

may be rapidly carried on and the books delivered from the machine in a strong and neatly finished condition.

ATTACHMENT FOR CLEANING COTTON-GIN SAWS.—H. J. FITZPATRICK, Athens, Ga. Gin-saws must always be dry, and in ginning wet or green cotton the saws become clogged.

Musical Devices.

SELF-PLAYING PIANO.—H. MEYER, New York, N. Y. The object of the invention is to provide a piano arranged to insure accurate playing of the keys and with the proper touch and expression and to allow the use of a single note-sheet containing a number of pieces of music.

MUSIC-LEAF TURNER.—E. R. ELDRIDGE, Sumter, S. C. In the operation of this improvement the folio is placed upon the support with the back thereof engaged by clasps, and the individual leaves are engaged with jaws of the turning arms.

Prime Movers and Their Accessories.

ROTARY ENGINE.—A. GLADIE, New York, N. Y. This invention pertains to certain improvements in rotary engines adapted to be operated by steam, compressed air, or other fluid under pressure.

PUMP.—W. Y. CRUIKSHANK, Freeland, Pa. This invention relates to pumps, and especially to rotary lift-pumps. The object is to construct a pump of the class described having an improved arrangement of the vanes whereby the efficiency of the pump will be much increased.

Railways and Their Accessories.

CAR-REPLACER.—W. Cook, Hoboken, N. J. In this instance the invention relates to car-replacers, such as used for replacing derailed trains upon the track. The object of the improvement is to produce a device of this kind which can be readily set in position and which will be reversible in its nature.

HAND-CAR.—J. W. FINCH, Elizabeth, Miss. In operation when the rock-lever is rocked upon its bearings the parallel arms are rocked about a counter-shaft, and since the stub-shaft is rigid with the pitman and a gear-wheel is rigid with the stub-shaft, another gear-wheel which meshes with the first one is constrained to rotate and carries the counter-shaft therewith at a much higher speed than were the parallel arms secured directly to the counter-shaft and acting thereon as a crank-arm.

Pertaining to Recreation.

FISHING-REEL.—G. W. BLACKBURN, Sarasota, Fla. The principal objects in this case are to provide reels with an improved friction-drag, with an automatic stop, with means for setting the drag for any desired pull, with a locking device to prevent the nut of the reel-post from working loose, and with other advantageous features without using any screws on the face of the device to injure the hands or any washers to wear out or clog.

Designs.

DESIGN FOR A HAND-BAG, PURSE, OR SIMILAR ARTICLE.—F. D. KAHN, New York, N. Y. The design in this case shows a hand-bag or purse suspended by a ring-linked chain. The form of the bag keeps well within the usual lines, yet exactly represents a sitting "Teddy Bear."

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



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.

(10487) W. T. H. writes: In your reply to C. B. R. of March 16, page 239 (10437), you state in your closing sentence that "some" people "habitually use the right and others the left eye at their ordinary work."

(10488) J. J. G. writes: Referring to query No. 10426, issue of March 16, second question: A claims that in foggy weather, when smoke descends to the ground, the atmosphere is light and will not support the smoke.

(10489) C. E. B. asks: 1. Is it theoretically possible to get as much work out of a permanent magnet as it takes to magnetize it? For instance, suppose a certain magnet takes 100 foot-pounds of work to magnetize it, and suppose further that the work done by this magnet at one lift is 1-10 foot-pound.

Star Lathe advertisement featuring an illustration of a lathe and text: "Star" Lathe, Automatic Cross Feed, FOR FINE, ACCURATE WORK.

Engine and Foot Lathes advertisement: MACHINE SHOP OUTFITS, TOOLS AND SUPPLIES. BEST MATERIALS. BEST WORKMANSHIP. CATALOGUE FREE.

Foot and Power and Turret Lathes, Planers, Shapers, and Drill Presses. SHEPARD LATHE CO., 133 W. 2d St. Cincinnati, O.

Veeder Counters advertisement: to register reciprocating movements or revolutions. Cut full size. Booklet Free. VEEDER MFG. CO., 18 Sargeant St. Hartford, Conn.

THE CLIPPER CLIP advertisement: Its triangular shape prevents entangling and gives three times the capacity of any other clip for attaching papers together. Best & Cheapest. All Stationers. CLIPPER MFG. CO., 401 West 124th St., New York, U.S.A.

TOOLS FOR MECHANICS. Send for Free Catalogue No. 16 B. The L. S. Starrett Co., Athol, Mass., U. S. A.

A Chain Drill advertisement: that is built right—not only in spots, but all the way through. It has a three-jawed chuck for holding round shank drills 0 to 1/2 inch.

THE B. F. BARNES 14-INCH DRILL advertisement: is adapted for work from 1-16 inch to 1/2 inch. A strong, substantial, well built drill. Plain lever or power feed as desired.

FRICITION DISK DRILL FOR LIGHT WORK. Has These Great Advantages: The speed can be instantly changed from 0 to 1800 without stopping or shifting belts.

MOTSINGER AUTO-SPARKER advertisement: starts and runs Gas Engines without Batteries. No other machine can do it successfully for lack of original patents owned by us.

BARKER MOTORS advertisement: Reliable.—1/4 to 10 H. P.—Economic! Their perfect operation and reliability are due to common sense mechanical ideas and good construction.

Curtiss Airship Motors advertisement: 7 H. P., 50 Pounds. All extras ready to install. Now used by every successful aeronaut.

Pipe Cutting and Threading Machine advertisement: For Either Hand or Power. This machine is the regular hand machine supplied with a power base, piston, countershaft, etc., and can be used as an ordinary power machine or taken from its base for use as a hand machine.

Graygood Hydraulic SHOCK ABSORBER advertisement: Write for booklet telling why and giving our unique guarantee—the only real guarantee given with any shock absorber. Graham & Goodman, Sole Mfrs., 55 W. 93d St., N. Y.

because it is heavier than the air at the time, without taking time to cool and take on water drops by condensation. Nor can the cooling of the smoke be by conduction as stated above, but by radiation into the air, since neither air nor carbon is a conductor of heat.

(10489) C. E. B. asks: 1. Is it theoretically possible to get as much work out of a permanent magnet as it takes to magnetize it? For instance, suppose a certain magnet takes 100 foot-pounds of work to magnetize it, and suppose further that the work done by this magnet at one lift is 1-10 foot-pound.

(10490) F. A. McD. writes: Referring to your answer to query No. 10428, for a process for electro-plating with aluminium, in your issue of March 16, I beg to refer you to Prof. Richards's book on "Aluminium," the last edition of which contains several formulas for this deposition, and is, I believe, a more reliable volume in this connection than the one you mention, Watt's "Electrodeposition."

INDEX OF INVENTIONS For which Letters Patent of the United States were Issued for the Week Ending March 26, 1907.

Table listing various inventions and their patent numbers, including: Acids, bromin derivative of fatty, E. Fischer 848,230; Addressing machine, A. E. Grapp 848,546; Adjustable table, E. Kohler 848,469; Air, moistening, H. Bentz 848,340; Air, regulating the temperature of, Mandeville & Walker 848,341; Air ship, G. C. Schwabek 848,595; Alumina and alkali sulfur salts manufacture of, A. Clemm 848,612; Ammunition case, G. Schwarz 848,500; Amusement apparatus, E. A. Smith 848,061; Anastomotic clamp, G. F. Roosevelt 848,126; Animal trap, J. M. Dubois 848,295; Annunciator, D. H. Coker 848,535; Apron supporter, J. G. Kountz 848,470; Armored plate, E. Gathmann 848,024; Automobile wheel, E. C. Phillips 848,046; Awning, P. & W. Walger 848,216; Axles, nut retainer for vehicle, O. F. Jordan 848,176; Bag attachment, L. McCann 848,481; Baling press, J. S. Tuttle 848,411; Baling press, C. E. Wehrenberg 848,420; Baling press plunger, G. Schubert 848,054; Baling presses, self feed mechanism for, J. S. Tuttle 848,413; Ball cover clamp, base, F. A. Brusseau 848,097; Bank, pocket, J. B. Weir, et al. 848,218; Bank, pocket coin, W. P. Harvey 848,302; Battery plate, W. G. C. Krause 848,559; Bearing, adjustable, E. S. Clough 848,224; Bed, sofa, G. E. Holmes, et al. 848,305; Beer or other beverage cooler, J. Eitel 848,228; Belt stretcher and tightener, A. Y. Foltz 848,300; Bicycle attachment, J. H. Sager 848,324; Bin. See Storage bin 848,082; Binders, alarm attachment for self, L. J. Phillips 848,491; Binding device, temporary, A. G. Hoelscher 848,242; Blasting machine, electrical, L. W. Bowman 848,153; Bleaching cabinet, W. E. Strong 848,138; Blower and suction device, Brown & Dahl 848,343; Bobbin stop mechanism, R. H. Cook 848,013; Bobbin stop, twister, R. H. Cook 848,012; Body conformer, C. Munter 848,479; Boiler cleaning device, multitubular, J. Alexander 848,082; Boilers, means for promoting circulation in steam, S. J. Ross 848,496; Bomb for coyotes, J. N. Gasset 848,454; Book, combination check, M. H. Berry 848,429; Books, etc., file, J. H. Horwitz 848,245; Book manufacturing machine, Marvin & Vessey 848,563; Boot tree and stretcher, F. A. MacKenzie 848,038; Boots and shoes, long tooth finder for cutters for edge trimming machines for, G. E. Fuller 848,097; Boring or milling cutters, manufacturing, J. G. Matthews 848,112; Bottle and the like closure, T. C. Booth 848,152

SORE THROAT Hydrozone

To prove the Efficiency of
to Sore Throat Sufferers, I will send One 25 Cent Bottle Free to anyone mentioning this paper and sending 10 cents to pay postage and packing. Hydrozone is a harmless germicide, indorsed and successfully used by leading physicians. Not genuine without my signature on label. Ask for Booklet on Treatment of Diseases. Sold by Leading Drug-gists.

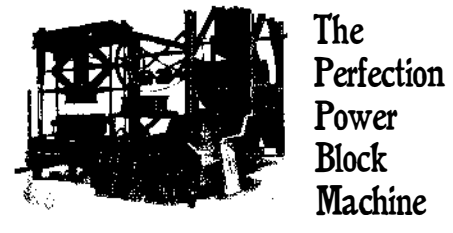
Prof. Charles MacLeod

Dept. U, 63 Prince Street, New York



THE
National
Runabouts, Touring Cars
and Limousines

The NATIONAL is always popular because it gives perfect satisfaction in the HANDS OF THE OWNER.
National Engines have Ball-Bearing Crank-Shafts and Cam-Shafts. Hence, their wonderful power.
Model F, 4 cyl., 40 H.P. Model H, 4 cyl., 50 H.P.
Model L, 6 cyl., 75 H.P.
NATIONAL MOTOR VEHICLE CO.
1019 E. 22d Street, Indianapolis, Ind.
Members American Motor Car Mfrs. Assn., N. Y.



The
Perfection
Power
Block
Machine

Makes Hollow Concrete Building Blocks. Perfect form, uniform size and quality. Concrete accurately measured, mixed by power under pressure over 100 tons.
Full Details, List of Machines in Operation, on Application.
THE PERFECTION BLOCK MACHINE CO.
321 Kasota Bld., Minneapolis, Minn.

GAS ENGINE DETAILS.—A VALUABLE and fully illustrated article on this subject is contained in SUPPLEMENT No. 1292. Price 10 cents. For sale by Munn & Co. and all newsdealers.

An Exhausted Storage Battery

is as bad as no battery at all when your automobile or motor boat is "stalled" miles from home. The machine equipped with an **Apple Battery Charger** has an inexhaustible source of current. The charger keeps the batteries full of the kind of current that is best for ignition purposes. Write today for complete information.
The Dayton Electrical Mfg. Co., 98 St. Clair St., Dayton, Ohio

Publish Post Cards AND MAKE 300 PER CENT. PROFIT

Buy from the Manufacturer and save all Middlemen's Profits. We make Post Cards exclusively for you from any size Photo or Print you send us and deliver them in 10 days' time and guarantee not to use your subjects for anyone else. Hand colored cards a specialty. Send for samples and terms.
RICH PHOTO-PROCESS CO.
Dept. 37 25 East 23d Street, New York

The Strelinger Marine Engines
lead in every point of Excellency. Unexcelled in Durability. Challenge comparison with any other make in material and workmanship. Mechanical or Jump Spark equipment. Our 1907 prices will interest you. Write for our new Catalog and Price List.
THE STRELINGER MARINE ENGINE CO.
48 Fort St., East, Detroit, Mich.

LEARN Mount Birds
Free
and animals. Fascinating work for Men, Women and Boys. Quickly learned in your own home. Satisfaction guaranteed or no tuition fee. Save your time and specimens. Decorate home and den. Highly profitable business or side line. Fine catalog and taxidermy magazine free. Write today. N. W. School of Taxidermy, 90 R. Omaha, Neb.

Fish Will Bite
Like Hungry Wolves, all the season if you use **Magic Fish Lure**. Most wonderful bait ever discovered for attracting all kinds of fish. If you like to pull out the finny beauties right and left, and catch a big string every time you go fishing, don't fail to try this wonderful bait. Sent by mail prepaid for 25 cents. Perfect satisfaction or money returned. Full particulars and Catalog Free Address: E. G. REDDY, Desk 3319 Oregon Ave., St. Louis, Mo.

Exerciser for felices, W. E. Smith..... 848,136
Exercising machine, A. J. Thornley..... 848,272
Expansion coupling, E. B. Freeman..... 848,234
Explosive charges device for inserting, R. Torras..... 848,512
Extension table, B. G. Foster..... 848,233
Fare register, W. I. Ohmer, et al..... 848,262
Farm gate, S. D. Beum..... 848,222
Farm implement, L. E. Hull..... 848,306
Faucet, J. A. Desrosiers..... 848,088
Feed operating mechanism, H. L. Jeffries..... 848,553
Feed regulating mechanism, boiler, W. Lou-
don..... 848,476
Feeder and waterer, poultry, A. Rees..... 848,492
Fence machine, wire, A. F. Backlin..... 848,526
Fence stay, wire, W. R. Allyn..... 848,555
Fence stretcher, M. E. Johnson..... 848,375
Fertilizer and lime distributor, J. M.
Early..... 848,540
Fire escape, C. L. Garland, et al..... 848,235
Fire kindler, T. D. Bausher..... 848,150
Fire shield, D. S. Watson..... 848,583
Firearms, extractor for, V. A. Obregon..... 848,198
Fish cutting and dressing machine, E. G.
DeLoe..... 848,450
Fishing rod, E. Holzmann..... 848,243
Floor brushing and waxing machine, C. B.
Wattles..... 848,275
Floor scraper, D. E. Dampman..... 848,160
Floor surfacing machine, A. Poelke..... 848,322
Fluid joint, flexible, C. G. Hawley..... 848,169
Font, J. M. Thomas..... 848,069
Food to fish and land animals, apparatus
for supplying, H. S. Hale..... 848,101
Foot rest, H. F. L. Brooks..... 848,435
Fracture apparatus, S. G. Hubbell..... 848,173
Frame and handle structure, S. B. Feuer-
stein..... 848,020
Fruit cleaning apparatus, F. Z. Corey..... 848,350
Furnaces, burner block as applicable to,
Bacon & Nelson..... 848,426
Fuse, safety, Steinmann & Schoenelen..... 848,326
Game apparatus, F. P. de Grandchamp..... 848,168
Game apparatus, G. A. Huben..... 848,371
Game board, base ball, W. T. De Walt..... 848,351
Game, educational, E. Berg..... 848,232
Gas burner, H. H. Hipwell..... 848,367
Gas burner, W. W. Cozins..... 848,444
Gas machine, acetylene, R. H. Walter..... 848,331
Gas producer, W. R. Miller..... 848,118
Gasket and holder therefor, C. S. Hawley,
et al..... 848,549
Gear for reversing mechanism, variable
speed, W. H. Herstmann..... 848,244
Gear, friction draft and buffing, T. L.
McKeen..... 848,260
Gearing, friction, C. B. Hatfield..... 848,593
Generator, See Steam generator.
Geographical locator, S. F. Enos..... 848,019
Goods, apparatus for processing packages,
E. K. Hood..... 848,033
Goods separating device, A. G. Wallace..... 848,582
Grain, apparatus for the rapid determina-
tion of the moisture content of, Brown
& Duvel..... 848,616
Grapple, J. K. Flynn..... 848,231
Hat pin, R. I. Pryce-Jones..... 848,048
Harrow, H. V. & N. W. Abbott..... 848,525
Harvester and binder shocker attachment,
grain, J. Ostrum..... 848,199
Harvester buncher, pea, Tolton & Conner..... 848,071
Harvester, corn, J. E. Waggoner..... 848,009
Harvesting device, beet, G. R. Watson..... 848,089
Harvesting machine, beet, J. L. & M. H.
Webb..... 848,217
Hasp fastener, C. L. Bailey..... 848,527
Hat frame machine, A. Kindermann..... 848,467
Hay rake, horse, E. D. Bond..... 848,532
Heating, electric, S. S. Eveland..... 848,163
Hoisting apparatus, V. R. Browning..... 848,287
Hoisting system, electric, Ihler & Scott..... 848,372
Horse detacher, J. E. Nilsson..... 848,388
Hose, metallic, E. T. Greenfield..... 848,235
Hose reel, L. A. Grimsrud..... 848,595
Hot air furnace, H. P. Fish..... 848,543
Hot air heater, J. E. Albinson..... 848,220
Hydrant or fire plug, C. E. Cotton..... 848,014
Incubator heating system, J. V. Lindsey..... 848,313
Indicating mechanism, J. H. Forsythe..... 848,232
Indicator, C. Versteeg..... 848,519
Inhaler, G. A. Thiede..... 848,579
Insect trap, C. W. Pelton..... 848,125
Insulating clamp, T. E. Lee..... 848,473
Insulating material for electrical purposes,
production of, J. Meyenberg..... 848,117
Insulator pin and support therefor, L. Stei-
nberger..... 848,506
Internal combustion engine, F. A. Hasel-
wander..... 848,029
Jack, W. Umstead..... 848,516
Joiner's clamp, A. Kruger..... 848,036
Key fastener, A. A. Svensen..... 848,067
Keyboard for type writing machines and
pianofortes, J. H. Landenbach..... 848,471
Ladder, folding, P. A. M. Lanier..... 848,108
Ladder, gymnastic, F. M. Hart..... 848,144
Ladder, step, M. E. Trafton..... 848,513
Ladder, store, W. Fickett..... 848,021
Lamp, acetylene generating, E. Wichter..... 848,074
Lamp, convertible gas and oil, M. S.
Thorud..... 848,070
Lamp jack, F. Conrath..... 848,443
Lamp suspension device, electric, C. Smart..... 848,573
Lantern, foot actuated, F. C. Lyon..... 848,184
Latch, H. Tysinger..... 848,515
Latch, door, C. Husemann..... 848,034
Lath, tool holder, R. E. Colton..... 848,470
Leather and making same, F. E. Peral..... 848,357
Leather finishing composition and making
same, W. W. Crooker..... 848,445
Leaves, treatment of, G. R. McGahan..... 848,386
Lenses, manufacturing bifocal, J. Wimmer..... 848,335
Lever operating mechanism, vibrating, L.
Onderdonk..... 848,263
Lifter and carrier, W. F. Peeler..... 848,124
Lifting jack, A. E. Schocke..... 848,499
Lifting jack, E. C. Yeager..... 848,624
Lightning arrester, H. Pearson..... 848,945
Lime hydrating machine, P. C. Porrester..... 848,358
Linotype machine, D. S. Kennedy..... 848,308 to
848,310
Linotype machine, R. M. Bedell..... 848,338
Linotype machine, R. G. Clark..... 848,349
Lister, planter, and roller, combined, M.
Brown..... 848,154
Loading frame, W. Lichte..... 848,474
Loading manure, earth, gravel, etc., de-
vice for, J. C. S. & H. R. Rumsey..... 848,128
Locomotive buffer beam, J. B. Barnes..... 848,427
Locomotive tender and tank car frame, C.
H. Howard..... 848,369
Locomotives, etc., apparatus for holding con-
necting rod brasses for, M. & H. E.
Morton..... 848,192
Locomotives, etc., shaper for crowning and
finishing driving boxes on, M. & H. E.
Morton..... 848,190
Logotype machine, D. Petri-Palmedo..... 848,318
Loom shuttle box, J. Bin..... 848,002
Lubricating device, W. Scott..... 848,056
Lubricating system, G. Crowell..... 848,446
Lubricators, means for filling, E. C. Jordan..... 848,246
Machine recorder, automatic, R. A. Wood..... 848,149
Mail assorting table, C. A. Kendall..... 848,466
Mail bag catcher, G. H. Nichols..... 848,196
Mail transportation system, E. S. Upright..... 848,517
Manufacturing tool, C. Bailey..... 848,337
Manufacturing pad and holder, W. F. Beck,
reissue..... 12,624
Marking gage for rules, C. Nielsen..... 848,387
Mattress, M. Brown..... 848,437
Measuring wheel, tailor's, E. G. Agnell..... 848,966
Medical apparatus, electric, C. Van Bergh..... 848,518
Merry-go-round and teeter, combination, J.
W. Arney..... 847,997
Metal working apparatus, J. R. Blakeslee,
Jr..... 848,284
Metal working tools, manufacturing, H. H.
Dierig..... 848,161
Metals, production of homogeneous bodies
from tantalum or other, M. von Pirani..... 848,600
Middlings purifier, G. T. Smith..... 848,404
Mill, See Rolling mill.
Milling machine, W. Schenk..... 848,052
Mold for sash weights, etc., W. S. Myers..... 848,480
Molten or semimolten materials by means
of electricity, maintaining or increasing
the fluidity of, F. Wynne..... 848,422
Motors and generators, brush holder for,
J. Lindall..... 848,182
Mower, lawn, A. Hill..... 848,551
Multiple fabric, G. D. Moore..... 848,121
Music leaf turner, F. W. McNeil..... 848,599



Life Insurance Essentials

PREMIUM RATES: Low; commensurate with absolute safety.
LIBERAL POLICIES: Every proper freedom and benefit to Policyholder.
SIMPLICITY: The Prudential Policy has all privileges, options, and values plainly set forth.
SECURITY: A founda-

tion principle of all Prudential contracts.
GOOD ADMINISTRATION: The Prudential has always kept ahead of the times. Integrity, Honesty and Economy characterize the Administration.
DIVIDENDS: Liberal Dividend returns to Policyholders.

Send for booklet by Alfred Henry Lewis, "My Conversion to Life Insurance" and information of Policy at your age. Dept. 121

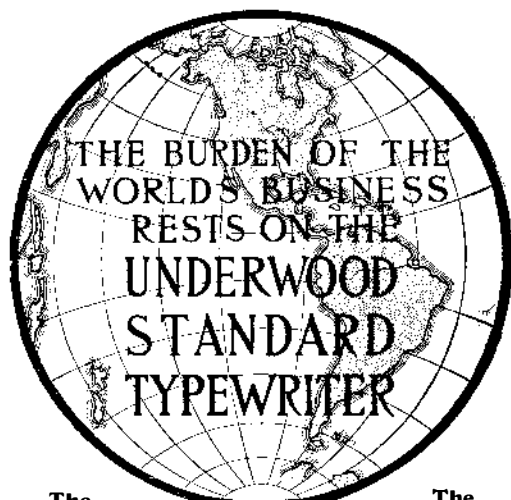
The Prudential

INSURANCE COMPANY OF AMERICA
Incorporated as a Stock Company by the State of New Jersey
JOHN F. DRYDEN, President. HOME OFFICE: Newark, N. J.

Cement Reinforced Concrete Concrete Building Blocks

SCIENTIFIC AMERICAN SUPPLEMENT 1543 contains an article on Concrete, by Brysson Cunningham. The article clearly describes the proper composition and mixture of concrete and gives the results of elaborate tests.
SCIENTIFIC AMERICAN SUPPLEMENT 1538 gives the proportion of gravel and sand to be used in concrete.
SCIENTIFIC AMERICAN SUPPLEMENTS 1567, 1568, 1569, 1570, and 1571 contain an elaborate discussion by Lieut. Henry J. Jones of the various systems of reinforcing concrete, concrete construction, and their applications. These articles constitute a splendid text book on the subject of reinforced concrete. Nothing better has been published.
SCIENTIFIC AMERICAN SUPPLEMENT 997 contains an article by Spencer Newberry in which practical notes on the proper preparation of concrete are given.
SCIENTIFIC AMERICAN SUPPLEMENTS 1568 and 1569 present a helpful account of the making of concrete blocks by Spencer Newberry.
SCIENTIFIC AMERICAN SUPPLEMENT 1534 gives a critical review of the engineering value of reinforced concrete.
SCIENTIFIC AMERICAN SUPPLEMENTS 1547 and 1548 give a resumé in which the various systems of reinforced concrete construction are discussed and illustrated.
SCIENTIFIC AMERICAN SUPPLEMENTS 1564 and 1565 contain an article by Lewis A. Hicks, in which the merits and defects of reinforced concrete are analyzed.
SCIENTIFIC AMERICAN SUPPLEMENT 1551 contains the principles of reinforced concrete with some practical illustrations by Walter Loring Webb.
SCIENTIFIC AMERICAN SUPPLEMENT 1573 contains an article by Louis H. Gibson on the principles of success in concrete block manufacture, illustrated.
SCIENTIFIC AMERICAN SUPPLEMENT 1574 discusses steel for reinforced concrete.
SCIENTIFIC AMERICAN SUPPLEMENTS 1575, 1576, and 1577 contain a paper by Philip L. Wormley, Jr., on cement mortar and concrete, their preparation and use for farm purposes. The paper exhaustively discusses the making of mortar and concrete, depositing of concrete, facing concrete, wood forms, concrete sidewalks, details of construction of reinforced concrete posts, etc.
SCIENTIFIC AMERICAN SUPPLEMENT 1372 contains an article by A. D. Elbers on tests and constitution of Portland cement.
SCIENTIFIC AMERICAN SUPPLEMENT 1396 discusses the testing of cement.
SCIENTIFIC AMERICAN SUPPLEMENT 1325 contains an article by Professor William K. Hatt giving an historical sketch of slag cement.
SCIENTIFIC AMERICAN SUPPLEMENTS 955 and 1042 give good accounts of cement testing and composition, by the well-known authority, Spencer W. Newberry.
SCIENTIFIC AMERICAN SUPPLEMENTS 1510 and 1511 present a discussion by Clifford Richardson on the constitution of Portland cement from a physico-chemical standpoint.
SCIENTIFIC AMERICAN SUPPLEMENT 1519 contains an essay by R. C. Carpenter on experiments with materials which retard the activity of Portland cement.
SCIENTIFIC AMERICAN SUPPLEMENTS 1465 and 1466 publishes an exhaustive illustrated account of the Edison Portland cement works, describing the machinery used.
SCIENTIFIC AMERICAN SUPPLEMENT 1491 gives some fallacies of tests ordinarily applied to Portland cement.
SCIENTIFIC AMERICAN SUPPLEMENT 1561 presents an excellent review by Brysson Cunningham of mortars and cements.
SCIENTIFIC AMERICAN SUPPLEMENT 1533 contains a resumé of the cement industry and gives some valuable formulae.
SCIENTIFIC AMERICAN SUPPLEMENT 1575 discusses the manufacture of hydraulic cement. L. L. Stone is the author.
SCIENTIFIC AMERICAN SUPPLEMENTS 1587 and 1588 contain an able paper by Edwin C. Eckel on cement material and industry of the United States.
SCIENTIFIC AMERICAN SUPPLEMENT 1586 contains a review of concrete mixing machinery by William L. Larkin.
SCIENTIFIC AMERICAN SUPPLEMENT 1583 gives valuable suggestions on the selection of Portland cement for concrete blocks.
SCIENTIFIC AMERICAN SUPPLEMENT 1581 splendidly discusses concrete aggregates. A helpful paper.
SCIENTIFIC AMERICAN SUPPLEMENT 1595 presents a thorough discussion of sand for mortar and concrete, by Sanford E. Thomson.

Each number of the Supplement costs 10 cents. A set of papers containing all the articles above mentioned will be mailed for \$3.50
Order from your Newsdealer or from
MUNN & CO., PUBLISHERS, 361 BROADWAY, NEW YORK CITY



The Machine that Revolutionized Type-writer Making



The Machine that Makes a New Speed Record at Every "National Business Show"

Send for Speed Record of March 21, 1907

UNDERWOOD TYPEWRITER COMPANY NEW YORK OR ANYWHERE

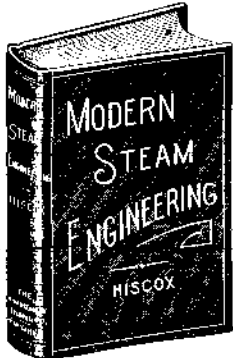
JUST OFF THE PRESS!

Modern Steam Engineering in Theory and Practice

By GARDNER D. HISCOX, M.E.

Price \$3.00

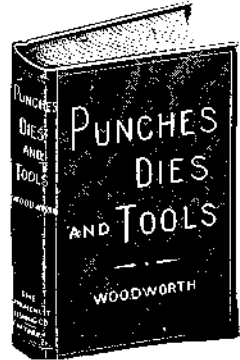
This is a complete and practical work of 487 pages, dealing with the care and management of Boilers, Engines, Pumps, Superheated Steam, Refrigerating Machinery, Dynamometers, Elevators, Air Compressors, and all other branches with which the modern Engineer must be familiar. It fully describes and illustrates the properties and use of steam for the generation of power in the various types of engines in use. Slide Valve, High-Speed Corliss Compound, Multi-expansion engines and their valve gear, the De Laval, Parsons, Curtis and other Turbines are included and fully described and illustrated. Forty-two tables of the properties and application of steam in its various uses are included, which in themselves form a most valuable and instructive section of the work. Nearly two hundred Questions with their Answers on Steam and Electrical Engineering likely to be asked by the Examining Board are included. These if studied by you will help you to procure a license. This book is thoroughly reliable and practical, and not only a guide but a teacher. As a text book it is the latest and best authority on the subject. It is fully illustrated with detail engravings, not to be found elsewhere.



Punches, Dies and Tools for Manufacturing in Presses

By JOSEPH V. WOODWORTH

Price \$4.00

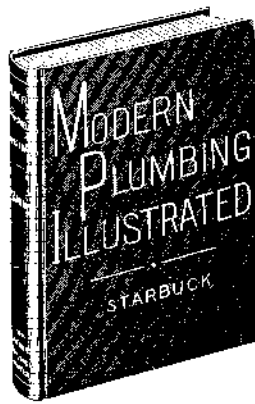


A practical work of 500 pages fully illustrated by nearly 700 engravings, being an encyclopedia of Die Making, Punch Making, Die Sinking, Sheet Metal Working, and Making of Special Tools. Sub-Presses, Devices and Mechanical Combinations for Punching, Cutting, Bending, Forming, Piercing, Drawing, Compressing and Assembling Sheet Metal Parts and also Articles of other Materials in Machine Tools. Two Hundred and Ten Processes are clearly described and fully illustrated. This work is a companion volume to the author's elementary work entitled "Dies, Their Construction and Use." Nothing appears in this volume that has already been published in the author's previous work on "Dies."

Modern Plumbing Illustrated

By R. M. STARBUCK Price \$4.00

A comprehensive and up-to-date work illustrating and describing the Drainage and Ventilation of dwellings, apartments, and public buildings, etc. The very latest and most approved methods in all branches of sanitary installation are given. Adopted by the United States Government in its sanitary work in Cuba, Porto Rico, and the Philippines, and by the principal boards of health of the United States and Canada. 380 pages. 55 full page illustrations.

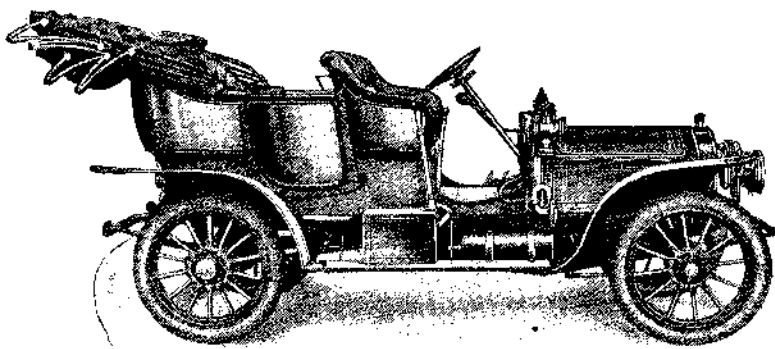


A special circular describing these books sent on request. Any of these books sent prepaid on receipt of price.

MUNN & CO., Publishers, 361 Broadway, New York

Table listing various mechanical parts and their prices, including Nail polisher, Nail puller, Nest, Nut lock, Oil burner, Pallet setting implement, Pen, Pencil, Photograph, Piano, and many others.

Costs Little To Run It



Stoddard=Dayton

A concern that enters the field of automobile manufacture and within three years passes well-established competitors like a steam launch distancing a cat-boat must put out a car that possesses qualities better than good. The STODDARD-DAYTON shot to the front among dependable machines as noiselessly as the car itself moves. While we have been busy increasing our capacity and filling fast multiplying orders, our cars—built for service—have moved into public favor. They have the bottom and stamina to keep there.

BUILT FOR SERVICE

The STODDARD-DAYTON is the car that is MADE good and the car that HAS made good

Those who own STODDARD-DAYTON cars are their warmest endorsers. In "Satisfaction," a book of tributes from car owners, Herbert L. White, North Tonawanda, N. Y., says: "I have run my STODDARD-DAYTON 6,500 miles and have had practically no repairs on it. It has been the cheapest machine from the standpoint of repairs I have ever had and to my mind is the leader of its class."

Model F-A 5-passenger touring car, 30-35 H. P., 4 vertical cylinders, cast in pairs, 4 1/2 x 5 inches. Selective type transmission, three speeds and reverse. Price, with full lamp equipment, \$2,500

Send for our illustrated 1907 STODDARD-DAYTON literature, Free to those interested.

THE DAYTON MOTOR CAR CO., DAYTON, OHIO

NOW READY

Industrial Alcohol

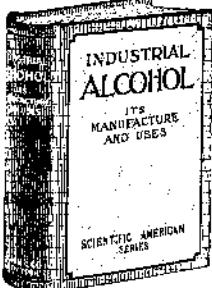
Its Manufacture and Uses A PRACTICAL TREATISE

BASED ON DR. MAX MAERCKER'S "INTRODUCTION TO DISTILLATION" AS REVISED BY DR. DELBRÜCK AND LANGE

Raw Materials, Malting, Mashing and Yeast Preparation, Fermentation, Distillation, Rectification and Purification of Alcohol, Alcoholometry, The Value and Significance of a Tax-Free Alcohol, Methods of Denaturing, Its Utilization for Light, Heat and Power Production, A Statistical Review, and The United States Law

By JOHN K. BRACHVOGEL, M. E.

528 Pages 105 Engravings Price, \$4.00



THE value and significance of a tax-free alcohol have been so widely discussed in the press and periodical literature of the entire country, that it is unnecessary to emphasize the great importance of the subject, especially to our agricultural and industrial interests. For years we have been far behind the nations of Europe in this regard, and in consequence our literature has been sadly lacking in authoritative works covering this phase of industrial activity. This book was designed with the especial purpose of filling this want, and it is the latest and most comprehensive work of its kind which has been published in this country.

It is based upon the researches and writings of the most eminent of Germany's specialists in the sciences of fermentation and distillation. It covers the manufacture of alcohol from the raw materials to the final rectified and purified product. An introductory section deals with the importance of the new law and what it means to the farmer and the manufacturer. Additional sections cover the methods of denaturing, domestic utilization of alcohol for heating and lighting purposes, alcohol as a fuel for power production, and a statistical review. The full United States law is given in an Appendix.

The 105 illustrations are of especial value and excellently supplement the text.

Few in number are those to whom this book would not prove of interest and value. The farmer, the manufacturer, the power-producer, the householder, will all find that denatured alcohol is of such importance to them, that its use and introduction will effect savings and economies which were hitherto impossible of accomplishment.

Send for Descriptive Circular.

MUNN & COMPANY, Publishers, 361 Broadway, New York

