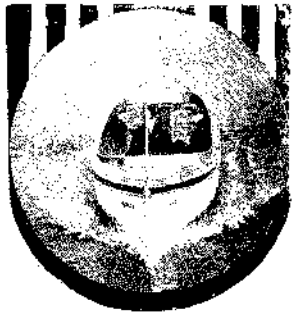


**LOFTIS SYSTEM** **Diamonds** **ON CREDIT**  
 You Can Easily Own a Diamond or Watch. Pay 15¢ on delivery, balance 8 monthly payments. Descriptive catalog free. Write today. **Old Reliable Original Diamond and Watch Credit House**  
**Loftis Bros. & Co.** Dept. Dist., 92 State St., Chicago, Ill.

**Build It Yourself**  
 See First and Pay Afterwards  
**ON THE EASY PAYMENT PLAN**



Get Pioneer Perfect Frames now—finish your boat in season and pay as you build.  
 That's the fair way—the square way—the Pioneer way.  
 You know that Pioneer Perfect Frames are honestly made, that they supply the hard part—finish completely and on your mind that they save you two-thirds the boatbuilders' prices and nine-tenths of freight charges—but you don't know it—although you are entitled to—so we meet you more than half way—we ask you to pay only part down—that is your guarantee that Pioneer Perfect Frames are all we claim and that you will be successful with them.

**PIONEER PERFECT FRAMES**  
 Include perfect parts, fitted, tested, set up complete by our boatbuilders, then knocked down for shipment—you have merely to reassemble them—only common tools needed. Patterns and instructions for finishing already laid with frames. Or, if you want to build your boat complete, get a set of **Pioneer Guaranteed Patterns—Try Them 30 Days.** If they are not all we claim, simple, easy to follow and thoroughly practical, just return them and get your money back without question. Start now—build your boat in your spare hours before spring.  
 Write to-day for free booklet, or send 25¢ for big 100 page 9x12 book on boatbuilding. Prices, descriptions and 200 illustrations of 40 styles of boats you can build, engines, fittings, etc., and other practical information. Your quarter back if you're not more than satisfied.  
**Pioneer Boat & Pattern Co., Wharf 85, Bay City, Mich.**

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

**Frictionless Metal**  
 TRADE MARK  
 A bearing that is a money maker.  
 Satisfies customers as the best investment. You can reduce expenses in the plant by reducing long expensive steps and turning down of machinery to substitute it, by the use of Frictionless Metal.  
**Frictionless Metal Co., Chestnut St., Chittanooga, Tenn.**

**VALUABLE PATENT FOR SALE**  
**IMPROVED RATCHET BIT BRACE**  
 (See Scientific American, March 30, 1907, for full description.)  
 A Money Maker, but we have other interests demanding all our time. Would consider proposition to manufacture on royalty.  
**KARLSON & GRAN**  
 134 Oak Street Chicago

**CONCRETE BUILDING BLOCK MANUFACTURERS**  
 Reduce cost by my process, which allows you to cast "sloppy wet" blocks on dry process machines and remove at once. Double moulds waste the inner mould after each block is made. For full information, address  
**S. W. HENDRICKSON, Patente, White Plains, N. Y.**

**AMERICA'S MOST POPULAR RAILWAY**  
**CHICAGO AND ALTON**  
**PERFECT PASSENGER SERVICE**

BETWEEN  
**CHICAGO AND KANSAS CITY,**  
**CHICAGO AND ST. LOUIS,**  
**CHICAGO AND PEORIA,**  
**ST. LOUIS AND KANSAS CITY.**

THROUGH FULLMAN SERVICE  
 BETWEEN CHICAGO AND  
**HOT SPRINGS, Ark., DENVER, Colo.,**  
**TEXAS, FLORIDA, UTAH,**  
**CALIFORNIA AND OREGON.**

IF YOU ARE CONTEMPLATING A TRIP, ANY PORTION OF WHICH CAN BE MADE OVER THE CHICAGO & ALTON, IT WILL PAY YOU TO WRITE FOR THE UNDER-SIGNED FOR RATES, MAPS, TIME-TABLES, ETC.  
**GEO. J. CHARLTON,**  
 GENERAL PASSENGER AGENT,  
 CHICAGO, ILL.

**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.

- Ointment for piles, cuts, burns, etc., James W. Foster Co. 61,666
- Ointments, Pitman-Myers Co. 61,758
- Organs, pipe, L. D. Morris 61,711
- Paint, mixed, and enamels, Holzapfel's Compositions Co. 61,631
- Paper and typewriter ribbons, carbon, Corona Supply Co. 61,727
- Paper, blue-print, Technical Supply Co. 61,675
- Pills, Railway & Co. 61,759
- Plasters, corn and bunion, Bauer & Black 61,694
- Printing plates, apparatus for making stereotype, Campbell Printing Press & Manufacturing Co. 61,726
- Rat and roach exterminator, Stearns Electric Paste Co. 61,655
- Rat, vermin, and insect destroyer or exterminator, H. C. Spetzler 61,742
- Remedies for certain diseases, American Druggists Syndicate 61,722
- Remedies for certain diseases, Dr. Miles Medical Co. 61,728
- Remedies for certain diseases, Goodness Bros. 61,732
- Remedies for the cure of blood, liver, and kidney diseases, G. H. Lawson 61,708
- Remedy for certain diseases, Railway & Co. 61,739
- Remedy for colds and throat and lung troubles, E. Heffernan 61,773
- Remedy for diseases of the stomach and bowels, Pepsin Syrup Co. 61,686
- Remedy for liver complaints, Dr. D. Jayne & Son 61,681
- Remedy for purifying the blood and preventing cholera, H. Vincent 61,690
- Remedy for whooping cough, Spinal Co. 61,740
- Rheumatism, pleurisy, etc., cure, Mist Rheumatic Co. 61,784
- Salve for the cure of eczema, etc., E. Lawson 61,668
- Salve, eye, E. Kahaka 61,706
- Seeds, grass, grain, timothy, and clover, Albert Dickinson Co. 61,692
- Sewing machines, sewing machine attachments, covers, tables, and stands, White Sewing Machine Co. 61,720
- Shirts, men's cotton and woolen, Elmira Shirt Manufacturing Co. 61,769
- Silk fabrics, Lanza Silk Co. 61,779
- Silk ribbons, piece goods, and linings, S. C. Guye 61,754
- Soap, Lever Brothers Co. 61,633
- Soap, Mexican Amole Soap Co. 61,635
- Soap, E. D. Ward 61,637
- Soap, R. M. Hollingshead 61,774
- Soap, antiseptic toilet, Hall & Ruckel 61,630
- Soldering and cleansing metals, solution for, Brumer Bros. 61,641
- Soldering flux, M. W. Dunton & Co. 61,781
- Spices, Black Hawk Coffee & Spice Co. 61,637
- Sweaters, cardigan jackets, knitted bathing suits, and stockings, Platt & Clark Co. 61,714
- Taffy or taffee, M. Hyman Confectionery & Catering Co. 61,780
- Thinners or solvents, Lilly Varnish Co. 61,634
- Tires, solution for repairing, J. B. Sans 61,654
- Tonic, Rheinstrom, Bettman, Johnson & Co. 61,789
- Tonic, restorative and nutritive, J. M. Liebermann 61,785
- Tooth paste and powder, P. Biersdorf & Co. 61,678
- Toy figures, C. Sackman 61,716
- Toy holding belts, hoops, or girloles, M. D. Coates 61,746
- Typewriting machines, Royal Typewriter Co. 61,674
- Varnishes and stains, X-Ray Varnish Co. 61,638
- Velveteens, N. Erlanger, Blumgart & Co. 61,786
- Violin, mandolin, guitar, and banjo strings, Buegeleisen & Jacobson 61,679
- Washing machines, Richmond Cedar Works 61,740
- Washing machines, W. J. Zull 61,797
- Water, javelle, A. Castaing 61,680
- Water purifying and softening preparation, Porcela Co. 61,672
- Water purifying apparatus, Pittsburg Filter Mfg. Co. 61,737
- Whisky, F. C. Ronziehaugen 61,688
- Whisky, Casey Brothers 61,699
- Whisky, A. Lipman 61,709
- Whisky, Sunset Distilling Co. 61,719
- Whisky, P. Freiler 61,731
- Whisky, Jaeger Bros. Co. 61,733
- Whisky, Geo. Benz & Sons 61,752
- Whisky, Kohn Distilling Co. 61,778
- Whisky, I. Menheimer 61,785
- Whisky, William H. Lee & Co. 61,794
- Whisky, eye, Theo. Moore Distilling Co. 61,761
- Wood and furniture polishes, Citizens' Wholesale Supply Co. 61,629
- Wool, fine and cross-bred grades of, D. S. Pratt 61,673

- LABELS.**
- "Arbor Series Heliotrope," for soap, Armour & Co. 13,438
  - "Arbor Series Lilac," for soap, Armour & Co. 13,451
  - "Arbor Series Rose," for soap, Armour & Co. 13,444
  - "Arbor Series Violet," for soap, Armour & Co. 13,449
  - "Arcadia Heliotrope," for soap, Armour & Co. 13,445
  - "Arcadia Lilac," for soap, Armour & Co. 13,442
  - "Arcadia Violet," for soap, Armour & Co. 13,447
  - "Asparagus Smyrna Fig Coffee," for coffee, A. E. Crocker 13,428
  - "Butterilk," for trousers, L. G. Titus 13,453
  - "Extypoo," for a depilatory, E. Smith 13,431
  - "Frickel Nocksem-All," for cleansing compound, H. Frickel 13,435
  - "Lydia E. Pinkham's Vegetable Compound," for medicine, Lydia E. Pinkham Medicine Co. 13,433
  - "Night Gowns, S. J. U. Co.," for night gowns, South Jersey Underwear Co. 13,452
  - "Plymouth Rock Coffee Jelly Compound," for coffee jellies, Plymouth Rock Gelatine Co. 13,429
  - "Rosilco," for cleaning compound, M. J. Roberts 13,434
  - "Saven Mucha Heliotrope," for soap, Armour & Co. 13,450
  - "Saven Mucha Lilac," for soap, Armour & Co. 13,437
  - "Saven Mucha Sandalwood," for soap, Armour & Co. 13,439
  - "Saven Mucha Violet," for soap, Armour & Co. 13,446
  - "Si Perkins," for cigars, Koelle-Mueller Label Co. 13,427
  - "Sylvan Carnation," for soap, Armour & Co. 13,443
  - "Sylvan Lilac," for soap, Armour & Co. 13,441
  - "Sylvan Rose," for soap, Armour & Co. 13,440
  - "Sylvan Sandalwood," for soap, Armour & Co. 13,448
  - "Transparesa Complexion Glycerine Soap," for soap, Armour & Co. 13,436
  - "Union Maid," for flour, Patten Milling Co. 13,430

- PRINTS.**
- "Handling the Flour Question—Right," for flour, Washburn Crosby Co. 1,947
  - "Hello! Hello!" for flour, Washburn Crosby Co. 1,944
  - "If You Were a Miller," for flour, Washburn Crosby Co. 1,946
  - "Lilies of the Valley and Sundown Backs, Congress Playing Cards," for playing cards, United States Playing Card Co. 1,949
  - "Some People Fuss and Fume and Pret Over Bread Making," for flour, Washburn Crosby Co. 1,945
  - "The Alarm Clock," for a cereal breakfast food, Cream of Wheat Co. 1,943
  - "The Household Surgeon," for antiseptic healing oil, Paris Medicine Co. 1,948

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.

**A WATCH FOR THE LABORATORY**

OR FOR ANY OTHER PURPOSE WHERE AN ACCURATE MOVEMENT COMBINED WITH A 1-5 SECOND RECORDER IS ESSENTIAL.

THIS New York Standard Chronograph

IS THE ONLY ONE MADE IN AMERICA AND THE ONLY ONE FULLY GUARANTEED. FOR SALE BY ALL JEWELERS.

New York Standard Watch Co., 401 Communipaw Ave., Jersey City

**The Varnish that lasts longest**

Made by Murphy Varnish Company.

**\$15 "GEM" Adding Machine**

Free 10-Day Trial. We Pay Expressage. Has a Resetting Device

that clears the dials to zero instantly. A High-Grade Mechanical Production. Does the work of high-priced machines. Handiest thing an engineer can own. Great for outdoor work. Carried in your pocket. Guaranteed for two years. Catalog Free.

**Automatic Adding Machine Co., 340 Broadway, N. Y. City**

**Mullins Steel Pleasure Boats Can't Sink**

Easiest to Row—Absolutely Safe

Made of steel, with air chambers in each end like a life boat. Can't leak, crack, dry out or sink, last a lifetime. Every boat guaranteed. Ideal boat for families, summer resorts, parks, boat liveryes. Strong, safe, speedy. Write for our catalogue of Row Boats, Motor Boats, Hunting and Fishing Boats.

The W. H. Mullins Co., 118 Franklin St., Salem, O.

**SEALED PROPOSALS.**  
 PROPOSALS FOR CONSTRUCTION, ETC. Office of the Constructing Quartermaster, Fort Bliss, Texas, March 8th, 1907. Sealed proposals, in duplicate, for the sinking of a twelve-inch tunnel Deep Well, installing a Deep Well Pump over same; For constructing a Deep Well Pump Shelter and Trestle; an 150,000 gallon Steel Tank on a 70 foot Trestle, and furnishing and installing two 30 H. P. Boilers, at this post, will be received here until 12 M., June 3rd, 1907, and then opened. Applicants for plans and specifications must enclose a signed receipt to insure the safe return of the same. Envelopes containing proposals should be endorsed "Proposals for Construction to be opened June 3rd, 1907," and addressed to the Constructing Quartermaster.

**INVENTORS. P. Bellows**  
 259 Broadway, New York, can make the working drawings of your inventions.

**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.

**ICE MACHINES** Corliss Engines, Brewers and Butters' Machinery. THE FILTER 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 & CO., 228-229 South Street, New York**

**MODELS & EXPERIMENTAL MACHINERY.**  
 Gears, Dies, Tools, Novelties manufactured. Fine, Accurate Work a Specialty. M. P. Schell, 1759 Union Street, San Francisco.

**MODELS & INVENTIONS PERFECTED**  
**& GEARS**  
 193 So. Clark St., Chicago.

Wanted.—Machines or specialties to manufacture by well equipped machine shop. Write us what you have. Kieder Machine Co., Franklin, N. H.

**CEMENT BOOKS.** How to Use Portland Cement 50c; Cement Stewalk Construction, 50c; Reinforced Concrete Construction, \$2.50; Holston's Concrete Block Building Construction, 50c; Portland Cement and Engineering News, Chicago, Ill.

**VENTRILOQUISM**  
 Learned by any Man or Boy at home. Small cost. Send to-day 2-cent stamp for particulars and proof.  
**O. A. Smith, Room 318, 2040 Knoxville Ave., Peoria, Ill.**

**Wanted PROPOSITIONS**  
 from SCIENTIFIC MEN ENGINEERS & PLUMBERS

A joint committee of the Automobile Trade Association and the Automobile Club of America, appointed at the suggestion of the Fire Department and the Bureau of Combustibles of the City of New York, to investigate the leakage of waste gasoline and oils from automobile garages into the City sewers and to provide ways and means for preventing same, is desirous of securing any propositions which would effectually prevent any possibility of such occurrence, and enable the garages to comply with the ordinances of the City of New York applicable to garages.  
 Communications should be addressed to the Chairman of the Joint Committee, C. R. MABLEY, 1765 Broadway, New York.

**College Men Wanted**

Profitable Summer Work. Permanent Employment If You Want It

WE want an energetic man or woman in every county to handle an extraordinary new book proposition. Nothing like it for big sales and big commissions. Write at once to  
**THE REVIEW OF REVIEWS COMPANY**  
 13 Astor Place, Room 414, New York

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

**MANUFACTURERS**  
 I want to buy that part of your product that you cannot sell to the regular trade, but would be good enough to sell at some price; Name defects and sacrifice price F. O. B. Address G. F. H., 1804 Grand Avenue, Kansas City, Mo.