTRIC LAUNCH MOTOR. — THE design in this paper is for a motor of unusual simplicity of construction, which can easily be built by an amateur at small cost. It is intended for a boat of about 24 feet over all and 4 feet 6 inches beam, drawing 18 inches, and is capable of propelling such craft at a speed of 7 miles per hour. Illustrated with 21 cuts. See SCIENTIFIC AMERICAN SUPPLEMENT, No. 1202. Price 10 cents by mail, from this office and from all newsdealers

"TO WEAR AND LAST 'TIS NOT SURPASSED"
The construction of Fisk Fabric Tires is such that the different layers in its composition assure both elasticity and strength. It is extremely difficult to puncture and gives the greatest satisfaction to riders of bicycles and drivers of automobiles.
Illustrated catalogue mailed free on application to the
FISK RUBBER CO.
CHICOPEE FALLS, MASS.

A Longed-for LUBRICANT
which wheelmen will greatly appreciate and which, besides easing the running, will save much wear and tear on the machine is
Dixon's Cycle Graphites
For Chains, Gears or Coasters.
Sample Free.
JOSEPH DIXON CRUCIBLE CO.
Jersey City, N. J.

Rest On Air
PILLOWS CUSHIONS
"Perfection" AIR MATTRESSES
(Trade Mark)
In Camp—On The Yacht—Or At Home
THE IDEAL BED OR COUCH
Strictly hygienic—Non-absorbent—Odorless.
A BOON TO THE INVALID—A LUXURY FOR THE WELL
Light weight, and when deflated can be packed in small space.
SEND FOR CATALOGUE AND PRICE LIST
Mechanical Fabric Co., Providence, R. I.

EDSON'S SYSTEM for the ODORLESS removal of VAULT and CESSPOOL matter. Smaller Complete Outfits for Private Estates, Hotels and Institutions.
The U. S. Military Government abroad and many cities in the U. S. use our outfits.
Send for Catalog K 3.
EDSON MANUFACTURING CO.,
182 Commercial Street, Boston, Mass., U. S. A.

2 POINTS
These have made
The 20th Century Perfection Suspender
famous.
No harness on the back. Just small Buckle, first point.
Watch next ad for other.
50c at dealers or by mail.
SENT FREE: Booklet, "History of a Suspender." Write today.
EASTMAN & SPECHT MFG. CO.
200B So. Clinton St., Chicago, Ill.

SECTION OF RAZOR EDGE MAGNIFIED.
SHAVE YOURSELF AND SAVE MONEY.
TESTIMONIALS FROM MANY USERS.
Our little device makes shaving a pleasure. By a simple method of preparing the water for the lather, we overcome all the tortures of shaving and give you
A RAZOR WITH THE FINEST CUTTING EDGE.
Your razor's edge has microscopic teeth the sharpness of which our apparatus preserves and augments. Price very low. Send for free pamphlet giving full particulars. If you read it you will order at once; it is so useful; so cheap.
F. G. FOWLER & CO., Bridgeport, Conn., U.S.A.
LATHER GENERATOR

NOW READY.

Compressed Air

ITS PRODUCTION, USES AND APPLICATIONS.
By GARDNER D. HISCOX, M. E.
AUTHOR OF "MECHANICAL MOVEMENTS."

LARGE 8VO. 820 PAGES. 547 ILLUSTRATIONS.

PRICE, bound in Cloth, $5.00. Half Morocco, $6.50.

A complete treatise on the subject of Compressed Air, comprising its physical and operative properties from a vacuum to its liquid form. Its thermodynamics, compression, transmission, expansion, and its uses for power purposes in mining and engineering work; pneumatic motors, shop tools, air blasts for cleaning and painting. The Sand Blast, air lifts, pumping of water, acids and oils; aeration and purification of water supply; railway propulsion, pneumatic tube transmission, refrigeration. The Air Brake, and numerous appliances in which compressed air is a most convenient and economical vehicle for work—with air tables of compression, expansion and physical properties.

A most comprehensive work on the subject of Compressed Air.

A special illustrated circular of this book will be sent to any address on application.

MUNN & CO.,
Publishers of the Scientific American. 361 Broadway, New York.