

## RECENTLY PATENTED INVENTIONS.

## Electrical Devices.

**ELECTRIC GENERATOR.**—M. SCHWARTZ, New York, N. Y. This invention relates to electric generators, such as dynamos. The general object of the invention is to produce an economical conversion of energy into electricity. The inventor accomplishes his object by using inclined pole pieces and inclined or helical windings for the armature. In this way the drag on the armature is exerted in an inclined direction. One component of this inclined force is parallel to the shaft and the other at right angles to the shaft. This latter force is the only substantial resistance to the rotation and is less than that developed by an uninclined winding. The force parallel with the shaft is also taken advantage of to reduce the frictional resistance by supporting part of the weight of the armature, the dynamo being constructed with a vertical shaft.

## Of General Interest.

**BOTTLE-CLOSURE.**—H. A. OLSSON, New York, N. Y. The principal object of this invention is to provide means for effectually closing the tops of bottles and other receptacles, and while it is capable of general use it is especially adapted for use on milk-bottles. He comprises means for effectually closing bottles and also for protecting the interiors from the entrance of dirt and the like, the whole device being formed in such a manner as to render it inexpensive and easily constructed and employed.

**MINER'S LAMP.**—D. E. HERRON, New Philadelphia, Ohio. The miner's safety depends always upon his lamp, and this one has several advantages. It may be removed from the support for the purpose of cleaning or filling without removing the cap, since the grooves will always guide the point of the hook into the opening. A V-shaped opening in the front of the support assists this guiding movement. When engaged in the opening, the catch by engaging the barb prevents withdrawal of the hook, and the lug engaging the apex of the V-shaped opening prevents side-wise movement of the lamp. It is impossible to lose a lamp provided with this improvement.

**CALCULATING DEVICE.**—C. M. YOUNG, San Francisco, Cal. The principal objects in this improvement are to provide a simple and accurate calculating device and more particularly one performing the operation of multiplication. The device may be used either to impress the values of products of factors upon the minds of pupils, facilitating their learning of multiplication-tables or for performing more complicated calculations.

## Household Utilities.

**SLIDING DOOR.**—J. S. SCHLOSSER, Hillsdale, Mich. The inventor particularly embodies the novel construction of a track upon which the door-supporting rollers move, the object being to so arrange the parts that upon sliding the door toward opening position it will be swung outward with relation to the building, car, or other structure to which it may be attached, thus preventing the scratching or marring of the surface of the building, car, or the like, and, further, to provide for a tight or close contact of the door against the building when in closed position.

**SLIDING-DOOR HANGER AND MEANS FOR MOVING THE DOOR.**—H. C. PERCY, Natchitoches, La. The invention relates to an improvement in hangers for car-doors, and more particularly to the manner of hanging such doors and operating them, whereby they may be more expeditiously and easily opened and closed than is possible with the ordinary method of hanging doors in common use. The invention consists, broadly, in the combination, with a door, of a device rotatively mounted on said door and engaging with its periphery a track, whereby its revolution will cause the door to travel forwardly or backwardly on said track.

## Machines and Mechanical Devices.

**OIL-CLOTH-PRINTING MACHINE.**—W. H. WALDRON, New Brunswick, N. J. The invention relates to machines for imprinting designs in various colors upon oil-cloth and other fabrics by the use of intermittently-reciprocating printing-blocks. The object is to provide a machine for printing oil-cloth arranged to insure a positive locking of the intermittent driving mechanism for the color-trough, to cause an easy driving and locking of the said mechanism without shock or jar, to allow convenient adjustment or detachment of the printing-blocks, and to reduce weight of color-trough to a minimum.

**APRON-GUIDE FOR MANGLES.**—P. E. BRADLEY, Jersey City, N. J. In this patent the invention relates to the guiding of aprons used on laundry machinery, such as mangles. The object of the invention is the provision of improved means for preventing the aprons from creeping laterally upon their rollers. The application of the invention in no way interferes with the normal operation of a mangle.

## Prime Movers and Their Accessories.

**AUTOMATIC CURRENT-MOTOR.**—J. ROEH, Spokane, Wash. The improvement refers to automatic current-motors to be used for utilizing the power of moving currents, such as those for streams and rivers. It concerns it-

self especially with that type of current-motor which contemplates the use of a vane carried in the water and operating so as to be automatically tripped to reverse its position upon its sweep. The object is to simplify and improve construction of the tripping mechanism with a view to giving the same a desirable flexibility.

**MULTIPLE-CAR LOCOMOTIVE.**—J. J. TROEGER, Chicago, Ill. One object of the inventor is to overcome previous faults by connecting all wheels of the car with the locomotive in such a manner that each of the wheels is a driving-wheel. Consequently addition of more load to cars only makes the drive-wheels press upon rails with greater force, and so provides for the more ready propulsion of the train, provided there is sufficient power. Moreover, instead of making the engine sufficiently heavy to provide needed friction for the load it is going to carry it will only be necessary to make it heavy enough to provide the power, as the weight of the cars and their loads is depended upon to produce the desired friction.

**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. 7551.**—Wanted, address of parties selling "Telautograph."

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

**Inquiry No. 7552.**—Wanted, catalogue of cracker-making machinery.

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

**Inquiry No. 7553.**—Wanted, address of parties making hard compressed paper, resembling hard rubber.

Drying Machinery and Presses. Biles, Louisville, Ky.

**Inquiry No. 7554.**—For manufacturers and dealers in brass tubing and other accessories for making brass and iron beds.

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

**Inquiry No. 7555.**—For manufacturers of filtering apparatus or paper pulp mill machinery.

**WANTED.**—Purchaser for Monasite, Molybdenite and Wolfram. Apply Monasite, Box 773, New York.

**Inquiry No. 7556.**—For manufacturers of the new style cradles.

I sell patents. To buy, or having one to sell, write Chas. A. Scott, 719 Mutual Life Building, Buffalo, N. Y.

**Inquiry No. 7557.**—For makers of turned, polished machinery steel  $\frac{1}{4}$  inch and  $\frac{3}{4}$  inch diameter, any length.

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

**Inquiry No. 7558.**—For manufacturers of machines for making brass lines for printing purposes.

A practical man wishes to invest \$2,000 in a well-established machine shop. Must bear investigation. Investment, Box 773, New York.

**Inquiry No. 7559.**—For manufacturers of steel tubing 3-4 inch diameter on the inside and also steel wire that will fit the inside of the same.

**WANTED.**—Ideas regarding patentable device for water well paste or mucilage bottle. Address Adhesive, P. O. Box 773, New York.

**Inquiry No. 7560.**—For manufacturers of novelty calendars on labor-saving device.

I have for sale the U. S. and all foreign rights of new patent improvements in Water Tube Types of boilers. Great economizer. J. M. Colman, Everett, Wash.

**Inquiry No. 7561.**—For manufacturers of paper mullin.

**LATEST ADVERTISING NOVELTIES.**—High-grade Illustrating, Designing and Printing. Catalogues a Specialty. Smith & Berkeley, Holland Bldg., St. Louis, Mo.

**Inquiry No. 7562.**—Wanted, a very small lamp, lantern or matter wet or dry that emits light, something similar to the lightning bug.

**WANTED.**—A Young Man familiar with drafting to assist superintendent in an iron casting plant. Good opportunity for advancement if capable. Draftsman, Box 773, New York.

**Inquiry No. 7563.**—For manufacturers of lawn figures, both human and animal.

**Manufacturers of patent articles,** dies, metal stamping, screw machine work, hardware specialties, machinery tools and wood fibre products. Quadriga Manufacturing Company, 18 South Canal St., Chicago.

**Inquiry No. 7564.**—For manufacturers of supplies for hop growers, especially hop poles.

Absolute privacy for inventors and experimenting. A well-equipped private laboratory can be rented on moderate terms from the Electrical Testing Laboratories, 548 East 80th St., New York. Write to-day.

**Inquiry No. 7565.**—For manufacturers of machinery for conveying sawmill waste into turpentine.

**INVENTIONS WANTED.**—Undersigned will consider one or two good patented or patentable inventions to manufacture on royalty. Something in popular demand preferred. Honest treatment guaranteed. F. Rani-ville Company, Grand Rapids, Mich.

**Inquiry No. 7566.**—For manufacturers of fancy brass goods for besteads.

**FOR SALE.**—A modern, up-to-date plant—established sixteen years. Suitable for woodworking of any kind. Direct freight tracks into factory. Wagon builders or automobile manufacturers would find a proposition worthy of most careful consideration in this offer. Address Sale, Box 773, New York.

**Inquiry No. 7567.**—For manufacturers of steam popcorn poppers.

**FOR SALE.**—Roller process flouring mill with 150 horse power, surplus water. Box 248, Petersburg, Mich.

**Inquiry No. 7568.**—For manufacturers of steel tubing, both light and heavy, suitable for shafting; also round tool steel suitable for making tools.

**Inquiry No. 7569.**—For manufacturers of smoke-saving device to eliminate smoke from bituminous coal.

## Wood-working Machinery

For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing edge moulding, mortising; for working wood in any manner. Send for catalogue A.

The Seneca Falls Mfg Co., 695 Water St., Seneca Falls, N. Y.

## Engine and Foot Lathes

MACHINE SHOP OUTFITS, TOOLS AND SUPPLIES. BEST MATERIALS. BEST WORKMANSHIP. CATALOGUE FREE

SEBASTIAN LATHE CO., 120 Culvert St., Cincinnati, O.

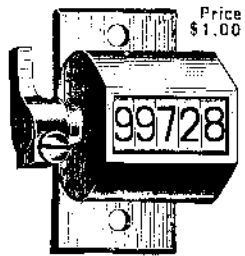
## Veeder Counters

to register reciprocating movements or revolutions. Cut full size.

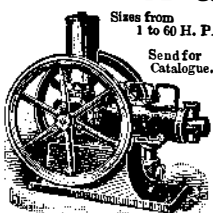
Booklet Free

VEEDEE MFG. CO., Hartford, Conn.

Cyclometers, Odometers, Tachometers, Counters and Fine Castings.



## THE MIETZ &amp; WEISS



## OIL ENGINES

Operated by Kerosene Oil, Fuel Oil, Distillate. Safest, Simplest, Most Economical and Most Reliable Power on the market.

Highest award for Direct Coupled Oil Engines and Generator, Fair Exposition, 1900. Gold Medals, Pan American Exposition, 1901, Charleston Exposition, 1902. Gold Medal and Special Diploma, Louisiana Purchase Exposition, St. Louis, Mo., 1904.

AUGUST MIETZ 128-138 Mott St., New York, U.S.A. Catalogue Dept. 24.

## THE OBER LATHES



For Turning Axe, Adze, Pick, Sledge, Hatchet, Hammer, Auger, File, Knife and Chisel Handles, Whiffletrees, Yokes, Spokes, Porch Spindles, Stair Balusters, Table and Chair Legs and other irregular work.

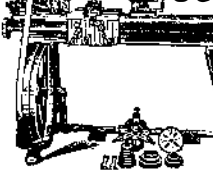
The Ober Mfg. Co., 10 Bell St., Chagrin Falls, O., U.S.A.

## PATENTS

Our Hand Book on Patents, Trade-Marks, etc., sent free. Patents procured through Munn & Co., receive free notice in the SCIENTIFIC AMERICAN MUNN & CO., 361 Broadway, N. Y. BRANCH OFFICE: 625 F St., Washington, D. C.

## B. F. BARNES

## ELEVEN-INCH SCREW CUTTING LATHE



For foot or power as wanted. Has power cross feed and compound rest. A strictly high grade, modern tool. Ask us for printed matter. Descriptive circulars upon request. B. F. BARNES CO., Rockford, Ill. European Branch, 149 Queen Victoria St., London, E. C.

## WIPING WASTE

Machinery Wiping Towels, Cheese Cloth, New Absorbent Mill Ends, Soft Flannel Ends. We are headquarters. Low cash prices.

Devon Mills, 297 Canal St., Providence, R. I.

## 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. Catalogue Free. W. F. & JOHN BARNES CO., Established 1872.

1999 Ruby St., Rockford, Ill.

## THE STERLING AIR HEATING

## RADIATOR

Attached to any Stove, Range or Furnace. Doubles Heating Capacity or Saves Half Fuel Expense. Insures continuous circulation, warm floors, comfort and health. Write for full description and terms. Agents wanted. Sells easily, always satisfies.

STERLING AIR RADIATOR CO., No. 58 Wabash Ave., Chicago

## How To Increase

## Your Business

READ carefully, every week, the Business and Personal Wants column in the Scientific American

This week it will be found on this page.

Some week you will be likely to find an inquiry for something that you manufacture or deal in. A prompt reply may bring an order. Watch it Carefully

## Notes and Queries.

## HINTS TO CORRESPONDENTS.

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

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

Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn.

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

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

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

Books referred to promptly supplied on receipt of price.

Minerals sent for examination should be distinctly marked or labeled.

(9846) T. H. P. asks: Is there any magnetic rod, or anything of the kind in use, for locating gold or silver? If so, where can I get one? A. There is no possible means of locating gold or silver ore by magnetism. Magnetism has no effect whatever on either of these metals, and any claim to locate deposits in the earth by a magnetic rod has no basis.

(9847) P. G. P. asks: Please tell me what is the nature of phosphorus? Can it be kept in a sealed bottle indefinitely? Will it retain its light-giving properties indefinitely? Will heat affect it? A. Phosphorus is one of the elementary substances, just as iron and lead are elements. It does not give light when it has been shut up in a bottle for some time. It can be kept under water anywhere. So long as it is kept away from oxygen it cannot give light or take fire. If the oxygen of the air has access to it, it grows hot and takes fire. Its light is due to the slow combustion of the phosphorus by oxygen, causing it to glow in the dark.

(9848) R. T. P. says: Will you please inform me how to polish aluminium? A. We would say that it is possible to get a beautiful finish on aluminium castings if the metal is cast under just the right conditions and in just the right kind of mold, but that it is very difficult indeed to polish aluminium which has been machined. The only suggestion we have to offer is to use a buffing wheel at high speed of cloth, felt, or leather, and to polish the aluminium in the same way you would silver, using fine emery, rotten stone, pumice stone, or whiting.

## INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued

for the Week Ending

November 28, 1905

AND EACH BEARING THAT DATE

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

Acid and making same, delta-4-cyclohexanecarboxylic	805,924
Merling & Skita	805,924
Adding machine, A. M. Benedict	806,051
Advertising and display apparatus, K. Stenel	805,682
Advertising matter, device for displaying	805,786
H. W. Ewing	805,843
Air or gas compressor, H. L. Doherty	806,049
Air ship, D. C. Bassett	805,991
Amusement apparatus, L. Patterson	805,535
Anchor, F. E. Forster	805,941
Animal trap, A. Arnesen	805,982
Antirail creper, J. Morrison	805,547
Armature for electrical machines, W. T. Hensley	805,959
Astigmatic cabinet, G. E. Holmes	805,716
Automobile axle, A. R. Demory	805,442
Automobile engine suspension, F. H. Bogart	805,567
Automobiles, driving axle structure for, T. J. Lindsay	805,471
Axle straightener, J. S. & W. H. Steadham	806,050
Bailing press, E. R. Kerr	805,468
Ballot pouch, N. Beman	805,743
Barge, steel, W. C. Jutte	805,839
Barometer, A. H. McConnell	805,891
Bearing, antifriction, G. W. Campbell	805,575
Bearing, wheelbarrow, J. Stanley	805,811
Binder clasp, loose leaf, W. F. Heffner	805,776
Binder for loose sheets, file, G. F. Watt	805,662
Bird killing device, J. A. Beierschmitt	806,019
Bit. See Bridge bit.	805,975
Block, A. B. Tarbox	805,496
Boat hook, Sullivan & Mack	805,662
Boat, life-saving, J. A. Marley	806,012
Boats, buoyancy regulating apparatus for submarine, L. Y. Spear	805,810
Bolt anchor, F. D. Ogden	805,641
Bolting machine, H. C. Robinson	805,917
Book, J. Orta	805,621
Book ring with locking sleeve, L. M. Morde	805,821
Books by machinery, making, J. Orta	805,492
Boots and shoes, holder for the files of, M. Brock	805,780
Bottle cap feeding machine, automatic, C. O. Kelling	805,702
Bottle closure, O. Eick	805,606
Bottle finishing machine, F. O'Neill	805,481
Bottle, non-refillable, J. Martin	805,984
Bottle, non-refillable, O. Yates	805,865
Bottle, non-refillable, C. S. Orr	805,782
Bottle, nursing, H. P. Gallagher	805,693
Box, W. E. Krebs	
Box fastener, C. W. Beebler	
Brailing machine carrier, R. Hantusch	
Brake beam, H. B. Robischung	
Brake lever, E. L. Smith	
Brick tongs, W. R. & C. R. Cary	
Bricks, tiles, and other articles, apparatus for producing vitrified, R. Baggeley	
Bridge bit, H. T. Werk	
Brooms, brushes, and the like, means for securing handles to, P. Meyer	
Brooms, dust pan attachment for, L. B. Despain	
Brush, air, O. Liberman	
Brush head coupling, G. P. Cobb	
Brush, scrubbing, J. Wolf	




# 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.




# "How to Remember" Stop Forgetting

Free to Readers of this Publication

You are no greater intellectually than your memory. My course simple, inexpensive. Increases business capacity, social standing, gives an alert, ready memory for names, faces and business details. Develops will, conversation, speaking, etc. My booklet, "How to Remember," sent free.

DICKSON SCHOOL OF MEMORY, 700 Kimball Hall, Chicago



# ICE BOATS!

If you want to know how to make an Ice Boat, buy SCIENTIFIC AMERICAN SUPPLEMENT 1556. Complete working drawings and a thorough description are published. Order from your newsdealer or from Munn & Co., 361 Broadway, New York



# KEYSTONE WELL DRILLS

FOR ALL DEPTHS AND PURPOSES.

Our catalogs are text books on Water, Oil, Test Well and Contract Drilling.

Keystone Well Works  
Beaver Falls, Pa.



Used by forty of the leading Automobile and motor boat manufacturers. Suitable for any gas or gasoline engine using make and break or jump spark ignition.

EVERY BATTERY GUARANTEED to give satisfaction or purchase money refunded.

WITHERBEE IGNITER CO.  
27-31 Thames St. NEW YORK

Brush, tooth, E. W. Key.....	805,733
Bucket, clam shell, C. Berghoefer.....	805,521
Buggy bow rest, C. D. Logan.....	805,739
Building block mold, adjustable, J. B. Francisce.....	805,457
Bunsen burner for lighting and heating purposes, J. Meeller A. Hulwick.....	805,658
Burial apparatus, J. A. Hulwick.....	805,465
Burling or perching machine, A. L. Robertshaw.....	805,820
Bushing, spindle, Hines & Wilkerson.....	805,551
Butter cutter, H. B. Waters.....	805,602
Button shanks, manufacturing, C. R. Faas.....	805,532
Cabinet, button, I. Steinau.....	805,892
Cabinet, sectional steel, P. M. Wedge.....	805,604
Calcimine compositions, preparing, H. H. Church.....	805,712
Calendar support, F. H. Smith.....	805,906
Can and box heading machine, B. J. Lindgren.....	805,736
Candy box, A. E. Redlich.....	805,583
Canned food, machine or apparatus for automatically processing or cooking and cooling, S. J. Dunkley.....	805,845
Canopy, netting, I. E. Palmer.....	805,814
Car bolster, O. S. Pulliam.....	805,749
Car door mechanism, C. A. Lindstrom.....	805,820
Car, dumping, B. Gillera.....	805,643
Car dust guard, railway, W. H. Brown.....	805,447
Car part, E. I. Dadds.....	805,947
Car replacer, H. K. Gilbert.....	805,849
Car seat, F. Kehut.....	805,802
Car, self-dumping, P. R. & J. L. Bannen.....	805,517
Car side structure, steel, C. A. Lindstrom.....	805,821
Car vestibule door and trap, J. Fillen.....	805,640
Car window draft detector, P. H. Nefflen.....	805,483
Carburetor, A. C. Menges.....	805,979
Carburetor, by carburetor engine, G. Gavlek.....	805,979
Card support for dummy hands, G. F. Wedderburn.....	805,895
Carding machine lap feeding device, Schofield & Reeder.....	805,934
Carpenter's tool, E. L. McDaniel.....	805,983
Case. See Jeweler's case.....	
Cask head closure, C. Wellhofer, Sr.....	805,508
Casting copper plates, tilting mold for, E. W. Lindquist.....	805,738
Cattle guard, Alcorn & Belt.....	805,616
Ceiling plate, J. Neal.....	805,873
Cement burning kiln, G. D. Helmick.....	805,953
Cement or concrete blocks, machine for making, J. Herr.....	805,814
Cement stone machine, J. Geers, et al.....	805,642
Cement structures, framework for, J. S. & W. M. Thomas.....	805,762
Chains, machine for making weldless, A. G. Strathern.....	805,592
Chair, C. Acker.....	806,043
Chair iron, B. Bethke.....	805,522
Chair support, adjustable, J. Flindall.....	805,846
Chairs, adjustable head rest for reclining, C. H. Knight.....	805,863
Cheese cutter, computing, P. S. McCroskey.....	805,482
Chip breaker, J. E. Garner.....	806,078
Churn, T. J. Cheney.....	805,710
Churn, H. Householder.....	805,855
Churn, W. H. Hull.....	805,860
Clamp, C. L. Chapman.....	805,631
Clip, R. T. Frost.....	806,076
Cloth holding clamp, W. B. Nunnally.....	805,805
Clothes drier, T. A. Campbell.....	805,779
Clothes reel, C. L. Kraber.....	805,649
Clutch, friction, H. W. Hill.....	805,550
Clutch, frictional, J. Rieppel.....	806,000
Collar supporter, F. C. Osners.....	805,813
Collar supporter, adjustable, W. F. Cady.....	805,778
Coloring matter, aze, E. Fussenegger.....	806,077
Combination lock, E. E. Lathrop.....	805,803
Combining machine, wool, H. Colburn.....	805,781
Combustion, apparatus for promoting, W. F. Herrick.....	805,461
Composing machines, justifying mechanism for, A. Greenleaf.....	805,458
Concrete building block, E. L. Lorscheider.....	805,478
Concrete construction, reinforcing device for, G. L. Peabody.....	805,663
Concrete pile and making the same, F. Shuman.....	805,936

# We Throw Off the Limit!

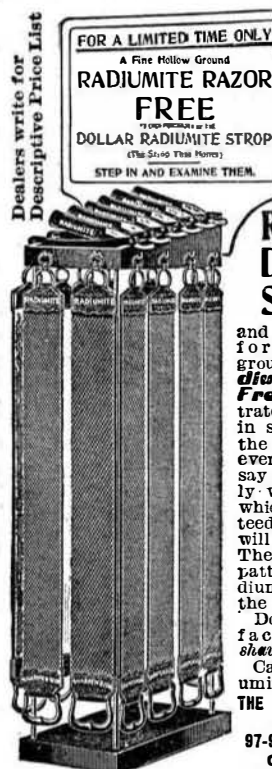
# ONE BILLION SHAVES

## For \$1.10

And More if You Need 'em

Shave as much as you like. Only one blade and one strop, but both always in perfect condition. Don't scrape your face with the extravagantly priced and priced gilded hoes, called "safeties." Did you ever hear of a barber using a "safety" on a customer? If a "safety" is not good enough for a barber—is it good enough for you? Beware of continued scraping with "safeties," beware of ingrowing hairs, and an irritated skin. Scraping with "safeties" is unnatural. Shave in the natural, standard way, with a keen Radiumite Razor, kept sharp and smooth on a Radiumite Strop—the strop that hones. No mailing, grinding, waiting or expense. No "endless chain" of further blades to buy. Nothing to throw away. If you have invested in a hoe and desire to work your money out of it, be sure to rest your face, by alternating the scraping by shaving in the natural way, with a standard razor.

## Xmas Gifts for Men



FOR A LIMITED TIME ONLY  
A Fine Hollow Ground  
**RADIUMITE RAZOR**  
**FREE**  
WITH THE PURCHASE OF A  
DOLLAR RADIUMITE STROP  
(The Strop That Hones)  
STEP IN AND EXAMINE THEM.

If Your Dealer has not this stand in his window or store, send \$1.10 direct to us. We'll mail you the famous

## Radiumite Dollar Strop

and a fine, hand-forged, hollow ground \$2.00 Radiumite Razor Free. Also illustrated instructions in stropping. It's the biggest bargain ever, and if you don't say so after heavenly velvet shaves—which are guaranteed—your money will be refunded. The patent diamond pattern in the Radiumite Strop hones the razor perfectly. Don't scrape your face with a hoe—shave it with a razor. Catalog of "Radiumites" free.

THE PETER L. FROST CO.  
Department 87  
87-89-101 S. Clinton St.  
CHICAGO, ILL.

I am an experienced hardware man, essentially a business getter, but have had inside experience enough to make me a fully competent sales manager. At present I am with a representative hardware jobber and I want to make a connection with a manufacturer in order to broaden my field and increase my earning capacity. I am a hard worker, understand the technicalities of the trade, and am able to handle a proposition in a manner that will command full prices and insure good profits. I want to hear from those manufacturers who are looking for such a man and would be willing to start him at about \$3,000 for the first year, if he were the right man. Address Hardware Man, Room 711, 41 Union Sq., New York City

\$3.00 A YEAR

PUBLISHERS' NOTICE

# American Homes and Gardens

PUBLISHERS' NOTICE

\$3.00 A YEAR



July, 1905, Cover



January, 1906, Cover

DURING 1906 ARTICLES WILL BE PUBLISHED SHOWING

- How curtains may be made at home;
- How furniture may be covered by the woman of the house;
- How the amateur may decorate the room with home-made stencils;
- How a water garden may be laid out and built;
- The use of statuary for garden decoration.



A MINIATURE ENGRAVING

ALSO DURING 1906 ARTICLES WILL BE PUBLISHED ON

- The kitchen and how it should be planned (a series);
- Historical places in America;
- The house of the Colonial period;
- Gateways to estates;
- How the house of a bygone day may be remodeled and converted into a modern home.

The magazine is beautifully printed on heavy coated paper, and is elaborately illustrated by handsome engravings made from photographs taken especially for this publication. The colored covers change monthly (see reduced black and white specimens above). AMERICAN HOMES AND GARDENS should have a place in every home. Send \$3.00 to-day and receive the beautiful November and December issues without charge. Single copies, 25 cents, postpaid, or they can be obtained from any newsstand.

MUNN & COMPANY, Publishers, SCIENTIFIC AMERICAN OFFICE, 361 BROADWAY, NEW YORK





**IF YOU SHOOT A RIFLE.**  
Pistol or Shotgun, you'll make a bullet's  
Eye by sending three 2c. stamps for  
the *Ideal Hand-book* "A," 126 pages  
**FREE.** The latest Encyclopedia of  
Arms, Powders, Shot and Bullets. Men-  
tion **SCIENTIFIC AMERICAN.** Address  
**IDEAL MFG. CO., 26 U.S. NEW HAVEN, CONN., U.S.A.**



## Adhesives Always on Tap

Contrast the old gummed-up mullage  
bottle, that never was in working  
order when you wanted it, with an  
air tight tube of Dennison's Glue.  
Pull out the pint and squeeze out just  
the amount you desire, spreading it  
with the metal spreader. No brush  
required. Replace the pin and the  
tube becomes air tight, keeps the con-  
tents from thickening, souring and  
mildew. Will keep perfectly for years.  
Dennison's Patent Pin Tube is used  
exclusively for

# Dennison's

Glue, Paste and Mucilage

If Dennison's Adhesives are not for  
sale at your dealer's, a Patent Pin Tube  
of Glue, Paste or Mucilage will be  
mailed on receipt of 10 cents. Please  
address Dept. 26 at our nearest store.

Dennison Manufacturing Company,  
The Tag Makers.

Boston, 26 Franklin St. New York, 15 John  
St. Philadelphia, 1007 Chestnut St. Chicago,  
128 Franklin St. St. Louis, 413 North 4th St.



# DIAMONDS ON CREDIT

What is your knowledge of Diamonds?  
Could you tell the proper price of a gen-  
uine Diamond? Could you detect a  
brilliant imitation stone from the gen-  
uine? If not, don't take risks when  
you buy. Take sure of getting a genu-  
ine Diamond at the lowest market price  
by ordering from a house of national  
reputation. Ours is the oldest Diamond  
house in the Trade. We give a guaran-  
tee of genuineness with every Diamond  
we sell and to persons of good charac-  
ter we give terms of credit. *Transactions  
strictly confidential.*

20% Down and 10% per Month

By importing Diamonds, cut by the rough,  
collecting them, and selling them  
direct to consumers, we guarantee prices  
20% lower than any other Diamond  
dealer. We guarantee that every Diamond  
we sell is genuine. We guarantee that  
every term of credit is strictly confidential.

J. M. LYON & CO.

150 N. 3rd St. New York, N. Y.

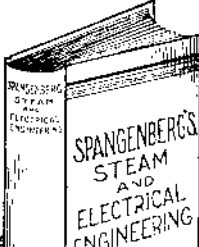


## CASH for Your Real Estate or Business

If you want to sell,  
Send description and price to

FRANK P. CLEVELAND, Real Estate Expert  
1510 Adams Express Building, Chicago, Ill.

EARNEST



STUDENTS

If You Are in Earnest in the study of Engineering you  
want practical, clear, and reliable  
books on the subject. **Spangenberg's Steam and Electrical  
Engineering** exactly answers your purpose. Written by practical  
engineers, and written as you can understand it. Price, \$3.50. See  
coupon below.

**The Beginner** in Steam Engineering wants answers to his ques-  
tions relating to first principles, and these he  
finds in **Spangenberg's 157 questions and answers relat-  
ing to steam engineering**, a 1/2 page book intended for begin-  
ners only. Price, 75 cents. See coupon below.

To the boy or man whose ignorance of Arithmetic, from whatever cause,  
prevents his advancement, **Spangenberg's Practical Arith-  
metic, Self-Taught**, supplies in easily understood form the in-  
struction he has previously missed. With no other teacher the learner  
is fitted to make the calculations and solve the problems required in  
industrial pursuits and trades. Price, 60 cents. See coupon below.

**SPECIAL OFFER** The above three books sent postpaid on  
receipt of \$4.00, or in accordance with  
agreement set forth on coupon below. If the books are not perfectly  
satisfactory return them within ten days and get your money back.

**COUPON. Cut out and mail to-day.**

GEO. A. ZELLER BOOK CO., 1 S. Fourth St., St. Louis, Mo.  
I accept your offer to send me, express prepaid, the above three  
books, price \$4.50, and enclose \$2.50 as first payment. The balance,  
\$2.00, I agree to remit in 50 cent monthly installments, money, express  
order, or stamps.

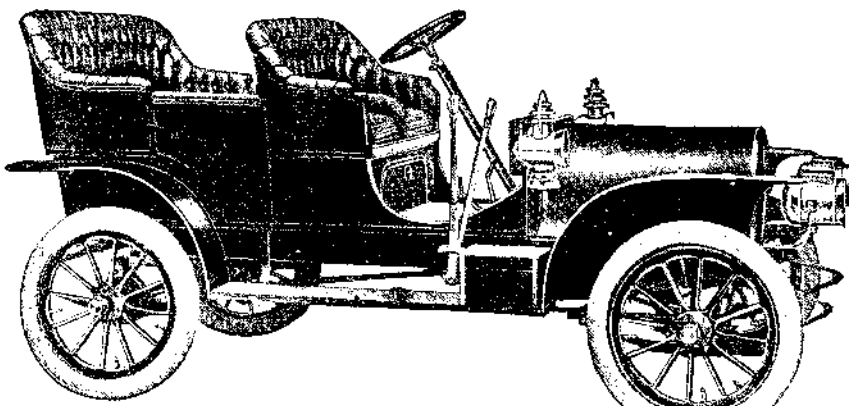
Name.....

Street or Box No.....

City and State.....

Concrete wall forming apparatus, C. E. Russell.....	805,883
Concrete wall mold, A. F. Reichert.....	805,819
Conduit, D. E. Reagan.....	805,665
Confagurations, means for preventing the spread of, E. Baxter.....	805,519
Controlling apparatus, E. S. Clark.....	805,944
Converter, finishing, C. M. Allen.....	805,896
Conveyer flights and the like, making spiral, F. C. Caldwell.....	805,629
Conveyer system, traveling, C. Berghofer.....	805,520
Copper nickel matte, refining, N. V. Hy- binette.....	805,555
Copper refining furnace, R. Baggaley.....	805,834
Copper ores, fluxing, R. Baggaley.....	805,835
Copper stamping machine, R. Baggaley.....	805,703
Core for rolls, C. W. Lyman.....	805,867
Corking apparatus, G. T. Liddle.....	805,566
Cotton copper or spacer, J. W. Gilleland.....	805,908
Cotton picker's sack carrier, W. A. Byrd.....	805,708
Couch and invalid chair, combined, E. Loose.....	805,805
Coupling, M. L. Sanderling.....	805,674
Cracker, conveyer and distributor, C. C. Blank.....	805,625
Cranberry separators, feed attachment for, L. A. Hayden.....	805,542
Crank shaft, F. C. Osborn.....	805,878
Crate, folding, J. Smith.....	805,494
Creasing machine, J. Nazel.....	805,576
Cultivating implement, E. A. Briggs, Jr.....	805,056
Cultivating implement, rotary, F. A. Price.....	805,572
Cultivator, Frary & Knipeper.....	805,759
Cultivator, hand, P. P. Marshall.....	805,576
Cultivator, lister, L. E. Waterman.....	805,601
Cultivator, planter, and roller, F. B. Burdge.....	806,059
Current motor, H. G. Brown.....	805,446
Curtain fixture, C. Maldaner.....	805,570
Curtain pole ring, J. Kroder.....	805,919
Cuspidor, railway car, H. H. Piper.....	805,935
Cutter head for shaft turning machines, C. J. Gylfe.....	805,539
Cutting device, C. F. Williams.....	806,038
Dental plates, manufacture of roof, P. J. Malone.....	805,574
Derick, E. A. Sohn.....	805,889
Diamidofornyl diphenylamin and making same, O. Sobst.....	805,890
Die. See Lacing tip forming die.....	
Dispensing vessel, Pfeifer & Raymond.....	805,994
Display stand, Way & Kolb.....	805,603
Distillation, apparatus for obtaining the products of resinous woods by dry, J. Friis.....	805,848
Door check, G. J. Blum.....	805,775
Door lock, J. G. Baisch.....	805,437
Dredger attachment, H. P. Francis.....	805,906
Dredging apparatus, F. A. Jones.....	805,965
Drill, J. P. Coleman.....	805,449
Drill and drill frame, combination, P. Broadbooks.....	805,838
Dust guard, E. Denegre.....	805,717
Dye and making same, monoazo, T. Kroa- ber.....	805,918
Dye and making same, naphthalene, R. Bohn.....	806,053
Electric circuit, automatic regulator, M. Waddell.....	805,505
Electric current generator, W. Kaisling.....	805,557
Electric cut out, W. P. Wright.....	805,506
Electric drill, S. D. Stoycheff.....	805,499
Electric furnace, J. S. Dorian.....	805,783
Electric generator controlling device, M. von Hoor, et al.....	805,725
Electrostatic separation, P. H. Wynne.....	805,694
Elevator car brake apparatus, V. Regina.....	805,818
Embossing and printing machine, P. Avril.....	805,697
Energy, means for storing and applying, S. L. G. Knox.....	805,648
Engine lubricator, locomotive, W. M. Smith.....	806,014
Engine muffler, internal combustion, F. J. Gowing.....	806,083
Engines and winding spools, combined mount and derick for, H. A. Hettinger.....	805,955
Engines, pump attachment for internal com- bustion, Mitchell & Lewis.....	805,981
Engraving machine, P. V. Avril.....	805,698
Exercising machine, electrical muscular, R. O. Hammond.....	805,952
Extension table, M. A. Hanson.....	805,540
Eyeglasses, W. H. Spangler.....	806,015
Fastening device, A. E. Vance.....	806,027
Feed trough, J. E. Straight.....	805,683
Felt waterproof construction, F. N. Pease.....	805,746
Fence post and wire fastener, combined, A. E. Engesetter.....	805,785
Fence post, metal, J. H. Goulstone.....	805,791
Fencing, anchorage for wire, Wheelock & Wright.....	805,764
Fertilizer distributor and cotton seed planter, combined, J. W. Rudge.....	806,005
Fiber cleaning machine, H. J. Doeken.....	805,441
Figure, jointed, A. Schoenhut.....	806,008
File, arch, E. M. Anderson.....	805,897
Filing tray, L. C. Walker.....	806,030
Filling material in crevices, machine for pouring, T. Fitzgerald, Jr.....	805,719
Filling material, producing, J. D. Pen- nock.....	805,581
Finger ring, leaf turning, A. Ramage.....	805,664
Fire extinguisher system, automatic, J. G. & J. D. Nolen.....	805,874
Fire hose, life preservers, etc., device for supporting, T. F. Adams.....	805,511
Firearm, F. P. & W. D. Stannard.....	805,588
Firearm, C. A. Young.....	805,685
Firearm, A. W. Savage.....	806,007
Fishing reel, W. Carter.....	806,064
Flagstaff support, C. Brown.....	805,707
Flexible fabric and making same, J. G. Jackson.....	805,963
Flour bleaching apparatus, F. A. Leperche, et al.....	805,652
Flour mills, dustless feeder and mixer for, R. E. Boll.....	805,899
Flower pot, R. A. Sedlacek.....	805,491
Flux to cylindrical bodies, machine for ap- plying, C. H. Ayars.....	805,833
Folding fork, J. M. Wolfe.....	806,042
Folding chair, C. Mettler.....	805,971
Folding machine sheet assembling device, E. H. Cottrell.....	805,636
Forge, W. F. Wendt.....	805,691
Funnel for liquid, filling and closing, J. E. Lundy.....	805,741
Furnace, J. E. Hoover.....	805,737
Furnace, J. S. Walker.....	806,029
Furnace charging apparatus, E. W. Lind- quist.....	805,737
Furnace walls, heat travel controller for, R. Baggaley.....	806,048
Furnaces, producing chemicals in electric, E. R. Taylor.....	805,501
Furnaces, roasting device for ore-roasting, C. C. Wilson.....	805,939
Fuses and making same, composition for, W. T. Unge.....	806,025
Gage. See Jointer gage.....	
Garbage bag, Deegan & Proffen.....	805,452
Garment fastener, E. Littauer.....	805,868
Garment hook, C. R. Meyer.....	805,869
Gas furnaces, sight cock for, L. P. Lowe.....	805,654
Gas generator acetylene, H. Symonds.....	806,087
Gas lighter, electric, J. Mlada.....	805,574
Gas mantles, holder or head for incandes- cent, H. Heidorn.....	805,911
Gas purifier, M. F. McNelly.....	805,985
Gas retort bench, S. E. Russell.....	805,489
Gas washer, E. J. Mullen.....	805,929
Gases, apparatus for cleaning manufactured, L. P. Lowe.....	805,653
Gasket, J. W. Guillott.....	805,645
Gate, L. C. Sweet.....	805,550
Gate, R. R. Spoor.....	805,679
Gear cutting machine, spiral, T. Fawcus.....	806,075
Gear, friction drive speed, W. E. Trufant.....	805,504
Gear, transmission, A. C. Menges.....	805,978
Gearing, differential, R. Symonds.....	806,021
Germicidal cake, S. N. Kohn.....	805,560
Glass cylinders, severing drawn, J. Camp- bell.....	805,943
Glass finishing apparatus, F. O'Neill.....	805,876
Glass gathering and delivering machine, F. O'Neill.....	805,875
Glass globe or shade, prismatic, O. A. My- gatt.....	805,742
Glass making apparatus, wire, G. W. Morenus.....	805,659
Glass plates, manufacture of, B. C. White, 805,609.....	805,610
Glass rolling apparatus, A. Meyer.....	805,657

# FRANKLIN



Type G. 4-cylinder Light Touring Car

Air-cooled. Shaft drive. Sliding gear transmission. Three speeds and reverse. New and perfect disc clutch. Force-feed oiler on the dash. Side doors. 88-inch wheel base. 4 passengers. 35 miles an hour. 12 "Franklin horse-power." 1400 pounds. \$1,800 f.o.b. Syracuse. Full head and tail-light equipment.

## Franklin Air-cooling and Franklin Horse-power

Why does 12 "Franklin horse-power" do all that 20 horse-power will do in any other car?

Because Franklin air-cooling means also Franklin engineering, lightness, strength and springs.

No plumbing weight nor complications. Little engine-metal, but great strength and refinement in it; great power out of it; and the power preserved and put to work.

Few parts, small friction; extreme toughness; a light load to carry; no interference; and big ability to carry it.

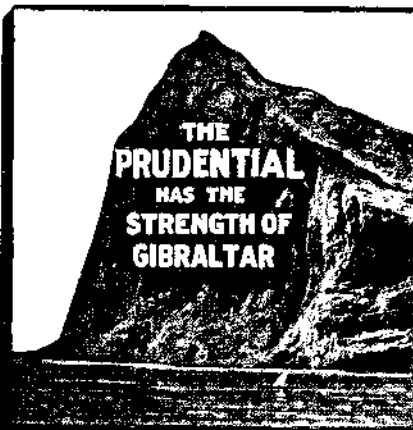
## You want the power that does the work

Four models for 1906. **E, 4-cylinder Runabout**, 12 "Franklin horse-power," 1100 lbs., \$1400 f.o.b. Syracuse. **G, described above.** **D, 4-cylinder Touring Car**, 20 "Franklin horse-power," 1800 lbs., \$2,800 f.o.b. Syracuse. **H, 6-cylinder Touring Car**, 30 "Franklin horse-power," 2400 lbs., \$4000 f.o.b. Syracuse.

Send for books

H. H. FRANKLIN MFG. CO., Syracuse, N. Y., M. A. L. A. M.

## The Motor Car of the Future



YOU may be so well and strong that the thought of the necessity for Life Insurance hardly ever crosses your mind. But it should occur to you, upon reflection, that life insurance is not obtainable after a man's health is seriously impaired and when his days are clearly numbered.

Now when a man *can* save a little money year by year without feeling it, when he *can* lay up a substantial fund against the day of his departure—when this protection for his family *is* possible and even very easy, what would be your estimate of him if they should be left penniless?

Is *your* life insured? The holders of over six million policies in The Prudential had reasons for insuring their lives in this company. It would be decidedly worth your while to know why and how The Prudential can satisfy the demand for economy, convenience, security and promptness in veritable Life Insurance.

# The Prudential

INSURANCE COMPANY OF AMERICA

Incorporated as a Stock Company by the State of New Jersey

JOHN F. DRYDEN, President.

Home Office, NEWARK, N. J.

Without committing myself to any action, I shall be glad to receive, free, particulars and rates of Policies.

For \$.....Age.....

Name.....

Address.....

Occupation.....Dept. 121

Before the cold weather sets in

## Get a Residence Telephone

It saves exposure.  
It saves doctor's bills.  
It means convenience and economy.  
Rates are low.

NEW YORK TELEPHONE CO.  
15 Dey Street

### TURN YOUR SPARE TIME INTO MONEY

ADD \$500.00 to your salary next year, by working an hour or so evenings, introducing our "Keystone" Chemical Fire Extinguisher—the best, most widely known and cheapest.

For particulars of this dignified and profitable work, address

JAMES BOYD & BROTHER  
18 N. 4th St., Philadelphia

### \$5.00 Water Motor \$3.50



Our \$5.00 Morton Faucet Water Motor sold for a limited time for \$3.50. Guaranteed. Attaches to any faucet. For polishing and sharpening. For running all kinds of light machines. Largest and most powerful faucet motor. Outfit includes emery wheel, buffing wheel, pulley and polishing material. Money refunded if not satisfactory. Booklet free. Motor delivered anywhere in time for Christmas. Order now—before price advances.

MORTON MFG. COMPANY, Dept. C.  
130 Fulton Street, New York.

### THE "O.K." PAPER FASTENER

It is not a clip. Clips depend on friction for their holding power, thus insecure. The "O.K." has the advantage of a piercing point which goes through every kind of paper, and binds and holds them together with a built dog's grip. They are handsome, compact, strong, always ready for use, require no machine for putting them on or taking them off, and they always work. Made in three sizes, and put up in brass boxes of 100 fasteners each. Try them. Sold by all first class dealers. Send 10c for box of 50 assorted sizes. Booklet free.

JAS. V. WASHBURN, Mfg.  
210 E. Genesee St., Syracuse, N.Y.

### THE Apple

Automatic Battery Charger

#### We Are Ignition Specialists

If you have any trouble with your ignition, write to us and we will tell you just what to do. Our APPLE AUTOMATIC SPARKER gives a strong, steady current that never fails. No trouble to put on any car or engine; our friction-driving gear makes installation easy. See that your entire car has an Apple electrical equipment. For full information write The Dayton Elec. Mfg. Co., 88 Beaver Bldg., Dayton, O.



### Electrical Engineering

and Experimental Work of Every Description

We have every facility for producing first-class work promptly. Our factory is equipped with modern machinery throughout.

C. F. SPLITDORF  
Engineering Dept. 17-27 Vandewater St., N. Y. City

### Automobile Knowledge

means

### Money in Your Pocket

We are the only school that provides complete, practical, money-earning and money-saving training by mail in operating, repairing, constructing and designing every kind of motor vehicle and motor boat.

We have special courses for owners, shop and factory employees, chauffeurs, motor-boat and motor-cycle users, and others.

There are only two ways of learning anything. One is slowly and tediously to gain the experience yourself; the other (and better) way is to take advantage of the experience of others.

Though we offer you the long, hard-learned, thorough experience of experts who have done prominent work in the development of the new vehicle, we offer this experience in such form that to teach it to you will take only a few minutes and cost only a few cents each day—the few minutes and the few cents that you ordinarily waste.

Our instruction has been prepared and is conducted by well-known men, of long experience and proved ability both in automobile engineering and correspondence instruction. It is strongly endorsed by prominent manufacturers, club and association officials, racing men, trade-paper editors, and others whose standing in the automobile field lends authority to what they say.

In the automobile industry, the demand for competent men is so great that ability, no matter how acquired, is considered above "pull" and length of service. This makes it easy for an ambitious man to qualify quickly for good wages and prompt advancement.

For further information, send us your name on the accompanying coupon. This will cost you only a moment of time and a postage stamp, which will be well spent for interesting and convincing literature.

.....FILL OUT TEAR OFF MAIL TO-DAY.....

THE CORRESPONDENCE SCHOOL OF AUTOMOBILE ENGINEERING  
Suite 1868 Flatiron Building, New York City

Please send to my address by return mail, a free circular, giving full particulars of your correspondence courses.

Name.....

Street and No.....

City.....State.....

Or write for circular without sending coupon.

Glass rolling machine, B. C. White .....	805,608
Glass tile, slab, or the like, C. H. Thompson .....	805,595
Glassware, etc., for finishing, snap for holding, F. C. Albrecht .....	805,830
Glazing support, J. Petz .....	805,993
Glove or mitt, catcher's, E. J. Goldsmith .....	805,538
Governor, marine engine, E. J. W. Grasset .....	805,950
Grain, apparatus for purifying, conditioning, and drying, Caldwell & Bart .....	805,709
Grain scouter, W. C. Brenner .....	806,055
Grinding and abrading wheel, portable, A. F. Jankoski .....	805,857
Grinding mill, H. C. Robinson .....	805,933
Grip mechanism, W. Hewitt .....	805,464
Gun sight, Bassel & Blenkner .....	805,770
Hame attachment, J. A. Miller .....	805,980
Hammock, I. E. Palmer .....	805,816
Hammock and hammock support, J. E. Palmer .....	805,815
Harness loop, C. A. Messenger .....	805,573
Harrow section, adjustable, D. H. Brown .....	806,057
Harvester, corn, F. T. Tarbox .....	805,938
Hat and cap, M. Redgrave .....	805,750
Hat making machine, M. A. Cumming .....	805,451
Hay, etc., machine for gathering, G. M. Depeu .....	806,069
Hay raking and stacking machine, E. J. & J. M. Foster .....	805,847
Heat engine, F. E. Junge .....	805,859
Heat radiation, device for effecting, S. W. Zent .....	805,510
Heater, D. Lewis .....	805,804
Heels, etc., machine for finishing, C. B. Tuttle .....	805,763
Hinge, G. E. Anderson .....	805,515
Hog scalding and scraping machine, P. F. Seidel .....	805,492
Horse blanket, A. H. Meyers .....	805,925
Horse checking appliance, A. A. James .....	805,731
Horse detacher, H. H. Reed .....	805,993
Horseshoe calk, Anderson & Gren .....	805,435
Hose coupling, J. P. McIntroy .....	805,744
Hub for spoked wheels, expansible, H. W. Wurth .....	805,614
Hydrocarbon burner, W. H. Thayer .....	805,593
Hydrocarbon burners and furnaces, hot air appliance for, A. H. Saffell .....	805,671
Ice, apparatus for freezing plate, H. Stout .....	805,590
Identification device, C. R. Williams .....	805,767
Illuminating device, A. Richter .....	805,879
Incandescent mantles, machine for manufacturing, Muller & Bonnet .....	805,930
Incubator, Boyer & Kinney .....	805,444
Incubator, H. E. Keller .....	805,970
Incubator, E. Ochsner .....	805,987
Indicator, F. P. Thomas .....	805,594
Ingots, perfecting cast steel, R. W. Hunt, 805,728, .....	805,729
Injector burner, L. K. Leahy .....	805,864
Inkstand, F. M. Ashley .....	805,618
Insulator, electric strain, S. L. Foster .....	805,788
Internal combustion engine, J. D. Blaisdell, 805,774, .....	805,774
Iron, See Chair .....	806,060
Iron, hardening compound, Burns & Raab .....	805,836
Iron, producing, R. Baggaley .....	805,915
Jar, E. Houghton .....	805,915
Jeweler's case, W. Kahle .....	805,732
Jointer gage, R. Carson .....	805,841
Journal box, J. G. Pontious .....	805,996
Journal box lid, J. S. Patten .....	805,990
Junction box, E. T. Greenfield .....	805,968
Kettledrum, D. M. Wright .....	805,768
Knitting machine, J. E. Rowe .....	805,670
Knitting machine, P. H. Waldman .....	805,715
Knockdown or collapsible box, W. E. Brown .....	806,058
Labeling machine, J. B. Aufauld .....	805,832
Lace fastener, J. B. Hall .....	805,852
Lacing loop, G. W. Prentice .....	805,682
Lacing tip forming die, A. T. Parker .....	805,578
Ladder, step, A. Daugherty .....	805,529
Lamp, Hamm & Mosher .....	805,722
Lamp, acetylene gas generator, W. O. Nelson .....	805,986
Lamp, desk, F. E. Kinsman .....	805,558
Lamp, gas, Craig & McLewee .....	805,837
Lamp heater, H. T. Hyatt .....	805,554
Lamp, regenerative gas, W. S. McLewee .....	805,661
Lanterns, wick raising attachment for, W. S. Hamm .....	805,951
Lasts, manufacturing boot and shoe, A. Lorant .....	805,477
Latch, W. O. Boykin .....	806,054
Latch, cylinder night, J. Roche .....	806,054
Latch, gate, J. H. Snyder .....	805,937
Lathe center, turning, C. J. Inley .....	805,712
Lathe, wood turning, F. R. Innan .....	805,730
Laundry indicator, F. Palmer .....	805,988
Lens, bifocal, L. Bell .....	805,438
Lens mounting, F. A. Hardy .....	805,541
Ligatures, etc., container for, F. Evans .....	805,948
Lightning arrester, A. J. Berry .....	805,439
Linotype machine, D. Petri-Palmedo .....	805,992
Linotype machine, P. T. Dodge .....	806,070
Liquid agitator, A. Good .....	805,458
Lixivation, apparatus for, A. W. Constans .....	805,635
Loading machines upon trucks, device for, A. Holder .....	805,796
Lock, F. J. Vieweg .....	805,687
Locomotive, Reid & Ramsay .....	805,999
Loom, C. Renger .....	805,751
Loom, filling replenishing, A. E. Stafford .....	805,497
Loom pattern mechanism, E. H. Ryon .....	805,756
Loom shuttle, self-threading, H. A. Kennedy .....	805,861
Mail box, Z. D. Tallman .....	805,759
Malt decoctions, producing tasteless roasted, M. Weyermann .....	805,607
Manure carrier, D. B. Cherry .....	805,542
Masonry, waterproof, F. V. Pease .....	805,745
Matte, converting, Baggaley & Allen, 806,045, .....	806,046
Medicinal injector, N. J. Goldfarb .....	805,851
Metals, separation of, N. V. Hybinette .....	805,969
Metallic articles, covering, E. Kempshall .....	805,470
Metallic box, W. R. Dodd .....	805,451
Metallic mat, G. C. Sleeth .....	805,823
Metronome, L. Aurnhammer .....	805,436
Micrometer, F. G. Marbach .....	805,486
Mining machine, J. Swanson .....	805,985
Mining machine, W. H. Sexton .....	805,885
Moistener, finger, J. M. Keep .....	805,469
Mold, W. H. Lucas .....	805,655
Mold, Cimmerly & Mottinger .....	806,066
Motor starting resistance, automatic, R. Scott .....	806,009
Mower, lawn, J. N. Bryant .....	805,900
Muffler, exhaust, F. S. Williams .....	805,613
Mushrooms, cultivation of, E. D. Kline .....	805,801
Muscle leaf turner, sheet, C. R. Shuler .....	805,524
Music rack, A. Rich .....	805,734
Muzzle, F. M. Rowland .....	806,004
Nail clipper or wire cutter, H. Wilcox .....	806,037
Needle clamp, J. Grubb .....	805,721
Nut device, axle, L. J. Robichaux .....	805,755
Nut, lock, C. G. Wrisberg .....	805,829
Nut lock, H. L. Jinks .....	805,916
Oil burner, C. A. Peterson .....	805,747
Oil can, hand, G. H. Thomas .....	805,893
Oil to axle bearings, material for applying, W. E. Laycock .....	805,475
Ordnance, J. H. Brown .....	805,777
Ordnance, telescopic rammer for, A. A. Thresher .....	805,597
Ore separator, L. J. Vandervoort .....	805,599
Ore separator, magnetic, H. F. Campbell .....	805,448
Ore separator, magnetic, E. Hedburg .....	805,854
Ores and the like, treatment of, J. Nicholas .....	805,577
Ores, etc., apparatus for dissolving and separating values contained in, C. H. Rider .....	805,880
Packing, R. H. .....	805,669
Paint, treating, M. E. McMas .....	805,984
Panel board, H. Krantz .....	805,650
Paper machine press rollers, polishing and grinding mechanism for, B. Schnitzer .....	805,585
Paper yarn, improving, M. Holken .....	805,553
Pen, fountain, J. Blair .....	805,624
Pencil box for slates, J. Koegel .....	805,472
Pencil sharpener, F. H. Smith .....	805,886
Phonograph attachment, Feist & Kretzer .....	805,787
Phonograph reproducing sound box or horn, R. Reed .....	805,544
Piano action for piano, E. Wernner .....	805,692
Piano, automatic, F. Schaub .....	805,989
Piano pliers, C. H. Lang .....	805,651
Piling, metal sheet, W. G. Fargo .....	805,533
Pipe bender, Green & McFarland .....	806,085
Pipe cleaning device, J. E. Flitcroft .....	805,534
Pipe collar, M. C. Rosenfeld .....	805,487
Pipe tongs, H. R. Hill .....	805,913
Planer knife, F. L. Conforth .....	805,450
Planers, matcher head for wood, C. W. H. Blood .....	805,626

# Peerless

## Peerless Motor Cars

Buying a high-grade automobile cannot safely be done on the strength of the mere arguments of a manufacturer has room to advance in his advertisements.

Not even the detailed explanations and reasonings of a good catalogue are sufficient proof—you are entitled to an actual examination and explanation of the car's construction and operation, and a thorough-testing ride in it.

We will be pleased to send you our catalogue on request—and you will find it tells of many features found in no other car.

But, better still, we will give you a personal letter of introduction to a Peerless dealer near you. You can use it at your leisure, and can be assured of a Peerless explanation—and a Peerless ride—that you cannot afford to miss in justice to yourself if you mean to purchase a high-grade automobile.

1906 Catalogue Ready

THE PEERLESS MOTOR CAR COMPANY, 33 Lisbon Street, Cleveland, Ohio

## For Christmas Giving

# The Scientific American Boy

By  
A. RUSSELL BOND

12mo. 320 Pages. 340 Illustrations.  
Price \$2.00 Postpaid

THIS is a story of outdoor boy life, suggesting a large number of diversions which, aside from affording entertainment, will stimulate in boys the creative spirit. In each instance complete practical instructions are given for building the various articles.

¶ The needs of the boy camper are supplied by the directions for making tramping outfits, sleeping bags and tents; also such other shelters as tree houses, straw huts, log cabins and caves.

¶ The winter diversions include instructions for making six kinds of skate sails and eight kinds of snow shoes and skis, besides ice boats, scooters, sledges, toboggans and a peculiar Swedish contrivance called a "rennwolf."

¶ Among the more instructive subjects covered are surveying, wigwagging, heliographing and bridge building, in which six different kinds of bridges, including a simple cantilever bridge, are described.

¶ In addition to these, the book contains a large number of miscellaneous devices, such as scows, canoes, land yachts, windmills, water wheels and the like. A complete table of contents sent on request.

## MUNN & COMPANY

PUBLISHERS OF  
361 Broadway "SCIENTIFIC AMERICAN" New York City



# Jaeger

UNDER WEAR.

Though nothing succeeds like success yet success and merit are not always synonymous. It is the double distinction of Jaeger Underwear that it spells both. Imitations in plenty attest its success. Physicians everywhere certify its merits.

Catalogue explains everything.  
Free, with samples.

**Dr. Jaeger's S. W. S. Co.'s Own Stores**  
New York: 306 Fifth Ave., 157 B'way. Brook-  
lyn: 54 Fulton St. Boston: 228 Boylston St.  
Philadelphia: 1510 Chestnut St. Chicago: 82  
State St.  
Agents in all Principal Cities.



**A Desirable Holiday Gift**  
**DRAPER'S**  
**Recording Thermometer**  
Traces automatically a correct and  
continuous record in ink of the tem-  
perature on a graduated weekly chart.  
Made in two sizes, and standardized  
and fully guaranteed. Also other re-  
cording weather instruments.

THE DRAPER MFG. CO.  
152 Front St., New York

## NEW YORK SCHOOL OF AUTOMOBILE ENGINEERS

(INCORPORATED)  
146 West 56th Street, New York City  
A HIGH GRADE SCHOOL OF INSTRUCTION  
FOR CHAUFFEURS AND AUTOMOBILE OWNERS  
Day and evening classes. Now enrolling students  
Write, call or phone for particulars. Tel. Columbus 4314



Will make for you  
**\$100 A DAY**

Spin sugar into cotton  
candy any color or  
flavor. Agents wanted.

**BARTELL MACHINE CO.**  
53 W. 8th St., New York, U.S.A.



**WIRELESS TELEGRAPH**  
The "Telino" Complete Outfit, comprising 1 inch Spark Coil, Strap  
Key, Sender, Sensitive Relay, Coherer, with Automatic Decipherer and  
Sounder, 4 Ex. Strong Dry Cells, all necessary wiring, including send  
and catch wires, with full instructions and diagrams \$2.50. Guaranteed  
to work up to one mile. Send for illust. Pamphlet & 64-page catalogue.  
**ELECTRO IMPORTING CO.,** 32 Park Place, New York

## Clean House With Air



Over 55 Companies  
operating  
Thurman Patents  
in America,  
and as many more in  
Canada, England,  
and Europe.

FREE CATALOGUE

**General Compressed Air House Cleaning Co.**  
**ST. LOUIS, U. S. A.**

Manufacturers of the Celebrated Thurman direct-  
connected Gasoline Driven Air Compressors for  
Mines, Pneumatic Tools, Etc.

## It's Summer now in JAMAICA

### Winter Vacation Trips to JAMAICA

The Gem of the West Indies  
**REGULAR WEEKLY SAILINGS**  
by the steamers of the  
**ATLAS LINE SERVICE**  
LOWEST FIRST-CLASS RATE  
To JAMAICA, \$20.00, including berth  
and meals.  
23 DAYS CRUISE, visiting ports in  
Jamaica, Colombia and Costa  
Rica, \$125.00, including  
berth and meals.

For further particulars apply  
**HAMBURG-AMERICAN LINE**  
Offices: 35-37 Broadway, N. Y.  
Chicago, 159 Randolph St.  
Boston, 70 State St.  
Philadelphia, 1229 Walnut St.  
San Francisco, 491 California St.  
St. Louis, 901 Olive St.



Planter, corn, E. H. Snyder	805,888
Planter, corn, Wertz & Warner	806,032
Planter, potato, Good & Gerling	806,081
Plaster, adhesive, H. G. Weber	806,031
Plastic material, machine for pressing, E. W. Rider	805,754
Plow attachment, I. Jefferson	805,800
Plow, wheeled, C. S. Ruef	805,488
Plug, ignition, C. F. Splittorf	806,017
Poison distributor for plants, N. W. Ward, et al	805,689
Post. See Fence post	
Power appliance, W. E. Shaver	806,010
Power transmission, speed regulator for, C. Pfanschmidt	805,748
Power transmitting apparatus, C. R. Radcliffe	805,484
Printer's cabinet, H. Dorsey	806,071
Printing machine, stencil, D. Gestetner	805,536
Printing press web manipulating mechanism, H. P. Bechman	805,620
Processing or cooking or cooling machine, automatic, S. J. Dunkley	805,844
Projectile, E. M. Johnson	805,556
Projectiles, manufacture of caps for armor piercing, R. A. Hadfield	805,460
Propeller, F. W. McCain	805,871
Pulley, G. A. Gilbert	805,537
Pump, W. H. Shafer	805,586
Pump, air, T. N. Case	805,630
Pump, hydraulic air, G. J. Keenan	805,860
Pump, oil, J. B. Davis	805,630
Pump operating mechanism, A. E. Kepner	805,882
Pump, rotary vom Hofe	805,552
Punch, expanding, W. J. Marshall	805,868
Radiator, G. I. Rockwood	805,882
Rail, H. Herden, et al.	805,954
Rail and rail joint connection, track, C. W. Clark	805,902
Rail brake, B. V. Gilmore	805,644
Rail clamp, guard, Butcher & Thomas	805,627
Rail, guard, W. H. Moore	805,628
Rail joint, H. Drehaus	805,638
Rail joint, J. E. Alexander	805,831
Rail joint, G. W. Thurman	806,023
Railway block system, Ireland & Reese	805,856
Railway rail joint, J. T. Evans	805,905
Railway signal, C. M. McGeehee	805,872
Railway signal circuit, E. W. Vogel	805,827
Railway switch, L. L. Bigelow	805,773
Railways, apparatus for laying and taking up, G. I. Ritchie	805,881
Rammer motor, telescopic, A. A. Thresher	805,598
Range finder, F. Rump	805,584
Razor handle, G. W. Korn	805,561
Reaction engine, T. R. Almond	805,512
Reamer, A. J. Smart	806,011
Receptacle closure, J. H. Van Kleeck	806,028
Reclining chair, W. K. Rice	805,485
Recording or registering the maximum movement of any mechanism, mechanism for, L. B. Atkinson, reissue	12,413
Rein holder, E. G. Stevens	805,589
Rein holder, C. C. Shive	805,675
Rein support, Betheil & Peachey	805,772
Relay or sounder, electromagnet, T. M. St. John	806,018
Rock drill, G. W. Smith	806,012
Rod. See Valve rod	
Roller attachment, H. F. Moser	805,807
Rolling chair, H. E. Welsgerber	805,905
Rotary engine, F. A. Headson	805,545
Rotary engine, C. O. Sylvester	805,686
Rotary engine, B. A. Carmody	805,840
Rotary engine, E. H. Holden	805,958
Rubber articles having interior cavities, vulcanizing hard, H. O. Traun	805,503
Rubber, dissolving and recovering, G. A. L. Clift	805,903
Rug fastener, J. R. White, Jr.	805,611
Safety attaching device, H. C. Henze	805,548
Sash fastener, A. W. Dunn	805,639
Sash fastener, window, C. H. Williams	805,766
Sash holder and locking device combined, window, D. G. Freeman	805,907
Saw, butcher's, Wettich & Pitzer	806,033
Scale, grocer's, computing, Silva & Vasallo	805,758
Scale indicator, weighing, Barry & Shaugnessy	805,518
Seal, E. J. Brooks	805,445
Self-closing seat and chair, T. S. James	805,799
Sewing machine thread controlling mechanism, D. Mills	805,870
Shade and curtain pole roller, window, F. Shoo	805,676
Shade bracket, H. Kirchhofer	805,973
Shaft casings, attachment for flexible, A. U. Patchen	805,579
Sheet metal, draw press for, J. L. Kelly	805,967
Ship loading and unloading apparatus, F. B. Clark	805,711
Ships' cabins, balanced floor for, R. P. Dewey	805,718
Shoe upper fastener, C. K. Sharood	805,757
Show case, knockdown, R. Mancha	805,479
Sickle holder, J. Walter	805,894
Sidewalk lights, tread piece for, E. R. Taylor	805,761
Sign, Creben & Ewver	805,945
Sign support, E. L. Bell	805,622
Signal, P. A. Gordon	806,082
Signaling and electropneumatic train control system, electric, J. A. Whyte	806,035
Signaling mechanism, electrical, D. H. Coker	806,067
Signaling system, electric, W. S. & A. S. August	805,619
Silk, bleaching artificial, C. A. Ernst	805,466
Skate brake roller, G. M. Beals	805,942
Skates, ankle support for, R. N. Riblet	805,967
Skirt supporter and waist and belt retainer, D. Morrow	805,660
Sled, O. A. Essig	806,074
Smelting and converting ores, R. Baggaley	806,047
Snap hook, R. W. Hubbard	805,646
Snow moving machine, O. Sullivan	805,684
Sound producer, composite, E. Walker	805,600
Sound recording and reproducing machines, sound box for, J. Jetter	805,964
Sparkling device, B. G. Gilbough	805,790
Sparling machine, J. Hayes	805,543
Speed indicator, H. Andrews	806,044
Spike lock, H. S. Waterman	805,690
Spindle driving mechanism, drill, Henry & Wright	805,546
Spinning frame, H. Spence	806,016
Spinning frame thread guide, Tytler & Bowker	806,024
Spinning machine, G. J. Cuzner	806,063
Spinning machine, D. G. Pease	806,086
Spring bottom, G. C. Locklin	805,569
Spring wheel, W. H. Jackson	805,647
Square, folding, T. Jarvis	805,467
Stacker, pneumatic, O. Puterbaugh	805,997
Staging clamp, U. Facette	805,949
Stalk cutter, J. J. Dorman	805,455
Stamp affixer, L. B. Hampton	805,723
Stamp affixing device, L. E. Smith	805,887
Standard, adjustable, E. S. Bryant	805,524
Steam generator, instantaneous, F. P. Hummel	805,961
Steel, manufacture of, H. W. Lash	805,563
Stenciling device, A. E. Williams	805,765
Stock drying apparatus, C. W. Schwartz, Jr.	805,935
Stone mold, artificial, J. M. Hutchinson	805,962
Stool back, adjustable, C. C. Augustine	805,516
Stores, package delivering apparatus for, E. Roberts	806,001
Stove, gas, H. J. Bresson	805,706
Stovepipe elbows, making corrugated, A. G. Scherer	805,490
Stovepipe fastener, F. P. Richards	805,753
Stovepipe thimble connection, J. W. Mahaffy	805,656
Sulfur, recovering, R. Baggaley	805,701
Supporter loop, I. B. Kleinert	805,559
Swimming appliance, A. M. Bullock	805,526
Swimming appliance, W. P. Samms	805,672
Swimming device, A. M. Bullock	805,525
Switch. See Railway switch	
Swivel, ring, and lap ring, combined, J. C. Hackett	805,909
Table lock, extension, T. L. Arnold	806,696
Tablet, continuous writing, P. M. Wise	806,041
Talking machine attachment, J. H. Lutz	805,923
Telegraph key, rear end contact, S. B. Lefley	805,735
Telegraphy, receiver for wireless, H. S. Blackmore	806,052
Telephone exchange system, H. T. Cedar-gren	805,901
Telltale, R. H. Cobb	805,713
Tile, roofing, L. G. Satterlee	805,884

## saves money saves labor

NOW is the time to fix these facts on your mind: The Peck-Williamson Underfeed Furnace will perfectly heat your home at 1/2 to 3/4 of your present cost for fuel—it will save half the labor—it will do away with all furnace troubles.

But what actual users say counts more than any printed promises of ours. Read, then, this letter dated July 1, 1905, from Mr. E. H. Hooper, Cumberland Mills, Maine. There's the force of fact in it.

"You installed a Peck-Williamson Underfeed Furnace in my home during the severest cold weather last winter. You have more than made good every claim. For convenience, economy, cleanliness, pure, healthful, clean heat, you make no boast when you call it the famous Underfeed furnace. I am so well satisfied it would give me pleasure to show any one my furnace and you can at all times refer any one to me."

The Underfeed burns "right side up"—good results from cheapest coal. No bother, smoke or smell.

Heating plans and service of our engineering department, absolutely free. Let us send you free our Underfeed Book and facsimile voluntary letters proving every claim we make.

**THE PECK-WILLIAMSON CO.**  
351 West Fifth St. Cincinnati, Ohio  
Dealers are invited to write for our very attractive proposition.

**THE PECK-WILLIAMSON CO.**  
UNDERFEED FURNACE

## Deafness Cured at Home

Don't waste your time and money in experiments. My method cures deafness and all head noises to stay cured. Absolute and positive proofs sent on application. No pain, no loss of time. The method is my own and cannot be obtained elsewhere, it has been tried and found true, it cures.

Write today for my book, "Deafness its Cause and Cure," FREE. Address

**GUY CLIFFORD POWELL, M.D.**  
65 Bank Bldg., Peoria, Ill.

## PONY and COMPLETE OUTFIT FREE

ANY BOY or GIRL, 13 years old or less, can learn how they can have my private pet PONY "Bob" with his elegant rubber-tired PONY CART and finely Custom-made HARNESS delivered at their door without a cent of cost. I will pay all transportation charges myself. I do not want a single cent of your money. "BOB" with his PONY CART and HARNESS, just as I shall deliver him, is easily worth \$300.00. I will send you full particulars showing you that there are absolutely no blanks. If you wish the PONY and complete OUTFIT delivered to you, all charges prepaid, address a postal, asking for full particulars how to secure him, to CHARLES F. ELLIS, Pony Dept., 24 North William St., New York City, N. Y.

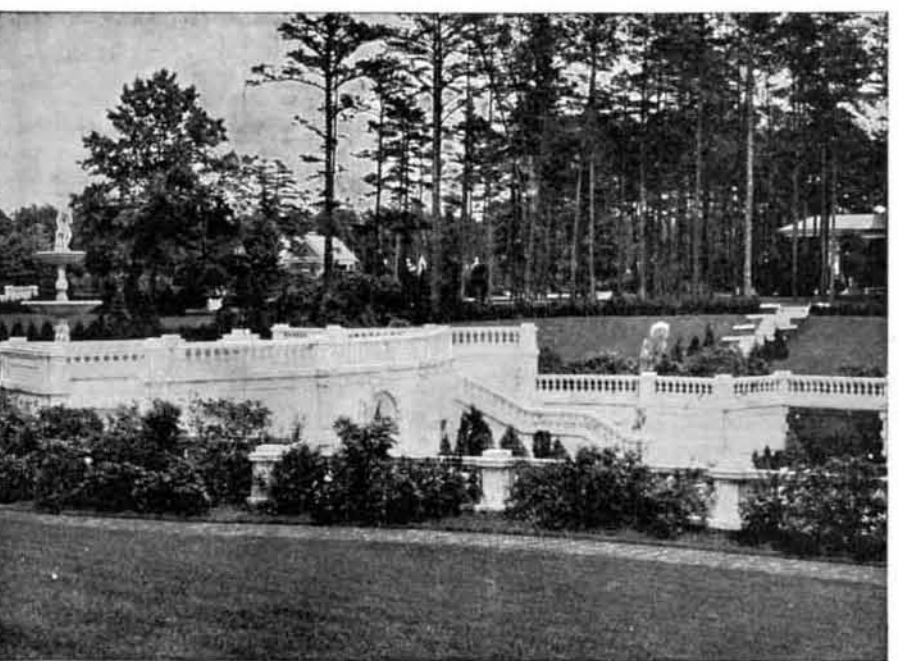
# For Christmas Giving

# American Estates and Gardens

4to. 11x13 1/2 inches. Illuminated Cover and 275 Illustrations. 340 Pages. Price, \$10.00

By **BARR FERREE**

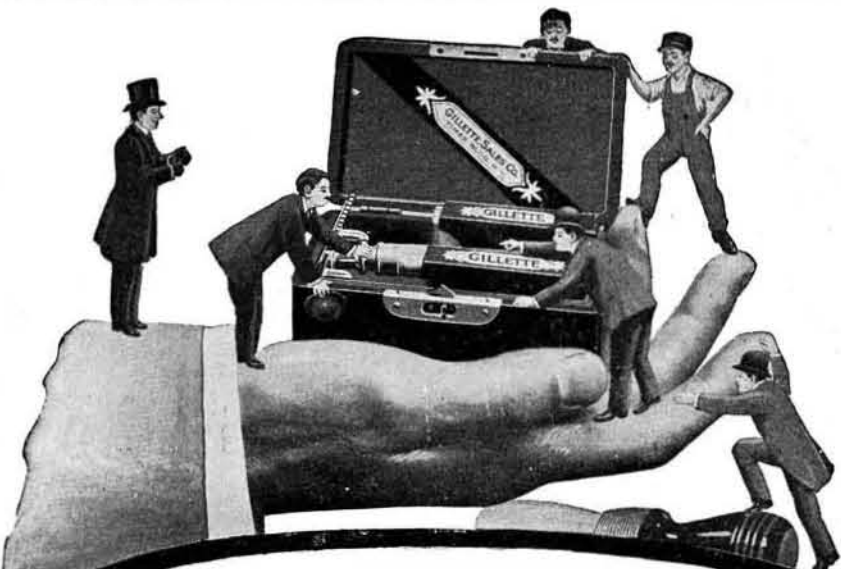
Editor of American Homes and Gardens, Corresponding Member of the American Institute of Architects and of the Royal Institute of British Architects



A SUMPTUOUS book dealing with some of the most stately houses and charming gardens in America. The illustrations are in nearly all cases made from original photographs, and are beautifully printed on double coated paper. Attractively bound. This book will prove one of the most interesting books of the season, and will fill the wants of those who desire to purchase a luxurious book on our American homes. An illustrated prospectus mailed free on request.

**MUNN & COMPANY**  
Publishers of "Scientific American" 361 Broadway, New York





"WORTH LOOKING INTO"

is the marvelous little **Gillette Safety Razor**. A unique and practical device made for the comfort of men who shave. Its friends are legion and its success is phenomenal. Hundreds of thousands in use. It's a real pleasure to give a "Gillette" to a friend who shaves, for his pleasure and comfort will be like the "Gillette" itself—everlasting.

**STANDARD SET—TRIPLE SILVER-PLATED HOLDER**  
**SPECIAL SET—QUADRUPLE GOLD-PLATED HOLDER**  
In Velvet-Lined Cases

Either one of the above makes an

**Ideal Holiday Gift**

Each Razor Set has 12 thin, flexible, highly tempered, and keen double-edged blades. These blades are sharpened and ground by a secret process.

**12 NEW DOUBLE-EDGED BLADES \$1.00**  
**24 Sharp Edges. Each Blade giving from 20 to 40 Smooth and Delightful Shaves.**

**NO HONING—NO STROPPING**

Exact size of a Gillette blade

Ask your dealer for the "Gillette." Accept no substitute. He can procure it for you.

**WARNING!** The Gillette Patent No. 775,134 covers all razors having a thin detachable blade requiring means for holding and stiffening, but not requiring stropping or honing by the user. Beware of infringements!

Write to-day for our interesting booklet which explains our **30-DAY FREE TRIAL OFFER**. Most dealers make this offer; if yours does not, we will

**GILLETTE SALES CO.,** 42d Street & Broadway, 1107 Times Building, **NEW YORK**

**Gillette Safety Razor**

**COATES' FLEXIBLE SHAFT**

Transmits from 1/2 H.P. up to 150 H.P.—backwards as well as forward—without losing its flexibility. Write to-day for Bulletin 19. **COATES CLIPPER MFG. COMPANY, WORCESTER, MASS. U.S.A.**

# Scientific American Christmas Number

DECEMBER 16, 1905

32 Pages 50 Illustrations

Colored Cover

**PRICE TEN CENTS**

The Christmas Number of the **SCIENTIFIC AMERICAN** will be most attractive. The cover in three-color printing represents the Triumphs of Peace; and is appropriate to the season.

Among the interesting articles are:

**OIL IN THE SOUTHWEST.** A Great Industry.  
**FLYING MACHINES.**  
**KORYAKS OF SIBERIA.** An Article on an Unknown People.  
Double-page plate showing the vessels which have been added to the Japanese Navy as a result of the war.

**ROOSEVELT DAM.** For Irrigation.  
**DIAGRAM OF PARTS OF AUTOMOBILE.** An illustration which Names Every Part of an Automobile.  
**MARINE ANIMALS.** Composite Animals.  
**RADIUM CLOCK.** Runs for Thousands of Years.  
**A NEW LIFE FLOAT.**

Many other articles and items of interest will be published.

Order of your Newsdealer or of the Publishers,

**MUNN & COMPANY, 361 Broadway, New York**

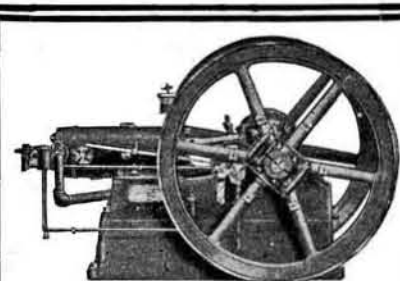
Tire, non-puncturable, Davison & Logan...	805,591
Tire shrinking machine, cold, S. N. House	805,798
Tire, vehicle, Allen & Poyser.....	805,434
Tires, device for relieving pressure on motor vehicle, J. C. Wands .....	806,089
Tires, means for inflating rubber, Lavertine & McNellan .....	805,474
Tires of motor vehicles, jack for relieving pressure on pneumatic, J. C. Wands...	806,088
Tires to rims of wheels, means for securing pneumatic, S. Smith .....	806,013
Tobacco bag nozzle, M. Granat .....	806,084
Tobacco package, chewing, A. Marschner.	805,806
Tomato scaler, Clark & Terry .....	805,632
Tool, pneumatic, J. F. Clement.....	805,633
Tool, pocket, J. T. Rosenheimer.....	805,486
Tooth fastening for bridgework, artificial, T. H. Whiteside .....	806,034
Torpedoes, etc., igniting mechanism for air, W. T. Unge .....	806,024
Toy, musical, D. Howe .....	805,727
Toy pistol, F. Campbell .....	806,063
Trace attaching member, A. K. Baltezer ..	805,704
Track bracket, G. A. Swineford .....	806,020
Track laying machine, Bennett .....	805,623
Track laying machine, McCabe & Steen ..	805,848
Traveling bag, telescope, A. B. Sprague ..	805,680
Trolley base, H. R. Lockhart .....	805,568
Trolley wheel, A. H. Mathesius .....	805,572
Truck, car, J. Taylor .....	806,022
Truck frame and pedestal, car, Wright & Stebbins .....	805,940
Tubing, flexible, Sussman & Wilner.....	805,825
Turbine, elastic fluid, W. S. Elliott.....	806,072
Turbine, steam, Bryant & Bery .....	805,523
Twisting apparatus, yarn, A. E. Rhoades ..	805,752
Twyer plate for Bessemer converters, McDonald & Morgan .....	805,931
Type casting and setting machine, J. R. & G. A. Pearson .....	805,580
Typewriter ribbon spool, H. M. Colvin.....	805,634
Typewriter type cleaner, S. C. Callaway ..	806,062
Typewriter machine, F. W. Hillard.....	805,856
Umbrella, W. G. Hoffman .....	805,857
Umbrella handle, M. J. Aches .....	805,615
Umbrella lock, F. A. Wilson .....	806,040
Vaginal irrigator, M. Vidaver .....	805,826
Valve, F. L. Smith .....	805,677
Valve, H. G. Ginaca .....	805,850
Valve, automatic safety check, T. L. Stewart .....	805,498
Valve gear mechanism, F. Lamplough.....	805,562
Valve, reversing, O. Hove .....	805,726
Valve rod and wrist pin connection, A. Skofrud .....	805,587
Valve, rotary, R. L. Donaldson.....	805,531
Vaseline, preparation of water soluble, F. Boleg .....	805,443
Vehicle body, H. H. Rice .....	805,668
Vehicle, motor, W. D. Lowe .....	805,740
Vehicle wheel, E. Cantono .....	805,528
Vehicle wheel, G. Schram .....	805,673
Vehicle wheel, Glaser & Olsen .....	806,080
Vehicles, apparatus for settling dust raised by motor, S. S. Stitt .....	805,824
Vessel, collapsible, W. M. Fulton .....	805,720
Vessels, means for stopping the motion of, E. P. A. Villette .....	805,688
Vise, T. Hadden .....	805,792
Visible and audible signal, J. L. Creveling.	805,714
Washer, See Gas washer .....	805,596
Washing machine, L. D. Thornburgh .....	805,617
Watering apparatus, stock, W. M. Anderson	805,922
Well plunger, tubular, E. R. Lockwood....	806,039
Wells, electric heater for oil, Williamson & Collins .....	805,837
Wheel, R. A. Boyer .....	805,823
Wheel rim, vehicle, E. Wheeler .....	805,527
Whimtree coupling, A. J. Burger .....	805,476
Whip attachment for horse powers, T. J. Leigh .....	805,817
Whistle, W. A. Pardee .....	806,065
Winder, C. N. Childs .....	805,628
Windlass, tree felling, H. Buttner .....	805,440
Window, O. A. Bingham .....	805,565
Window, B. J. Leslie .....	805,549
Window frame and sash, metallic, S. F. Hicks .....	805,853
Window frames, doorways, etc., fixture for, A. H. Hank .....	805,495
Window screen, M. Solmson .....	805,977
Window screen, C. W. Mattern .....	805,932
Wire, barbed, C. O. Neubauer .....	805,724
Wire cutting mechanism, N. S. Harter.....	805,705
Wire rope clamp, C. H. Billman .....	805,666
Wire splicer and tightener, Regnier & Hamby .....	805,473
Wire stretcher, J. Lambert .....	805,926
Wire stretcher, splicer, and tightener, combined, W. D. Miller .....	805,858
Wood, machine for graining and otherwise ornamenting, H. C. Johnson .....	805,466
Wooden and other surfaces, compound for finishing, F. Huerbein .....	805,506
Wrench, Warren & Preston .....	805,793
Wrench, J. P. A. Hanlon .....	805,946
Wrench, A. L. Crittenden .....	806,061
Wrench, J. W. Butler .....	805,827
Wrench and pipe cutter, F. Minck .....	805,735
X-ray tube, J. E. Heinze, Jr. ....	805,912
Yarn, etc., apparatus for testing and registering the degree of inequality of, E. Herzog .....	805,912

DESIGNS.

Can top, sheet metal, H. O. Hyatt.....	37,700
Fabric, textile, A. Guelle.....	37,701
Fabric, textile, P. Mouton .....	37,703
Fabric, textile, J. F. C. Dehle .....	37,704
Spoons, forks, or similar articles, handle for, G. C. Laue .....	37,699
Type, font of, C. Schraubstaeter.....	37,705

TRADE MARKS.

Ale, C. H. Evans & Sons .....	47,951
Bay rum tablets, C. S. Maschal .....	47,924
Beer, Indianapolis Brewing Co. ....	47,960
Belt dressing, bar, New York Leather Belt-ing Co. ....	47,886
Binders, loose leaf, Sieber & Trussell Mfg. Co. ....	47,911
Bleaching and washing linens, compounds for, Roessler & Haessler Co. ....	47,940
Bone black, Michigan Carbon Works ..	47,905
Bonnets and hat frame, materials used for, Stadelcker & Emsheimer .....	47,888
Boots and shoes, leather, Geo. D. Witt Shoe Co. ....	47,896
Boots and shoes, leather, M. Hessberg ..	47,897
Bracelets, lockets, and brooches, miniature, Wightman & Hough Co. ....	47,890
Cabinets for manufacturing account books, National Cash Register Co. ....	47,850
Candy, S. T. Hopkins .....	47,881
Cards, playing, New York Consolidated Card Co. ....	47,853
Chain blocks for hoisting machinery, J. G. Seidel .....	47,912
Cigarette paper, A. A. Kohary .....	47,900
Cleaning, scouring, and polishing compounds, Sel-on-Site Manufacturing Co. ....	47,917
Coats, pants, overalls, and blouses, Larned, Carter and Co. ....	47,849
Corsets, Bay State Corset Co. ....	47,874
Corsets, Kops Bros. ....	47,883
Cotton piece goods, Massachusetts Cotton Mills .....	47,884
Crackers and cakes, Independent Baking Co.	47,922
Dentrifrices, L. W. Dutro .....	47,950
Electric conductors, flexible conduit for, Alhambra Manufacturing Co. ....	47,973
Electric motors and generators, dynamo, Sprague Electric Co. ....	47,913
Envelopes, A. Plant .....	47,907
Fabrics for suitings for men and boys, cloth, T. Oakes & Co. ....	47,974
Fabrics for walls and ceilings, decorative, Fr. Beck & Co. ....	47,975
Fabrics, woolen and worsted, R. F. Shaen ..	47,887
Fish, salt, W. H. Lord .....	47,954
Foods, bird, Brookman Manufacturing Co.	47,945
Gage glasses, Schaeffer and Budenberg Mfg. Co. ....	47,916
Games, card, United States Playing Card Co. ....	47,854
Gin, G. W. Meredith .....	47,936



## I. H. C. Gasoline Engines

will be found the very best and the most economical for use in  
**Blacksmith Shops, Repair Shops, Small Machine Shops, Private Work Shops, Experimental Plants, Manual Training and Industrial Schools, Private Water Supply, etc.**

Suitable also for all kinds of pumping. They are strong, simple, highly efficient and easy to operate. They are economical of fuel and develop the maximum of horse power at the minimum cost. They require but little room and no piping. Variety of sizes and styles: **Horizontal-6, 8, 10, 12, 15 Horse Power. Vertical-2, 3, 5 Horse Power.** You should know more about the "I. H. C." engines before investing. Do not, therefore, buy an engine of any kind before seeing our catalog. Write to-day. We will mail it promptly.

**International Harvester Company of America**  
(Incorporated)  
7 C Monroe Street, Chicago, Ill.

You need this knife on your automobile, in the shop and in your home.

**A Veritable Pocket Tool Chest**

**9 TOOLS IN 1**

**The Wonder of the Age**

Built as substantially as a locomotive.

Weighs no more than an ordinary three blade pocket knife. Stag horn handle. In addition to the blade, which is made from 85 carbon cutler's steel, contains the following tools:

- 1, Leather Punch
- 2, Swedging Awl
- 3, Wire Cutter
- 4, Wire Pliers
- 5, Alligator Wrench
- 6, Hook Hook
- 7, Screw Driver
- 8, Screw Bit

Cuts barbed fence wire as easily as an ordinary 8-inch plier. Hook lock is of great value as a packing hook around the engine. The tools are needed almost every day, and in tinkering around your home the knife will be an invaluable pocket companion.

**AGENTS WANTED**

Remit \$1.25 for sample to-day. Your money back if not satisfied.

This Knife for an Inventor or in a Model Shop is a Genuine Luxury

**DEVINE SPECIALTY CO.**

**88 Baldwin Building**

**INDIANAPOLIS, IND.**

REFERENCE: Columbia National Bank.



### The Ardrey Vehicle Washer

**SAVES 75 Per Cent.** labor and time when washing autos, carriages, wagons or sleighs. As easy to wash vehicles in winter as in summer. Hands do not come in contact with water. Mittens or gauntlets may be worn, they will not get wet.

**AN IDEAL CHRISTMAS GIFT.**

Made of solid brass. Fits any ordinary hose. Water constantly flowing through sponge immediately removes dirt and grit. Impossible to injure most delicate finishes.

Every washer warranted. Money back if not satisfactory. Prepaid \$5.00. Booklet free for asking.

**ARDREY VEHICLE WASHER COMPANY,**

**181B Main Street, Rochester, N. Y.**

88 Baldwin Building

REFERENCE: Columbia National Bank.

88 Baldwin Building

INDIANAPOLIS, IND.

REFERENCE: Columbia National Bank.

88 Baldwin Building

INDIANAPOLIS, IND.

REFERENCE: Columbia National Bank.

88 Baldwin Building

INDIANAPOLIS, IND.

REFERENCE: Columbia National Bank.

88 Baldwin Building

INDIANAPOLIS, IND.

REFERENCE: Columbia National Bank.

88 Baldwin Building

INDIANAPOLIS, IND.

REFERENCE: Columbia National Bank.

88 Baldwin Building

INDIANAPOLIS, IND.

REFERENCE: Columbia National Bank.

88 Baldwin Building

INDIANAPOLIS, IND.

REFERENCE: Columbia National Bank.

88 Baldwin Building

INDIANAPOLIS, IND.

REFERENCE: Columbia National Bank.

88 Baldwin Building

INDIANAPOLIS, IND.

REFERENCE: Columbia National Bank.

88 Baldwin Building

INDIANAPOLIS, IND.

REFERENCE: Columbia National Bank.

88 Baldwin Building

INDIANAPOLIS, IND.

REFERENCE: Columbia National Bank.

88 Baldwin Building

INDIANAPOLIS, IND.

REFERENCE: Columbia National Bank.

88 Baldwin Building

INDIANAPOLIS, IND.

REFERENCE: Columbia National Bank.

88 Baldwin Building

INDIANAPOLIS, IND.

REFERENCE: Columbia National Bank.

88 Baldwin Building

INDIANAPOLIS, IND.

REFERENCE: Columbia National Bank.

88 Baldwin Building

INDIANAPOLIS, IND.

REFERENCE: Columbia National Bank.

88 Baldwin Building

INDIANAPOLIS, IND.

REFERENCE: Columbia National Bank.

88 Baldwin Building

INDIANAPOLIS, IND.

REFERENCE: Columbia National Bank.

88 Baldwin Building

INDIANAPOLIS, IND.

REFERENCE: Columbia National Bank.

88 Baldwin Building

INDIANAPOLIS, IND.

# Leading Books on Metals and Alloys

**BLINN**—Practical Workshop Companion for Tin Sheet-Iron and Copperplate Workers. 170 illustrations. \$2.00.  
**BRANNI**—The Metal Worker's Handy Book of Receipts and Processes. 631 illustrations, 550 pages, \$2.50.  
**BRANNI**—The Metallic Alloys. With an Appendix on the Coloring of Alloys and the Recovery of Waste Metals. 34 engravings, 554 pages, \$4.50.  
**KIRK**—The Cupola Furnace. Construction and Management of Foundry Cupolas. 73 engravings, 490 pages, \$3.50.  
**LANGBEIN**—Complete Treatise on the Electro-Deposition of Metals. 6th Edition. 140 engravings, 590 pages, \$4.00.  
**LARKIN**—Practical Brass and Iron Foundry's Guide. Brass Founding, Moulding. The Metals and Their Alloys. 334 pages, \$2.50.  
**RICHARDS**—Aluminum. Its History, Occurrence, Properties, Metallurgy and Applications, including Its Alloys. 44 engravings, 702 pages, \$5.00.

The above books sent by mail, free of postage, at the publisher's prices to any address in the world.  
 An elaborate circular of each of the above books will be sent to any one in any part of the world who will apply.  
**HENRY CAREY BAIRD & CO.**  
 Industrial Publishers, Booksellers and Importers  
 810 Walnut St., Philadelphia, Pa., U. S. A.

# Don't Waste Time

Have your regular 'phone correspondents in a bunch for quick and easy reference. Get the **Automatic Telephone Card Index** which can be attached to your 'phone in a minute. Has enough space for the names of 170 firms, alphabetically arranged in a handsome aluminum case. The cards are quickly removed and are out of sight, except when you want them. Cards plainly indexed. Pull out the letter you want. When through, let go, and it returns to its place automatically. Splendid advertising scheme to give to customers. Name and business printed on both sides, in quantities.

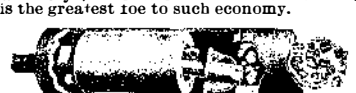
Price 50 Cents, sent postpaid.  
**AUTOMATIC CARD INDEX CO.**  
 Dept. A. 327-331 Bleeker St., Utica, N. Y.

**49 CENTS**  
**POCKET ELECTRIC FLASH LIGHT**  
 For sale only, regular \$1.50 kind, best made, lasts longest. Express prepaid, 15c extra. New batteries, each 20c; postage extra, 7c. Send for complete Electrical Catalog and get's discounts. Dept. 303 THE Y.M.C.A. 69 E. Lake St., Chicago.

**Whitewash Your Factory at Lowest Cost**  
 With a Progress Universal Spraying Machine. One man can apply white-wash, calcimine or cold water paint to 1,000 square feet of factory wall in ten hours, and do better work than with a brush. It is also adapted for spreading disinfectants, destroying insect pests and diseases on trees, vegetables and other plants, extinguishing fires, etc. This machine costs only \$16.50 and lasts a lifetime. It pays for itself the first year. Write for detailed description.  
**Dayton Supply Co., Dayton, Ohio.**

**Our Sectional Filing Cabinet FOR Blue Prints and Electrotypes**  
 is built in sections so sections may be added from time to time as required. We also carry a full line of various styles of Draughting Tables, Blue Print Frames, etc.  
 Send for Catalogue or ask your jobber,  
**Fritz & Goeldel Mfg. Co., 97 Alabama St., Grand Rapids, Mich.**

**EPAGE'S PHOTO PASTE IN JARS AND TUBES.**  
 For photo or general use. Dries quickly—never discolors print. Very strong—corners will not curl. Largest bottle now sold for 5c. (By mail, 7c.) In bulk for large users, custom work, etc.  
**EPAGE'S MUCILAGE**  
 3oz. size retails 5c.; by mail, 7c.  
**EPAGE'S GLUE**—1 oz. jar, 5c.; by mail, 7c.; 4oz. bottle, 15c.; by mail, 17c.  
**CO., 139 Essex Avenue, Gloucester, Mass.**

**Boiler Room Economy**  
 is what every power-user tries to maintain. Boiler scale is the greatest foe to such economy.  
  
 The Dean Boiler Tube Cleaner is the only mechanical device that removes scale and removes it all. And scale can be removed only by mechanical cleaning. We send the Dean Cleaner for free trial. Write for booklet "Boiler Room Economy," which tells all about it.  
**THE WM. B. PIERCE CO.**  
 319 Washington Street, Buffalo, N. Y.

**60 YEARS' EXPERIENCE**  
**PATENTS**  
 TRADE MARKS, DESIGNS, COPYRIGHTS & C.  
 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.

Gin, Albert M. Gugenheim Co.	47,969
Glass chimneys, lantern globes, and reflectors, Gill Brothers Co.	47,934
Glass vessels for table use, Cambridge Glass Co.	47,970
Grain drills and seeders, Van Brunt Mfg. Co.	47,918
Hats, Boegher, Force & Goodbar Hat Co.	47,891
Hooks and eyes, Peet Bros.	47,906
Knitted hosiery, underwear and sweaters, Knoxville Knitting Mills Co.	47,882
Lozenges, New England Confectionery Co.	47,885
Malt extract for brewers' use, Indianapolis Brewing Co.	47,959
Malt extracts and peptonized malt foods, A. Lieber	47,953
Medicinal preparation for catarrh, asthma, hay fever, and lung troubles, Doctor Blosser Co.	47,920
Medicines, blood and nerve, L. C. Geiser	47,923
Medicines for stomach and bowel troubles and rheumatic pains, G. G. Norris' Sons	47,921
Mineral waters, French Lick Springs Hotel Co.	47,879
Molasses, P. Duff & Sons	47,949
Moth bags, T. Manahan	49,904
Moth paper and moth bags, T. Manahan	47,903
Moth sheets and bags, M. E. Manahan	47,902
Olive, C. Gulden	47,952
Overalls, coats, jumpers, and trousers, Brattleboro Overall Co.	47,892
Paints and supplies, certain named, Standard Varnish Works	47,851
Paints, ready mixed, Geo. D. Wetherill & Co.	47,895
Peanuts, Garcia & Maggini	47,976
Pellets, worm, W. H. Comstock Company	47,963
Pepper sauce, D. C. Danove	47,948
Pins, safety, Consolidated Safety Pin Co.	47,893
Pipe cutters, metal, Barnes Tool Co.	47,914
Plasters, C. A. Staab	47,957
Popcorn and candied popcorn, C. M. Waite	47,964
Preparation for diseases of the mucous membrane and brine, Marveline Company	47,955
Quinin, Reessler & Hasselacher Chemical Co.	47,962
Remedy for asthma and asthmatic diseases, W. R. Warner & Co.	47,965
Remedy for certain named diseases, Antikamnia Chemical Co.	47,939
Rope, cord, and twine, C. Bailey & Son	47,931
Saleratus, bicarbonate of soda, and sal-soda, Church & Dwight Co.	47,947
Soap, toilet, F. G. Burke	47,877
Soaps, laundry, toilet, and shaving, F. L. Falck & Co.	47,878
Soda, Hulman & Co.	47,968
Soda, saleratus, and baking powder, bicarbonate of, Church & Dwight Co.	47,946
Sugar, syrup, molasses, and glucose, Goyer Alliance Refining Co.	47,966
Suspenders and braces, Harris Suspendor Co.	47,880
Tin, oxid of, Reessler & Hasselacher Chemical Co.	47,925
Tobacco extracts for insecticides, Kentucky Tobacco Product Co.	47,961
Tobacco, plug cut, plug, and smoking, J. G. Dill	47,848
Tonic, Valley Chemical Co.	47,930
Trees, nursery grown plum, Albough Nursery and Orchard Co.	47,852
Underwear and underwear, Ferris Bros. Co.	47,889
Underwear and hose, Lawrence Manufacturing Co.	47,901
Varnishes, David B. Crockett Co.	47,915
Vehicles, children's hand and foot propelled, General Wheel Co.	47,894
Whiskies, Edgewood Dist'g Co.	47,971
Whisky, Cavanagh & Co.	47,919
Whisky, Star Distillery Co.	47,927
Whisky, Calhoun Distilling Co.	47,932
Whisky, Charles Denney & Co.	47,933
Whisky, M. Kirschbaum	47,935
Whisky, Mueller, Wathen & Robert	47,937
Whisky, L. Nelson	47,938
Whisky, H. Varwig & Son	47,941
Whisky, Wm. Heischer & Co.	47,942
Whisky, D. Wolf & Son	47,943
Whisky, Monheimer & Co.	47,956
Whisky, Roxbury Distilling Co.	47,972
Whisky, rye and bourbon and all kinds of, S. C. Herbst	47,967
Yeast, Snyder Yeast Co.	47,958

**LABELS**

"Borala Powder," for a medicine, J. A. Begy	12,501
"Columbia Malt Whisky," for malt whisky, Flegenhimer Bros.	12,514
"Crested Rye," for rye whisky, Flegenhimer Bros.	12,515
"Eden Garden Remedy," for medicine, A. E. Nelson	12,500
"Esselmann Frame for Quality," for frames, Geo. Esselmann Co.	12,519
"Excelsior Surfacing Solution for Draftsmen and Bookkeepers for Use After Making Erasures," for a surfacing solution, A. H. Stow	12,517
"Gingo-Blackberry," for blackberry brandy, Flegenhimer Bros.	12,512
"La Pampas," for cigars, J. Knecht	12,503
"Magne Co. Cocktails," for cocktails, Flegenhimer Bros.	12,510
"Medico Gin," for Holland gin, Flegenhimer Bros.	12,511
"Moravian Rugs," for rugs, R. Deutsch	12,499
"Mother's Kisses," for candy, Saginaw Kiss Co.	12,508
"Owatonna Vichy," for mineral water, Minnesota Chemical Co.	12,498
"Peacock Brand," for syrup, Southern Syrup Co.	12,509
"Perfection, Guaranteed Nine Months Old," for beer, F. H. Horlacher	12,513
"Pulmo Rock and Rye," for rye whisky, Flegenhimer Bros.	12,518
"Ruberoil Roofing," for roofing, Standard Paint Co.	12,506
"Salada, 15 cents, Black," for tea, P. C. Larkin	12,504
"Salada, 15 cents, Ceylon and India Green Tea," for tea, P. C. Larkin	12,505
"Salada, 20 cents, Black," for tea, P. C. Larkin	12,507
"Salada, 20 cents, Ceylon and India Green," for tea, P. C. Larkin	12,502
"Sheffners Sure Cure," for medicine, Sheffner-Hayes Medicine Co.	12,520
"The Ideal Chamber Organ Orgue de Salon," for organs, Art Organ Company	12,516
"Togo," for a cleaning fluid, O. B. Smith	

**PRINTS.**

"Buob & Scheu's Order Chart for Propeller Tops," for propeller tops, Buob & Scheu	1,502
"Clothes of Quality," for clothing, M. Wile & Co.	1,495
"Dr. Cole's Yellow Dragon Vitalizer," for medicine, A. L. Cole	1,497
"Dr. Williams' Fly & Insect Destroyer," for insecticide, F. Williams Co.	1,498
"Front View of the Ideal Seed Cabinet," for seed cabinets, Planters Seed Co.	1,499
"Neurilla," for medicine, Dad Chemical Co.	1,496
"Rear View of the Ideal Seed Cabinet," for seed cabinets, Planters Seed Co.	1,500
"The Federal Lithograph Co., Furniture Poster," for furniture, Federal Lithograph Co.	1,501
"The Federal Lithograph Co., Shoe Poster," for shoes, Federal Lithograph Co.	1,494

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.

**COOPER'S**  
**Spring Needle RIBBED UNDERWEAR**  
 Appeals to Men of Fine Habits in Dress.  
 It is particularly elegant and easy-fitting. It is made of the remarkably elastic Spring Needle fabric, which is knitted on machines of our own invention and manufacture. This peculiar elasticity is the source of the utmost  
**COMFORT AND SATISFACTION.**  
 It prevents the usual bagging and disagreeable non-elastic stretch. Cooper's underwear from first to last maintains the same rich, silky feel and easy, comfortable and natural fit.  
 Union and two-piece suits in all weights and sizes—silkatene, cotton and wool.  
 Handsome Booklet on request.  
**COOPER MFG. CO., Bennington, Vt.**



**Electricians**  
 American School of Correspondence, Chicago, Ill.

**LET US BE YOUR FACTORY**  
 WRITE FOR ESTIMATE ON ANY ARTICLE YOU WANT MANUFACTURED  
**STAMPINGS, MODELS, EXPER. WORK**  
 WRITE FOR FREE BOOKLET  
**THE GLOBE MACHINE & STAMPING CO.**  
 970 Hamilton St., Cleveland, O.

**THE POSTAL TYPEWRITER CO.'S**  
 FACTORY AT NORWALK, CONN.  
 is Equipped to do Experimental Work, Tool Making and Manufacturing. Inventions Developed. Very Best Work Guaranteed. Correspondence Solicited.

Men and boys wanted to learn **PLUMBING TRADE**, pays \$5 a day after completing course of practical instruction at home or in our schools. Graduates admitted to Union and Master Plumbers' Association. Positions secured. **COYNE BROS. CO. PLUMBING SCHOOLS**, 239 Ninth Avenue, New York. St. Louis, Mo. Cincinnati, O. Free catalog.

# Inspector General of Forests WESTERN AUSTRALIA

Applications for above position addressed to Public Service Commissioner, Perth, W. A., will be received up to 1st March, 1906. Applicants must have a thorough knowledge of scientific and practical forestry in connection with both hard and soft woods, as well as the administrative ability and experience necessary to undertake the charge of the Forestry Branch of the Lands and Surveys Department.  
 Salary £750. Appointment to be for one year with an undertaking if services prove satisfactory to place the successful applicant permanently under the Public Service Act.  
 An allowance will be made toward cost of transit to Perth.  
**M. E. JULL,**  
 Public Service Commissioner.

**ICE MACHINES** Corlies Engines, Brewers' and Bottlers Machinery. **THE VILSTER MFG. CO.** 899 Clinton St., Milwaukee, Wis.

**MODELS & EXPERIMENTAL WORK.**  
 Inventions developed. Special Machinery.  
**E. V. BAILLARD.** 24 Frankfort Street, New York.

**RUBBER** Expert Manufacturers Fine Jobbing Work  
**PARKER, STEARNS & SUTTON,** 228-229 South St., New York

**EXPERIMENTAL WORK** Scientifically and accurately executed. Models and small machinery perfected. **STENDICE & VOLKMER**, 61 Fulton Street, Telephone 5655 John.

**MODELS & GEARS** INVENTIONS PERFECTED  
**UNION MODEL WORKS**  
 193 So. CLARK ST. CHICAGO.

**PATENT FOR SALE**  
**Fireproof Skeleton Flooring**  
 American Patent No. 764,772 and Canadian Patent 94,653  
**S. W. BERGLUND, Drottningatan 54, Stockholm, Sweden.**

**MODELS & CHICAGO MODEL WORKS**  
 179 E. MADISON ST. CHICAGO, ILL.  
 ESTABLISHED 1867. WRITE FOR CATALOGUE OF MODEL SUPPLIES.

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

Are you interested in Patents, Model or Experimental work? Our booklet entitled **WHAT WE DO—HOW WE DO IT** will be sent to you on request.  
**KNICKERBOCKER MACHINE WORKS, Inc.,**  
 8-16-12 Jones Street, New York.

**MAKE MONEY**  
 Giving Moving Picture Entertainments. Free catalogue No. 1. **EUGENE CLINE & CO.,** Dearborn and Randolph Streets, Chicago.

**Telegraphy**  
 Circular free. Wonderful automatic teacher. 50 styles \$2 up. **OMNIGRAPH CO.,** Dept. 69, 400 Broadway, New York.

**Train Inspection**  
 On the Lake Shore & Michigan Southern Ry.  
 At every division terminal all Lake Shore trains are inspected with the greatest care by a corps of skilled inspectors. No train is permitted to leave until every portion of it has undergone a most rigid examination for any defective part or place.  
 The clang of the hammer on the wheel, the flare of the torch searching out the dark places beneath the car are familiar objects to Lake Shore travelers, but few understand the exacting requirements of train inspection or the added safety it brings.  
 Night and day this unceasing watchfulness goes on.  
 There is nothing superior in America in travel facilities to those afforded by the Lake Shore & Michigan Southern Railway.  
 For information about your travel matters, address the undersigned.  
**C. F. DALY,**  
 Passenger Traffic Manager, Chicago, Ill.  
**A. J. SMITH,**  
 General Passenger Agent, Cleveland, G.



**AUTO STORAGE BATTERIES**  
 ALL KINDS  
**THE WILLARD STORAGE BATTERY CO., CLEVELAND, O.**

**Send for this**  
 Print your own cards, circulars, etc. Press \$5. Small newspaper press \$18. Money saver. Print for others, big profits. Typesetting easy, printed rules sent. Write to makers of catalog presses, type paper, etc. **THE PRESS CO., MERIDEN, CONN.**

**EXCELLENT OPPORTUNITY**  
 Live agents are making \$5.00 a day and upward selling **FORD'S A. L. WOOD** Air-Tight Weather Strip. Easily applied to doors and windows. Reduces coal bills. Terms and samples FREE.  
**CHAS. J. FORD, 225 Senior Building, Holyoke, Mass.**

**A MONEY MAKER**  
 Hollow Concrete Building Blocks. Best, Fastest, Simplest, Cheapest Machine. Fully guaranteed.  
**THE PETTYJOHN CO.**  
 615 N. 6th Street, Terre Haute, Ind.