

Splitting Hairs

The razor that will split a hair is the stopped razor, for no razor, no matter what kind, can hold a hair-splitting edge without being occasionally stopped. The barber will tell you that a good stop is as necessary as the razor for a smooth, easy shave. A Torrey Stop will enable the most inexperienced to quickly edge up a razor.

Torrey Strops

are made in all styles. Popular prices—50c, 75c, \$1.00, \$1.50, \$2.00 and \$2.50. Sent postpaid if your dealer cannot supply. Money refunded or new stop if not satisfactory.

Torrey's Oil-Edge Dressing will keep any stop soft and pliable. Price 15c at dealers, or mailed on receipt of price. Catalogue of Torrey Strops, containing valuable information for those who shave, sent free.

J. R. TORREY & CO., P. O. Box 34, WORCESTER, MASS.

Tours

Personally Conducted—Exclusively First-Class—to California—January 10th, February 7th and March 2nd under the auspices of the tourist department, Chicago, Union Pacific and North-Western Line;

Include all expenses

—hotels, railway fare, sleeping car and dining car accommodations of the finest character, and numerous side trips. So arranged as to spend the disagreeable portions of the winter months in comfort and ease.

Write for itineraries and full particulars to S. A. Hutchinson, Manager, 212 Clark Street, Chicago, Ill.

PC163

BABBITT METALS.—SIX IMPORTANT FORMULAS. SCIENTIFIC AMERICAN SUPPLEMENT 1123. Price 10 cents. For sale by Munn & Co. and all news-dealers. Send for catalogue.

BIG SALARIES

Are made by WHOLESALE GROCERY SALESMEN. There is a constant demand for capable Salesmen. Houses ask for our men. We teach you to be an EXPERT by mail. Our system is simple, practical, thorough and authentic. Our instructors are experienced wholesale grocerymen. Write to-day for our FREE booklet giving full particulars. Address The Wholesale Grocers' Institute, Kansas City, U. S. A.

BRAIN WORKERS—THINKERS!

Have you that clearness of mind so essential to success in your undertakings? You can have, but not until your physical system is right. I want to tell every interested reader of SCIENTIFIC AMERICAN how he may attain perfect physical health by adopting the simplest, most rational and logical method yet known—RAW FOOD DIET—not a fad of "cranks," not a theory, but an infallible method of proper eating. Send \$1.00 for sack of my MASCERATED WHEAT (30 days supply), and convincing letters, or merely write for literature and information blank.

BYRON TYLER, 334 Life Bldg., Kansas City, Mo.

YOUR PATENT

Carefully Developed May Be a Success! Development of ideas, experiments, models. Speciality, small machinery and fine instruments. Modern equipments. Technical office. RICHTER BROS. and Manufacturers, 115 Court Street, Hoboken, N. J. Two minutes from D. L. & W. Depot.



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.

Shoes, leather, Menzies Shoe Co.....	57,600
Silver plated hollow ware, International Silver Co.....	57,329
Soap, Lever Brothers Co.....	57,399
Soap, Pitts Sanitary Co.....	57,400
Soap, Lever Brothers Co.....	57,536
Soap, harness, Duranoid Mfg. Co.....	57,295
Soap, laundry and powdered, C. W. Young & Co.....	57,309
Soaps, Lambert Pharmacal Co.....	57,563
Spectacles and eyeglass parts, C. A. Wilkinson & Co.....	57,488
Spirits, Woolner & Co.....	57,287
Steel, Walter Spencer & Co.....	57,391
Steel, Crucible Steel Company of America	57,517
Steel, Sanderson Brothers & Newbould....	57,475
Steel, Walter Spencer & Co.....	57,486
Steel, Hobson, Houghton & Co.....	57,506
Steel, Seeborn & Dieckstahl.....	57,612
Steel and iron, Walter Spencer & Co.....	57,617
Steel, except sheet steel, unwrought and partly wrought, Edgar Allen & Co....	57,450
Steel, tool, Firth-Sterling Steel Co.....	57,410
Steel, tool, J. J. Saville & Co.....	57,459
Steel, unwrought and partly wrought, Edgar Allen & Co.....	57,380
Steel, unwrought and partly wrought, Jonas & Colver.....	57,469
Steel unwrought and partly wrought, W. K. & C. Peace.....	57,485
Steel, unwrought and partly wrought, and wire made of steel, Marsh Brothers Co.	57,428
Stoves and burners, gas ranges, and ovens, vapor, American Stove Co.....	57,435
Stoves, heaters, and lamps and burners therefor, oil, Plume & Atwood Mfg. Co....	57,540
Stoves, heaters, burners, and blow lamps, G. Barthel.....	57,438
Stoves, ranges, and furnaces, Pittsburgh Hardware & Home Supply Co.....	57,471
Stoves, vapor burners, and ovens, gasolene or vapor, American Stove Co.....	57,406
Suspenders, C. A. Egarten Manufacturing Co.....	57,291
Suspensory bandages, J. R. Somerville....	57,478
Tablets, stomach, J. W. Stahlberg.....	57,546
Talking machines and parts thereof, Victor Talking Machine Co.....	57,551
Talking machines and talking machine parts and records, Universal Talking Machine Manufacturing Co.....	57,550
Tape, dressmakers', Wm. E. Wright & Sons Co.....	57,320
Tea, B. E. Buge.....	57,585
Tea, Geo. A. Young Co.....	57,589
Tea, Griggs, Cooper & Co.....	57,592
Tea, New York Coffee Co.....	57,601
Tea and coffee, C. F. Blanke Tea & Coffee Co.....	57,580
Tea and coffee, Mazawattee Tea Co.....	57,621
Textiles, certain named, P. W. Thompson	57,314
Thread, cotton, Clark Mile-End Spool Cotton Co.....	57,376
Thread, cotton, H. B. Locke.....	57,413
Tonic, laxative, J. Rosenberg.....	57,541
Tonic, malt, Pabst Brewing Co.....	57,333
Tools certain named cutting, Collins Co....	57,498
Transom adjusters, New York Blind and Transom Adjuster Co.....	57,467
Typewriter ribbons and carbon paper, Crown Ribbon & Carbon Manufacturing Co....	57,350
Valve grinding compounds, Auto Equipment Co.....	57,556
Washboards, American Washboard Co.....	57,436
Washing and cleansing compounds, Trans-Pacific Manufacturing Co.....	57,481
Washing compound, F. G. Bagley.....	57,437
Washing powder, Fairchild & Shelton Co.	57,311
Washing powder, N. K. Fairbank Co.....	57,430
Watches, W. C. Ball.....	57,492
Water, mineral, "Apenta" Roszveny-Tarsasag.....	57,321
Waters, ginger ale, and wild cherry phosphate, mineral, Waukesha Arcadian Co.	57,339
Whisky, Sonn Bros. Co.....	57,262
Whisky, Standard Distilling Co.....	57,263
Whisky, Tucker and McCormack.....	57,264
Whisky, J. Walsh & Co.....	57,265
Whisky, Weiss, Eichold & Co.....	57,266
Whisky, White, Hentz & Co.....	57,269
Whisky, William Werder & Son Co.....	57,270
Whisky, F. Wolfenman.....	57,271
Whisky, Woolner & Co.....	57,272
Whisky, Chas. A. Zahn Co.....	57,273
Whisky, M. H. Haussling.....	57,274
Whisky, Hollenden Hotel Co.....	57,275
Whisky, Standard Distilling Co.....	57,276
Whisky, Ullman Einstein Co.....	57,277
Whisky, J. Walsh & Co.....	57,278
Whisky, Weiss, Eichold & Co.....	57,279
Whisky, F. Wolfenman.....	57,280
Whisky, S. Hirsch & Co.....	57,281
Whisky, M. J. Bligh.....	57,282
Whisky, Robinson & Parker.....	57,283
Whisky, Wheeling Liquor Co.....	57,284
Whisky, Schmidt & Dechert.....	57,285
Whisky, H. Rosenheim & Son.....	57,286
Whisky, Dreyfuss, Weil & Co.....	57,287
Whisky, Robinson & Parker.....	57,288
Whisky, J. Wagner & Sons.....	57,289
Whisky, Scotch, F. R. West's Nephews....	57,290
Whisky, Scotch, J. Gillen & Co.....	57,291
Wine, L. Rosenzweig.....	57,292
Wire netting, fencing, cloth and lathing, New Jersey Wire Cloth Co.....	57,334

LABELS

"Autocrat Whisky," for whisky, Edwin Schiele.....	13,192
"Good Luck," for whisky, J. Grossman's Sons	13,193
"Green Mountain Chewing Gum," for chewing gum, Green Mountain Gum Co.....	13,197
"Honey Cream Tonic," for honey-cream extracts and beverages, German-American Honey Champagne Co.....	13,195
"Honeycream Chocolates," for confectionery, Fred L. Norton.....	13,196
"Logan's Cream Balm Hair Restorer," for a hair restorer, Mary E. Logan.....	13,198
"Royal Buck," for gin, J. Grossman's Sons	13,194
"Techade Rubberoid," for a rooking, Standard Paint Co.....	13,199

PRINTS.

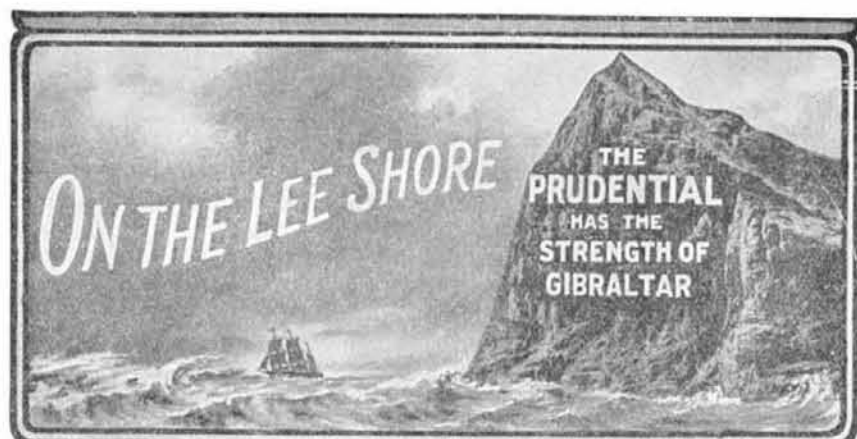
"Abbott's Angostura Bitters," for bitters, C. W. Abbott & Co.....	1,831
"Bear Brand Gummos," for gummos, Tennessee Chemical Co.....	1,838
"Enlightening the Clothing World," for clothing, Ed. V. Price & Co.....	1,835
"Men and Boys Apparel," for mens and boys' apparel, H. C. Lytton.....	1,833
"Men's Apparel," for men's apparel, W. C. Both.....	1,834
"Ox Brand Gummos," for gummos, Tennessee Chemical Co.....	1,839
"Pearl of Memphis," for beer, Memphis Brewing & Malting Co.....	1,832
"Suggestion Number Five," for woollens, Ed. V. Price & Co.....	1,836
"Tri-Plate Back Bicycle Playing Cards," for playing cards, United States Playing Card Co.....	1,837

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.

DON'T BUY GASOLINE ENGINES

UNTIL YOU INVESTIGATE "THE MASTER WORKMAN," a two-cylinder gasoline, kerosene or alcohol engine, superior to any one-cylinder engine revolutionizing power. Its weight and bulk are half that of single cylinder engines, with greater durability. Costs less to buy—less to run. Quickly, easily started. Vibration practically overcome. Cheaply mounted on any wagon. It is a combination portable, stationary or traction engine. SEND FOR CATALOGUE. THE TEMPLE PUMP CO., Mfrs., Meagher and 15th Sts., Chicago. T. B. IS OUR FIFTY-THIRD YEAR.



A Thrilling Story of American Business Life

Written by Broughton Brandenburg, President American Institute of Immigration. Don't fail to read it. It tells how a fortune was made and lost in tobacco speculations—how a sudden turn in the stock market, crippled a daring financier, how the death of his brother-in-law completed the financial ruin, and brought the delicately reared family to the verge of want. It also shows how a Prudential Life Insurance Policy for \$50,000 saved the situation. The author says of The Prudential Policy:

"It stood out like a chimney-tower above the blackened ruins of a mansion that had been swept by fire."

The popularity of the above article has been such that The Prudential is issuing it in pamphlet form. Write at once for a copy. It costs you nothing.

Prudential Life Insurance Policies are popular because of their liberal provisions.

The Prudential

Insurance Company of America

INCORPORATED AS A STOCK COMPANY BY THE STATE OF NEW JERSEY.

JOHN F. DRYDEN, Presl. Dept. 121 Home Office, NEWARK, N. J.

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.

Bad Water
DON'T DRINK
Our Filters Purify, Deodorize, Decolorize. Boilket Free.
Bubbling Water Purifying Co.
68 Murray St., New York

"KNIFE" BALL BEARINGS
Pat.
For thrust or weight or both.
No fitting, just push them on.
All sizes 1/4 in. shaft and up.
10 cts. in stamps for samples.
PRESSED STEEL MFG. CO., 545 The Bourse, Phila., Pa.

AUTOMOBILE INSURANCE
Every owner of an Auto should insure his car against loss or damage, whether in actual riding or in transit. We fully insure you against such loss or damage, however sustained. Premiums low. Bullest reliability.
H. W. BEALS, 76 William Street, New York

FREE ILLUSTRATED BOOK
We will on request send to you postpaid, this book, also our special plans by which you can secure any article in our catalog absolutely free. Write to-day—don't miss this chance. J. Andrae & Sons Co., 114 W. Water Street, Milwaukee, Wis.

ICE MACHINES
Carliss Engines, Brewers and Bottlers' Machinery. THE VILTER MFG. CO., 835 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 & CO., 228-229 South Street, New York

Model and Experimental Work. Years of experience. M. P. Schell, 1759 Union St., San Francisco

MODELS & CHICAGO MODEL WORKS
ESTABLISHED 1867
LINENUM-A MOLDED MATERIAL MADE OF PURE LINEN
CRANE BROS. MANUFACTURERS, WESTFIELD, MASS.

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

BE A WATCHMAKER
Send for our freebook. How to be a Watchmaker. Stone School of Watchmaking, 34 Globe Bldg., St. Paul, Minn.

Are you interested in Patents, Model or Experimental work? Our booklet entitled
WHAT WE DO—HOW WE DO IT
will be sent to you on request.
KNICKERBOCKER MACHINE WORKS, Inc.,
8-10-12 Jones Street, New York.

WATER-WORKS

GRAND JUNCTION, COL., Nov. 24, 1906.

Sealed proposals will be received by the City Council of the City of Grand Junction, Colorado, until eight o'clock P. M. Saturday, November 28th, 1906, for furnishing material and constructing the Kannah Creek pipe line and distributing reservoirs.

The work will consist of a wooden stave pipe line 19.8 miles long, varying in size from 12 inches to 22 inches in diameter, with head works, settling tank, regulating and relief valves, and re-inforced concrete distributing reservoirs, having a capacity of five million gallons.

Bids will be received for both wire wound, and continuous wooden stave pipe, except for the twelve-inch pipe which shall be wire wound.

Plans may be seen, and specifications obtained at the office of the City Clerk of Grand Junction, Colorado, or at the offices of Willard Young and Frank C. Kelsey, Civil Engineers, Salt Lake City, Utah. A bond furnished by a surety company will be required for twenty percent of the contract price. The time stated in the proposal for completing the work will be considered in awarding the contract.

The right is reserved to reject any or all bids or to award separate contract for the pipe line and for the reservoirs.
I. N. BUNTING, Mayor.
JOHN M. CONLEY, City Clerk.

I Print My Own Cards
Circulars, books, newspaper. Card press \$5. Larger \$18. Money saver, maker. All easy, printed rules. Write factory for catalog, presses, type, paper, cards. The Press Co., Meriden, Conn.

NAME PLATES—STEEL STAMPS
EMPLOYEE CHECKS, KEY TAGS & BADGES
J. ROBBINS MFG. CO. 58 KNEELAND ST.
SEND FOR CATALOGUE BOSTON, MASS.

To Book Buyers

We have just issued a new 112-page catalogue of recently published Scientific and Mechanical Books, which we will mail free to any address on application.

MUNN & COMPANY
Publishers of SCIENTIFIC AMERICAN
361 Broadway, New York