

A Great Repository of Practical & Scientific Information

One of the *Fuller, Freshest and Most Valuable Hand-books of the Age. Indispensable to Every Practical Man.*

SIXTEENTH THOUSAND. PRICE \$2.00
Free of Postage to any Address in the World.

The Techno-Chemical Receipt Book:

Containing Several Thousand Receipts, covering the Latest, most Important, and most Useful Discoveries in Chemical Technology, and their Practical Application in the Arts and the Industries. Edited chiefly from the German of Drs. Winckler, Eisner, Heintz, Mierziński, Jacobsen, Koller, and Heizerling, with additions by William T. Brann and William H. Wahl, Ph.D. (Heil.) Secretary of the Franklin Institute. Illustrated by 78 engravings, one volume, over 500 pages, 12mo., elegantly bound in scarlet cloth, gilt, closely printed, containing an immense amount and a great variety of matter.

Price \$2.00, free of postage, to any address in the world.

A circular of 32 pages, showing the full Table of Contents of this important book, sent by mail, free of postage to any one in any part of the world who will furnish his address.

HENRY CAREY BAIRD & CO.
Industrial Publishers, Booksellers and Importers
810 Walnut St., Philadelphia, Pa., U. S. A.

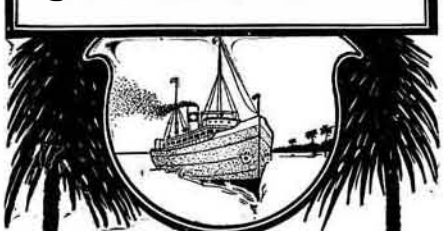
AUTOMOBILE users, drivers, repairmen, chauffeurs, and others wanted all over the country. 50,000 machines built this year in United States, affording great opportunities for men trained in this coming business. Six cents a day will qualify you for good wages in this field, in which the demand is such that ability counts ahead of pull and length of service. For full particulars address **The Correspondence School of Automobile Engineering**, Suite 1368, Flatiron Building, New York City.

FOR SALE

One 25 horse power Fairbanks-Morse & Co. Gasoline Engine complete, with fittings and fixtures.
One Robbins & Meyers Co. Electric Generator, 115 volts, 65 ampere, speed 1000.
One Apple Dynamo Gasoline Engine Igniter.
All in first-class condition.

SEIBER & TRUSSELL MFG. CO.
St. Louis, Mo.

JAMAICA



Avoid the Dreary Days of Winter

Visit the Island of Perpetual Summer

Travel on one of the perfectly equipped "Admirals," the Twin Screw U. S. Mail Steamships of the

United Fruit Company

They afford the most delightful salt water trip of the winter months. Within 24 hours after leaving, you are in the warm airs of the Gulf Stream. Hotel accommodations in Jamaica satisfy every desire.

Weekly Sailings from Boston and Philadelphia. Steamships "Brookline" and "Barnstable" weekly from Baltimore.

Round Trip, \$45
One Way, \$25

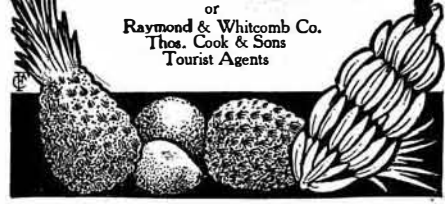
including meals and berth

"A Happy Month in Jamaica" is a fascinating booklet we send on request. For this and complete information, write to one of these addresses.

DIVISION PASSENGER AGENT
UNITED FRUIT CO.

Long Wharf, Boston
5 N. Wharves, Philadelphia
Hughes and Henry Sts., Baltimore
321 St. Charles St., New Orleans,
or

Raymond & Whitcomb Co.
Thos. Cook & Sons
Tourist Agents



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.

Belting, leather, Graton & Knight Manufacturing Co.	48,115
Bits, stirrups, spurs, and harness buckles, Smith Worthington Co.	48,084
Bitters, stomach, P. J. Bowlin Liquor Co.	48,164
Boots and shoes, elastic pads and cushions for the bottoms of, Treadair Rubber Co.	48,116
Boots and shoes, leather, Jenkins Bros. Shoe Co.	48,156
Boots, shoes, and slippers, upper and sole leather, Packard & Field.	48,080
Boots, shoes, and slippers, leather and leather and cloth, G. F. Daniels & Co.	48,087
Brandy, P. J. Bowlin Liquor Co.	48,181
Brandy, Wm. Bergenthal Co.	48,182
Brooms, H. Thompson.	48,171
Brushes, paint, E. Clinton & Co.	48,152
Brushes, varnish and paint, E. Clinton & Co. Buckets, well, Prewitt-Spurr Manufacturing Co.	48,112
Buffing compounds, George Zucker Co.	48,143
Cake and ice cream cones made from cake, Hazelwood Co.	48,127
Candles, E. Schneider & Co.	48,124
Candy, penny, New England Confectionery Co.	48,161
Cards, playing, A. O. Leonard.	48,158
Cards, playing, New York Consolidated Card Co.	48,170
Chains and lockets, Bassett Jewelry Co.	48,168
Cheese, Hazelwood Co.	48,128
Cigars and cheroots, Flogamo & Alvarez.	48,125
Coats, pants, and vests, men's and boys', Reinhard, Meyer & Co.	48,138
Coffee, Geiger Tinney Co.	48,142
Coffee, cereal, Sleepy Eye Milling Co.	48,167
Cologne spirits, Diamond Distilleries Co.	48,169
Cordials, A. Breslau Co.	48,173
Corsets, corset waists, and corset steels, Kops Bros.	48,107
Cotton and part cotton piece goods, Smith, Hogg & Co.	48,091
Cotton flannel, Pemberton Co.	48,111
Cuffs, J. B. Boyd.	48,119
Cure for abscesses in teeth, E. P. Rutherford.	48,185
Dentifrice in powder, liquid, and paste form, tooth, Woodman-Davis Co.	48,194
Eggs, Hazelwood Co.	48,126
Fabric formed of woven splints, strips, or slats, and thread, cord, or wire for shades, screens, curtains, and the like, Hough Shade Corporation.	48,088
Fabric, silk, Stewart Silk Co.	48,092
Fish, canned, W. T. Shute.	48,166
Flour, wheat, G. C. Christian & Co.	48,122
Flour, wheat, Acme Milling Co.	48,146
Flour, wheat, M. Alexander.	48,150
Flour, wheat, G. C. Christian & Co.	48,151
Game, E. I. Horsman Co.	48,153
Gin, P. J. Bowlin Liquor Co.	48,182
Gloves, J. Adler & Co.	48,149
Guano, Tennessee Chemical Co.	48,093
Hats, hat frames, and hat trimmings, John Miles.	48,131
Ice cream, Hazelwood Co.	48,130
Lard, Tennessee Packing and Provision Co.	48,140
Magazine or periodical, Homefolk Publishing Co.	48,154
Magazines, periodical, Doubleday, Page & Co.	48,096
Mattresses, T. B. Burnett.	48,086
Mattresses, Foster-Allison Co.	48,104
Medicinal tablets, Antikamnia Chemical Co.	48,189
Medicine for cows, Dairy Association Co.	48,176
Medicine for the remedy of nervous debility, Ho Ly-Yuen.	48,178
Medicines for the regulation of the liver and purification of the blood, A. H. Lewis Medicine Co.	48,188
Milk and cream, Hazelwood Co.	48,129
Molasses, N. W. Taussig Co.	48,136
Mustard, prepared, Joseph Campbell Co.	48,089
Nails, horse, Capewell Horse Nail Co.	48,113
Neckwear supporters, ladies', Blumenkrohn Crochet Button Works.	48,118
Oils and greases, lubricating, A. W. Corning.	48,121
Ointment or salve, E. Schmidt & Co.	48,186
Paint, Nansen Composition and Paint Co.	48,135
Paste, Diamond Paste Co.	48,123
Pencils, lead, Eagle Pencil Co.	48,097 to 48,103
Pens, steel, Hall Bros.	48,105
Pipes and fittings, soil, Abendroth Bros.	48,145
Razors, Krusius Bros.	48,157
Remedy for certain named diseases, Patton-Worsham Drug Co.	48,180
Remedy in tablet form for colds, headache, and grip, Bromo Chemical Co.	48,174
Rings, Jones & Woodland.	48,132
Roofing, ready tar and felt, Barrett Manufacturing Co.	48,117
Roofing slate, Slatington-Bangor Slate Syndicate.	48,139
Rubber boots and shoes, Lambertville Rubber Co.	48,133
Rum, P. J. Bowlin Liquor Co.	48,163
Sheetings, Minot, Hooper & Co.	48,159
Silk crapes, brilliant soft twisteds, Hess, Goldsmith & Co.	48,106
Tobacco and cigarettes, smoking, Carreras Limited.	48,095
Tonic, Voigt & Co.	48,193
Varnish and japan, Mayer & Loewenstein.	48,179
Veterinary antiseptic remedy for screw worm, C. Robinson.	48,183
Watch movements, Hampden Watch Co.	48,144
Whiskies, S. C. Herbst.	48,177
Whisky, Morrill-Powers Merc. Co.	48,134
Whisky, T. Pepper's Sons.	48,137
Whisky, G. Rexinger.	48,165
Whisky, A. Breslau Co.	48,172
Whisky, I. Ciener.	48,175
Whisky, R. M. Rose Co.	48,184
Whisky, T. H. Swan.	48,187

LABELS

"Adirondack Line," for shoes, E. A. Quiri.	12,550
"Car-Wi-Co. Georgia Syrup," for syrup, Cargill-Wight Co.	12,542
"Diamond Bar," for prunes, J. J. Shaner.	12,545
"Durham," for cheese, S. Van Koning.	12,547
"Holstein," for cheese, S. Van Koning.	12,546
"Hosterman's Equine Invincible Healer," for ointment, J. H. Hosterman.	12,543
"Irene," for hair tonic, J. S. Riley.	12,544
"Liebtschauer," for beer, J. J. Joliet Bottling Co.	12,541
"Puncture Cover," for cans, Wm. Underwood Co.	12,551
"Queen Aroma," for cigars, I. Delatisky & Son.	12,540
"Seaborg's Silverside," for canned salmon, Seaborg Pkg. Co.	12,548
"Sparkling Stone," for cigars, Goldberg & Finkelstein.	12,539
"Taroena," for cooked food made from the taro root, Taro Food Co.	12,549
"The American Bureau of Information," for publications relating to national industries, A. E. Horton.	12,552

PRINTS.

"A Real American," for tobacco, Bloch Brothers Tobacco Co.	1,511
"Blanchette Process Paint," for preservative paints, composition coatings, enamels, and water paint, Blanchette Process Paint Co.	1,514
"Celebrated Curative Wine of Chenstow," for a wine, A. Skarzynski & Co.	1,510
"Reuter's Soap," for soap, Barclay & Co.	1,512
"Say Jack—That's the Stuff that makes you feel like a horse," for stock food, Pratt Food Co.	1,513

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 POSTAL TYPEWRITER CO.'S

FACTORY AT NORWALK, CONN.

is Equipped to do Experimental Work. Tool Making and Manufacturing. Inventions Developed. Very Best Work Guaranteed. Correspondence Solicited.

Men and boys wanted to learn PLUMBING TRADE, pays \$5 a day after completing course of practical instruction at home or in our schools. Graduates admitted to Union and Master Plumbers' Association. Positions secured. COYNE BROS. CO. PLUMBING SCHOOLS, 230 Tenth Avenue, New York. St. Louis, Mo. Cincinnati, O. Free catalog.

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

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

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

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

Models & Exper. Work, Gears, Dies, Tools, Small Machy., Scient. Instrs. M. P. Scheil, 506 Mission St., San Francisco.

MODELS & CHICAGO MODEL WORKS ESTABLISHED 1867 179 E. MADISON ST. CHICAGO, ILL.

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

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

Telegraphy Circular free. Wonderful automatic teacher. 5 styles \$2 up. OMNIGRAPH CO., Dept. 52, 89 Cortlandt St., New York.

SPECIAL Machines or Parts made to order; new devices developed; successful experimental work done reasonably; skilled labor; good facilities.

J. K. ENGELMAN, 74 Hudson Street, Jersey City, N. J.

WIRELESS TELEGRAPH, \$7.50. Powerful transmitting coil, sending key, coherer, de-coherer, very sensitive relay, batteries, 100 feet aerial wire, insulators, ground clamp, full instructions, two pages of diagrams. Most remarkable outfit in the world. Send for Illustrated Bulletin. New England Coil Winding Company, Atlantic, Mass.



A Study in Pastel

THIS HANDSOME GIBSON PROOF FREE

Printed in two colors on fine plate paper, size 10 1/2 x 14 1/2, and ordinarily sold for \$1.00. Given free with the

De Luxe Edition
of the

GIBSON NUMBER

Although 100,000 extra copies of Collier's Gibson Number were issued, they were immediately sold, and the demand for additional copies necessitated publishing a second edition. As Mr. Gibson has discontinued pen-and-ink drawing, this is the last Gibson Number ever to be published. It embraces the largest and best collection of Gibson's drawings ever published outside of book form. Being an Edition *de Luxe*, it makes a souvenir of permanent value. If preferred, the drawings may be cut out and framed, as the issue is printed throughout on heavy plate paper. With each copy is included a separate artist's proof of a girl's head, which ordinarily sells for \$1.00

De Luxe Edition, carefully printed on heavy plate paper, including separate artist's proof for framing, mailed to any address on receipt of 25 cents. Address

DE LUXE EDITION, P. F. COLLIER & SON
418 WEST THIRTEENTH STREET, NEW YORK CITY

LET US BE YOUR FACTORY

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

Inspector General of Forests WESTERN AUSTRALIA

Applications for above position addressed to Public Service Commissioner, Perth, W. A., will be received up to 1st March, 1906. Applicants must have a thorough knowledge of scientific and practical forestry in connection with both hard and soft woods, as well as the administrative ability and experience necessary to undertake the charge of the Forestry Branch of the Lands and Surveys Department.

Salary £750. Appointment to be for one year with an undertaking if services prove satisfactory to place the successful applicant permanently under the Public Service Act.

An allowance will be made toward cost of transit to Perth.

M. E. JULL,
Public Service Commissioner

ELECTRO MOTOR, SIMPLE, HOW TO make.—By G. M. Hopkins. Description of a small electric motor devised and constructed with a view to assisting amateurs to make a motor which might be driven with advantage by a current derived from a battery, and which would have sufficient power to operate a foot lathe or any machine requiring not over one man power. With 11 figures. Contained in SCIENTIFIC AMERICAN SUPPLEMENT, No. 641. Price 10 cents. To be had at this office and from all newsdealers.

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

ATTENTION!

A well-known English firm seek low-priced novelties for sale to ironmongers and the Electrical Trades. Promptest payments. Highest bank references. Full particulars to PATENT PLUG CO., LTD., 11 Carteret Street, Westminster, London, S. W. ENGLAND.