



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 This is for our information and not for publication.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.

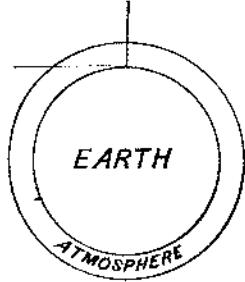
Special Written Information on matters of personal rather than general interest cannot be expected without remuneration.

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

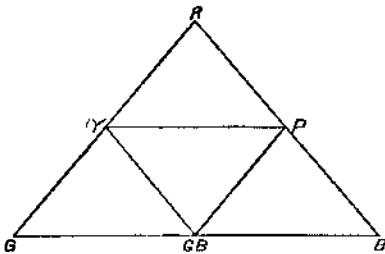
Books referred to promptly supplied on receipt of price.

Minerals sent for examination should be distinctly marked or labeled.

(9976) A. X. says: 1. Our text in physics says that a body in a vacuum on top of a mountain is lighter than it is in the morning. What is your opinion? A. This letter claims to come from a high school—from a scholar, we assume. It is written with a lead pencil, which no person should use in writing a letter, unless to a very intimate friend. There are errors in grammar. Even the word **physics** is misspelled. We have printed it as it is, with the hope that boys who read it may be stirred up to do better by seeing the mistakes of others. 1. There seems to be no sense in this question. What connection the "morning" has with the top of a "mountain" we are not able to see. A body weighs more on the top of a mountain than it does at the sea level at any time, since it is farther from the center of the earth on the mountain top. 2. Also in regard to this problem: They say that we receive more heat when the sun's rays



orange, and opposite yellow you get purple. A third triangle inside the secondaries produces the tertiaries, or to give them a name olive, russet, and citrine. Therefore purple is complementary to yellow in their relations as primary and secondary, but purple's harmony also is found in the tertiary, and that would be olive. I am open to contradiction with proof. A. When we gave the complementary color of purple as green we followed the best authorities as well as our own knowledge of the subject, based upon much experimental work. See Query #275, Vol. 90, No. 3. It is not a question of a triangle or color scheme, but one of fact. The color triangle must express the fact, or else it is so much the worse for the color triangle. Perhaps if you should begin with red, green, and blue as primary colors, as all scientific authorities agree to do, you might come out more correctly. If Root's "Modern Chromatics" is accessible to you, you will find in Chapter VI, page 164, the statement that green and purple are complementaries. Blue is the complementary of yellow, and not purple, as you give it. The triangle is then as follows:



(9978) G. L. asks: I would like to know if earthworms are a benefit or an injury to plants. A. Earthworms are mainly beneficial to plants by plowing up the soil, letting air into the roots of plants, and bringing the lower soil up to the surface. They also injure young plants by uprooting them, or drawing them into their holes. Darwin's book upon earthworms, which we furnish for \$1.50, covers a fine investigation into the useful work of this creature upon the soil.

INDEX OF INVENTIONS

For which Letters Patent of the

United States were Issued

for the Week Ending

May 8, 1906.

AND EACH BEARING THAT DATE

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

Acetylene generator, A. L. Eastman..... 820,103
Adhesives to paper, etc., machine for applying, J. G. Beattie..... 820,086
Agricultural implements, riding attachment for, N. H. Bloom..... 819,973
Air brakes, emergency cut-out cock for, F. H. Dukesmith..... 820,291
Air compressor, W. Readell..... 819,924
Alkaliminator, Gard & Lynn..... 820,189
Ammonia from gas, recovering, E. J. Duff..... 820,039
Amusement apparatus, F. J. Johnston..... 820,118
Amusement apparatus, C. D. Bunnell..... 820,346
Animal release mechanism, J. A. Taylor..... 820,270
Animal trap, P. Armstrong..... 819,833
Ans receptacle, pocket, L. D. Richardson..... 820,067
Auger, post hole, J. M. Derryberry..... 819,739
Automatic gate and door, R. R. Williams..... 819,831
Automatic press, H. A. Herr..... 819,996
Automobile, C. W. Duer..... 820,102
Awning, F. A. Learned..... 820,214
Awning, G. W. Russell..... 820,261
Axle, safety car truck, B. S. Bowman..... 820,175
Axle, vehicle, M. W. Heyenga..... 820,112
Axes and bodies, mechanism for connecting vehicle, J. F. Byers..... 820,179
Bagging and weighing machine, Sawyer & Fulford..... 819,930
Bale tie machine, A. E. Rhoades..... 819,925
Ball rolling machine, A. T. Saunders..... 820,139, 820,140
Band stripping machine, hydraulic, W. Evans..... 819,871
Basket, H. J. Gerner..... 820,107
Battery. See Dry battery.
Battery plate, O. H. Fay..... 820,040
Bearing cone, ball, C. Glover..... 819,753
Bearing, truck side, Bauer & Susemihl..... 820,172
Bed bottom, spring, C. D. Brouette..... 820,091
Bed spring, E. B. Preston..... 820,011
Bedclothes holder, J. T. Cowles..... 819,857
Belts, device for adjusting the tension of traveling conveying, W. M. Barnes..... 819,710
Bicycles, etc., driving mechanism for, J. S. Copeland..... 820,038
Binder, loose leaf, A. Opala..... 820,248
Binder, temporary, C. Keck..... 820,049
Boat, metallic, Mullins & Hare..... 819,784
Boats, automatic safety depth regulating valve for submarine or submersible, Spear & Bailey..... 820,372
Body bolster, S. M. Curwen..... 819,736
Book, copy, J. W. C. Gilman..... 819,877
Book holder, E. J. Myers..... 819,910
Book support, E. W. Barker..... 820,170
Boring bar, S. & F. P. Dyer..... 819,743
Bottle, L. A. Calboun..... 820,093
Bottle closing device, A. C. Witzel..... 820,032
Bottle heater, H. H. Waugh..... 820,029
Bottle indicator, W. H. Bixler..... 819,972
Bottle indicator, F. A. Erkovic..... 820,106
Bottle, non-refillable, S. C. Kindig..... 819,892
Bottle, non-refillable, J. De Haven..... 820,100
Bottle stopper fastener, J. A. Astarita..... 820,083
Bowl, casing, W. H. Kesselman..... 820,206
Box covering machine, J. Alger..... 820,166
Brake shoe, W. McMurray..... 820,244
Brake shoe, Hornsby & Weston..... 820,115
Brick molding and pressing machine, H. G. Morris..... 819,781
Bricks and artificial stone, mold for manufacturing, G. A. Gould..... 820,298
Briquetting machine, C. Demetrik..... 820,288
Brush, J. Schreiner..... 819,934
Brush, H. W. Gowen..... 820,299
Brush cleaner, paint and varnish, Alley & Sousa..... 820,081
Brush, hair, C. R. Uhlmann..... 819,960
Buckle, H. D. & C. F. Jacobson..... 820,307
Buffing roll, J. Bushfield..... 819,722
Bundle of flexible material, self-sealed, J. F. Craft..... 819,858
Bundling press, T. C. Dexter..... 819,740
Bundling press, Dexter & Cardell..... 819,741
Bundling press, T. C. Dexter..... 819,983, 819,984
Bung attachment, safety, O. F. Skinner..... 820,371
and by mixing the two primaries opposite red you obtain green, opposite blue you have

Burglar alarm, W. N. Fawcett.....	819,873	Fence post, M. J. Mullarkey.....	819,783
Burglar alarm, I. J. Neff.....	819,914	Fence post, J. W. Barnes.....	820,171
Bushing, split, R. Croasdale.....	819,932	Fence post, G. M. Jackson.....	820,190
Button, C. H. Lonsdale.....	819,897	Fence post, W. H. Kimball.....	820,207
Calcium oxide, reducing, T. L. Willson.....	820,031	Fence post, F. C. Schwem.....	820,318
Calculator, F. W. Bennett.....	819,715	Field or hunting flask, Burger & Aschenbrenner.....	820,347
Calculator, K. H. J. Marckwordt.....	820,226	File, blank check, Sheridan & Wheeler.....	820,069
Camera, hand, C. E. Pezenik.....	820,273	Filter, H. Tyrell.....	819,958
Can, jar, etc., W. B. Walker.....	820,006	Fire escape, H. A. Thomsen.....	819,896
Candle holder and stick, P. M. Knippenberg.....	820,209	Fire escape, D. M. McCathie, et al.....	820,241
Cane mill, sugar, M. R. Speiman.....	820,074	Fireplace, S. Bender.....	820,173
Cannon, smooth bore rotating, W. C. Heitkamp.....	819,995	Fireproof window frame and sash, F. W. Schaeffer.....	820,156
Car and brake, railway, R. F. Pierce.....	820,366	Fishing reel, G. W. Upton.....	819,810
Car brake beam, railway, S. A. Crone.....	819,145	Flat iron, F. Johnson.....	820,326
Car coupling, pivot pin retaining means for, R. E. L. Janney.....	820,048	Fly press, hydraulic, B. Gerda.....	819,761
Car door, C. W. Teft.....	820,153	Folding box, L. F. Hale.....	820,301
Car dump, E. S. Hart.....	820,020	Folding seat applicable for outdoor use, theaters, and other purposes, T. Briley.....	820,344
Car dumping, A. Meiden.....	820,046	Formates, making, J. Weise, F. Rieche, and A. Barth.....	820,159, 820,373
Car dumping, T. H. Stagg.....	820,006	Frog on crossing, C. C. Hardman.....	819,992
Car dumping, Sherman & McKelvey.....	820,024	Fruit cutting, pitting, and spreading device, A. M. Striplin.....	820,150
Car fender, E. A. Johnson.....	820,117	Fuel and making same, artificial, S. J. Hon.....	820,196
Car fender, J. C. Jorgensen.....	820,204	Fuel, apparatus for the combustion of pulverulent, A. Moore.....	820,235
Car fender, J. A. Sage.....	820,317	Fuel, utilization of pulverulent, A. Moore.....	820,236
Car fender especially adapted for street railways, M. S. Aisbett.....	820,228	Funnel, P. Epperson.....	820,353
Car fender, street, A. L. Mazzanovich.....	820,306	Furnace, F. W. Burger.....	819,849
Car, railway freight, Meissner & Yost.....	820,058	Furnaces, distributor for blast, A. B. Neumann.....	820,065
Car, railway freight, W. R. Mulock.....	820,240	Furniture, folding, W. N. Anderson.....	819,969
Car roof, O. Link.....	820,362	Furniture sections, connection for, A. McKenzie.....	819,913
Car seat, W. H. Heulings, Jr.....	819,757	Gage, See Skirt gage.....	
Car sliding doors, guide bracket for freight, C. B. Hale.....	819,754	Game apparatus, Novem & Sandberg.....	820,310
Car vestibule curtain, E. C. Holmes.....	820,195	Game board, A. G. Gedney.....	820,356
Carbureter, H. A. Burch.....	820,036	Game table, S. C. Roberts.....	820,367
Carriage curtain, C. W. Schreiter.....	820,264	Garment fastener, J. A. Knowlton.....	819,767
Cask, barrel, drum, and the like, A. Mauser.....	820,228	Garter, J. H. Beatty.....	820,380
Cask, metal, A. Holle.....	820,306	Gas cleaning machine, C. O. Nordenson.....	820,247
Cement block machine, J. J. Cox.....	820,098	Gas exhauster, J. T. Wilkin.....	819,830
Chain, C. W. Levally.....	820,219	Gas generator, acetylene, M. D. Compton.....	819,980
Chair, See Stair chair.....		Gas generator and mixer, Crawford & Sinclair.....	819,731
Cheese cutter, J. Halliday.....	820,302	Gases, process and apparatus for separating mixed, C. Clamond.....	820,283
Chuck, Schmid & Macomber.....	820,263	Gasolene motor, L. Petterson.....	820,010
Chuck, drill, S. A. Eiermann.....	819,744	Gate, J. S. Johnson.....	820,201
Churn, Garner & Henley.....	820,297	Gate, J. T. Rees.....	820,256
Churning machine, F. F. Russell.....	820,135	Gearing, H. Baerbaek.....	820,377
Cigar marker, A. Grueben.....	820,044	Glass apparatus for the manufacture of sheet, W. B. Keighley.....	820,205
Cigarette machine, W. T. Coalter.....	819,875	Glass assembled, clamp for holding plates of, H. Mahn.....	820,225
Clamp, A. O. Jones.....	819,887	Glass pot furnace and pot and making the same, W. T. Nichols.....	820,124
Cleaning implement, receptacle, P. H. Tallman.....	820,269	Glazier's point, R. J. Henderson.....	820,192
Cleansing apparatus, pneumatic, A. E. Moorhead.....	820,007	Glove or mitt, base ball, R. F. Le Mat.....	820,120
Clock, calendar, E. Terrell.....	819,950	Golf club, C. E. R. Martin.....	819,900
Clock or watch wheel, A. Bannatyne.....	819,708	Grading and excavating machine, S. H. Bloomer.....	819,843
Clothes line pin, Bryan & Sadler.....	820,177	Grain separator, Slutz & Lee.....	820,265
Clutch, friction, T. J. Kehoe.....	819,890	Grate bar, R. C. Monteagle.....	820,060
Coat, hat, and umbrella lock, R. H. Heberling.....	820,191	Gravity lock for sliding doors, L. A. Turner.....	820,271
Cock, bib, J. A. Stevenson.....	819,944	Greenhouse, C. Ickes.....	820,198
Coke, drawing, quenching, and conveying plant, H. E. Mann.....	819,899	Grinding machine, H. A. Higbee.....	820,193
Color lake and making same, violet, Kirchoff & Kerkoivius.....	820,052	Grip, J. Dunbar.....	820,292
Column and column cap, J. J. Tresidder.....	820,155	Gun, torpedo, E. L. Zalinski.....	819,834
Concrete block making machine, M. Rice.....	820,129	Hair fastener, Rogers & Dittmer.....	819,927
Concrete cistern molding form, J. H. Wiest.....	820,160	Hammock suspension supports, F. E. Schmidt.....	819,922
Concrete mold, Foster & Jones.....	820,188	Hammock swinging device, W. A. Kress.....	820,212
Condenser, W. W. Massie.....	820,363	Harrow, A. Friedmann.....	819,748
Condenser, jet, L. von Tresidder.....	820,325	Harrow, N. C. Allen.....	820,279
Confectionery coating machine, W. H. Weeks.....	820,030	Harvester, self-binding, A. N. Wiens.....	820,276
Conveyer, L. O. Miller.....	819,968	Harvesters, grain divider attachment for, C. A. A. Rand.....	819,797
Copy holder, stenographer's, A. B. Reid.....	820,066	Hay and straw puller, S. Ray.....	819,798
Corer, apple, C. F. Roberts.....	820,015	Heater, A. von Chigor.....	820,096
Cork extractor, W. H. Smith.....	820,022	Heating device, collapsible, J. G. Newcomb.....	819,916
Corks, attaching extractors to, W. H. Smith.....		Heating furnace, D. S. Richardson.....	820,130
Corn elevator, A. Otto, Jr.....	820,249	Heating system, F. Shirliff.....	820,320
Corn husking machine, O. Allen.....	820,329	Hoof pad for horseshoes, B. P. Gray.....	820,108
Cotton gin, P. F. King.....</			

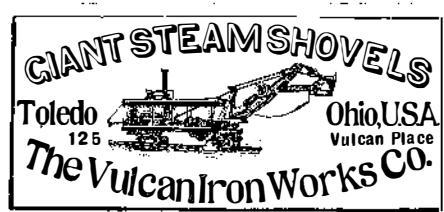


Engine and Foot Lathes

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

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

Foot and Power and Turret Lathes, Planers, Shapers, and Drill Presses. SHARPARD LATHE CO. 131 W. 2d St., Cincinnati, O.



44-60 East 23d Street, New York, N. Y. Grand Prize Highest Award, St. Louis, 1904.



The "ASTER" is the best French motor on the market for lighting houses, hotels, etc. Small, compact, simple and safe to operate. Motive power alcohol, oil or gas. 2 and 4 cylinders. Great power for small engines. Easy running. Write for illustrated Price List.

ASTER COMPANY
1591 Broadway
NEW YORK CITY

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.



WIRELESS TELEGRAPH
The "WIRELESS TELEGRAPH" is an electrical instrument, consisting of two parts, a transmitter and a receiver. It can be used for sending messages over distances up to one mile. Price \$125. Agents wanted. New Catalog of European and Amer. Elec. Novelties. EL ECTRO IMPORTING CO., 87 Warren St., New York

Low Round Trip Rates to Colorado and the Pacific Coast via Nickel Plate Road.

If you expect to make a trip to the Pacific Coast, Colorado, or any point in the West, Northwest or Southwest, do not overlook the extremely low rates, convenient through coach, sleeper and dining car service offered by the NICKEL PLATE ROAD, in connection with any route you may choose beyond Chicago. For full information call on or write A. W. ECCLESTON, D. P. A., 355 Broadway, New York City.



W. F. & JNO. BARNES CO.,
Established 1872.
1999 Ruby St., Rockford, Ill.

STEEL ROLLS

for flattening wire for all purposes

Send for Catalogue.
BLAKE & JOHNSON,
P.O. Box 1054, Waterbury, Conn.

THE B. F. BARNES
14-INCH DRILL
is adapted for work from 1-1/2 inch to 34 inch. A strong, substantial, well built drill. Plain lever or power feed as desired. We build a full line of Drills. All sizes furnished in Gangs. Also have 9-inch, and 11-inch Screw Cutting Lathes, and a 24x2 inch Wet Tool Grinder. Catalog S. on request.

B. F. BARNES COMPANY, Rockford, Ill. European Branch, 149 Queen Victoria St., London, E. C.

RELIABLE MARINE ENGINES

Reliability under all conditions is the characteristic of the "Lamb" Engines. Sizes from 1/2 to 100 H. P. in stock. Write for catalogue.

TERRY & CO.
Managers Eastern and Foreign Branch
92 Chambers St., New York

Everything for Boat & Engine

Milling cutters, magazine holder for, H. H. Vaughan	819,961
Mine gate, N. K. Bowman	820,090
Mixing device, S. E. Powell	820,254
Mold, O. M. Rice	820,014
Mold ramming machine, J. Poulsen	820,253
Mold top, W. H. Lucas	820,224
Molding apparatus, A. M. & M. J. Hewlett	819,883
Mop head and implement clamp, S. C. Lawlor	810,805
Mop head and wringer, combine, J. S. Shobe	820,145
Mop wringing machine, D. F. Myers	820,309
Mortar spreading machine, C. W. Fertick	820,042
Motor control system, H. R. Stuart	819,816
Motor control system, electric, H. D. Daus	819,738
Musical apparatus, mechanical, J. H. Dickinson	819,985
Musical instrument, P. Wuest, Jr.	820,079
Musical instrument, mechanical, P. Wuest, Jr.	820,080
Musical instrument support, E. S. Votey	819,962
Nut, lock, W. C. Matteson	819,902
Nut lock, J. Strack	819,947
Nut lock, J. E. Taylor	820,324
Nuts, manufacture of, O. Briece	819,844
Oar, L. E. Noble	819,792
Oil engine, J. W. Cross	820,285
Oil press mat, R. F. Werk	820,275
Optical instrument, Swasey & Fecker	819,948
Ore roaster, J. W. Boileau	820,088
Ore roasting furnace, I. Sanfilippo	820,138
Ore slimer, I. F. Monell	820,234
Oscillophone, W. W. Massie	819,779
Outlet or junction box, Sibley & Lutz	820,321
Packages, tool for fastening self-secured, J. F. Craft	819,859
Packer, G. A. Spang	820,149
Pad, See Hoof pad	
Panel switch and cut out, J. H. Trumbull	820,076
Paper bag making machine, T. P. Smith	820,071
Paper clip, A. G. Bowen	819,717
Paper clip, F. J. Klein	819,766
Paper cutting machine, A. Breidenberg	819,718
Paper rack, C. E. Gilbert	819,989
Pen, fountain, F. C. Brown	819,719
Pen rack, D. Campbell	820,094
Pendulum beat adjuster, E. W. Sartor	819,809
Phonograph horn, P. Weber	820,158
Phonograph horn support, extensible, J. K. Ziegengorn	819,966
Phonograph repeating attachment, E. L. Aiken	820,165
Piano key, J. Doyle	820,289
Pipe iron, breaking apparatus, C. L. Taylor	819,818
Pile fabric, woven, W. V. Lowe	820,083
Piping, metal, J. J. Harold	820,304
Pipe sections, guide for joining, H. W. Phillips	820,126
Pipe threading machine, Hock & Bernheim	820,114
Pipe wrench, E. M. Porter	819,795
Plane, A. O. Jones	819,888
Plane, J. D. Leffel	820,215
Planing machine, C. H. Amidon	820,330
Planter and marker, automatic check row corn, E. Hermon	820,305
Plate, pan, or pot lifter, W. L. Schaefer	820,141
Plow, W. G. Danielson	819,737
Plow, J. Q. A. Johnston	820,202
Plow attachment, F. Smith	820,147
Plow beam, R. T. Huggins	819,997
Plow, disk, M. Lundin	820,057
Plow, disk breaking, P. McFerson	820,242
Plow barrow attachment, J. L. Crisler	819,733
Plow point, J. L. Brinly	820,035
Pneumatic drill, H. Brousseau	820,345
Pole tip, T. Rowe	819,807
Post driving machine, L. H. Ketcham	819,764
Post hole digger, O. K. Neste	819,791
Powder for dusting patterns, F. Damhorst et al	820,099
Power transmission, Morris & Grim	820,122
Precious metals, recovering, J. A. Just	820,000
Press feeder, W. E. Tate	819,949
Printing, J. F. Bell	819,841
Printing and auditing machine, ticket, F. J. Wills	820,277
Printing machine, W. Scott	819,813
Printing machine, envelop, M. P. Kenna	819,763
Printing press, P. M. Randall, Jr.	819,923
Printing press, two revolution cylinder, B. F. Berry	819,716
Printing roller wrapping paper, machine for, H. Barnard	819,709
Pulley, guide, A. B. Ferdinand	819,874
Pulp wood chips, apparatus for assorting, N. M. Jones	819,889
Pump for wells, A. N. Ellis	819,986
Pump, steam, J. C. Dean	819,864
Punch or perforator, ticket, J. F. Ohmer	819,917
Radiator drain valve, F. A. Simonds	820,146
Rail holding means, J. G. Barrett	820,085
Rail joint, E. E. Hardman	819,882
Rail joint, W. M. Mears	820,229
Rail joint, L. M. Sober	820,268
Rail joint, A. H. Kramer	820,308
Rails, device for covering and protecting charged, G. Eggenof	820,186
Railway, Arnold & Smith	819,839
Railway cross tie, A. E. Caskey	819,725
Railway electric block signal, W. E. Sands	819,808
Railway paving plant, G. Merriman	819,904
Railway signal and safety system and apparatus, G. M. Schreiber	820,143
Railway switch, G. W. Snow	820,267
Railway tie, G. A. Belknap	819,840
Railway tie and rail fastening, metallic, C. Bubner	819,846
Railway tie, metal, G. W. Smith	819,941
Railway tie, metallic, C. Bubner	819,977
Railway tie, metallic, L. C. Sharp	820,085
Railway ties, reinforcement for concrete, H. E. Percival	819,919
Razor, safety, W. J. Moore	819,780
Razor, safety, L. B. Gaynor	819,987
Recording and adding machine, combined number, A. S. Dennis	819,865
Reel, See Fishing reel.	
Register clamp, T. Wensel	819,827
Resonance circuit, G. von Arco	820,160
Reversing switch, J. N. Anderson	820,331
Rivet cutter, H. H. Spanogle	820,073
Rock drill, Hellman & Bayles	819,756
Rock drilling machine, Hellman & Bayles	819,756
Rocking stand, F. Grindley	819,878
Rolling mills, coupling sleeve holder for the rollers of, W. Mulher	819,909
Roofing, paving, etc., composition for, E. J. Yetter	819,833, 820,162
Rotary engine, A. H. Carpenter	819,724
Rotary engine, A. F. Ford	819,747
Rotary engine, W. I. Phifer	819,920
Roundabout, G. Hermann	820,111
Rubber shoes, securing device for, C. A. Woolen	820,083
Saddletree, riding and driving, R. A. C. Russell	820,136
Safety pin, T. S. Carroll	821,382
Sash bar, J. P. Comstock	819,851
Sash lock, R. D. Logan	820,223
Sash locks and burglar alarm, combined, J. B. Ridge	819,804
Sashes, handle attachment for window, C. A. Merryweather	820,231
Saucepans, etc., appliance for use with, A. J. Smith	819,940
Saw guide, J. H. Perkins	820,312
Saw set, A. Fleming	819,745
Saw set, Shafer & Ruby	819,939
Saw set, H. Wise	820,161
Sawmill dog, A. A. De Loach	820,287
Scale, automatic weighing, H. Hager	819,881
Scale, stock rack, platform, Gumbel & Tyrrell	819,879
Scale, weighing, N. E. Tyrrell	819,059
Scales, sealing device for weighing, C. C. Neale	819,788
Screen, A. M. Gifford	819,876
Screw cutting plate, P. Backstrom	820,3
Sewage or like screen, F. Brunotte	819,720
Sewing machine, P. E. Schoen	819,811
Sewing machine cloth feeding mechanism, D. Flanagan	820,354
Sewing machine motor, H. R. Wellman	820,327
Sewing machine reel case, D. Flanagan	820,355
Sewing machine tension device, D. S. Drysdale	820,290

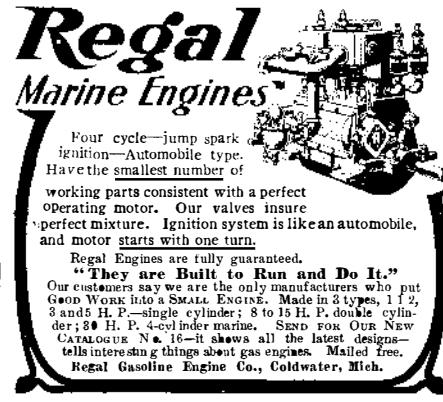
THE POSTAL TYPEWRITER CO.'S
FACTORY AT NORWALK, CONN.
is Equipped to do Experimental Work.
Tool Making and Manufacturing. Inventions Developed. Very Best Work
Guaranteed. Correspondence Solicited.

I Will Make You Prosperous

If you are honest and ambitious write me today. No matter where you live or what your occupation has been, I will teach you the Real Estate business by mail; appoint you Special Representative of my Company in your town; start you in a profitable business of your own, and help you make big money at once.

Unusual opportunity for men without capital to become independent for life. Valuable book and full particulars free. Write today.

EDWIN R. MARDEN, Pres't
National Co-Operative Realty Co., 1888 Alameda Rd., Chicago, Illinois.



Perry Time Stamp

PORTABLE, SELF-INKING
and AUTOMATIC

Unlike and far better than any time stamp ever made.

Prints the month, day, hour and minute on any surface where a rubber stamp can print. The most progressive firms are using it to prevent delay in handling correspondence, orders, telegrams, invoices, shipping goods, etc. Unequalled for factory cost systems and timing employees. Guaranteed one year—will last a lifetime.

Write for edition R of our free booklet, "The Business Man's Time Saver." Tells all about the Perry Time Stamp and our Ten-Day Free Trial Offer.

PERRY TIME STAMP CO.
118 Jefferson St., Chicago
95 Liberty St., N. Y. City
Branch offices in all important cities.

YOU USE GRINDSTONES?
If so we can supply you. All sizes mounted and unmounted, always kept in stock. Remember, we make a specialty of selecting stones for all special purposes. Send for catalog "I".
THE CLEVELAND STONE CO.
2d Floor, Wilshire, Cleveland, O.

TOOLS
FOR MECHANICS.
Send for Free Catalogue No. 16 B.

The L. S. Starrett Co., Athol, Mass., U. S. A.

CHOICE IMPORTED English Lawn Grass Seed

EBOONITE
PAINT-VARNISH

For all purposes where a protecting and waterproofing composition is required Ebonite should be used. It is the most perfect preparation made for the purpose.
It does not crack or peel off—is not affected by heat or cold—is proof against rust, rot, acid, fumes, corrosion, and alkali dust.
Further information, sample, and prices furnished upon request.

BUCHANAN - FOSTER CO.
452 Chestnut Street, Philadelphia, Pa.

A Perfect Ignition Device For Gas and Gasoline Engines

is the Edison Battery and Spark Coil. Ensures constant speed in Gas Engines and Motor Boats. The Batteries deliver a high constant current to the coil which is specially wired to yield a hot spark every time. This combination obviates all ignition troubles. Is surer and more economical than any other sparking device. Sold by dealers everywhere. Send for name of nearest dealer, and Booklet "Battery Facts," containing valuable ignition information.

Edison Manufacturing Co.
25 Lakeside Avenue
ORANGE, N. J.

31 Union Square, New York
304 Wabash Avenue, Chicago
25 Clerkenwell Road, London, E.C.

THE "BEST" LIGHT
SUPERIOR TO ELECTRICITY
TWO CENTS A WEEK

When you are tired of the smoke, dirt, and odor of your ordinary lamp, try the "BEST." It is made in over 100 different sizes. It can be used in any home, and every lamp is warranted. Just drop us a postal today and get our catalog and price list. Agents wanted Everywhere. Big money in it for you to either use or sell our lamps.

THE BEST LIGHT CO.,
87 E. 5th St., Canton, O.
Owners of Original Patents.

Tools! Tools! Tools!

and all you want to know about them. Our Tool Catalogue No. 22 is a cloth-bound book of 950 pages. If you want to "know it all" about Tools you should send for this book at once. Sent post-paid on receipt of \$1.00 which will be refunded from your first purchase from us of \$10.00 or over.

MONTGOMERY & CO.
105 Fulton Street, N. Y. City

The Wonder Gasoline Motors
Something New and Up-to-date
More power for less money than any other machine on the market. No valves, gears, etc., to get out of order. Jump Spark. Our H.P. motor outfit is a "WONNER." Sold & guaranteed propeller. Our price will surprise you. Write to day. Marine or stationary outfit to suit any requirements up to H. P.

The H. M. Cornwell Co., 406 S. Salina St., SYRACUSE, N. Y.
434 Park Row Building, New York

Picturesque New England

as reached by the
Boston & Maine Railroad

is beautifully illustrated
by the Portfolios entitled

New England Lakes
Rivers of New England
Seashore of New England
Mountains of New England
The Charles River to the Hudson
Picturesque New England (Historic and Miscellaneous)

Size of illustrations, 4 x 6 inches. Will be mailed upon receipt of six cents for each book.

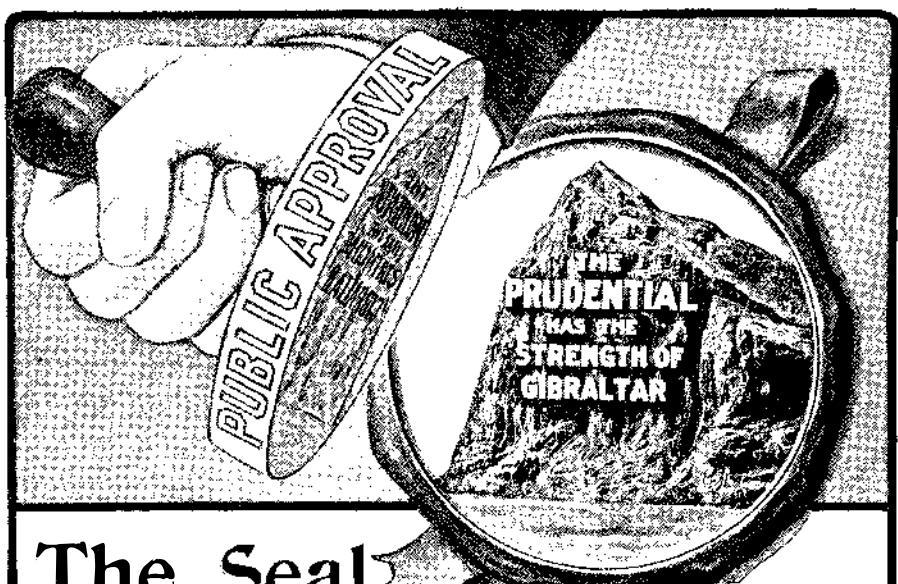
POST CARDS

Set of twenty Post Cards reproducing typical New England Scenery in its natural colors, sent on receipt of thirty cents.

Address PASSENGER DEPARTMENT
Boston & Maine Railroad, Boston, Mass.

D. J. FLANDERS, Gen'l Pass. and Ticket Agt.

Sewing mechanism, button, A. A. Bouton..	820,088
Shade fixture, H. B. Turner.....	\$19,557
Shade holder, W. W. Abbott.....	820,164
Shafts, set collar for, C. W. Levanev.....	820,220
Shape retainer, E. S. Lefevre.....	818,774
Sharpener, drill, G. S. Spreyer.....	820,023
Sharpener support, knife, L. W. Cruse.....	819,735
Sharpening apparatus, file, A. H. Radell.....	819,922
Sheet metal joint, J. E. Dobson.....	818,866
Shingle, metal, A. Friedley.....	820,294
Ship bottom cleaner, electrolytic, G. W. Frazier.....	820,105
Ships, warehouse machinery for unloading, G. H. Hulett.....	819,758
Shock leading machine, E. Lumatta.....	819,776
Shoe, H. F. Browne.....	819,845
Shoe fastener, E. D. Ritchey, Jr.....	820,132
Shoe protector, F. N. Patterson.....	820,250
Shoe rack, R. MacDonald.....	818,777
Shoestring fastener, T. Higgins.....	818,884
Shooting, means for promoting accurate, F. Courtinade.....	820,181
Sign, metallic, W. F. Hutchinson.....	820,359
Signals, means for actuating, A. B. Ferdinand.....	820,041
Silk, charging, G. Gianelli.....	819,751
Silk, manufacture of artificial, L. Crespin.....	820,351
Skirt gage, M. S. Doty.....	818,867
Skirt supporter, L. A. Phillips.....	820,313
Small arms, magazine in, M. P. Richards.....	818,801
Smelting furnace, ore, E. Riveroll.....	820,133
Smelting ores, E. Riveroll.....	820,134
Smoke consumer, W. H. Rostrom.....	820,016
Solar heat, apparatus for the utilization of, C. H. Pope.....	820,127
Solder edged cap machine, J. G. Hodgson.....	820,357
Solder to rims of can caps, machine for automatically applying molten, J. G. Hodgson.....	820,358
Spacing and dividing instrument, A. Robbins.....	819,926
Speed increasing device, automatic, G. Baehr.....	819,707
Speed timing apparatus, A. L. McMurry.....	820,123
Spinning and twisting machine bands, machine for making, M. S. Burdette.....	819,848
Spirometer, J. S. Renzile.....	820,258
Splint stretcher, C. F. Stokes.....	820,026
Spoon, ice cream, D. H. Mosteller.....	820,061
Spring. See Bed spring.	
Springs, hydraulic machine for clamping plates in the manufacture of, W. Evans.....	819,872
Square and level, E. Oberle.....	820,311
Stair chair, W. J. Pennington.....	820,125
Stanchion, F. R. Welcher.....	818,826
Staple feeding and driving machine, W. Murray.....	820,243
Steam boiler, L. B. Lent.....	820,054
Steam generator, H. E. Rider.....	820,013
Steam heater, J. D. McEachren.....	819,811
Steam motor, L. Gilmore, Jr.....	819,752
Stem winding mechanism, N. Beguelin.....	819,714
Steaker, P. J. Duffy.....	820,184
Steaker, mechanical, W. Seaton, Jr.....	819,937
Stone making machine, artificial, A. A. Forbes.....	819,746
Stone mold, artificial, A. Lake.....	819,768
Steve, N. D. Leughrey.....	819,775
Stoves, reservoir for oil and vapor, W. H. Wilder.....	820,376
Street light, A. E. Shaw.....	820,365
Street sweeping machine, J. P. Clark.....	819,728
Surf actuated meter, T. Danford.....	820,286
Suspenders, W. Pigott.....	819,794
Swimming glove, M. S. Christopher.....	819,852
Switch controller, synchronizing, H. J. McMaham.....	819,787
Switch indicator, electrical, W. A. Rideout, Sr.....	820,260
Switch operating mechanism, J. B. Albright.....	819,835
Switchboards, electrical connection for, H. Krantz.....	820,211
Tag making machine, metal, F. C. Crowe.....	820,183
Tag stock, G. A. Hoffman.....	820,184
Tappets, wheels, or shaft couplings, clamping device for, C. A. Canida.....	820,037
Taxometer or fare indicator, G. Baum.....	820,281
Telephone exchanges, multiple switchboard for, M. G. Kellogg.....	820,360
Telephone, selective, McKinsey & Nelson.....	820,064
Telephone sight indicator, F. R. Lay.....	820,213
Telephone system, C. L. Boyce.....	820,176
Telephone system, selective, McKinsey & Nelson.....	820,063
Telephone trunk line signaling system, M. S. Conner.....	820,350
Terret, W. J. Gagnon.....	819,749
Threshing machine band cutter and feeder, J. T. Ramsden.....	820,255
Tile, illuminating, J. Jacobs.....	820,200
Tile machine, J. M. & J. Schenk.....	819,931
Tire, pneumatic, Fawcett & Bellhouse.....	820,104
Tires, making armored, V. Gallien.....	820,286
Tires, means for repairing punctures in pneumatic, H. Harrisen.....	820,110
Tobacco dipping machine, R. Bailey.....	820,335
Tool, J. W. Edmonds.....	820,185
Tool, steam, C. L. Charvat.....	819,727
Toy, J. R. Criste.....	820,182
Toy, detonating, M. Rutter.....	819,928
Toy railway rolling stock, A. Schutze.....	819,912
Trace fastener, W. N. Crisp.....	819,981
Track sander and brake shoe, E. E. Keeffe.....	819,762
Track sanding device, F. Basin.....	820,340
Train dispatcher's order box, D. O. Stinson.....	819,945
Transfer press, G. White.....	819,829
Trick ball, M. T. La Pierre.....	819,894
Trolley stand, W. W. Annable.....	820,280
Trouser form, A. Jones.....	820,203
Truck bolster, car, J. B. Barnes.....	820,333
Truck, car, J. B. Barnes.....	820,337
Truck, hand, W. M. B. Watley.....	820,274
Truck, spring hand, T. Kendrick.....	820,001
Trunk, W. H. Boschen.....	819,974
Tube compressor, Leffingwell & Eltonhead.....	820,216
Turbine, explosion, F. H. Gravert-Zellini.....	819,950
Turbine, explosion, A. L. Moss.....	820,238
Typewriter desk, J. Vaaler.....	820,272
Typewriting machine, E. G. Latta.....	819,773
Typewriting machine, Moyer & Latta.....	819,782
Typewriting machine, H. S. McCormack.....	819,786
Typewriting machine, F. X. Wagner.....	819,963
Typewriting machine, H. Jarvis.....	819,988
Typewriting machine attachment, A. H. Martin.....	819,778
Umbrella, folding, N. I. & S. L. Newlin.....	820,245
Umbrella, runner and upper notch, wireless, H. L. Furlow.....	820,285
Underreamer, E. Double.....	820,101
Vacuum tube regulator, D. M. Moore.....	820,364
Valve, N. P. Towne.....	820,154
Valve, A. Buerkle.....	820,178
Valve, A. L. Moss.....	820,238
Valve, engineer's equalizing and discharge brake, D. M. Caskay.....	819,726
Valve for explosive engines, intake, A. C. Menges.....	820,230
Valve, vent, B. Schlegel.....	820,142
Vase, lawn, J. K. Andrews.....	820,168
Vat cleaning apparatus, A. E. Rickard.....	819,803
Vehicle attachment, J. Leith.....	820,217
Vehicle body, W. H. F. Blume.....	820,343
Vehicle brake, J. W. Smith.....	820,266
Vehicle corner support, W. G. Persing.....	820,251
Vehicle draft connector, V. O. Searer.....	819,836
Vehicle seat, D. G. McDiarmid.....	820,008
Vehicle top, folding, R. B. Miles.....	820,059
Vehicle wheel, G. S. Whiteley.....	820,077
Ventilating means for inclosed machines, E. M. Tingley.....	819,820
Vessel, chemical, W. Kiel.....	819,765
Vine cutter, J. D. Gunn.....	819,880
Wagon brake, H. C. Warmuth.....	820,157
Wagon, ladder or tower, G. A. Harrisen.....	820,190
Wagon top, J. Peblig.....	820,314
Wall building, C. A. Chamberlin.....	819,878
Wall tie, J. F. Dunlap.....	819,868
Washing machine, C. A. Church.....	820,349
Watch barrel arbor, W. E. Porter.....	820,252
Watch, stem winding, N. Beguelin.....	818,713
Water closet, M. J. Quinn.....	820,128
Water closet bowl, J. F. Kelly.....	820,051
Water cooler, E. O. Butt.....	819,850
Water gate, A. J. Collar.....	820,057
Water beater, electrical, W. A. Brown.....	820,282
Water purifier, F. B. Hinkson.....	820,113



The Seal of Public Approval

The Great American Public has expressed its Confidence in The Prudential again, and in the Practical American Way, not by words, but by deeds.

The Increase in Insurance in Force
in 1905 was over
One Hundred and Thirteen Million Dollars

Suppose you inquire for a Policy Suitable to Yourself. You May be Surprised How Little It Will Cost. Write Your Name and Address on the Margin of this Advertisement and Send for a Plan of Home Protection and Saving that will Interest you.

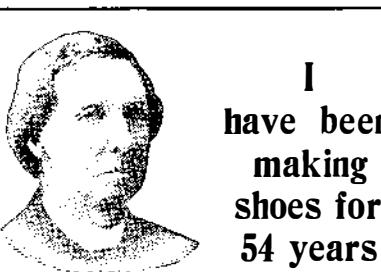
Write Now, While You Think of It. Dept. 121

The Prudential INSURANCE COMPANY OF AMERICA

Incorporated as a Stock Company by the State of New Jersey

JOHN F. DRYDEN, Pres't.

HOME OFFICE, Newark, N. J.



I have been
making
shoes for
54 years

Sandwich, Massachusetts

and every week-day for the past half-century I have studied hard to manufacture the best-wearing and most comfortable shoes. I now make the

Worth Cushion Sole Shoe

and hundreds of men and women tell me it's by far the most comfortable shoe they ever wore. I make them in up-to-date styles for both men and women, and really believe that for style, comfort and durability they are unequalled by any other shoe.

If your dealer hasn't them, write for illustrated spring booklet, and I will find a way to supply you

Send all orders and correspondence to

The Cummings Co., 406 F Washington St., BOSTON

The Maxwell

AUTOMOBILE

Whether you are a motor expert or a motor "greenhorn" the "Maxwell" is the car for you.

The mechanical perfection of its every detail and the proven correctness of the "doctrine" on which its construction is based, make it appeal to the practical motorist who knows solid worth when he sees it.

Its extreme simplicity and ease of operation recommend it at once to the novice who wants an automobile to "ride in" and not to tinker with."

20 H. P. Touring Car \$1,450 10 H. P. Tourabout \$780

Write to Department 22 for Catalogue.

MAXWELL-BRISCOE MOTOR CO.

Main Office and Plant: Tarrytown, N. Y.

Factories: CHICAGO, ILL., PAWTUCKET, R. I.

BRANCHES:

Maxwell-Briscoe, Incorporated, New York, N.Y.

Maxwell-Briscoe-McLeob Co., - Detroit, Mich.

Fisher Automobile Company, Indianapolis, Ind.

Morrison-Tyler Company, - Boston, Mass.

Maxwell Garage, - Brooklyn, N. Y.

Maxwell-Briscoe Chase Company, Chicago, Ill.

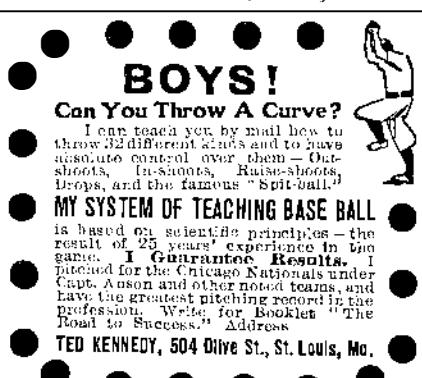
J. W. Willcox & Son, - Los Angeles, Cal.

Richard Irvin & Co., Foreign Representatives

WELL DRILLING Machines

Over 70 sizes and styles, for drilling either deep or shallow wells in any kind of soil or rock. Mounted on wheels or on sills. With engines or horse powers. Strong, simple and durable. Any mechanic can operate them easily. Send for catalog.

WILLIAMS BROS., Ithaca, N. Y.



BOYS!

Can You Throw A Curve?

I can teach you by mail how to throw 32 different kinds and to have absolute control over them—Out-shoots, In-shoots, Raise-shoots, Drops, and the famous "Spit-ball."

MY SYSTEM OF TEACHING BASE BALL

is based on scientific principles—the result of 25 years' experience in the game. I guarantee results. I pitched for the Chicago Nationals under Capt. Aiston and other noted teams, and have the greatest pitching record in the profession. Write for booklet "The Road to Success." Address

TED KENNEDY, 504 Olive St., St. Louis, Mo.

Concrete, Reinforced Concrete AND Concrete Building Blocks

Scientific American Supplement 1543 contains an article on Concrete, by Bryson Cunningham. The article clearly describes the proper composition and mixture of concrete and gives 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 resume in which the various systems of reinforced concrete construction are discussed and illustrated.

Scientific American Supplement 1564 contains 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.

Each number of the Supplement costs 10 cents.

A set of papers containing all the articles above mentioned will be mailed for \$1.80.

Order from your newsdealer or from

MUNN & CO.

361 Broadway, New York City

Water softening apparatus, A. R. Holmen	819,885
Watering or feed trough, automatic, C. B. Richmond	820,316
Weeder, F. Lange	819,771
Weighing and sacking machine, P. L. Creighton	819,860
Well apparatus, gas, F. J. Moser	820,237
Whalebone or rubber substitutes, producing, W. Polatsik	820,315
Wheel, C. B. Van Horn	819,824
Wheel, W. S. H. Smith	819,942
Wheelbarrow, F. J. Cooper	819,856
Windmill, G. B. Snow	819,943
Window, E. W. Humphreys	819,760
Window, B. J. Leslie	820,218
Window, casement and similar, C. D. Taber	820,027
Window screen, S. H. Garrett	819,750
Window screen, G. D. Moncrief	820,233
Wires, lock for cross, M. S. Anderson	819,968
Wrench and bit stock, combined, Sweeney & Jahn	819,817

DESIGNS.

Cabinet, H. V. Crozier	38,008
Flower pot, hanging, W. Wiesler	38,004
Forks, spoons, and similar articles, handle for, J. Leech	37,990
Glass reflector, prismatic, O. A. Mygatt	38,006
Glass vessel, B. F. Davies	37,999
Glass vessel, cut, W. C. Anderson	38,000
Glass vessel, cut, D. F. Spillane	38,001
Lamp bulb, incandescent electric, O. A. Mygatt	38,005
Lavatory, H. Pedmore	38,007
Nail file, E. Ruetgers	37,988
Screwdrivers or similar articles, handle of, J. J. Tower	37,992 to 37,998
Spoon, fork, and similar articles, handle for, C. T. Payne	37,991
Tumbler, drinking, H. Tuemler	38,003
Wagon body, delivery, C. H. T. Peters	38,009

TRADE MARKS

Ale, Robert Smith Ale Brewing Co.	52,469
Ale, ginger, Standard Bottling and Extract Co.	52,307
Anodynes, Lloyd Brothers	52,490
Antiseptic and disinfectant, Iiquid, C. V. Derman	52,415
Art drapery robes, Eddystone Manufacturing Co.	52,358
Axes and hatchets, steel, H. Keidel	52,331
Bags, S. Nusbaum	52,403
Baking powder, Grand Union Tea Co.	52,325
Balm for the complexion, W. P. Ward	52,503
Beds, davenport, C. J. Kindel Bedding Co.	52,412
Beer, Western Brewery Co.	52,495
Beer and lager beer, Harvard Brewing Co.	52,484
Beer, lager, Christian Feigenspan, a Corporation	52,507
Beer, lager, Consumers' Park Brewing Co.	52,510
Beer, lager, Hudson County Consumers' Brewing Co.	52,520
Belt fasteners, Greene Tweed & Co.	52,359
Belting, Akron Belting Co.	52,519
Beverage, fruit juice, R. M. Hughes	52,329
Beverages and fruit juices, certain named, Sunlit Fruit Co.	52,434
Bitters, A. P. Ordway	52,468
Book of directions for technical instructions, Lodge & Shipley Machine Tool Co.	52,302
Books on salesmanship, National School of Salesmanship	52,303
Boots and shoes, leather, Geo. E. Keith Co.	52,267
Boots and shoes, leather, Crowder-Mason Shoe Co.	52,413
Boots and shoes, leather, Smith-Briscoe Shoe Co.	52,433
Braids, silk and mohair, William Skinner Manufacturing Co.	52,402
Bread, black graham, H. Hirschman	52,543
Brooms, American Broom and Brush Co.	52,288, 52,405
Burglar alarms, Norfolk Novelty Corporation	52,367
Burning fluids for use in lamps, General Safety Mantle Light Co.	52,299
Butter, Fox River Butter Co.	52,297
Calicoes, American Printing Co.	52,257
Candy, C. Wunderle	52,350
Candy, W. Brownley	52,438
Canned fruits, Schwabacher Bros. & Co.	52,340
Canned fruits and vegetables, Schwabacher Bros. & Co.	52,341
Canned vegetables and fruits, Francis H. Leggett & Co.	52,322
Caramels and candies, American Caramel Co.	52,313
Cards, playing, United States Playing Card Co.	52,471
Cards, playing, New York Consolidated Card Co.	52,491
Carpet sweepers, Streeter Metal Stamping Co.	52,309
Carpet warps, J. E. Reynolds	52,373
Cement, rubber, Montgomery Bros.	52,430
Chemical compound, certain named, Barrett White Co.	52,448
Chocolate and candy of all kinds, sweetened, M. S. Hershey	52,397 to 52,399
Cigars, J. Weinreich	52,283
Cigars, American Cigar Co.	52,311
Cigars, C. B. Perkins	52,314
Cigars, cheroots, and cigarettes made of cigar tobacco, Cayey-Caguas Tobacco Co.	52,400
Cloans, clam juice, and clam chowder, Burnham & Merrill Co.	52,528, 52,529
Claret in bottles, Compania Vinicola del Norte de Espana	52,505
Clock movements, Schlenker & Kienzle	52,478
Coal used for welding and forging, semi-bituminous, Lilly Coal Co.	52,308
Coats, pants, and overalls, Syracuse Dry Goods Co.	52,489
Colors, metallic water, Gestendorfer Bros.	52,441
Compound for treating waste materials containing carbon to render them combustible, Coalite Co.	52,439
Confectionery, C. Poyet	52,318
Confectionery, certain named, C. P. Poyet	52,259
Cord and twine, wrapping, Hubbs & Corn-ing Co.	52,362
Cords, lines, twines, and ropes, Silver Lake Co.	52,375
Cornmeal, T. P. Davie	52,376
Corsets, Birdsey & Somers	52,354
Cotton fabric having an old Irish linen finish Burten Bros. & Co.	52,506
Cotton piece goods, Massachusetts Cotton Mills	52,271
Cotton piece goods, Everett Mills	52,516
Cough mixture, Cough Checker Manufacturing Co.	52,511
Crackers, Chatland & Lenhart	52,530
Disinfectants, antiseptics, and germicides, Geo. F. Eberhard Co.	52,453
Dispensing cabinets, Albany Perforated Wrapping Paper Co.	52,287
Drills and drilling machines, Hewells Mining Drill Co.	52,361
Dry goods, certain named, A. Wedel	52,389
Dusteff, Kuttroff, Pickhardt & Co.	52,425 to 52,428
Erasers, rubber, E. Faber	52,417
Fabrics and garments made therefrom, waterproof textile, Hirsh Brothers	52,360
Fabrics, bleached, unbleached, printed, and dyed textile, Eddystone Manufacturing Co.	52,395
Fertilizers, American Agricultural Chemical Co.	52,391
Fish books, Henry Milward & Sons	52,485
Flavoring extracts, Francis H. Leggett & Co.	52,517
Flavoring extracts, Ullmann Dreifus & Co.	52,541
Fleur, self-raising, Sleepy Eye Milling Co.	52,540
Fleur, wheat, R. U. Kevel & Sons	52,488
Fleur, wheat, Alliance Milling Co.	52,525
Fleur, wheat, Ledebuer & Van Der Held	52,534

WINCHESTER



RIFLES SHOOT STRAIGHT AND STRONG

The name "Winchester" on a rifle barrel is the hall-mark of accurate and strong shooting. This is due to the excellence of Winchester barrels, the knowledge and experience embodied in their manufacture and the care taken in targeting them. Only good guns ever leave our factory. For results always use Winchester guns for all your shooting and Winchester make of ammunition for all your guns.

FREE Send name and address on a postal card for our large illustrated catalogue.

WINCHESTER REPEATING ARMS CO., NEW HAVEN, CONN.

OUTING LAUNCH Complete \$250.

Superior to all boats of its class. Embodies all latest practical improvements and the unsurpassed "Outing" features. Light draft. Speedy. Regular launch construction, reversing engine. 18 feet long on water line. Immediate shipment. In short the boat that appeals to the experienced boatman. Our catalogue gives details. Write and get it to-day.

OUTING BOAT COMPANY

13514 South Park Avenue Chicago, Ill.

Mullins Pressed Steel Boats Can't Sink

Easier to Row—Absolutely Safe

Valuable Books JUST PUBLISHED Scientific American Reference Book

12mo. 516 Pages. Illustrated. 6 Colored Plates. Price \$1.50, postpaid



EVERY HOME HAVE MADE IT POSSIBLE FOR THE PUBLISHERS OF THE SCIENTIFIC AMERICAN TO PRESENT TO THE PURCHASERS OF THIS BOOK A REMARKABLE AGGREGATION OF INFORMATION.

Home Mechanics for Amateurs

This book has achieved an unparalleled success in one week, and a special edition of 4,000 copies has been ordered. It is by far the largest and best book on the subject ever offered at such a low price. It tells how to make things the right way—the "only" way—at small expense. It will prove of value to you—much more than you realize. Do things with your hands. Send for a circular giving contents—the circulatrs cost only a cent the book \$1.50 postpaid. If the book could meet you face to face you would be the first to purchase. The first large edition is almost gone, order to-day.

370 Pages 326 Engravings Price \$1.50

TWENTY-THIRD EDITION EXPERIMENTAL SCIENCE.

By GEORGE M. HOPKINS

Revised and Greatly Enlarged. 2 Octavo Volumes. 1,300 Pages. 900 Illustrations. Cloth Bound, Post Paid, \$5.00. Half Morocco Post Paid, \$7.00.

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

REVISED and ENLARGED EDITION

The Scientific American

Cyclopedias Of Receipts, Notes and Queries.

15,000 Receipts. 734 Pages.

Price, \$5.00 in Cloth. \$6.00 in Sheep. \$6.50 in Half Morocco. Post Free.

This work has been revised and enlarged.

900 New Formulas.

The work is so arranged as to be of use not only to the specialist, but to the general reader. It should have a place in every home and workshop. A circular containing full Table of Contents will be sent on application.

Those who already have the Cyclopedias may obtain the 1901 APPENDIX.

Price, bound in cloth, \$1.00 postpaid.

MAGIC Stage Illusions and Scientific Diversions, including Trick Photography

This work appeals to old and young alike, and it is one of the most attractive holiday books of the year. The illusions are illustrated by the highest class of engravings, and the expenses of the tricks are, in many cases, furnished by the prestidigitators themselves. Conjurors, large stage illusions, fire-eating, sword-swallowing, ventriloquism, mental magic, ancient magic, automata, curious toys, stage effects, photographic tricks, and the projection of moving photographs are all well described and illustrated, making a handsome volume. It is tastefully printed and bound. Acknowledged by the profession to be the Standard Work on Magic.

By A. A. HOPKINS. 568 pages. 420 illus. Price \$2.50. MUNN & CO., Publishers, 361 Broadway, NEW YORK

FLOUR, wheat, Liberty Mills.....	52,535 to 52,537
Flour, wheat, Missouri Valley Milling Co.....	52,539
Food and farina made from wheat, breakfast, Sleepy Eye Milling Co.....	52,493
Food, poultry and pigeon, Campbell, Morrell & Co.....	52,544
Food, prepared cereal, Emerald Manufacturing Co.....	52,532
Foods for horses, cattle, swine, and other stock, continental, David E. Foutz Co.....	52,513
Foods for live stock and other animals, F. H. Erb, Jr.	52,533
Foods, prepared cereal breakfast, Francis H. Leggett & Co.....	52,518
Fruits, dried, Francis H. Leggett & Co.....	52,480
Furnaces, air heating, May & Fleibeger.	52,273
Furniture, certain named, Oscar Onken Co.....	52,276
Gelatin, Michigan Carbons Works.....	52,538
Gin, J. & A. Freiberg.....	52,323
Ginger snaps, Pennsylvania Baking Co.....	52,523
Glassware, certain named, Creamery Package Manufacturing Co.....	52,319
Gloves for athletic sports, P. Goldsmith's Sons.....	52,483
Harmonicas, National Musical String Co.....	52,432
Harrowers, mowers, and reapers and parts thereof, International Harvester Co. of America.....	52,521
Hats, men's and boys' stiff, soft, and straw, Freeman Brothers.....	52,481
Hay carriers, F. E. Myers & Bro.....	52,365
Horns for motor vehicles, A. H. Funke.....	52,298
Hosiery, elastic, J. Ellwood Lee Co.....	52,363
Ice machines, Davenport Ice Chipping Machine Co.....	52,512
Incubators and brooders, M. W. Savage.....	52,374
Insect powder, Gilpin, Langdon & Co.....	52,420
Insulated wire and adhesive tapes used for insulating, New York Insulated Wire Co.....	52,337
Journal bearings, Chapman Double Ball Bearing Co. of America.....	52,317
Keys, cushion finger, Munson Supply Co.....	52,364
Knit jackets and sweaters, Stephenson & Co.....	52,379
Knitted underwear, C. E. Smith.....	52,377
Knives, pocket, Wiebusch & Hilger.....	52,496
Lamps and fittings of metal for same, incandescent electric, Edisen & Swan United Electric Light Co.....	52,320
Lamps of all kinds, electric, Korting & Matthesen Actiengesellschaft.....	52,424
Lathes, Vandycy Churchill Co.....	52,387
Laxatives, W. S. Johnson & Son.....	52,487
Laxatives, Bristol-Myers Co.....	52,497
Leathers, Richmond & Backus Co.....	52,305
Linen and cotton piece goods, G. C. Riggs.....	52,475
Lock washers and nut locks, National Lock Washer Co.....	52,366
Magazine, C. D. Steiner.....	52,350
Magazine, monthly, W. G. Bruce.....	52,316
Magnetic currents to invalids, apparatus for administering, J. W. Steeves.....	52,281
Medicinal oil for external use, C. W. Smith.....	52,470
Medicine, certain named, Dr. A. Gude & Co. G. m. b. H.	52,472
Medicine, certain named, L. J. Knerr.....	52,473
Medicine for horses, cattle, and poultry, Aschenbach & Miller.....	52,450
Medicine for indigestion, Sterling Remedy Co.....	52,459
Medicine for the cure of constipation and bowel and stomach ailments, F. Muller, Jr.	52,467
Medicine, poultry, F. Lee.....	52,498
Medicines, worm, B. S. Fahnestock.....	52,461
Metal, bearing, Frictionless Metal Co.	52,264 to 52,266
Metal manufacturers, U. T. Hungerford Brass and Copper Co.	52,347
Metal polish, J. B. Hill.....	52,301
Metals, antifriction and bearing, William A. Hardy & Son's Co.	52,284
Microbe killer, I. Radam.....	52,499
Milk condensed, Borden's Condensed Milk Co.	52,315, 52,392, 52,407 to 52,410
Milk, condensed milk, cream, and evaporated cream, Borden's Condensed Milk Co.	52,526
Mineral compound for cleaning brass and other metals, H. A. Lawton.....	52,444
Moreens, Eddystone Manufacturing Co.	52,394
Nails, horse, Standard Horse Nail Co.	52,343
Nails provided with a non-metallic coating, J. C. Pearson Co.	52,269
Needles for hand and machine sewing, Henry Milward & Sons.....	52,328
Needles of all kinds, Thuringische Nadel & Stahl waaren Fabrik Wolff, Knippenberg & Co. Actien Gesellschaft.....	52,346
Oil, cylinder and valve, J. D. Street & Co.	52,310
Olivs, Francis H. Leggett & Co.	52,462
Olivs, Akerman & Tunney.....	52,524
Packing gages and cutters, Demarest & Carver.....	52,356
Packing, machinery, C. A. Daniel.....	52,414
Packing, rubber, Garham Rubber Co.	52,268
Paints, house, Pimbley Paint and Glass Co.	52,338
Paints or stains, absorbent, Baumann-Klage Co.	52,328
Pans, baking, Edward Katzinger Co.	52,416
Paper bags, Union Bag and Paper Co.	52,383 to 52,386
Paper, carbon, De-Fi Manufacturing Co.	52,262
Paper, printing, Dill & Collins Co.	52,295
Paper, toilet, A. F. Baird.....	52,258
Papers, toilet, Hubbs & Corning Co.	52,421
Pastes, dry, Crown Oil and Wax Co.	52,294
Pavements and compositions of cements for making the same, bituminous, Warren Brothers Co.	52,348
Pens, steel and plated, C. Howard Hunt Pen Co.	52,411
Petroleum, illuminating, Standard Oil Co. of New York.....	52,308
Planes, Jewett Piano Co.	52,423
Plaster, Glencoe Lime and Cement Co.	52,324
Polish for wood and metals, liquid, W. J. Bussey.....	52,393
Powder, foot, E. E. Ambrose.....	52,404
Powder, foot, Rice, Stearns & Co.	52,474
Powdered paper for the skin or toilet use, A. S. Butler.....	52,527
Preparation for the complexion, liquid, M. Secor.....	52,458
Puddings and custards, W. P. Ward.....	52,542
Pumps, otherwise known as bucket or chain pumps, purifying, St. Joseph Pump Co.	52,345
Pumps, piston well, Red Jacket Manufacturing Co.	52,372
Pumps, water, F. E. Myers & Bro.	52,274
Rawhide, specially prepared, New Process Raw Hide Co.	52,275
Razors, A. Witte.....	52,349
Razors, Challenge Cutlery Corporation.....	52,477
Razors and pocket knives, A. L. Silberstein.....	52,342
Refrigerators, Lorillard Refrigerator Co.	52,429
Remedies, certain named medicinal, J. B. Starkey.....	52,476
Remedies for certain named diseases, M. Gebauer.....	52,418
Remedy for baldness, W. P. Ward.....	52,502
Remedy for certain named diseases, S. J. Dalzel.....	52,440
Remedy for dropsy, E. Henke.....	52,454
Remedy for inflammation, B. F. Miner.....	52,486
Ribbons, Smith & Kaufmann.....	52,478
Rice, Delan Mercantile Co.	52,315
Root canal filling, W. H. Leak.....	52,463
Sarsaparilla, Lanman & Kemp.....	52,456
Seeding machines, American Seeding Machine Co.	52,351
Seedings, broadcast, Peoria Drill and Seeder Co.	52,370
Seeds, agricultural and horticultural, Peter Henderson & Co.	52,492
Sheetings, waterproof, Stork Co.	52,501
Ships' logs and sounding machines, Thomas Walker & Son.....	52,382
Shoe polish, Whittemore Brothers & Co.	52,312
Shovels, spades, and scoops, Avery Stamping Co.	52,352
Silk dress goods, W. H. Ree.....	52,353
Silk piece goods, Passavant & Co.	52,339
Skirts, women's, misses', and children's outer, M. Goldman & Co.	52,369
Soap, laundry and toilet, Grand Union Tea Co.	52,306
Soap, toilet, Cincinnati Soap Co.	52,503

Peerless

It is not fair to you nor fair to us to tell you in this small space what the points are that make the

Peerless Direct Drive Motor Car

the acknowledged leader among high grade cars—either American or foreign—in point of speed, simplicity, beauty and all-around reliability.

OUR CATALOGUE GIVES

a good idea of them, but it takes an actual ride in a Peerless to realize what a masterpiece it is. Let us send you the catalogue and a personal letter of introduction to the Peerless agent nearest to you, arranging for a demonstration.

THE PEERLESS MOTOR CAR COMPANY, 38 Lisbon Street, Cleveland, Ohio

Member A.L.A.M.

Mullins

Makes Everything In

Art Architectural Sheet Metal Work

Statuary—Ornamental Sheet Metal Work—Skylights—Fireproof Windows—Art Metal Tile Roofing—Steel Ceilings—Finials—Wrought Iron Grilles—Cornices, etc., etc. Estimates, models and designs submitted for architects, builders and contractors.

Our 120-Page Catalogue of stock designs will be sent on request.

The W. H. Mullins Co., 203 Franklin Street, Salem, Ohio.

Wayne

Did you ever drive a car and wish you had "just a little more power?"

Get a Wayne Model F (shown below) and you'll realize what it means to have ALL the power you want and MORE TOO. The motor is a 4 cylinder vertical 5 1/2 x 5. The engine develops full 50 h. p. and ALL this power is carried to the rear wheels on a ball bearing transmission system which ANNIHILATES FRICTION.

Get our nearest agent to give you a ride in Model F and you'll know what motor flexibility means. Seats 7 persons comfortably. Price \$3,500.

We make a car to suit every purchaser at a price to suit every purse.

Model K. Five passenger touring car, 35 h. p.	\$2500
Model B. Five passenger touring car, 24-28 h. p.	2000
Model C. Five passenger 2 cylinder opposed 20 h. p.	1250
Model G. Tonneau car, 14 h. p. engine under hood....	1000
Model H. Two passenger runabout, 14 h. p.	800

Let us send you catalog and full particulars about any of these cars.

Wayne Automobile Co., Dept. J, Detroit, Mich.



1½ h.p. engine only, \$33.15
3 h.p. engine only, 44.00

DETROIT AUTOMARINE Motor 1906

The Smoothest Thing That Runs

Noise, Friction and Uncertainty reduced to a minimum. The result of a high standard of manufacturing—which means every piece of work tested—not by rule of thumb, but by scientific methods, on a testing machine built for the purpose.

From foundry to user, the DETROIT AUTO-MARINE MOTOR passes in its various stages under one organization head.

We are making 10,000 Auto-Marine Gasoline engines this year, not merely assembling parts made in various factories.

WE MANUFACTURE THE MOTOR COMPLETE AND GUARANTEE EVERY MOTOR WE MAKE

1½ H.P., \$33.15. Engine only
3 H.P. will develop 4 H.P., \$44.00. Engine only

For stationary power purposes, we equip these engines with the Auto Adjustable Governor, at an addition of \$5—making one of the most satisfactory gasoline engines for power purposes built.

Write for Catalog describing Auto-Marine Motors 1 to 20 H.P. and Auto Adjustable Governor.

DETROIT AUTO-MARINE CO.
75 E. Congress St., Detroit, Mich.
F. G. Hall, Mgr., 85 Liberty Street, New York
The Bourse, Philadelphia

The only builders of Auto-Marine Engines in the World

JAGER Marine 4-Cycle Engines

Skillfully designed and well built. Single lever control combining automatic carburetor with spark advance. Develops wide speed range and reliability under most trying conditions. Sizes 3 to 60 h.p. Send for catalog.

CHAS. J. JAGER CO.
281 Franklin, cor. Batterymarch St., Boston, Mass.

The Adirondack Mountains

Are now about the most central of all the great resorts. They have through Pullman sleeping cars from New York, Philadelphia, Boston, Buffalo and Niagara Falls via the



A night's ride takes you from any of these places to the center of the mountains in time for breakfast next morning.

For a copy of "The Adirondack Mountains and How to Reach Them," which is No. 20 of the New York Central Lines' "Four-Track Series," containing a fine map of the Adirondack Mountains and adjacent territory, with useful information in regard to hotels, camps, lakes, rivers, etc., send a two-cent stamp to George H. Daniels, Manager General Advertising Department, Room 26, Grand Central Station, New York.

C. F. DALY Pass. Traffic Mgr. NEW YORK

W. J. LYNCH Pass. Traffic Mgr. CHICAGO

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.

Soda and baking powder, baking, Church & Dwight Co.	52,292
Specific for the treatment of whooping cough, Kroto Pharmaceutical Co.	52,455
Spectacles and eyeglasses and their mountings and parts, Stevens & Co.	52,381
Spices and mustard, E. R. Durkee & Co.	52,296
Starch, laundry, New Orleans Coffee Co.	52,304
Steel, Crucible Steel Company of America.	52,261
Steel, Park Steel Co.	52,277, 52,278
Stockings, elastic, Pomeroy Co.	52,279
Stoves and furnaces, F. & L. Kahn & Bros.	52,330
Stoves and furnaces, heating, Fiebeger Heating Co.	52,263
Stoves and ranges, Lattimer-Williams Manufacturing Co.	52,333
Sumac, gambier, oak, and hemlock extracts, G. H. Leonard & Co.	52,464
Suspenders, Pioneer Suspender Co.	52,371
Suspensory bandages and trusses, J. Ellwood Lee Co.	52,422
Syrup, Griggs, Cooper & Co.	52,326
Tea, Delano Mercantile Co.	52,514
Thread, cotton, Clark Mile-End Spool Cotton Co.	52,355
Tobacco, chewing and smoking, Hoffman & Co.	52,486
Tobacco, smoking and chewing, Gilbert, Son & Co.	52,419
Tonic for the regulation of the alimentary organs, Brand Brothers Co.	52,451
Tonic powdered nerve and muscle, E. T. Richards	52,500
Toothache wax, O. F. Lehnhardt	52,457
Trunks, valises, and satchels, P. C. Murphy Trunk Co.	52,368
Twine, Fulton Bay and Cotton Mills	52,482
Valves, blow-off, Lunkhenheimer Co.	52,336
Velvets, A. L. Dreyfuss & Co.	52,357
Washing machines, rotary, Benbow-Brammer Manufacturing Co.	52,437
Water, Lithia spring, Londonderry Lithia Spring Water Co.	52,334
Wheels, metallic rims for vehicle, Clincher Automobile Tire Manufacturers' Association	52,293
Whisky, L. Kahn & Co.	52,270
Whisky, Star Distillery Co.	52,280
Whisky, Lang, Schenck & Co.	52,334
Whisky, Blutenthal & Bickart	52,460
Whisky, Fairfax & Co.	52,479
Whisky, W. Schneider W. W. & L. Co.	52,494
Whisky, malt, S. Einswanger & Bro.	52,504
Wine, W. H. Jones & Co.	52,522
Wine in bottles, white, Compania Vinicola del Norte de Espana	52,509
Wire cloths and screens, W. S. Tyler Co.	52,388
Wringers and the parts thereof, clothes, American Wringer Co.	52,406
Yarns, woolen, worsted, and mohair, Henry E. Frankenberg Co.	52,442, 52,443

LABELS.

"Ambrosia Pure Chocolate Wafers," for confectionery, Ambrosia Chocolate Co.	12,860
"Checkorn," for a bonbon, L. C. Paschal	12,859
"Circeanum," for a cancer remedy, A. V. H. Wakeman	12,855
"Clay-olla," for cigars, O. L. Schwenke Lithographic Co.	12,843
"Cleverettes," for cigars, Schmidt & Co.	12,848
"El Scientific," for cigars, O. L. Schwenke Lithographic Co.	12,842
"Elegant," for flour, Pensacola Grocery Co.	12,856
"Greater Than King," for cigars, B. Lyon	12,849
"Indian," for cocoa, Pennsylvania Chocolate Co.	12,852
"Indian," for chocolate, Pennsylvania Chocolate Co.	12,853 to 12,855
Kermer's "E. T." (Every Time), for a medicine, C. F. Merker	12,866
"Knech," for cigars, W. Knoch	12,846
"La Mertina," for cigars, A. Mertens	12,850
"Little Victor," for cigars, O. L. Schwenke Lithographic Co.	12,845
"Mashall Coffee," for coffee, M. Horowitz	12,851
"Menth Campb," for an ointment, M. G. Sleem	12,864
"Mercedes," for cigars, Schmidt & Co.	12,847
"Nauvoo Brand Garments," for knitted combination union suits, Ensign Knitting Co.	12,869
"Prime," for thread and cotton, I. J. Silvestein	12,871
"Red Seal Brand Medicine Dropper," for a medicine dropper, American Lithographic Co.	12,867
"Red Seal Brand Medicine Dropper," for medicine droppers, American Lithographic Co.	12,868
"Royal Cream for Shaving," for shaving cream, Royal Cream Co.	12,861
"St. Bernard Extract of Bark," for extract of bark, St. Bernard Medicine Co.	12,863
"Star Baby Egg Matzoths," for biscuits, H. S. Levy	12,858
"Star Tea Matzoths," for biscuits, H. S. Levy	12,857
"The American Girl Skirt," for ladies', misses', and children's skirts, American Skirt Manufacturing Co.	12,870
"Turtle Egg Shampoo," for a hair wash, A. K. Rex	12,862
"William Bond," for cigars, O. L. Schwenke Lithographic Co.	12,844

PRINTS.

"A Triceron," for millinery and straw hats, Gage Brothers & Co.	1,642
"American Beauty," for millinery and straw hats, Gage Brothers & Co.	1,643
"Black and White," for millinery and straw hats, Gage Brothers & Co.	1,651
"Father of Waters," for flour, L. P. Hubbard	1,657
"Floral Effect," for millinery and straw hats, Gage Brothers & Co.	1,650
"Mushroom Fashion," for millinery and straw hats, Gage Brothers & Co.	1,647
"Panama Sailor," for millinery and straw hats, Gage Brothers & Co.	1,649
"Peaceful Feather," for millinery and straw hats, Gage Brothers & Co.	1,644
"Picturesque Chapeau," for millinery and straw hats, Gage Brothers & Co.	1,639
"Plaid Trimmed," for millinery and straw hats, Gage Brothers & Co.	1,638
"Plateau Drapé," for millinery and straw hats, Gage Brothers & Co.	1,646
"Ribbon Streamers," for millinery and straw hats, Gage Brothers & Co.	1,643
"Rose Garland," for millinery and straw hats, Gage Brothers & Co.	1,640
"Russell's Regulars," for playing cards, Willis W. Russell Card Co.	1,659
"Sapolin Gloss Carriage Colors," for carriage colors, Gerstdorfer Bros.	1,658
"The Singer Fashion Series," for corset covers and petticoats, Singer Sewing Machine Co.	1,652
"The Singer Fashion Series," for wedding gowns, Singer Sewing Machine Co.	1,653
"The Singer Fashion Series," for tailored traveling costumes, Singer Sewing Machine Co.	1,654
"The Singer Fashion Series," for afternoon gowns, Singer Sewing Machine Co.	1,655
"The Singer Fashion Series," for shirt-waist costumes, Singer Sewing Machine Co.	1,656
"Velvet-Box Plait," for millinery and straw hats, Gage Brothers & Co.	1,645
"Wings and Bows," for millinery and straw hats, Gage Brothers & Co.	1,641

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.

The Solution of Perfect Sanitation



is exemplified in the Sy-Clo Closet, the construction and action of which ends at once all the subtle dangers of disease-raising from improper cleansing; the escape of sewer gas; the absorption of poison by the material of which common closets are made (iron for instance); and the gradual discoloration of those interior parts which furnish a prolific breeding-ground for millions of death-dealing bacilli.

Examine your closet; if it is made of enameled iron or has just an ordinary flush, discard it at the first opportunity for a Sy-Clo. Your doctor pays the bill. If you are building a house or buying one, insist on Sy-Clo Closets with the trade mark name burned in the china. The fact that



Closets cost but little more than other closets—that, with ordinary care, they will last as long as the house in which they are installed, leaves no further excuse for sewer sickness. Ask the plumber. A book on "Household Health" mailed free, if you send the name of your plumber.

Lavatories of every size and design made of the same material, and on the same principle, as the Sy-Clo.

POTTERIES SELLING COMPANY,
Trenton, N. J.



Note the deep water seal, making the escape of gas impossible



Fictionless Metal
that is all the name implies. Satisfied customers are the best argument. You can reduce expenses in the plant by reducing long expensive stops and tearing down of machinery to babbitt it, by the use of Frictionless.

Start A Mail Order Business.
Acknowledged by shrewd business men one of the most pleasant and profitable business in the world. Stop working for others—big profits—money comes with orders—our plan for starting beginners is a sure winner and offers you a chance to get in business for yourself. Full particulars for stamp.

A. FRANKLIN-HOWARD CO., Kansas City, Mo.



EYE BENDERS
Make your eyes by using our hand power bending machines. Take stock up to 1/8 inch and bend up to 7 inches diameter. Write to-day for catalogue.

Wallace Supply Co., 921 Garden City Blk., Chicago, Ill.

SOCIALISM

The most important question of the day. Get posted. Read the greatest Socialist magazine in the world. 300,000 circulation. Send 10c. silver for one year's trial.

GAYLORD WILSHIRE, Editor
"Wilshire's Magazine," 200 Black Bldg., N. Y. City

RAZOR SAFETY FREE

Better than the \$5.00 kind. Mail us your dull razor and 35 cents and we will return your razor sharpened and also give you our Safety Guard and free booklet telling how to shave and hone your own razor as well as an expert.

A. GOODRICH, Mr.
Established 1864
548 W. Madison St., Chicago



We make, or will furnish complete outfit for making all styles. NEW YORK STENCIL WORKS,
100 Nassau Street, New York.

DO YOU
Want your PATENTS Developed?

Experimental, Models and fine instrument work. Surveying instrument repairs a specialty.

Richter & Poncet, 115 Court Street, Hob