

RECENTLY PATENTED INVENTIONS.

Electrical Devices.

RAIL.—L. STEINBERGER, New York, N. Y. Certain advantageous features are embodied in this invention, among them being provision for allowing the rail to rock slightly during the passing of a train, and insuring a more constant and nearer perfect contact; for providing a bearing-surface for distributing pounding action; for relieving the rail and support of undue strains; for limiting movements thus set up in the rail; for supporting the rail against displacement; for more effectively shedding rain, sleet, snow, etc.; for more thoroughly insulating rail from cross-tie, and for providing a form of rail more readily distinguishable from ordinary rails, thereby preventing accidents.

SUPPORT FOR RAILS.—L. STEINBERGER, New York, N. Y. Mr. Steinberger's invention relates to a means for supporting rails and admits of general use, but is particularly applicable to railway systems employing the so-called "third rail" for the purpose of distributing the electric current. Among the several objects of the invention, one is to permit a maximum relative movement as between the rail and its support in a plurality of directions. Another, to provide an insulated rail-support presenting the least possible mechanical contact-surfaces to the rail, thereby allowing the rail free movement and avoiding possibility of rail sticking to its support, and thereby bending or breaking it.

ELECTRIC SIGNALING SYSTEM.—J. DIANOVSKY, Passaic, N. J. The object in this case is to provide a system, more especially designed for preventing collisions of trains and arranged to automatically bring a train to a stop when it passes into a section occupied by the train ahead to allow the engineer of the last train to put himself in telegraphic communication with the engineer of the train ahead, or vice versa, and to allow proper dispatch of the trains from a terminal station without danger of derailing or collision by imperfectly set switches.

ELECTRIC RAILROAD-CROSSING SIGNAL.—T. C. CLARK, Cambridge, Ohio. This signal for warning teams and pedestrians, comprises two circuit-closing devices arranged in the track, one each side of the crossing and about one hundred and fifty yards from the same, an electric bell which is mounted in a box at the crossing and arranged to be rung upon the approach of a train in either direction, a commutator with electric motor for turning it by which the time during which the bell is to continue in operation is controlled, and electromechanical devices for opening and closing the various circuits and holding them open or closed, as required, and also a circuit-breaking device for the track-circuit.

ELECTRIC SIGNALING SYSTEM.—S. I. YOUNG, New York, N. Y. In this patent the invention consists in a signaling system especially adapted for use on electric railways where the motive power employed is a source of direct-current energy. The object is to provide means whereby the condition of any section of the railway may be visibly, audibly, or otherwise indicated—as for instance, through the operation of semaphore-arms, bells, lights, etc.—or whereby the speed of movement of any car upon the railway may be modified upon entering or leaving any section of such railway—as, for instance, by automatically varying the resistance of the motor-circuit.

Of Interest to Farmers.

PLANTER.—J. H. GROOTER, Allendorf, Iowa. In this case the purpose is to provide a means for releasing the seed from the seed box or boxes at proper periods, which means are controlled by the guide wire, chain, or cable used in connection with the machine, and further features relate to the construction of the seed-dropping devices, means for regulating the winding of the chain or cable upon the drum, and the construction of the drill shoes which are provided with devices at their lower ends for releasing seed to be dropped into the ground.

DEVICE FOR OPENING OR CLOSING GATES.—H. C. MORGAN, Eugene, Ore. By this improvement the inventor so arranges the ropes and pulleys as to enable the operator to open and close the gate from any point on the ground, in a wagon, or on a lead of hay, or the gate may be opened by a cable on the ground or by a man on horseback or without the use of ropes as may be desired.

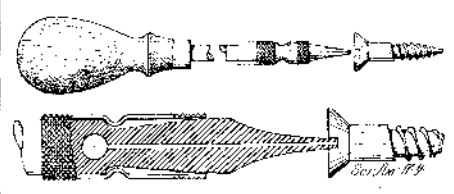
Of General Interest.

ATTACHMENT FOR MARINERS' COMPASSES.—J. ROYER, St. Johns, Newfoundland. This attachment enables bearings of heavenly bodies, landmarks, lights, and distant objects to be taken accurately, enables accurate bearings to be taken at night, the mariner to discover deviation of his compass by taking fixed bearings and comparing with compass indication, accurate bearings to be taken with binoculars without its removal or interference with its hood or top, bearings to be taken off pole-compasses, and to discover by noting bearings of a fixed object from time to time how tide is setting.

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 the paper.

IMPROVED SCREWDRIVER.

Electricians and others who are required to drive screws in difficult and inconvenient places, will appreciate the value of the screwdriver here illustrated. The blade of the screwdriver consists of two jaws, over which a sleeve is fitted. This sleeve is so arranged that when moved forward it will crowd the jaws together, permitting them to be inserted



in the screw slot, and when the sleeve is withdrawn, the jaws will spread and hold the screw by pressing against the side walls of the screw slot. The screw can then be driven without the necessity of being held by the hand. Mr. S. E. Condon, 266 Hewes Street, Brooklyn, N. Y., who is the inventor of this screwdriver, desires to dispose of his patent, either outright or on a royalty, to some established manufacturer.

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. 5719.—Wanted, a proofing compound for oiled clothing which will dry with a surface free from all stickiness.

AUTOS.—Duryea Power Co., Reading, Pa. Inquiry No. 5720.—For makers of refrigerating plants of one half or one ton capacity.

For hoisting engines. J. S. Mundy, Newark, N. J. Inquiry No. 5721.—For information in regard to making wood alcohol, acetate of lime, etc., in connection with charcoal production.

"C. S." Metal Polish. Indianapolis. Samples free. Inquiry No. 5722.—For manufacturers of sad-irons or flat-irons which are heated by gasoline.

If it is a paper tube we can supply it. Textile Tube Company, Fall River, Mass.

Inquiry No. 5723.—For manufacturers of small, complicated springs and clips, of music wire.

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

Inquiry No. 5724.—For parties to make small special steel chains of 10 gauge (B. & Sharpe) wire.

WANTED.—Exclusive sale improved automobile specialties. Specialties, Box 773, New York.

Inquiry No. 5725.—Wanted, a 3 h. p. marine boiler.

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

Inquiry No. 5726.—For manufacturers of pile drivers.

Sheet metal, any kind, cut, formed any shape. Die making, wire forming, embossing, lettering, stamping, punching. Metal Stamping Co., Niagara Falls, N. Y.

Inquiry No. 5727.—For makers of creosote shingles for roofing purposes.

Manufacturers of patent articles, dies, metal stamping, screw machine work, hardware specialties, machinery and tools. Quadriga Manufacturing Company, 15 South Canal Street, Chicago.

Inquiry No. 5728.—For small fancy tassels made of paper, card, etc.

Inquiry No. 5729.—For parties to make to order stampings of wrought iron or soft steel plate, 3/4 inch thick.

Inquiry No. 5730.—For makers of photo-button frames and photo jewelry.

Inquiry No. 5731.—For makers of rotary fans driven by clockwork.

Inquiry No. 5732.—For makers of brick-making machinery.

Inquiry No. 5733.—For maker of gas balloons.

Inquiry No. 5734.—For the address of the firm in Connecticut making little Egyptian charms.

Inquiry No. 5735.—For makers of electric and motor truck for hose truck for fire department.

Inquiry No. 5736.—Wanted, a patent for a good selling appliance, for sale at a fair figure.

Inquiry No. 5637.—Firms manufacturing machinery for a pencil factory.

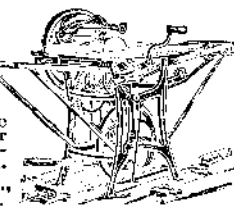
Table with 2 columns: Patent Number and Description. Includes items like Abdominal hernia-pad, Acid proof composition, Adding and recording machine, etc.

Main index table with 2 columns: Patent Number and Description. Includes items like Attaching and detaching device, Alexander, Audiphone, Automatic coupling, etc.

Main index table with 2 columns: Patent Number and Description. Includes items like Dyeing composition, G. M. Lawton, Basel, E. C. Entler, Eaves trough hanger, C. S. Welford, etc.

Wood-working Machinery

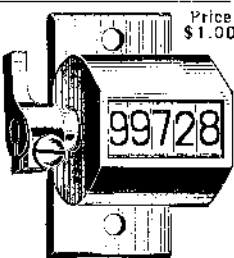
For ripping, cross-cutting, sawing, planing, boring, scroll-sawing, etc.



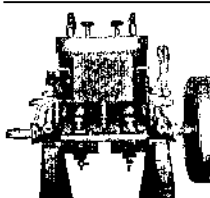
ENGINE & FOOT LATHES TOOLS & SUPPLIES

Veeder Counters

to register reciprocating movements or revolutions. Cut full size.



TAKE THE NICKEL PLATE ROAD FOR THE ST. LOUIS FAIR.



Marine Motors. If you want a Gasoline Motor, with all the good points and none of the bad, buy a "RELIABLE"

HIGHEST GRADE GREY IRON CASTINGS For Gasoline Engines and Cylinders

Lackawanna Motors

are Simple and Valveless. Easy to start and easy to operate.

A GOOD INVESTMENT

For \$1.75 we will send by express (not prepaid), complete N. D. outfit with full instructions for learning

Complete Electric Lighting Plant

Price, \$34.00. Dynamometer, for eight 16-c.p. lamps, \$25.00; lamps, wire, fixtures, etc., \$8.00

Electric Motor

The Renco Motor runs at high speed when connected to one cell of almost any kind of battery.

THE 2 1/2 H.P. WEBER JUNIOR PUMPER

has a capacity of 50 gallons 125 feet and 100 gallons 67 feet.

Yankee Spark Plug, \$2 FOR GAS ENGINES

Cannot carbonize or short circuit. Compression and cleans point at each explosion. Guaranteed.

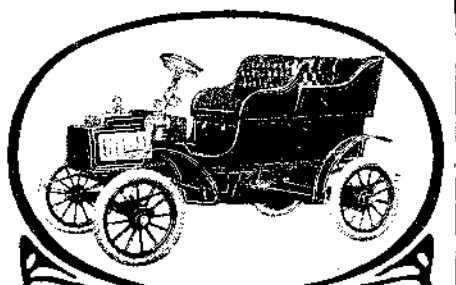
Eclipse Pocket Ammeter

For general battery testing. 0 to 20 amperes. Flexible cord attached and contact spring in case, which is drawn back into case, when carried in pocket.

Automatic Machines FOR FORMING WIRE

from coil into shapes similar to cuts. We can furnish machines or goods, as desired.

Table listing various machinery items and their prices, including Loom temple, Lubricating device, Magneto electric generator, Mail bag catcher, Mallet, Manhole, Match, Match box, Mattress frame, Metal extrusion apparatus, Mine trap door, Minerals, Mower folding reel support, Mowing machine attachment, Music transcription chart, Musical instrument, Nailing machine, Nitramins, Nut lock, Ore concentrating table, Paper separator, Panel, Paper feed roll mechanism, Paper hanger, Paper roll holder, Pegging machine, Pen, Piano pedal support, Pianoforte action, Picture hanger, Piling, Pin tongue, Pipe and nut wrench, Pipe dressing machine, Pipe joint, Pipe repairer, Pitman, Plane iron adjusting device, Planer, Pliers, Plunger elevator, Pocket case, Polishing machine, Potential varying and current reversing apparatus, Printer's quoin, Printing and embossing press, Printing press, Projectile chamber, Pulley, Pulverizing machine, Pump, Pump controlling apparatus, Pump, double acting deep well, Pump, inflating, Pump, liquid, Pumping apparatus, Purlin, Quoin lock, Radiator, Rail bending tool, Rail joint, Rail joint, Rail lubricator, Rail support, Rails, Rail switch, Railway crossing, Railway frog, Railway on farm gate, Railway signal, Railway signaling means, Railway signaling system, Railway switch, Railway signals, Railway switch, Railway third rail, Railway tie, Railway wagon balance, Range, Range, Recoil check, Refining engines, Reflector, Rein support, Retort lid, Revolver, Rifle wind gauge, Ring, Rinsing device, Rivet holder, Road, Rocking chair, Rod connection, Rotary engine, Rotary motor, Rotative motor, Rubber article forming machine, Rubber boots and shoes, Rubber gasket making machine, Rule attachment, Rule, Safety hook or ring, Salt collar, Sash cord guide, Sash fastener, Sash lock, Sash window, Sawing machine, Scaffold, Sealing machine, Sealing wax melting and applying device, Secondary battery, Seed separator, Sewing machine attachment, Sewing machine feeding mechanism, Sewing machine, Shade roller bracket, Shaft and clip, vehicle.



A Rambler Reflection

Thousands of people who are considering the purchase of an automobile want a machine that is strong—powerful—easy riding—simple—durable—graceful and up-to-date.

IF YOU SHOOT A RIFLE

Pistol or Shotgun, you'll make a Bull's Eye by sending three 2c. stamps for the Ideal Hand-book "4," 120 pages FREE.

World's Fair Visitors

Will profit by adding a trip to Colorado, Utah or the Pacific Coast, touring the delightful Rocky Mountain region via the

Denver & Rio Grande Railroad,

which has more scenic attractions, mountain resorts, mineral springs, and hunting and fishing grounds, than any other line in the world.

MORRIS & RUSHTON Boats and Canoes.

STIMULATION without IRRITATION

Means New Life to the Scalp. The Evans Vacuum Cap gives the scalp a thorough massage and encourages a free and healthful circulation without rubbing and without the use of drugs or irritants.

THE MIETZ & WEISS KEROSENE and GAS ENGINE

burns KEROSENE cheaper and safer than gasoline. Automatic, simple, reliable. No electric battery or flame used.

GAS ENGINE IGNITERS

Price, \$15.00. LATEST TYPE. BEST MADE. For Marine, Automobile or Stationary Engines. Fully Guaranteed.

The CURTISS double cylinder 5 horse-power MOTOR

Weight 60 lbs. List price \$150.00. The most powerful cycle motor in the world.

WELL DRILLING Machines

Over 70 sizes and styles, for drilling either deep or shallow wells in any kind of soil or rock.

GEM SAFETY RAZOR advertisement featuring a portrait of a man and text: 'WELL THAT'S FINE!!' 'GEM SAFETY RAZOR'.

WATER, 25 Bbls. for 1c.

Greatest Air-Cooled Wonder of the day. Operates any kind of pump. Runs any kind of machinery. No water to freeze.

The Apple AUTOMATIC

For Gas Engines, Launches, Automobiles, etc. No more belts, battery and commutator troubles.

Send For It To-Day

You'll find it always convenient to have as a useful and instructive book Montgomery & Co.'s Tool Catalogue.

THE OBER LATHES

For Turning Axe, Adze, Pick, Sledge, Hatchet, Hammer, Auger, File, Knife and Chisel Handles.

Angle Benders

We make hand-power benders for forming angles in stock 1 in. thick and under. Lightstock can be bent cold.

Squabs Pay Beat Hens

Easier, need attention only part of time, bring big prices. Raised in one month. Attractive for poultrymen, farmers, women. Send for FREE BOOKLET and learn this immensely rich home industry.

WE BUILD MACHINES

We have the advantage of having a large and perfectly appointed shop in a town where expenses are very light; and our customers profit by it.

Electrical Alarm Clock

This insisting and Compelling Electrical Alarm Clock awakes you in spite of yourself. Rings for hours unless stopped.

BICYCLES FOR SALE

At Prices All Can Pay. 9,000 wheels to be sold this month. Factories have gone down with a crash.

MANHATTAN STORAGE CO.

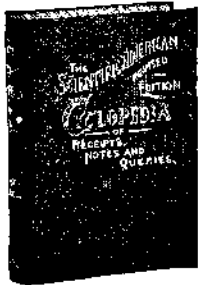
No. 42 Cortlandt Street, New York, N. Y.



Williams' Shaving Stick
signifies—Perfection.
Williams' Shaving Sticks, Shaving Tablets, Toilet Waters, Talcum Powder, Jersey Cream Toilet Soap, etc., sold everywhere.
Write for booklet "How to Shave"
THE J. B. WILLIAMS CO.
GLASTONBURY, CONN.

Valuable Books

REVISED and ENLARGED EDITION
The Scientific American Cyclopedia Of Receipts, Notes and Queries.
15,000 Receipts. 734 Pages.
Price, \$5.00 in Cloth. \$6.00 in Sheep. \$6.50 in Half Morocco. Post Free.



This work has been revised and enlarged, 900 New Formulas. The work is so arranged as to be of use not only to the specialist, but to the general reader. It should have a place in every home and workshop. A circular containing full Table of Contents will be sent on application. Those who already have the Cyclopedia may obtain the 1901 APPENDIX. Price, bound in cloth, \$1.00 postpaid.

TWENTY-THIRD EDITION EXPERIMENTAL SCIENCE.

By GEORGE M. HOPKINS
Revised and Greatly Enlarged. 2 Octavo Volumes. 1,100 Pages. 300 Illustrations. Cloth Bound, Postpaid, \$5.00. Half Morocco, Postpaid, \$7.00. Or Volumes Sold Separately: Cloth, \$3.00 per Volume; Half Morocco, \$4.00 per Volume.

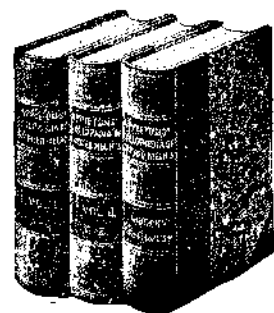
EXPERIMENTAL SCIENCE is so well known to many of our readers that it is hardly necessary now to give a description of this work. Mr. Hopkins decided some months ago that it would be necessary to prepare a new edition of this work in order that the many wonderful discoveries of modern times might be fully described in its pages. Since the last edition was published, wonderful developments in wireless telegraphy, for example, have been made. It was necessary, therefore, that a good deal of new matter should be added to the work in order to make it thoroughly up-to-date, and with this object in view some 200 pages have been added. On account of the increased size of the work, it has been necessary to divide it into two volumes handsomely bound in buckram.

Practical Pointers For Patentees

Containing Valuable Information and Advice on THE SALE OF PATENTS.
An Elucidation of the Best Methods Employed by the Most Successful Inventors in Handling Their Inventions.
By E. A. CRESEE, M. E.
144 Pages. Cloth. Price, \$1.00.

APPLETON'S Cyclopedia of Applied Mechanics

A Magnificent Set in Three Vols.
Handsomely bound in half morocco, each volume containing over 800 pages, with nearly 8,000 engravings, with full explanatory details.



Special Offer!

Heretofore the publishers' price of this work has never been less than \$22.50 and sold only by subscription. We have secured a special edition of this valuable work, and will box and ship, prepaid, the three volumes to any address in the United States or Canada on receipt of \$12.00.

By purchasing now from us you save half the original price and have in return a technical cyclopedia and dictionary, the great usefulness of which has been testified to by nearly 100,000 purchasers of this valuable work—technicians and mechanics who refuse to estimate its value to them in their work by mere dollars and cents.

Add \$1 extra for expressage to England and the Continent, or \$2 extra to Australia and other countries. Special circular of contents of these volumes sent free.

MUNN & CO.
361 Broadway New York City

Sharpening knife, A. W. Johnson..... 763,741
Shingle machine, O. E. Zipperer..... 763,585
Shoe turning machine, W. C. Meyer..... 763,620
Shuttle swell, Duckworth & Sunderland..... 763,468
Sight testing apparatus, Reinhard & Scheinman..... 763,929
Signal, H. L. Jennings..... 763,563
Signal device, J. J. Fuller..... 763,603
Signaling and recording system, automatic train, Wood & Shamburger..... 763,939
Signaling system, selective, G. Babcock..... 763,351
Skins, bating or puring, O. P. Amend..... 763,347
Sled, H. W. Tousey..... 763,521
Sled draft mechanism, traction, N. E. Brown, reissue..... 12,238
Smoothing iron, J. Feldmeyer..... 763,384
Snow plow, adjustable, E. T. Bushley..... 763,592
Soap saving device, G. L. Cataldo..... 763,463
Sound collecting and magnifying device, C. H. Viggars..... 763,575
Sound recording apparatus, J. W. Jones..... 763,903
Sound records, production of, J. W. Jones..... 763,904
Spinning or other machinery, drawing mechanism for, W. H. Drury..... 763,863
Spoke extractor, W. G. Pfeiffer..... 763,423
Spring, M. H. Naber..... 763,505
Square, folding, J. Offermann..... 763,419
Stamp, hand, W. A. Force..... 763,551
Stamp, hand, C. A. Fox..... 763,573
Steam support, T. E. Sarow..... 763,538
Steam boiler, S. T. Bray..... 763,359
Steam generator, T. W. Barber..... 763,655
Steam trap, S. Belt..... 763,843
Steering apparatus, E. E. Taylor..... 763,701
Stereoscopic apparatus, V. S. L. Owen..... 763,788
Sterilizer, F. E. Stilwell..... 763,936
Stone mold, artificial, A. Lake..... 763,679
Stop mechanism, C. A. Juengst..... 763,673
Stove, gas, H. H. Brown..... 763,363
Stove grate, A. Alitto..... 763,454
Stove, heating, E. R. Cahoon..... 763,851
Stove, even gas, gasoline, or oil, E. D. Harris..... 763,751
Stovepipe ventilator, W. P. Garrison..... 763,476
Sulfides from ores, apparatus for extracting, G. D. Delprat..... 763,662
Switchboard apparatus, W. Kaisting..... 763,404
Telegraphy, apparatus for wireless, G. Marconi..... 763,772
Telegraphy, submarine, I. Kitsee..... 763,908
Telegraphy, wireless, W. S. Hegg..... 763,893
Telephone exchange, signaling system, C. E. Scribner..... 763,803
Telephone receiver and transmitter, combined, J. G. Holmstrom..... 763,755
Telephone system, W. M. Davis..... 763,374
Telephone system call register, Lattig & Goodrum..... 763,911
Telescope adjustment, R. Seelig..... 763,439
Tentering machine, A. McLean..... 763,416
Thawing frozen ground, portable apparatus for, C. W. Joist..... 763,612
Therapeutical purposes, electrical apparatus for, J. P. Brown..... 763,657
Thermostatic device, C. P. Hilkier..... 763,754
Thill coupling, L. J. Dillon..... 763,734
Threshing machine, Davis & Lehenbauer..... 763,731
Threshing machine, pea, Briggs & Sitts..... 763,361
Ticket system, traffic, J. F. Ohmer..... 763,922
Tie. See Cross tie.
Timber, drying, A. Gray..... 763,482
Tire covering, pneumatic, G. F. Brown..... 763,539
Tire, rubber, A. S. Kratz..... 763,808
Tire, vehicle wheel, J. Alcott..... 763,536
Tobacco pipe, C. W. McKinney..... 763,504
Tobacco press, plug, G. W. Forberg..... 763,744
Tool, compound, A. L. Gheen..... 763,777
Tool feed and speed changing device, machine, Le Blond & Groene..... 763,770
Tool hand, W. W. Barton..... 763,352
Tool holder, D. Hepp..... 763,605
Toy, T. Petersen..... 763,422
Toy bench or settee, G. H. Lennon..... 763,617
Track sawyer, W. M. Deal..... 763,643
Track switch, E. Smith..... 763,806
Trap, O. E. Burroughs..... 763,850
Trolley, Hunsinger & Dewald..... 763,759
Trolley guard and sander, W. F. Reichenbach..... 763,509
Trolley pole, A. S. Weaver..... 763,820
Trousers stretcher, A. Holmer..... 763,608
Truck, A. C. Smith..... 763,698
Trunk, E. W. Hawley..... 763,395
Tubes or hollow bodies, manufacture of, E. F. McPhear..... 763,566
Turbine impulse wheel, fluid pressure, Hodgkinson & Frik..... 763,397
Turbine, steam, W. L. Pope..... 763,425
Turbine, water, E. Roth..... 763,695
Twine holder, S. J. Curry..... 763,729
Typewriter, J. Alexander..... 763,452
Typewriter carriage mechanism, F. X. Wagner..... 763,529
Typewriter paper controller, J. H. Cornelison..... 763,660
Typewriter ribbon mechanism, F. X. Wagner..... 763,938
Typewriters, etc., universal bar mechanism for, F. X. Wagner..... 763,528
Typewriting machine, E. C. Stickney..... 763,699
Typewriting machine, O. C. Kavle..... 763,906
Typewriting machine, paper controller, J. H. Cornelison..... 763,661
Upholstery spring support, J. Hoey..... 763,697
Valve, E. R. Hoyer..... 763,643
Valve, balanced hydraulic, F. Hennebachle..... 763,889
Valve, fluid pressure reducing, F. L. Dodgson..... 763,375
Valve gear, S. L. McCain..... 763,502
Valve, high pressure, H. E. Robinson..... 763,694
Valves or other like purposes, machine for facing, F. L. Smith..... 763,642
Vehicle attachment, W. H. Wansbrough..... 763,530
Vehicle body, C. C. Adelsperger..... 763,451
Vehicle brake, automatic, T. & L. Edwards..... 763,743
Vehicle front gear, G. Striech..... 763,700
Vehicle lap robe holder, E. Bickenscherer..... 763,459
Vehicle, motor, F. Schlais..... 763,931
Vehicle safety horse release, F. C. Gaettert..... 763,480
Vehicle spring, C. A. Behlen..... 763,842
Vehicle steering mechanism, J. Morig..... 763,500
Vehicle wheel, cycle or other, J. E. Wahlstrom..... 763,576
Vending apparatus, coin controlled liquid, M. A. van der Wielen..... 763,645
Vending machine, H. Lynes..... 763,473
Vending machine, Baker & Mercer..... 763,474
Vessel top, P. Lindemeyer..... 763,618
Veterinary surgeon forceps, J. F. Hemphill..... 763,396
Vine cutter, S. V. Jeffords..... 763,703
Vise, floor, J. M. Butcher..... 763,941
Voting machine, N. Smith..... 763,436
Wagon, platform, S. L. Greene..... 763,555
Wall and blocks for forming same, building, W. Whitmore..... 763,945
Watch, E. Redepinning..... 763,508
Water closet, L. M. Hooper..... 763,561
Water closet seat, H. H. Phillips..... 763,791
Water fountain, ornamental, J. Keith..... 763,614
Water gage, J. J. Aull..... 763,588
Water gage shield, glass, P. Layton..... 763,408
Water heater and garbage crematory, A. Long..... 763,410
Water tower, J. Curry..... 763,372
Water wheel governor, D. W. Starrett..... 763,572
Weighing machine, M. Hofmann..... 763,560
Well drilling machine, H. H. Wilburn..... 763,824
Whirligig, G. W. Hinton..... 763,487
Wind motor, J. H. Ravelli..... 763,795
Wind or water motor, W. E. Nance..... 763,623
Windmill pitman and means for its automatic lubrication, W. P. Brett..... 763,360
Window cleaner or the like, H. A. Hayden..... 763,888
Window construction, E. H. Lunken..... 763,496
Window construction, Hausfeld & Lunken..... 763,484
Window, horizontally pivoted, H. E. Essig..... 763,471
Wire protector, F. O. Carlson..... 763,853
Wire stretcher, Ferguson & Prevost..... 763,549
Woven fabric formed chiefly of leather fibers, W. H. Drury..... 763,737
Woven fabric formed of fibrous materials, W. H. Drury..... 763,864
Wrench, R. J. Berthoud..... 763,590
Yarn formed of fibrous materials, W. H. Drury..... 763,377
Yarn from fibrous materials, machinery for manufacturing, W. H. Drury..... 763,878

DESIGNS.

Bag frame member, O. Flax..... 37,011
Knife, table, J. J. A. Munro..... 37,007

"Get out of the old ruts"

Don't put up with bad roads that are always dusty or muddy and need constant repairing. Such roads have been endured for years, only because there was nothing better. All this is now changed by

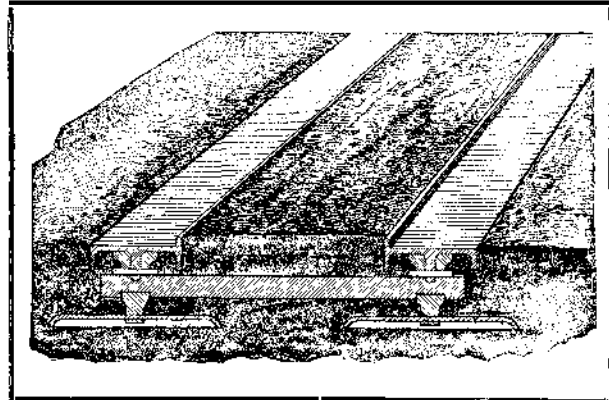
The Steel Highway Track

the greatest road improvement that was ever made.

Its first cost is less than an ordinary stone road and the cost of maintenance is reduced to a minimum—no constant repairing.

Insures a good, hard, smooth road all year round, free from dust and mud.

Enables one horse to easily pull a load that would require at least six horses on a good macadam road. Better for the horses



Here is a picture of the Steel Highway Track—no wood or bolts; all metal, interlocking and practically indestructible

and makes travel easier for vehicles of every kind.


Are you interested in this new road that means so much to all tax-payers and owners of vehicles of every kind? Then write for booklet "A" containing full information and

"Let us put you on the Right Track"

STEEL HIGHWAY TRACK CONSTRUCTION CO.

Main Offices: 758 Drexel Building, Philadelphia

Don't Drink Dirty Water



The best way to be sure is to filter it. Sometimes it looks clean when it isn't. Be on the right side and protect yourself and your family from the possibility of water contamination by always using a
Berkefeld Filter
in your home. Scientifically constructed. Furnishes one gallon of absolutely pure drinking water in four minutes. Easy to clean and care for.
BERKEFELD FILTER CO., 4 Cedar Street, New York

THE MERKEL MOTOR CYCLE



For pleasure or business is quickest, most convenient, safest and cheapest. Long rides made without tiring yourself. Durability, simplicity and economy are combined in the Merkel. Write for our Free Booklet.
THE D. MERKEL MFG. CO.,
Factory, Layton Park, Milwaukee, Wis.
ELECTRIC SEWING MACHINE MOTOR.—The instructions and numerous illustrations of details contained in this article will enable any mechanic of average ability to build an efficient motor that will operate a sewing machine. The cost of materials for this machine should not exceed five dollars. See SCIENTIFIC AMERICAN SUPPLEMENT, No. 12110. Price 10 cents by mail, from this office and from all newsdealers

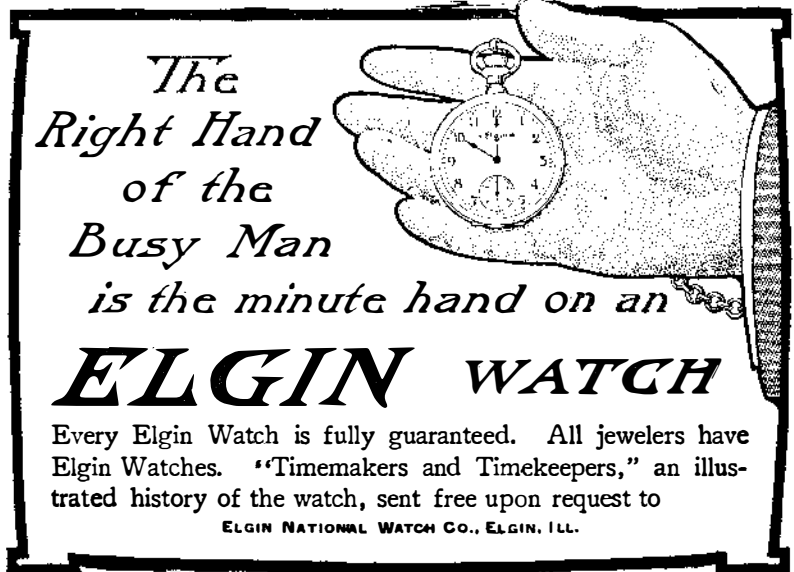
WORK SHOPS

of Wood and Metal Workers, without steam power, equipped with **BARNES' FOOT POWER MACHINERY** allow lower bids on jobs, and give greater profit on the work. Machines sent on trial if desired. Catalog Free.
W. F. & JOHN BARNES CO.
Established 1872.
1999 RUBY ST., ROCKFORD, ILL.



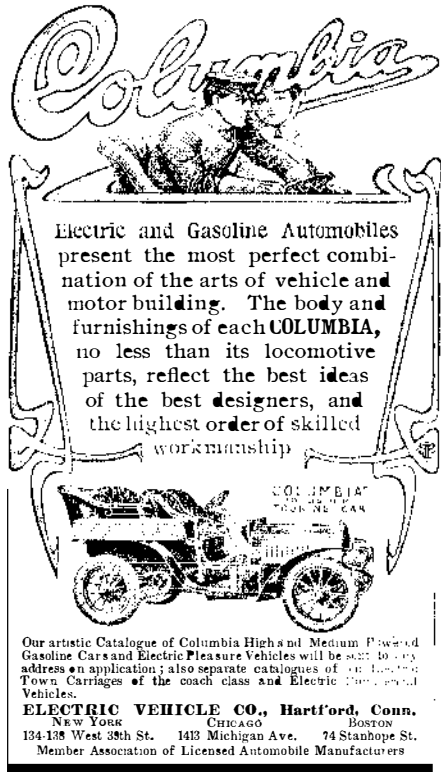
GAS ENGINE CASTINGS

for the Franklin One-Half Horse Power Gas Engine
Castings, materials, drawings, etc., for amateurs. An ideal motor for practical use. Not a toy. Complete set of castings, etc. for either horizontal or vertical type. \$16.50. Send for illustrated booklet No. 9.
PARSELL & WEED, 129-131 W. 31st St., N. Y. City



The Right Hand of the Busy Man is the minute hand on an **ELGIN WATCH**
Every Elgin Watch is fully guaranteed. All jewelers have Elgin Watches. "Timemakers and Timekeepers," an illustrated history of the watch, sent free upon request to
ELGIN NATIONAL WATCH CO., ELGIN, ILL.

Founded by Mathew Carey, 1785.
A House in touch with Three Centuries.
HENRY CAREY BAIRD & CO.,
INDUSTRIAL PUBLISHERS, BOOKSELLERS & IMPORTERS.
810 Walnut St., Philadelphia, Pa., U.S.A.
Our New and Revised Catalogue of Practical and Scientific Books, 94 pages, 8vo; a Catalogue of Books on Metallurgy, Mining, Prospecting, Mineralogy, Geology, Assaying, Analysis, etc.; a Catalogue of Books on Steam and the Steam Engine, Machinery, etc.; a Catalogue of Books on Sanitary Science, Gas Fitting, Plumbing, etc., and our other Catalogues and Circulars, the whole covering every branch of Science applied to the Arts, sent free and free of postage to anyone in any part of the world who will furnish his address.



Columbia

Electric and Gasoline Automobiles present the most perfect combination of the arts of vehicle and motor building. The body and furnishings of each COLUMBIA, no less than its locomotive parts, reflect the best ideas of the best designers, and the highest order of skilled workmanship.

Our artistic Catalogue of Columbia High and Medium Power of Gasoline Cars and Electric Pleasure Vehicles will be sent to any address on application; also separate catalogues of our latest Town Carriages of the coach class and Electric Pleasure Vehicles.

ELECTRIC VEHICLE CO., Hartford, Conn.
New York
134-138 West 34th St. 1413 Michigan Ave. 74 Stanhope St.
Member Association of Licensed Automobile Manufacturers

Write To-day

for a Dean Boiler Tube Cleaner for a free trial.



After trying it, if you wish to buy, we will guarantee the cleaner to at least pay for itself in six months' use or refund your money. "Economy in the Boiler Room" tells about it. We send it free.

W.M. B. PIERCE CO.
319 Washington Street, Buffalo, N. Y.

THE INTERNAL WORK OF THE
WORLD. By S. L. LANSLEY. A painstaking discussion by the leading authorities on a subject of the highest value to all interested in business. Scientific American Supplements 946 and 947. Price 10 cents each, by mail. Munn & Co., 361 Broadway, New York City, and all newsdealers.

IF YOU NEED A GOOD OILSTONE

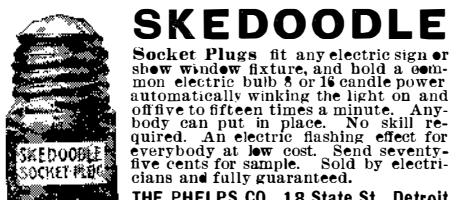


Try an **INDIA**. Guaranteed to give satisfaction or money returned.

Size.	By Mail.	Size.	By Mail.
8x2x1	\$1.10	4x1 1/2x3/4	\$0.50
7x2x1	85	3x1 1/2x3/4	40

Send for Price List

THE PIKE MFG. CO. - PIKE, N. H.
New York Store, 151 Chambers Street



SKEDOODLE
Socket Plugs fit any electric sign or show window fixture, and hold a common electric bulb 1/2 or 1 candle power automatically winking the light on and off five to fifteen times a minute. Any body can put in place. No skill required. An electric flashing effect for everybody at low cost. Send seventy-five cents for sample. Sold by electricians and fully guaranteed.

THE PHELPS CO., 18 State St., Detroit

This Tool is Polished and Nickel-Plated

"You Cannot Stumble at Any Step of the Temple"

In measuring with this combination Triple-Beam Roller Gauge, a great convenience and a labor saver for single, double or triple measurements. \$1.25 each, postpaid.

GOODSELL-PRATT COMPANY Greenfield, Mass.

50 Years' Experience

PATENTS

Trade Marks, Designs, Copyrights, Etc.

Anyone sending a sketch and description may quickly ascertain our opinion free whether an invention is probably patentable. Communications strictly confidential. Handbook on Patents sent free. Oldest agency for securing patents. Patents taken through MUNN & CO. receive Special Notice, without charge, in the

Scientific American
A handsomely illustrated weekly. Largest circulation of any scientific journal. Terms, \$3 a year; four months, \$1. Sold by all newsdealers
MUNN & CO., 361 Broadway, New York
Branch Office 625 F St. Washington, D. C.

Paper weight, Paulson & Heinbockel.....	37,010
Rug, A. W. Bosch	37,013
Rug, J. A. Gillies	37,014
Rug, E. Hill	37,016
Rug, H. A. Miller	37,016
Rug, W. Reinhardt	37,017
Rug, B. D. Stevens	37,018
Shade for illuminating device, E. L. Perkins	37,019
Spoons, forks or similar articles, handle for	37,022
W. C. Codman	37,006
Tea or coffee pot or similar article, A. Steffin	37,008
Tray, A. Steffin	37,009

TRADE MARKS.

Bitters, Carmeliter Stomach Bitters Co....	42,890
Belts, their parts and appliances, expansion, Star Expansion Belt Co.,	42,908, 42,909
Boots and shoes, leather, George E. Keith Co.	42,878
Braids, certain named, Sutcliffe & Swift....	42,874
Bridles and sets of harness, G. Gibson....	42,880
Canned and bottled fruits and vegetables, Seaman Bros.	42,883
Canned sardines and sprats, "Excelsior" Societe Anonyme Commerciale Industrielle et Maritime	42,917
Cartridges, Austin Cartridge Co.....	42,911, 42,912
Cider, American Fruit Product Co.....	42,887
Circuit controller or switches, Albert & J. M. Anderson Mfg. Co.	42,926
Cleaning and polishing preparations, certain named, W. E. Tyler	42,924
Cleaning compound for certain named purposes, F. S. Bacon, et al. Co.	42,923
Cleansing compounds, certain named, M. M. Hedges	42,885
Coats, vests, pantalons and overcoats for boys, Greenstein, Simon & Leeburger..	42,915
Coffee, W. Childs, Jr.	42,918
Corsets, J. Siegel & Co.	42,877
Disinfectant, odorless liquid, Norman C. Hayner Co.	42,902
Electrical apparatus, certain named, H. O. Swoboda	42,906
Fencing, wire, Pacific Steel and Wire Co....	42,930
Floor mats, certain named, Keystone Wire Matting Co.	42,881
Flours, certain named, S. Hamill Company.	42,882
Insect repellent, combustible, Culcicide Company	42,905
Malt preparations, legumine, Sussmann & Hoffmann	42,888
Medical preparations for certain named diseases, Pineule Medicine Co.....	42,893
Medicinal absorbents, certain named plastic, Dr. Van Vleck Co.	42,900
Medicinal salve, Larkley & Phillips	42,901
Medicine for the cure of certain named diseases, liquid, M. P. Blair.....	42,898
Medicine for treatment of the blood and viscera, East India Chemical Co.....	42,892
Medicines, certain named, C. F. Keller, Jr.	42,891
Meters, certain named, Controller Company of America	42,928
Peanuts, salted, D. Auerbach & Sons.....	42,884
Poisons for animals, K. Weiss	42,904
Powder for certain named diseases, effervescent, Gotham Chemical Co.	42,899
Powder, tooth, McKesson & Robbins	42,921
Remedies for asthma, L. di Nola	42,897
Remedies for certain named diseases, American Drug Co.	42,895
Remedy for certain named diseases, Pineule Medicine Co.	42,894
Remedy for diseases among live stock and poultry, Nitroline Manufacturing Co....	42,903
Remedy for ear affections, J. W. Evenden ..	42,896
Rings, Stone Bros.	42,873
Rock drills and hammers, pneumatic, M. Hardsag	42,907
Roofing felt prepared in asphalt and gravel, Argon Asphalt Co.	42,910
Roofing material, certain named, Eastern Granite Roofing Co.	42,929
Rouge, Allison & Lamson	42,920
Rubber shoes and gaiters, India, (Indische Handels-Gesellschaft)	42,916
Sewing machines, Abraham & Straus	42,927
Sheetings, drills and bannels, cotton, Jean Trading Co.	42,875
Silencers, Capital Knitting Co.	42,879
Telephone calls, devices for receiving, Controller Company of America.....	42,925
Toys, A. Schoenhut Co.	42,913
Undershirts or undervests, infants', M. Lowenthal & Brother	42,914
Vehicles for pleasure use, light road, Premier Manufacturing Co.	42,931
Washing fluids, L. Bloomer	42,886
Washing powder, W. K. Bolles	42,922
Waterproof textile fabrics, Hirsch Brothers.	42,876
Whisky, W. A. Gaines & Co.	42,919
Whisky, rye, J. L. Kennedy	42,889

LABELS.

"Banner Phenyle," for phenyl, Great Western Oil Co.	11,192
"Bu Ke," for tea, A. Lubarsky	11,184
"Bushee Home Cure," for blood medicine, G. H. Bushee	11,197
"Caruso," for cigars, J. E. Osherty & Co.	11,187
"Capital," for cigars, J. E. Warren's Sons.	11,188
"Confector," for medicine, J. J. Senna, et al.	11,194
"Dr. Wamba's Elixir," for medicine, C. Hunt	11,195
"Dublin Stout," for stout, R. A. Beatty....	11,181
"First Justice John Marshall," for cigars, Central Lithograph Co.	11,179
"Gold Medal," for paper bags, Union Bag & Paper Co.	11,201
"Gordon's Improved Berax Axle Soap," for axle soap, R. W. Gordon	11,191
"Grand Opera," for cigars, Schmidt & Co.	11,177
"Kienzler," for cleaning preparation, F. E. Johnson Co.	11,190
"Little Havana," for stogies, Clarksburg Stogie Co.	11,174
"Mexican Curio Candy," for candy, Border Importing Co.	11,185
"Oswald's Lettuce Headache Cure," for medicine, A. E. Barrett	11,193
"Ota-Coa," for breakfast food, M. Lowenthal	11,187
"Ravenlock Hair Tonic and Scalp Vitalizer," for hair tonic, F. H. McGuire	11,198
"Red Berry Brand," for canned goods, seeds and relishes, J. J. Longbery	11,186
"Red Feather," for incandescent mantles, Raritan Mantle Co.	11,189
"Sta-Kleen," for tooth brushes, J. C. Dowd & Co.	11,199
"T. C. S. Co.'s Cubans," for stogies, Clarksburg Stogie Co.	11,175
"T. C. S. Co.'s Old Plantation Havana Cigars," for cigars, Clarksburg Stogie Co.	11,176
"Whalobone," for paper bags, Union Bag & Paper Co.	11,200
"Who-Who," for a game, W. P. Corbin....	11,202
"Winner Pure Rye Whiskey," for whisky, W. Mulherin & Sons	11,180
"Wyman's Sa-Vo Salve," for salve, W. Wyman	11,133

PRINTS.

"Berlin Shape," for eyeglasses and spectacles, F. J. Rief	1,016
"There's Good Bread Ahead," for flour, Washburn, Crosby Co.	1,015

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.



PERFORATED METALS
FOR ALL USES. MADE AS REQUIRED.
HARRINGTON & KING PERFORATING CO., CHICAGO.

Roof Leak?

Elliott's Durable Asphalt Coating

(Is composed of pure Utah Asphalt, prepared Linseed-Oil and Pine Creosote)

applied on an old leaky shingle, tin or felt roof will make it absolutely waterproof. Stops the rusting process in tin or iron, and stops warping or rotting of shingles. Will add ten years to the life of a new or old roof.

1. **ROOF LEAK** is the most durable sun or winter proof paint or coating possible to make. Does not crack in winter or soften in summer. Easily applied. Imparts no taste to water.

2. **ROOF LEAK SHINGLE DIP** renders the wood absolutely weatherproof, and when the shingles are nailed on the roof they become cemented together so tightly that warping which causes cracked shingles and loose nails is positively prevented.

3. **ROOF LEAK** is shipped in the heavy liquid cement form, and is applied as received on worn and leaky surfaces. It is reduced with one quart of boiled linseed-oil to each gallon if used as a durable paint on surfaces in good condition. Shingle Dip is shipped ready for dipping.

4. **ROOF LEAK COATING AND ROOF LEAK SHINGLE DIP** are made in Black, Maroon and Dark Green. Five gallons up to any quantity, 75c per gallon, freight paid east of Denver. Returnable at our expense if not approved.

5. **ROOF LEAK** is sold by up-to-date paint and hardware dealers. Those who try to sell you something else are not doing you justice, because "there is nothing else like ROOF LEAK."


6. Liquid samples, together with an interesting booklet showing its various uses, will be sent on request, or to enable you to give it a practical test, we will send you for \$1.00, delivered free to your door, one gallon, which is sufficient for cementing 100 square feet of leaky surface, or painting 200 square feet. One gallon of Shingle Dip covers about 400 square feet, shingles both sides.

ELLIOTT VARNISH CO., 156 Fulton Street, CHICAGO
263 Pearl Street, NEW YORK

Manufacturers of Fine Varnishes and Inventors of

Roof Leak?

EASIER TO ROW ABSOLUTELY SAFE Mullins Unsinkable Steel Pleasure Boats



Write to-day for free catalogue

15-foot boat, crated \$29.00 seat five persons in comfort. The modern row boat for pleasure, safety and durability. No other boat so desirable for ladies and children.

W. H. MULLINS, 384 Depot St., Salem Ohio

CAST STEEL PIPES

W. H. Mullins, 384 Depot St., Salem Ohio

SEABOARD STEELCASTING CO., Chester, Pa.

SPECIAL MANUFACTURING. DIES AND STAMPINGS TO ORDER.

SPECIAL MACHINERY-MODELS-EXPERIMENTAL WORK. DROP FORGING DIES AND DROP FORGINGS. HARDWARE SPECIALTIES ETC. MAKE UP TO ORDER SEND SAMPLES OR DRAWINGS FOR ESTIMATES. WRITE FOR OUR BOOKLET. **THE GLOBE MACHINE & STAMPING CO.** 970 HAMILTON ST., CLEVELAND, OHIO.

WANTED - TWENTY SKILLED MACHINE
Draftsmen at \$100 per diem. A competitive examination will be held about August 2d at the Washington Navy Yard. For additional information address Commandant, Navy Yard, Washington, D. C. The services of draftsmen being in demand at once, emergency appointments will be given applicants who furnish satisfactory evidence that they are skilled machine draftsmen and who state their intention to compete for permanent appointment in examination above referred to.

ICE MACHINES. Corliss Engines, Brewers' and Butters' Machinery. **THE VILTER MFG. CO.** 899 Clinton St., Milwaukee, Wis

THE STATE UNIVERSITY OF IOWA
SCHOOL OF APPLIED SCIENCE, Iowa City, Iowa.
High grade courses in ENGINEERING. Numerous technical courses in special branches. Adequate equipment. University environment. Location unsurpassed. Expenses low. Address G. E. MACLEAN, President.

CHEMICAL EXAMINATIONS OF ALL KINDS.
DR. H. C. STIEFEL, Bissell Block, Pittsburgh, Pa.

"How to Successfully Operate a Gas or Gasoline Engine." This book is the latest and the "Last Word" on the subject. Pocket Edition. Price Fifty Cents. For sale by the BUREAU PUBLISHING CO., Box 467, Rochester, N. Y.

MODELS & CEARSI UNION MODEL WORKS 193 CLARK CHICAGO.

SAVE MONEY and appear neat by wearing **M. & M. Rubber Collars.** They never get torn yellow. Price 25 cents. Send for catalogue. Agents wanted. Address M. & M. MFG. CO., 27th Street, Springfield, Mass.

MODELS & EXPERIMENTAL WORK. Inventions developed. Special Machinery. **E. V. BAILLARD, Fox Bldg., Franklin Square, New York.**

DRYING MACHINES. S. E. WARDLE, Hannibal, Mo.

MODEL AND EXPERIMENTAL WORK. Electrical and Mechanical Instruments. Small Machy. **EDWARD KLEINSCHMIDT, 82 W. Broadway, New York.**

HARDWARE SPECIALTIES
Contract Manufacturers and will market articles of merit
LORIMER MFG. CO., 153 S. Jefferson St., Chicago, Ill.

MODELS CHICAGO MODEL WORKS 179 E. Madison St., Chicago, Ill. Established 1897. Write for Catalogue of Model Supplies

SPLITDORF SPARK COILS
25 VANDEWATER ST. N.Y.

BUILDERS OF Special Machinery. Models, Experimental work. Inventions developed. **THE PENN-SADLER MACH. CO.,** Hartford, Conn.

MECHANICAL MANUFACTURERS wishing to establish branch in New York City, can be represented by **NATIONAL SUPPLY CO.,** 835 Broadway, N. Y.

Dies, tools, Models and Special Machinery. Metal Specialties and Stampings Manufactured. **HOEFT & MOORE, Chicago, U. S. A.** OFFICE: 340 WYOMING AVENUE. WORKS: INDIANA & FRANKLIN STREETS.

TYPEWRITER HEADQUARTERS
329 Broadway, New York, and all makes under half-price. Don't buy before sending for samples of writing, price, exchange and unexpired first-class condition. Shipped for trial. Guaranteed first-class condition. Dealers supplied.

We Manufacture on Contract
Anything Mechanical in Any Metal.
MICHIGAN NOVELTY WORKS, Kalamazoo, Mich.