

**"Star" Lathe**  
Foot and Power  
Automatic Cross Feed  
Screw Cutting  
FOR FINE, ACCURATE WORK  
Send for Catalogue B.  
SENECA FALLS MFG. CO.  
695 Water Street,  
Seneca Falls, N. Y., U. S. A.

**ENGINE & FOOT MACHINE SHOP OUTFITS**  
**LATHES TOOLS & SUPPLIES**  
SEBASTIAN LATHE CO. CINCINNATI

Foot and Power and Turret Lathes, Planers, Shapers, and Drill Presses.  
SHEPARD LATHE CO., 133 W. 24 St. Cincinnati, O.

**GIANT STEAM SHOVELS**  
Toledo Ohio, U.S.A.  
The Vulcan Iron Works Co.

If You Want the Best Lathe and Drill  
**CHUCKS**  
BUY WESTCOTT'S  
Strongest Grip, Greatest Capacity and Durability, Cheap and Accurate.  
Westcott Chuck Co., Oneida, N. Y., U. S. A.  
Ask for catalogue in English, French, Spanish or German.  
FIRST PRIZE AT COLUMBIAN EXPOSITION, 1893.

Every Gas Engine User should learn about the **Apple Automatic Sparker**. Easily attached, so more belt, battery or commutator troubles. Increases power and speed. For any kind of ignition apparatus write  
The Dayton Electrical Mfg. Co., Dayton, Ohio.

**THE EUREKA CLIP**  
The most useful article ever invented for the purpose. Indispensable to Lawyers, Editors, Students, Bankers, Insurance Companies and business men generally. Book marker and paper clip. Does not mutilate the paper. Can be used repeatedly. In boxes of 100 for 25c. To be had of all booksellers, stationers and notion dealers, or by mail on receipt of price. Sample card, by mail, free. Manufactured by Consolidated Safety Pin Co., Box 121, Bloomfield, N. J.

**FOR GUNSMITHS, TOOL MAKERS, EXPERIMENTAL & REPAIR WORK, ETC.**  
From 9-in. to 13-in. swing. Arranged for Steam or Foot Power, Velocipede or Stand-up Treadle.  
Send for Lathe Catalog.  
W. F. & JNO. BARNES CO.  
Established 1872.  
1999 Ruby St., Rockford, Ill.

**8 LIGHT DYNAMO \$26.50**  
Other sizes 3 to 300 Lamps  
**MOTORS**  
from 1-16 to 20 H. P.  
Write for Bulletin  
ROTH BROS. & CO.  
27 S. Clinton St., Chicago

**There and Back**  
WHAT A RELIEF  
Write us to-day for information  
GRANT-FERRIS CO.  
Troy, N. Y.

**U. S. A. LIQUID PISTOL**  
Will stop the most vicious dog (or man) without permanent injury. Perfectly safe to carry without danger of leakage. Fires and recharges by pulling the trigger. Loads from any liquid. No cartridges required. Over 10 shots in one loading. All dealers, or by mail, 50c. Rubber-covered holster 5c. extra.  
PARKER, STEARNS & SUTTON, 226 South St., New York

**MOTORS**  
We furnish castings for eight different motors, air or water-cooled. Also complete motors for all purposes. Largest Motor Cycle House in the World. Send two cents in stamps for our 100-page catalogue.  
THE HARRY R. GEER CO.  
1015 Pine St., St. Louis, Mo.

**WARREN'S NATURAL ASPHALT SAND SURFACING**  
Apply it yourself. Makes a finished gravel roof. Comes ready to lay in rolls of 100 square feet. Write for sample, circular and prices.  
Warren Chemical and Mfg. Co., 18 Battery Pl., New York

**Kerosene Oil Engine**  
Nothing but Kerosene Oil to run it  
Simple, Safe and Efficient. Needs little attention, is less likely to get out of order, and is cheaper to run than any other engine manufactured. Economical and Easily Operated.  
International Power Vehicle Co., Stamford, Conn.

A rheostat would be necessary for a direct current, and a choke coil or a transformer for the alternating current. We have published the details for the operation, to which we would refer our readers again; they are to be found in the SCIENTIFIC AMERICAN, vol. 90, No. 12, and vol. 92, No. 7, price 10 cents each mailed.

(9587) R. T. P. says: In your SUPPLEMENT of December 3, 1904, page 24,185, you say that if 1,000 pounds water was given a velocity of 16 feet per second, it would lift 1,000 pounds 4 feet high. This you will find in the accompanying paper with sundry calculations. Will you kindly look them over, and if suitable to your paper, I would like to get up a controversy upon what I think may be the nucleus of a new power. A. We are sorry to have to inform you that the assumption on which you have based all your calculations is entirely erroneous, and yet it may be difficult for us to point out to you exactly where your fallacy lies. If you were to pass through the center of a ship a tube, as you suggest, keeping the effective displacement of the ship the same, the added resistance to be overcome by the propeller would be equal to the sum of the work that could be obtained from a turbine placed in this tube, plus all losses in the turbine due to imperfect efficiency, plus the friction of the water on entering the tube and passing through it. The water in the tube will be incapable of doing work unless there is a difference of pressure on the two sides of the turbine. If there is a greater pressure at the front end of the tube, this pressure is created by additional work done by the propeller in forcing the vessel ahead. A better plan than the one you suggest would be to place at the sides of the vessel undershot wheels or paddle wheels, and get useful work from the shaft connecting them. In this instance you can probably see that if the shaft were required to do useful work, and therefore overcome resistance, that the paddle wheels would act as brakes on the side of the vessel to retard its progress, and that whatever retarding force they exerted would have to be made up by the propeller in order to keep the speed of the vessel constant.

(9588) V. O. K. asks: An eighth of an inch of water is put in a shallow dish, a small piece of lighted candle placed in the center, and an inverted tumbler is placed over the candle. Now, I would like to know why the water rushes up into the tumbler after the light has just gone out? A. The heating of the air usually drives some of the air out under the water seal of the glass while the candle is burning, and the products of the combustion do not occupy as much space after as they did before the candle had burned them. The result is that water rises into the glass as the gases cool. We have never seen it "rush up," as you express it.

#### NEW BOOKS, ETC.

**ELEMENTS OF MECHANICAL DRAWING.** By Gardner C. Anthony. Boston: D. C. Heath & Co., 1905. 16mo.; pp. 152; illustrated. Price, \$1.50.

This book forms one of the works of the Technical Drawing series. It is a revised and enlarged edition, intended for use in the evening drawing school and technical college. The first two chapters are given up to instruments and their use and general instruction as to tracing, lettering, shading, tinting, etc. The third chapter contains a large number of geometrical problems. The drawings illustrating these problems are on the same page with the text, where they can be readily examined. The book has no folding plates and all the drawings are condensed as much as possible. Besides chapters on conic sections, orthographic projection, isometric and oblique projection; the development and intersection of surfaces; and spirals, helices, screw-threads, and bolt heads, there are a large number of problems contained in the back of the book, which are intended to be solved by the student after he has mastered the principles in the preceding chapters.

**THE CONSTRUCTION OF CRANES AND OTHER LIFTING MACHINES.** By Edward C. R. Marks, A.M.I.C.E., M.I.M.E. New York: D. Van Nostrand Company, 1904. 12mo.; pp. 250; 202 half-tone plates and diagrams. Price, \$1.50.

This is the third edition, revised and enlarged, of a very useful and complete work on all kinds of lifting machinery. Starting with a description of the general principles and practice in standard types of lifting machines of the smaller kind, such as pulley blocks, crabs, and winches, and double and treble purchase crabs, the author next describes all sorts of cranes from the simplest types worked by hand to the huge and most elaborate types operated by steam or electric power. Another section of the book is devoted to the description of various patented inventions relating to lifting machinery. In this section are given all the latest inventions and improvements in this line. Part III. describes the present practice employed by leading makers of lifting machinery in the construction of hydraulic cranes and jacks, electric locomotive or travel jib cranes, electric walking jib cranes, foundry cranes and winches, electric overhead traveling cranes, Temperley transporters, and electric and hydraulic lifts or elevators and pneumatic hoists. The book is well illustrated with large cuts of the machinery described and with diagrams of the working parts.

**The Improved Method of FINISHING FLOORS**  
Filling Cracks with Grippin's Filler and Patent Applicator  
old or new, for rugs or otherwise, with Grippin's Wood Crack and Crevice Filler and FINISHING SPECIALTIES, is very simple and economical, not requiring skilled labor though the highest degree of perfection is attained. We give full instructions for treating all surfaces. Write to-day for our descriptive matter to  
GRIPPIN MFG. CO.  
Dept. 6  
Newark New York

#### "We Analyze Everything" AT REASONABLE RATES

Should you want to know what is contained in any preparation or product, address

**THE ELLSWORTH LABORATORIES**  
Max D. Ellsworth, Ph.D.  
Suite 406, Ellsworth Bldg., Chicago

#### EVERYTHING FOR THE AUTOMOBILE YANKEE GRADE-METER

Price \$7.50  
Gives the grade accurately up to 40 per cent. up and down. Easily read from the seat.

Yankee Mica Spark Plug  
Closed End, \$1.50  
Open End, 1.00  
Both guaranteed 90 days  
Mammoth Catalog for 10c in stamps  
E. J. WILLIS CO., 2 Park Place, N. Y.

#### A Very Useful Tool

This Angle Indicator is constructed from a steel plate by perfected machinery. It is for use in connection with a rule, our Universal Bevel No. 50, or any bevel. With this tool anyone can accurately and quickly transfer any angle within its scope. Price \$1.50. Send for catalogue.  
SAWYER TOOL MFG. CO., Fitchburg, Mass., U.S.A.

**Squabs Pay** Beat Hens  
Easier, need attention only part of time, bring big prices. Raised in one month. Attractive for poultrymen, farmers, women. Send for FREE BOOKLET and learn this immensely rich home industry.  
PLYMOUTH ROCK SQUAB CO., 289 Atlantic Ave., Boston, Mass.

**LATHROP'S CHICK SERVER FOR FOOD OR WATER**  
Chicks cannot get in it or on it. Made without seams. DEALERS HAVE THEM.  
EACH, 25c. POSTPAID, 35c. DOZEN, \$2.50  
LATHROP MFG. CO.  
47 Central Ave. Rochester, N. Y.

**Agents Wanted**  
in every locality. Attractive inducements for permanent, profitable occupation. Previous experience not required.  
**KEYSTONE Fire Extinguisher**  
Examined and approved under the standard of the National Board of Fire Underwriters—the **cheapest and best approved** extinguisher. In some localities this agency can be carried with other business interests. Write to-day for booklet and full particulars.  
JAMES BOYD & BROTHER  
18 N. Fourth Street, Philadelphia, Pa.  
Mfrs. of Fire Protection Equipment.

**"HIGHEST AWARD"**  
Don't forget to ask for a **PELOUZE POSTAL SCALE**. It means you will get the best postal scale money can buy. Received highest award at World's Fair. They give instantly exact cost of postage in cts. on all mail matter Warranted.  
"Save time and stamps." For sale everywhere by leading dealers. Catalog P.  
**PELOUZE SCALE & MFG. CO. CHICAGO.**  
National 4 lbs. \$3.00  
Union 2 1/2 lbs. 2.50  
Columbian 2 lbs. 2.00  
Star 1 lb. 1.50  
Crescent 1 lb. 1.00

**Universal SCRAPER**  
75 cents buys the best scraper ever made. Try it on floors or meat blocks.  
Send for free catalog No. 17 B.  
**THE L. S. STARRETT CO. Athol, Mass.**

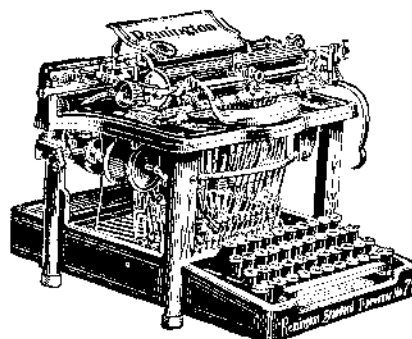
Heals Cuts, Burns, Bruises Sores, Etc.  
**CABOT'S Sulpho-Naphthol**  
LIQUID CLEANLINESS  
At all dealers or 10c. and 25c. pkgs. by mail. Look for above trade mark.  
Sulpho-Naphthol Co., 16 Haymarket Square, Boston, Mass.  
Sold in N. Y. City by Acker-Merrill, Macy, Siegel-Cooper.

The PROOF of Remington Supremacy:

It outsells every other Typewriter

The REASON for Remington Supremacy:

It outworks and outwears every other Typewriter



**Remington**

Typewriter Company

New York and Everywhere

# The Fay & Bowen Motor

won in three events in the Palm Beach Races in February.

It was a winner in the Marblehead Races last July.

No crank required to start it.

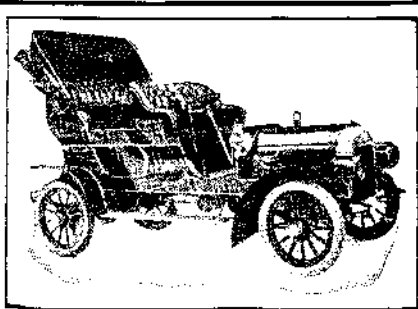
Speed regulation perfect.

A reliable, simple, powerful engine.

Send for catalogue of Motors and complete Motor Boats.

Fay & Bowen Engine Co.

So Lake St., Geneva, N. Y., U. S. A.



## You Need

a car that affords ease, comfort, luxury and style, yet so constructed that its mechanical operations are simple, but effective. Such is the

# HAYNES

It's true worth is not over-estimated. It contains the most value for the money.

Aren't you interested to get the details? Then write for "Proof of Progress" booklet and descriptive catalog

### PRICES

Model K.	35-40 H. P.	\$3,000
Model M.	16-18 H. P.	1,500
Model L.	16-18 H. P.	1,350

THE HAYNES-Apperson Co.

KOKOMO, IND.

The Oldest Makers of Gasoline Cars in America

Member Association of Licensed Automobile Manufacturers  
New York Chicago

ELECTRICAL MOTORS. — THEIR Construction at Home. SCIENTIFIC AMERICAN SUPPLEMENTS 759, 761, 767, 641. Price 10 cents each, by mail. Munn & Company, 361 Broadway, New York City, and all newsdealers.

## OWN A HOME

Our system of Home Building is simple, conservative and safe. The company is backed by reliable and responsible Business men of Rochester and a positive guarantee secured by first-class improved real estate is given to every member. Since our plan has been in operation in America it has been very successful—it is patterned after the celebrated system which has been operated successfully in England for over sixty years, where thousands of happy Home owners have benefited by it.

Our plan is fully explained in our Free Booklet, which every Rent payer should send for at once.

SECURITY BUILDING CO.  
402 Wilder Bldg., Rochester, N. Y.

### MAXIMUM POWER—MINIMUM COST

If you use a pump for beer, lard, acids, starch, petroleum, brewer's mash, tanner's liquor, cottonseed oil or fluids, hot or cold, thick or thin you want to get the **TABER ROTARY PUMP** which does the most work at the least expense. Simply constructed. Can be run at any desired speed. Perfectly interchangeable. Needs no skilled workman. Directs guaranteed. Catalogue free. TABER PUMP CO., 32 Wells St., Buffalo, N. Y., U. S. A.



## A Handy Book To Have

Montgomery & Co.'s Tool Catalogue

It is illustrated throughout and describes and prices Tools, 704 pages, 6 1/2 x 4 1/2 ins. The latest edition, with discount sheet by mail for 25 cents. MONTGOMERY & CO., 105 Fulton St., New York City.

INKS, THEIR COMPOSITION AND MANUFACTURE. Including Methods of Examination and a Full List of English Patents. By C. Ainsworth Mitchell, B.A. (Oxon.), F.I.C., and T. C. Hepworth. Philadelphia: J. B. Lippincott Company, 1904. 8vo.; pp. 251, 46 illustrations.

This work is a complete handbook on inks and their manufacture. It is divided into three sections, as follows: Writing inks; printing inks; and inks for miscellaneous purposes. The chapters in the first section deal with carbon and carbonaceous inks; tannin materials for inks; the nature of inks; the manufacture of iron-gall inks; logwood, vanadium, and aniline black inks; colored writing inks; and the examination of writing inks. Under printing inks, the early methods of manufacture; the manufacture of varnish; the preparation and incorporation of the pigment; and colored printing inks are described. The last section deals with copying inks; marking inks; safety inks and papers; sympathetic inks; and inks for special purposes. The book is very complete and goes into the subject thoroughly. It contains much information of value to all interested in this subject.

THE TOWER OF PELÉ. By Angelo Heilprin, F.R.G.S., of the Sheffield Scientific School of Yale University. Philadelphia: J. B. Lippincott Company, 1904. 4to.; pp. 62; 22 plates.

Prof. Heilprin has been the chief source of our information regarding the geological changes that have taken place on the island of Martinique for the last few years and to which the attention of the world was first called by the eruption of Mont Pelé in 1902. In 1903 the professor revisited the island, and in this book he describes the middle period in the modern history of Mont Pelé, and shows its condition by numerous photographs reproduced from fine half-tone plates. These plates, of which there are twenty-two, give a complete history of the eruptions and of the devastation wrought by them. The book completes this pictorial description with an up-to-date account of the crater as it now is.

SIMPLE DECORATIVE LATHE WORK. By James Lukin, B.A. London: Guilbert Pitman, 1905. 16mo.; pp. 88; 53 illustrations. Price, 50 cents.

In writing this small volume the author had in view the preparation of a handbook which would enable the amateur, with the aid of inexpensive (and much of it homemade) apparatus, to do simple, ornamental turning of wood, ivory, shells, etc. All the parts of the lathe and the accessories are well described and specific directions are given as to its use. The book is untechnical and will be found very useful to the beginner.

## INDEX OF INVENTIONS

For which Letters Patent of the

United States were Issued

for the Week Ending

March 14, 1905

AND EACH BEARING THAT DATE

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

Advertising apparatus, W. B. Worthy.....	754,648
Agricultural implement attachment, hand, A. D. Jones.....	754,652
Air brake, A. J. Wisner.....	754,910
Air brake detector, E. Bearss.....	754,537
Automobile transmission gear, G. A. Thode.....	754,642
Automobile transmission mechanism, R. H. White.....	754,607
Awning attachment, automatic, A. I. Scawinger.....	754,597
Bag holder, J. Riley.....	754,594
Bag holder and filler, W. H. Stone, Jr.....	754,708
Balancing attachment, C. E. Coons.....	754,524
Baling press, C. J. Luce.....	755,065
Ball cleaning device, H. D. Day.....	754,662
Balls, making rubber cored golf, G. C. Worthington.....	754,618
Balling machine, J. Good.....	754,513
Barometer, L. F. Chaney.....	754,586
Basket, R. E. Lindsay.....	754,559
Basket or other receptacle, J. Hamilton.....	754,539
Bath tub and attaching feet thereto, J. A. Lefferts.....	754,746
Bath tub mold, J. P. Bickerstaff.....	754,613
Battery stem guide, C. F. Hawley.....	754,700
Bean separating machine, O. F. Beythian.....	755,032
Bearing, E. S. Farwell.....	755,036
Beer or other liquid dispensing apparatus, V. E. J. Durafort.....	754,664
Beet blocking machine, E. J. Young.....	754,911
Belt guide, J. L. Crisler.....	754,987
Bench. See Florist's bench.	
Bin, C. T. Ranney.....	754,587
Blinding mechanism, J. A. Plopper.....	754,702
Black, animal, S. D. & E. M. Reid.....	755,021
Block system, J. W. Anderson, Jr.....	755,031
Boiler, J. P. Blauvelt.....	754,736
Boiler draft regulator, steam, Sackett & Rieger.....	755,049
Boiler flue cleaner, O. Donatz.....	754,552
Boiler furnace, S. F. Pierce.....	754,580
Bolt heading machine, Moore & Holland.....	754,624
Book holder strap, school, T. E. Barton.....	754,872
Book support, G. L. T. Dennis.....	754,734
Bootjack, J. J. McDonald.....	755,045
Bottle, A. A. Low.....	755,012
Bottle caps, device for removing internal, F. M. Glaessel.....	754,851
Bottle holder, nursing, W. J. Boyle.....	754,814
Bottle mouth and neck, A. A. Low.....	755,013
Bottle, non-refillable, H. W. Brent, Jr.....	754,656
Bottle, non-refillable, F. S. Heffernan.....	754,841
Bottle, non-refillable, L. N. Bishop.....	754,875
Bottle soaking machine, Lindemann & Stock.....	754,622
Bottle stopper, E. Clemens.....	754,622
Bottle support and protector, J. A. Lew.....	754,865
Bottling machine, liquid, J. A. Hicks.....	755,001
Box roller or truck, B. L. Vore.....	755,029
Braiding machine, B. Kirsch.....	754,656
Brake beam, J. F. O'Connor.....	754,655
Brake beam, S. A. Crone.....	754,539
Breast connector, V. H. Mills.....	754,800
Brooder, A. P. Meserve.....	754,854

## Rushton Canoes

### INDIAN GIRL MODEL

White cedar, canvas covered, 15 to 18 feet, weight 58 to 75 pounds, \$32 to \$44. Strong, light, speedy, graceful, and capable of withstanding hardest usage. Order now for prompt delivery. Send for catalogue of pleasure boats, all-wood and canvas-covered canoes, oars, paddles, sails and fittings.

J. H. RUSHTON, 819 Water Street, Canton, N. Y.

## Rambler

SURREY, TYPE ONE  
18 horse power, \$1350

This carriage is a demonstrated, not merely a theoretical success. Five months use on the Pacific Coast shows that its upkeep is small, and that like all other Ramblers, it is to be depended upon wherever roads are fit for travel.

Full information on request. Other Models \$750, \$850, \$2000 and \$3000. Immediate delivery.

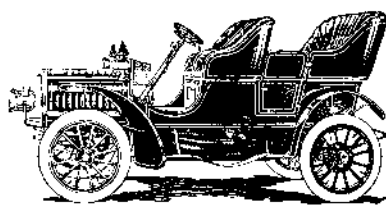
THOMAS B. JEFFERY & COMPANY

Main Office and Factory, Kenosha, Wisconsin

Branches, Boston, Chicago, Philadelphia

New York Agency, 134 West Thirty-eighth Street

Representatives in all other leading cities



## Cigar Smokers

send us your name and address and we will mail you, free, our illustrated monthly magazine, THE PERFECTO, full of interest to all who love a good cigar. Do it to-day.

JUL. ALVAREZ & CO., Cigar Mfrs.  
735 Penn St., Allentown, Pa.



## KICK

Single Kick or Double Kick. Kick With One Foot or Kick With Both—  
**BUT KICK**

The KICKDRIVE is for driving all kinds of light machinery by foot power. Let us tell you all about it. Get the booklet

SLOTKIN & PRAGLIN  
210-212 A Canal Street, New York



## 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 catalogue "I" The CLEVELAND STONE CO.  
2d Floor, Wilshire, Cleveland, O.

## Cheap Power from Kerosene

SAFE, SIMPLE, VALVELESS AND RELIABLE

Universal Kerosene Engine.

Automatic in operation, easily started, and runs steadily and at a comparatively high rate of speed at a cost of less than one pint of kerosene oil per actual horse power hour. Praised wherever used. Highest efficiency at lowest cost. For prices and terms address

UNIVERSAL KEROSENE ENGINE CO.  
137 Liberty St., New York

Automobile and Marine Motors Simple, Compact and Powerful  
Best Material. Perfect workmanship. Send for Catalog  
ALEXANDER & CROUCH  
40 So. Canal St., Chicago  
1, 2 & 4 Cylinder, 4, 8 & 16 H. P.

## No More Hand Pumping

No Coal, No Steam, No Oil, No Packing or Labor

## No Cost for Motive Power

Niagara Automatic Pump (hydraulic ram) works night and day on any brook, creek, river or pond. Used and endorsed by Governments, railroads and public institutions, farmers, owners of factories, country homes and mines.

Write to-day for free booklet.

NIAGARA HYDRAULIC ENGINE CO.

Chester Pa.

Dept. M, 140 Nassau St., New York

## Bargains in Marine Engines

1 H. P.	\$90.00
2 H. P.	111.00
3 H. P.	132.00
4 H. P.	156.00

Engine complete with everything ready to run. Write us at once.

Michigan Motor Co.  
Grand Rapids, Mich., U.S.A.

A. M. Taber.  
Manufactory Established 1761.

Lead-Colored Slate Pencils, Rubber Bands, Erasers, Inks, Penholders, Rulers, Water Colors, Improved Calculating Rules.

Send for descriptive Circular S.

44-60 East 23d Street, New York, N. Y.

Grand Prize, Highest Award, St. Louis, 1904.

Patton's Sun-Proof Paints  
Last time we had paint, cover much more surface, never disappoint. Advice on painting and choice of colors FREE—Book FREE.  
PATTON PAINT CO.,  
227 Lake St., Milwaukee, Wis.

\$39.50 BUYS THIS  
We save you dealer's profits. Ship on approval 30 days free trial. Money back if not satisfactory. Send for 200 page Style Book containing 128 wonderful bargains.  
UNION BUGGY CO.  
Dept. 849 Pontiac, Mich.

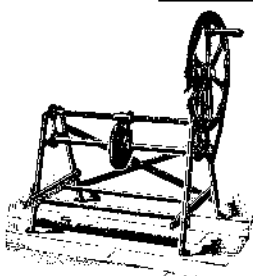
## SPECIAL Gas Engine Generator

Steady light from an ordinary Gas or Gasoline Engine. Write for Bulletin.

ROCHESTER ELECTRIC MOTOR CO.

10-12 Frank St., ROCHESTER, N. Y., U. S. A.

## The Ideal Lawn Mower Grinder



This machine will grind a lawn mower perfectly in 15 minutes, and is destined to revolutionize the whole business. Greatly improved over old models, and is now perfection. Energetic men and boys make \$10 per day using it. Nothing like it on the market. For prices, etc., address the manufacturers,

THE ROOT BROS. CO.  
Plymouth, Ohio

