

# Common Electrical Terms Defined

In this age of electricity everyone should be versed in its phraseology. By studying this page from month to month a working knowledge of the most commonly employed electrical terms may be obtained.

**MAGNETIC INCLINATION.**—See Magnetic Dip.

**MAGNETIC INDUCTION.**—The action of a magnet upon bodies in its field of force.

**MAGNETIC LEAKAGE.**—Lines of force from the field poles that pass out into the air and not through the armature of a dynamo are wasted. The lines from any magnet that are thus dissipated represent magnetic leakage.

**MAGNETIC MERIDIAN.**—A compass needle free to move determines the direction of the magnetic meridian which is an imaginary line upon the earth's surface passing through the earth's magnetic poles.

**MAGNETIC NEEDLE.**—A slender piece of magnetized steel poised upon a pointed support or pivot and free to place itself in the line of the earth's magnetic field or meridian.

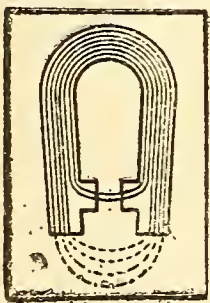
**MAGNETIC POLES.**—The two points upon the earth's surface where the magnetic needle seeks to take a vertical position.

**MAGNETIC RETENTIVITY.**—A property of steel or hard iron that causes it to part slowly with its magnetism after being magnetized.

**MAGNETIC SATURATION.**—A point beyond which a bar of steel or iron cannot be further magnetized.

**MAGNETIC SCREEN.**—A soft iron box or frame made to protect a body, as a watch, from becoming magnetized. The lines of force go into the screen or box rather than the body within.

**MAGNETIC SHUNT.**—Lines of force in a magnet follow the metal if possible, this metal path being termed the magnetic circuit. By providing a second metal path as by placing a bar across from one leg of a horse shoe magnet to the other near the poles some of the flux will be diverted or "shunted" through this second path. (See cut.)



**Magnetic Shunt**

**MAGNETIC TICK.**—If a bar of iron is suddenly magnetized or demagnetized a slight sound or tick is heard probably due to the rearranging of the molecules of the bar.

**MAGNETO.**—A small electric generator whose field poles are permanent magnets.

**MAINS.**—The large conductors of an electric light or power system and from which taps are taken off to supply distributing boards.

**MASTER CLOCK.**—In a system of clocks the clock which controls the movements of all the others by governing the flow of electric current.

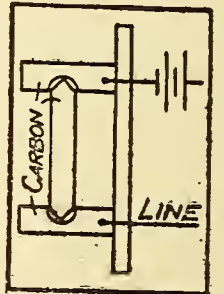
**MEG OR MEGA.**—1,000,000 times. Used as a prefix. Example: megohm, 1,000,000 ohms; megavolt, 1,000,000 volts.

**METALLIC CIRCUIT.**—A circuit in which the ground is not employed as any part of the path of the current, metallic conductors being used throughout the entire circuit.

**MICA.**—A mineral used as an insulator and also as a dielectric. In its natural state it is found in masses which may be readily divided and divided again until thin sheets are obtained.

**MICRO.**—Used as a prefix to indicate one millionth. Example: a microfarad, the millionth of a farad.

**MICROPHONE.**—A device invented by Prof. Hughes for making faint or distant sounds many times more audible. (See cut.) The least noise near this instrument produces very strong, loud vibrations in a telephone receiver in the circuit.



**Microphone**

**MIL.**—A thousandth part (.001) of a linear inch.

**MILLI.**—A prefix meaning one thousandth.

**MILLIAMETER.**—An ammeter in which the scale is divided so that readings as small as a thousandth of an ampere may be taken.

**MORSE RECORDER.**—A telegraphic apparatus consisting of clock work for moving a strip of paper, and a pen or stylus attached to the armature of a magnet. The dots and dashes of the Morse code are made upon the paper tape by the pen.

**MOTOR-GENERATOR SET.**—A machine consisting of an alternating current motor coupled to a direct current generator. Motor-generator sets are often used in arc lighting where an alternating current motor drives an arc light dynamo. They are also of service in supplying three wire direct current systems from alternating current mains.

**MULTIPLE KEY.**—A key constructed to open or close more than one circuit at a time.

**MULTIPLE.**—The arrangement of current consuming devices, such as lamps, across a circuit; that is, with one terminal of each lamp connected to one side of the circuit and the other terminal to the opposite side. Batteries or dynamos are also said to be in multiple when one terminal is connected to one side of the out-going circuit and the other terminal to the opposite side. Multiple connection is also called parallel connection.

**MULTIPLE WINDING.**—The arrangement of winding upon an electro-magnet so that by connecting to certain binding posts any number of the coils may be used in multiple.

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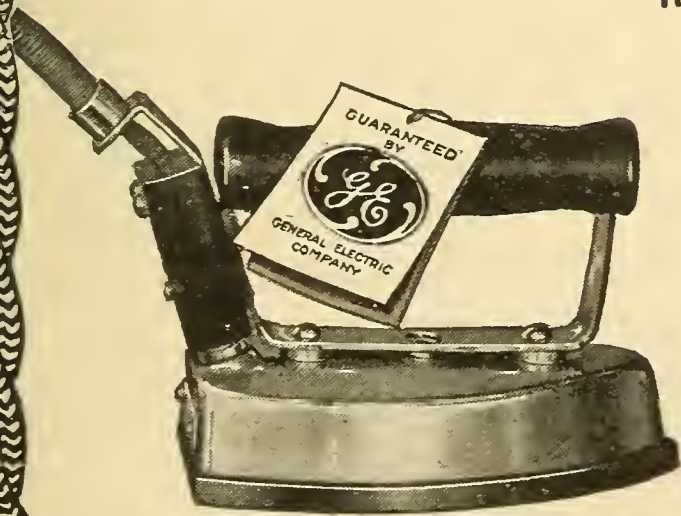
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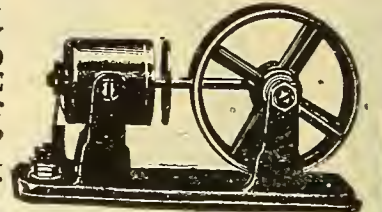
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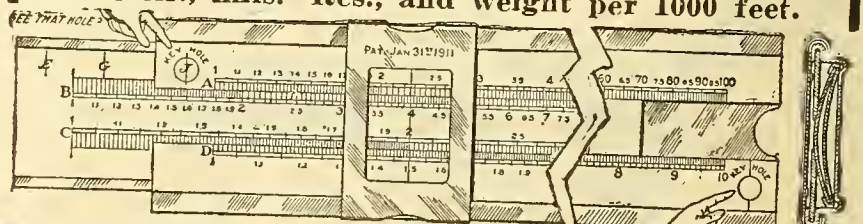
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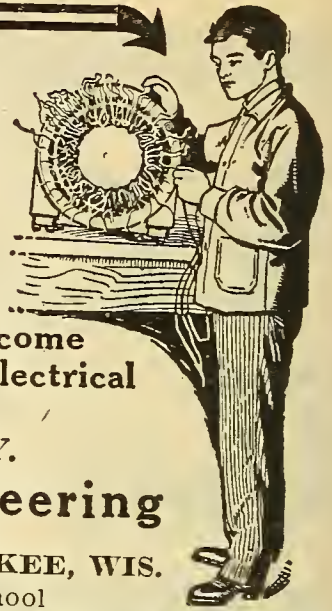
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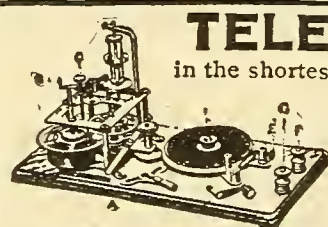
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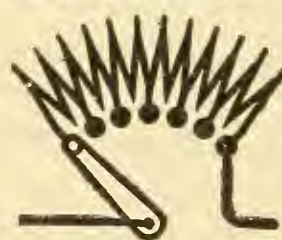
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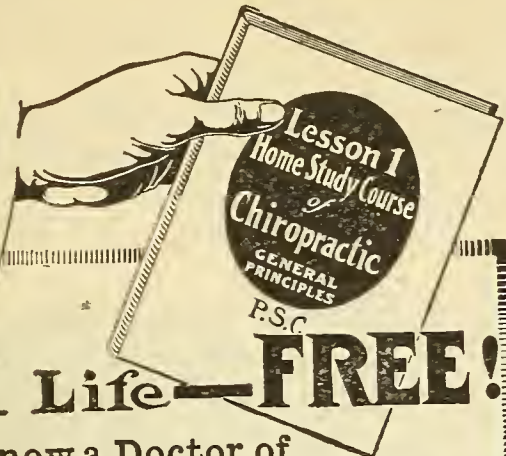
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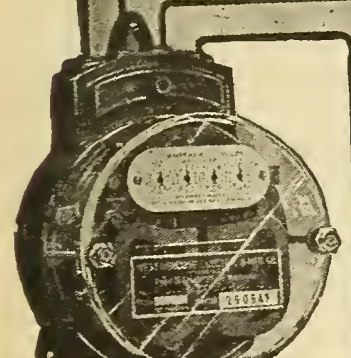
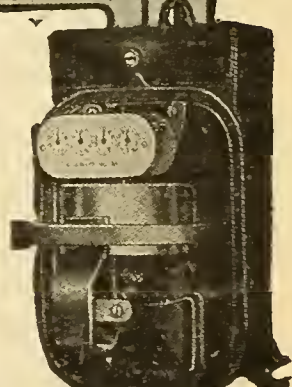
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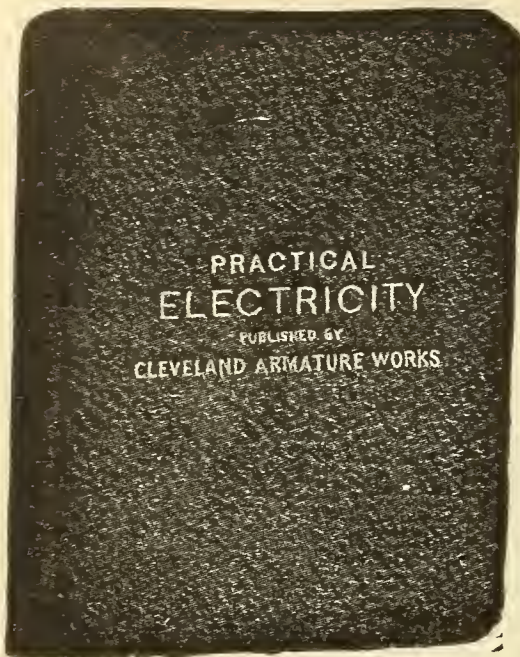
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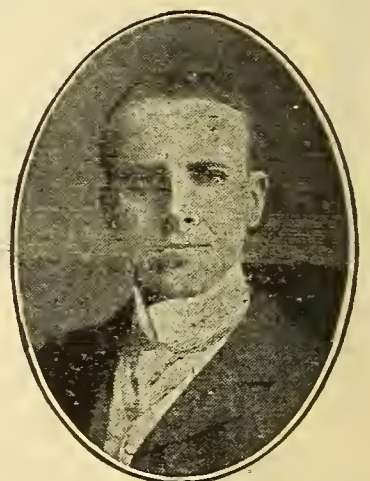
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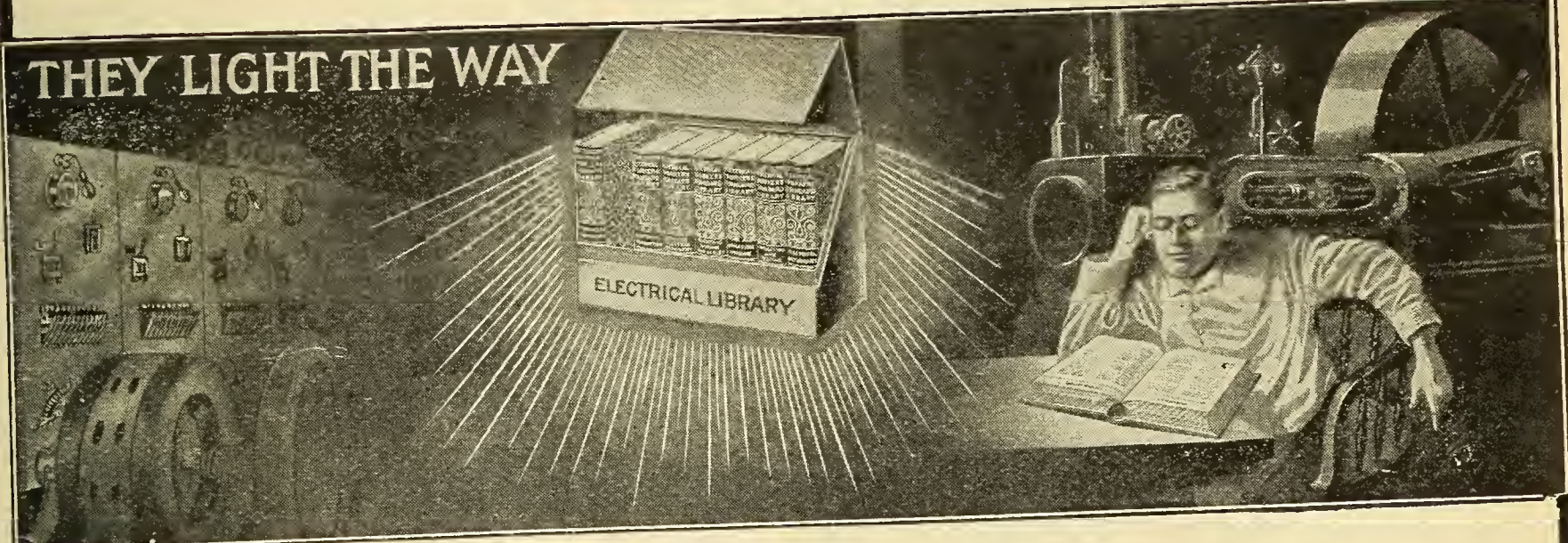
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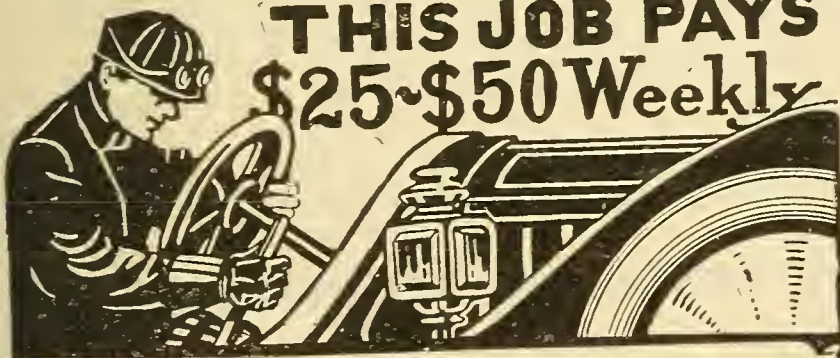
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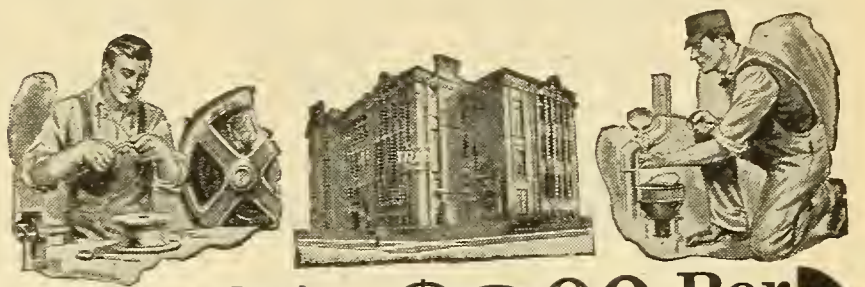
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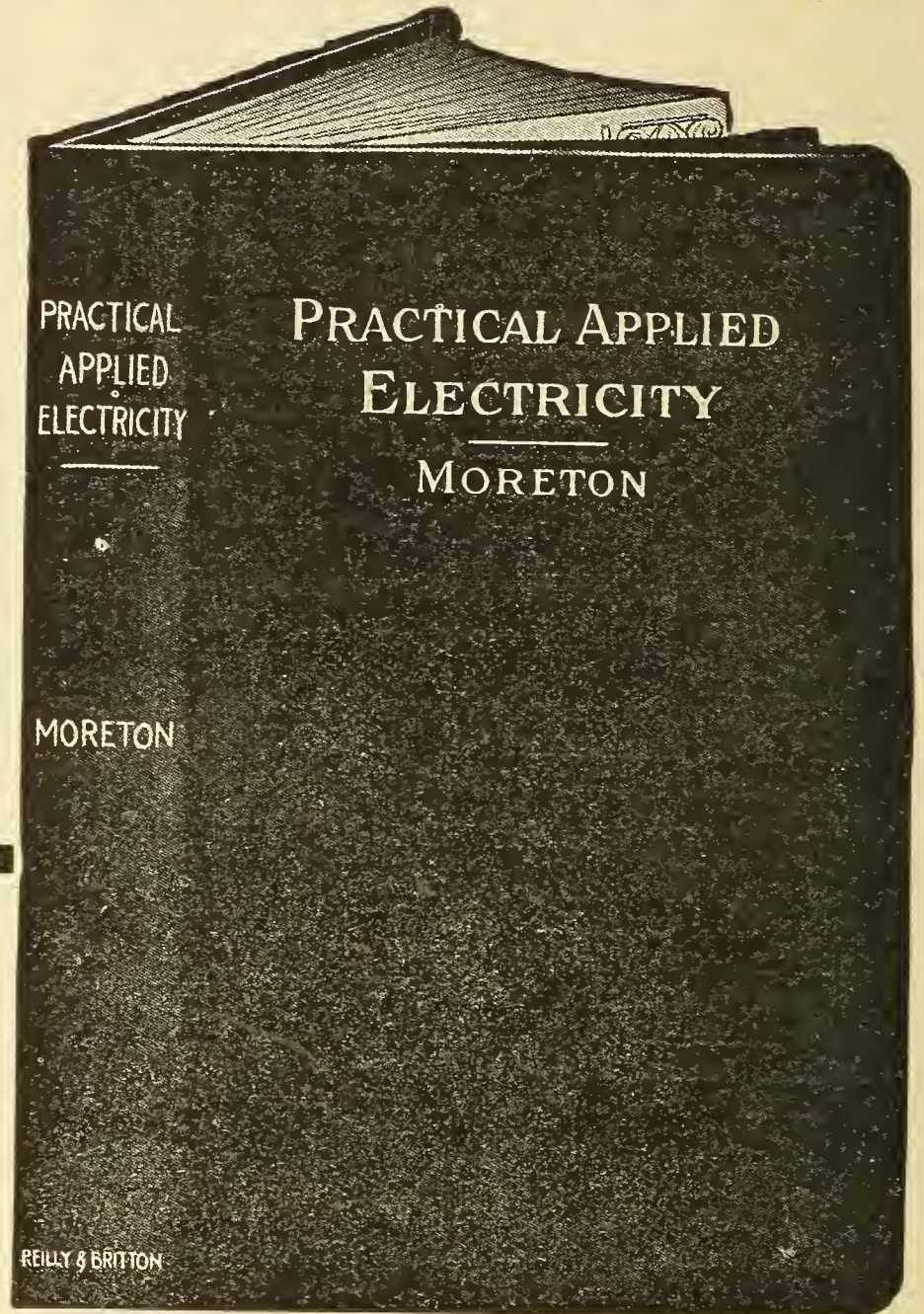
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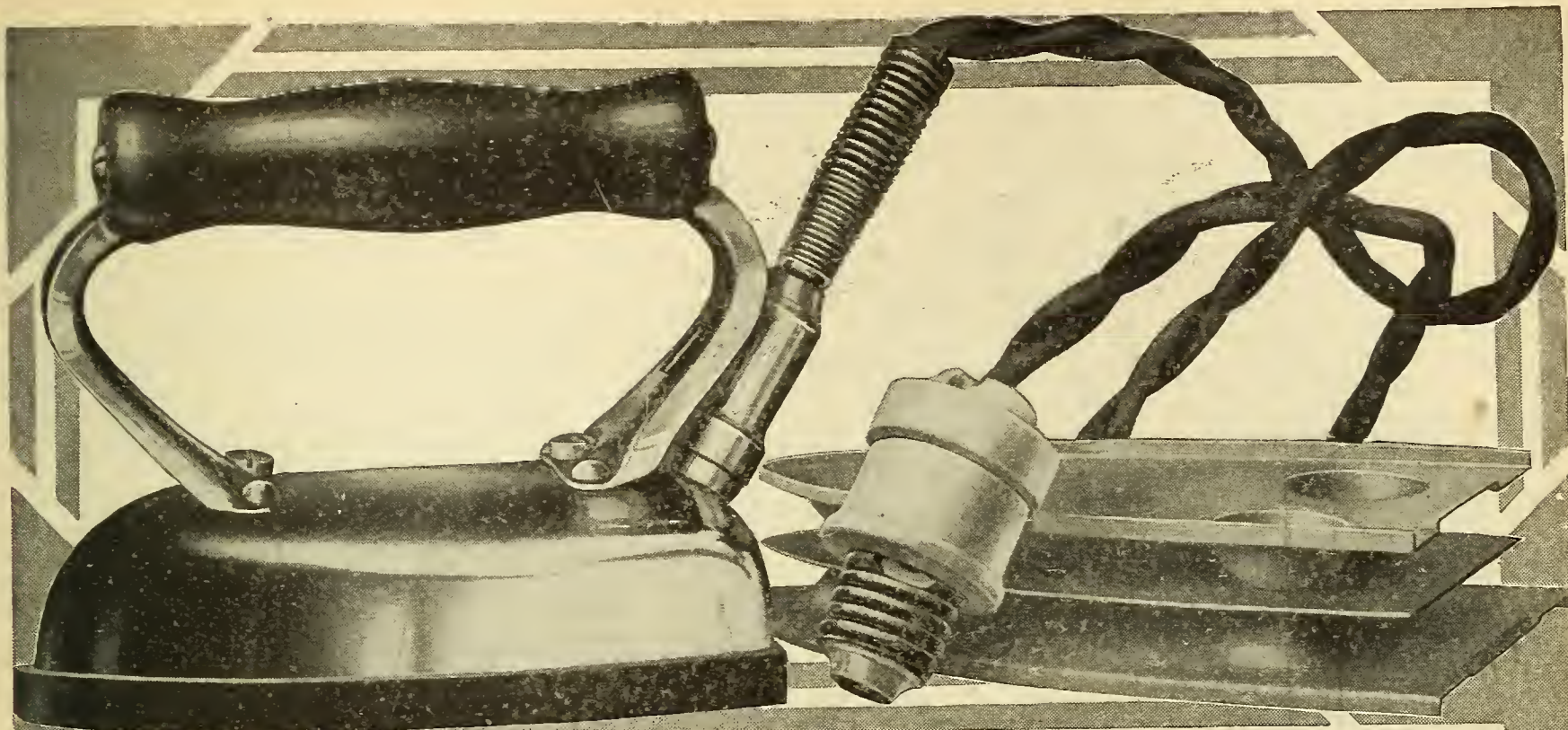
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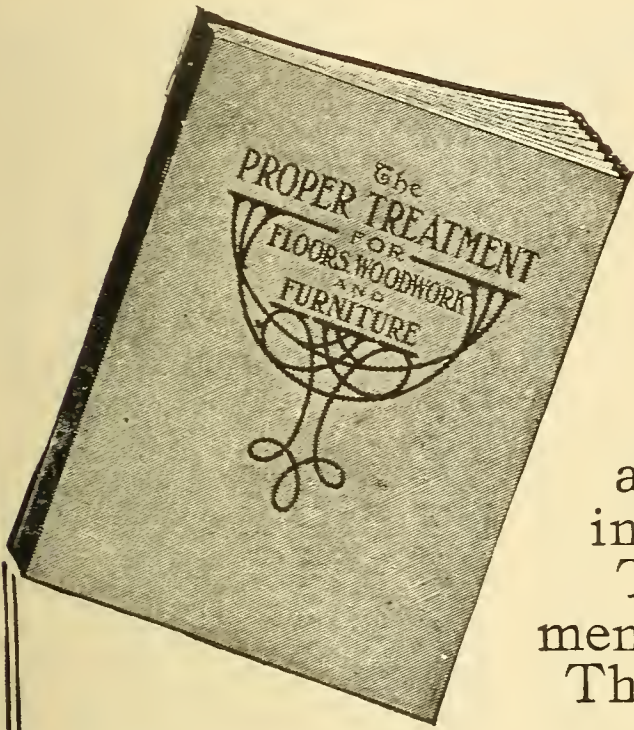
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**“Built Like a Watch But as Rugged as a Battleship,”** he characterized it.

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He considered it the most practical and useful of Mr. Edison's many inventions.

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We therefore contracted with the Army and Navy Journal for an entire page in fifty-two consecutive weekly issues and on October 21st, 1911, began a series of letters, addressed to the Personnel of the Army and Navy by Mr. Miller Reese Hutchison, Chief Engineer and Personal Representative of Mr. Edison.

The results have exceeded our greatest expectations. In addition to the interest evinced by Army, Navy and other Government Officers, we have found it neces-

sary to reprint and distribute over one hundred thousand copies of these letters, in response to written requests from persons in almost every walk of life in this and many Foreign Countries.

Mr. Hutchison has presented the subject in a manner which enables the layman to comprehend, at the same time providing the engineer with pertinent, authentic data.

Beginning March 1st, 1912, we are inaugurating another series of letters, addressed by Mr. Hutchison to Engineers and the General Public. They will appear weekly in many journals, and will occupy two pages in each.

Mr. Edison labored for seven years and expended over two millions of dollars in the evolution and perfection of the Edison Storage Battery.

The perfected type was placed on the market three and one-half years ago, since which time thousands of cells have been sold and operated in a multitude of different applications. Mr. Edison has personally studied reports of their performance, and as a result, he unreservedly endorses and recommends the Edison Storage Battery for general use, and backs this up by a Guarantee of Full Rated Capacity at the end of Four Years of Use in Connection With Approved Apparatus, Irrespective of the Number of Charges and Discharges of the Batteries, and Regardless of the Total Mileage of the Vehicle on Which They are Installed.

With an abiding faith in the sound business judgment and fair mindedness of the public, knowing full well that the opposition he experienced when introducing his Incandescent Lamp would be repeated, he nevertheless attacked and mastered the problem.

The Edison Storage Battery is as Great an Advance in World Progress as Was the Edison Incandescent Lamp, and Will Soon Come into as General Use.

We hope the graphic account of the early struggles, gradual development and final accomplishment will prove of sufficient interest to merit filing for reference after reading.

Respectfully,

Approved



**Edison Storage Battery Company**

117 Lakeside Ave., Orange, N. J.



# Safety, Comfort and Cleanliness

are items of first importance in every home. Now that electric light has been placed within the reach of everybody you cannot afford to run the risks incident to the use of matches, kerosene, and gas. Electric light is absolutely the safest method of illumination: break a bulb and the light is instantaneously extinguished. A child can turn the lights on as safely and successfully as the grown-ups.

The convenience of electric lighting with

## National Mazda Lamps

adds to the charm of the home. These lamps give a soft, clear light and lend themselves most readily to artistic treatment in any decorative arrangement.

Ask your electrical dealer about them. They are sold through the concerns listed on the opposite page.

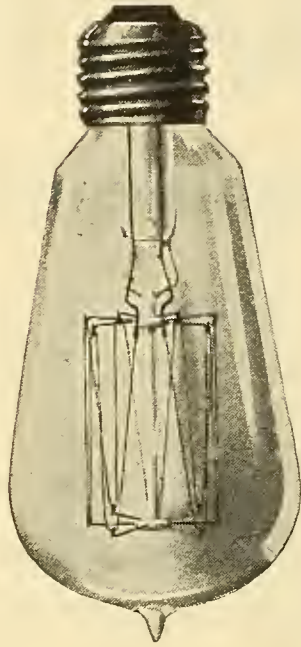
*A copy of our booklet, "The Home Beautiful and Healthful," will be sent to you if you will inquire for it of the Department of Publicity, 1818 East 45th St., Cleveland, Ohio.*

National Electric  Lamp Association


CLEVELAND

# National Mazda Lamps

are mechanically strong. The improved construction of their light giving wires—the new **drawn-wire** continuous filament—enables them to withstand the severest service conditions. In some cases they have even resisted a certain amount of actual abuse.



have made electric light the **cheapest** way to light your home or place of business because they give you triple the light for the same amount of current consumed in the old style and now obsolete electric lamp.

National Electric  Lamp Association

CLEVELAND

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Wheat, corn, oats, rye, barley and vegetables average from \$20 to \$100 per acre.

**The Cadillac Tract** is located within one to five miles of the city limits of Cadillac, Michigan, a city of 10,000 people. Settlers have the advantage of a home market, good schools in which to educate their children, and nearly all religious denominations are represented extending a welcome hand to new comers. It is only a few hours ride from Chicago, Grand Rapids, Milwaukee and Detroit.

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MR. SAMUEL S. THORPE:

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OWNER OF THE CADILLAC TRACT

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Address all correspondence to the Chicago office

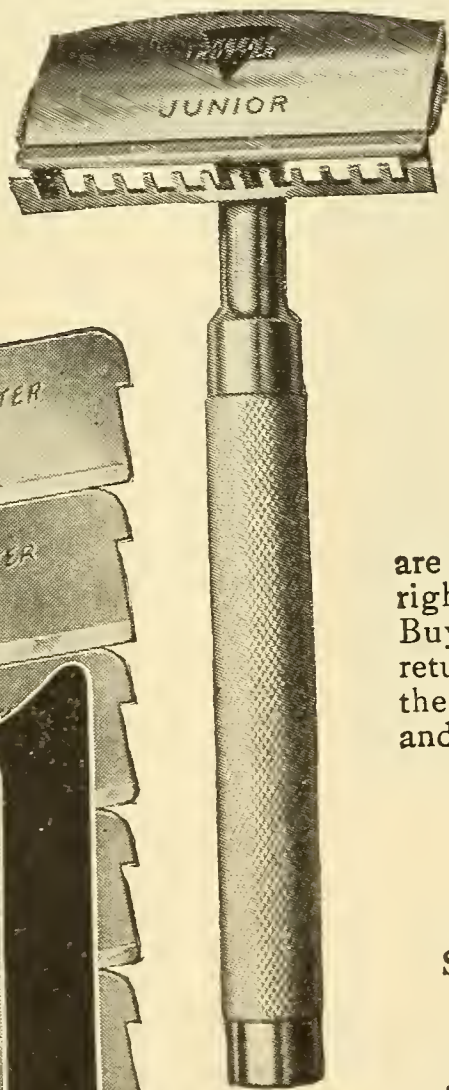
For our Mutual Advantage mention Popular Electricity when writing to Advertisers.

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are thick enough for cutting force—thin enough for the right cutting edge—not metal wafers; but *real* blades. Buy one and you'll buy *satisfaction* with it, or your dealer returns your money. All tools, cutlery and razors bearing the Keen Kutter trade mark carry this agreement with it, and a *square deal*.

*"The Recollection of Quality Remains Long After the Price is Forgotten."*

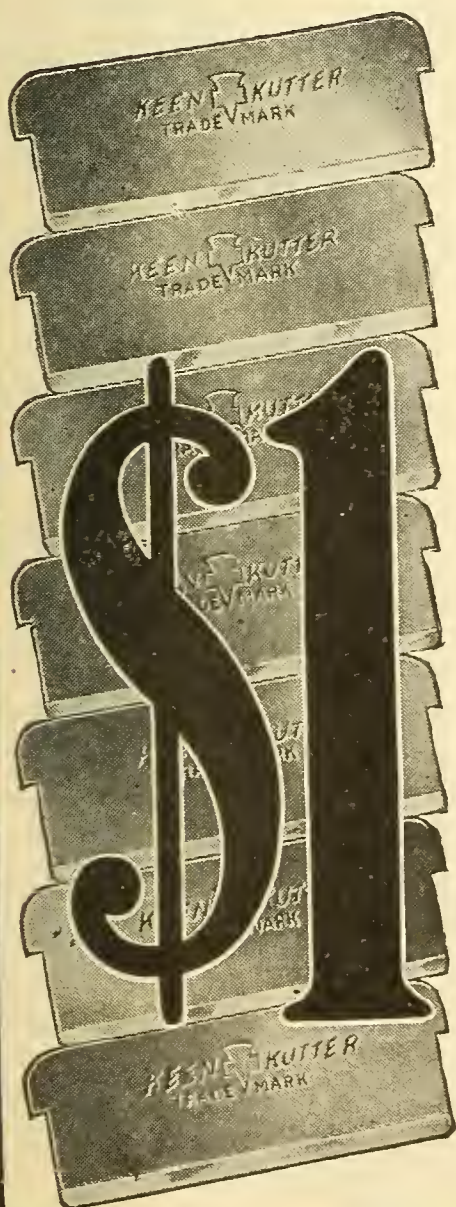
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St. Louis and New York, U. S. A.

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**Keen Kutter Junior**  
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**Price \$1.00**





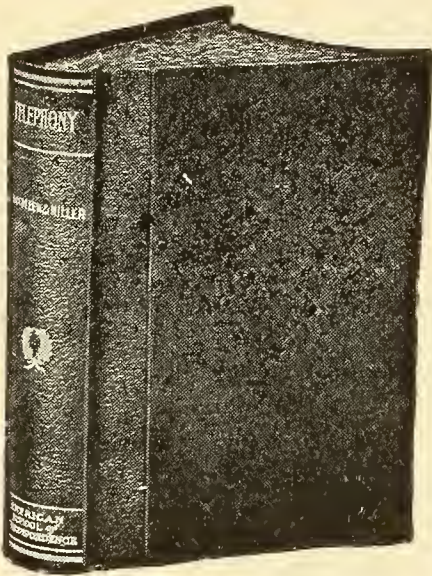
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**Here Are the Latest Books in the Field. Written by Recognized Authorities**

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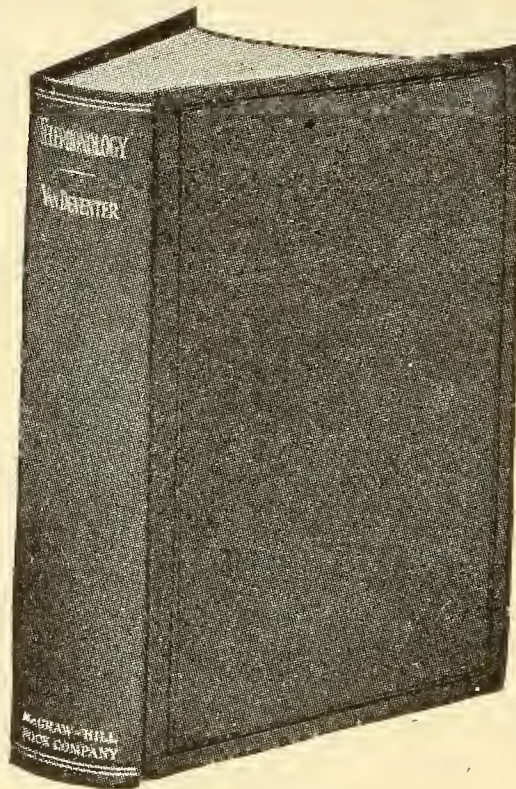
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## Modern American Telephony

By **ARTHUR BESSEY SMITH**

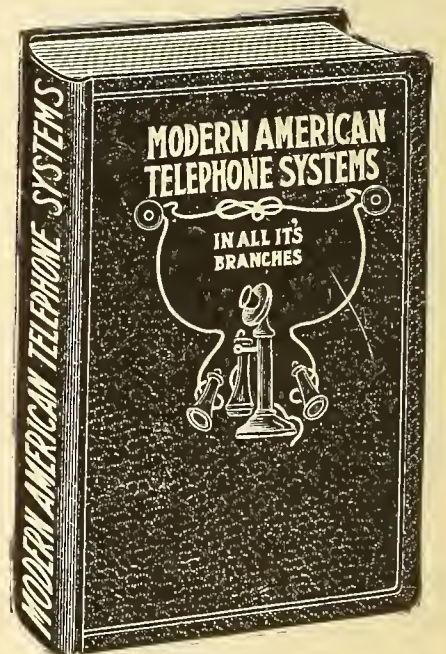
This book treats of present day telephony in a manner that can be easily understood by all. All subjects connected with modern telephone operation are treated in detail and the information regarding it is brought right down to the date of publication.

"Modern American Telephony" is the book for the telephone man and the man who wants to be one. It will pay for itself hundreds of times over in saving your time, keeping you out of trouble and helping you fit yourself for a more responsible position.

Endorsed by Managers, Wire Chiefs, Linemen and Troublemens throughout the United States and Canada.

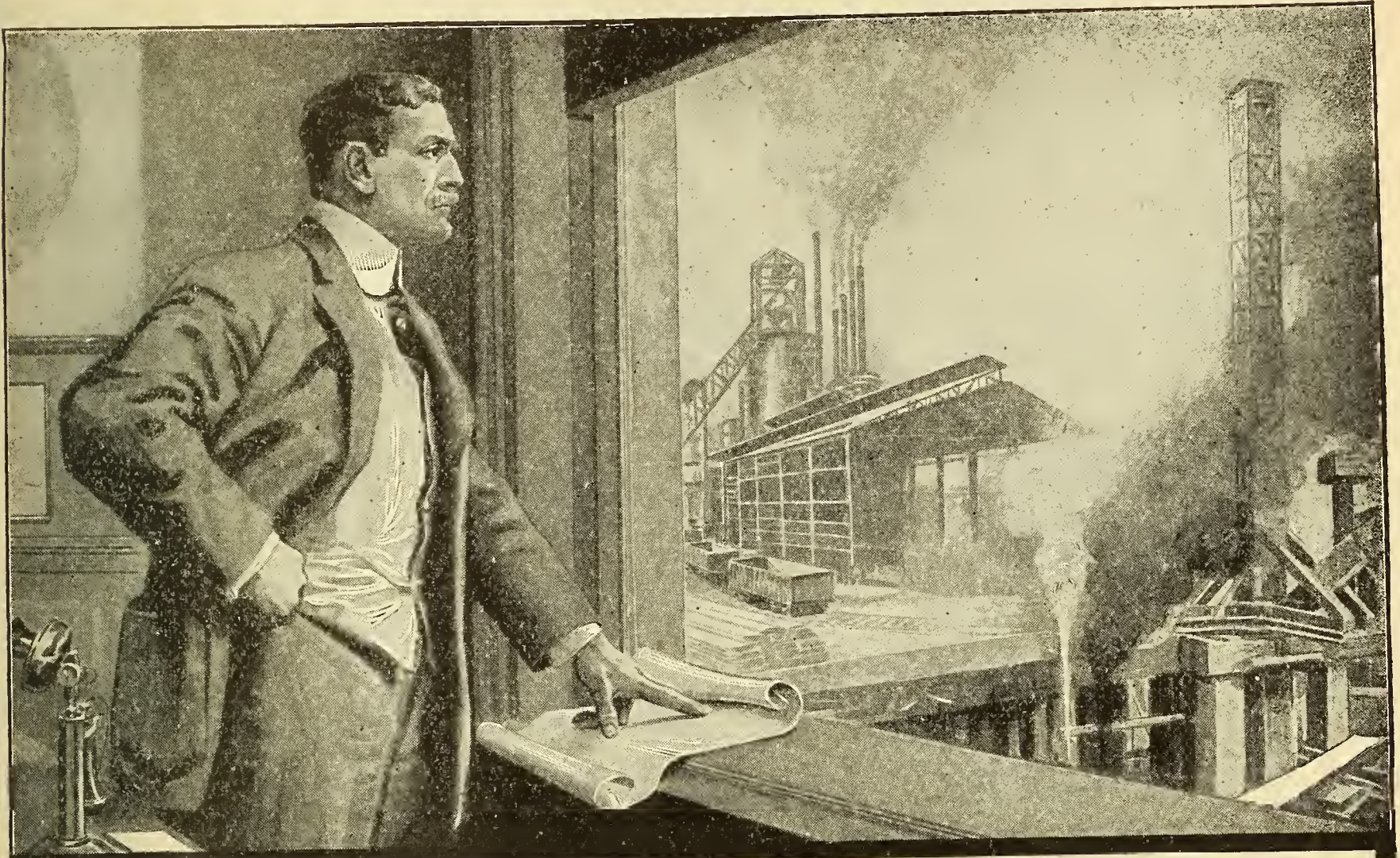
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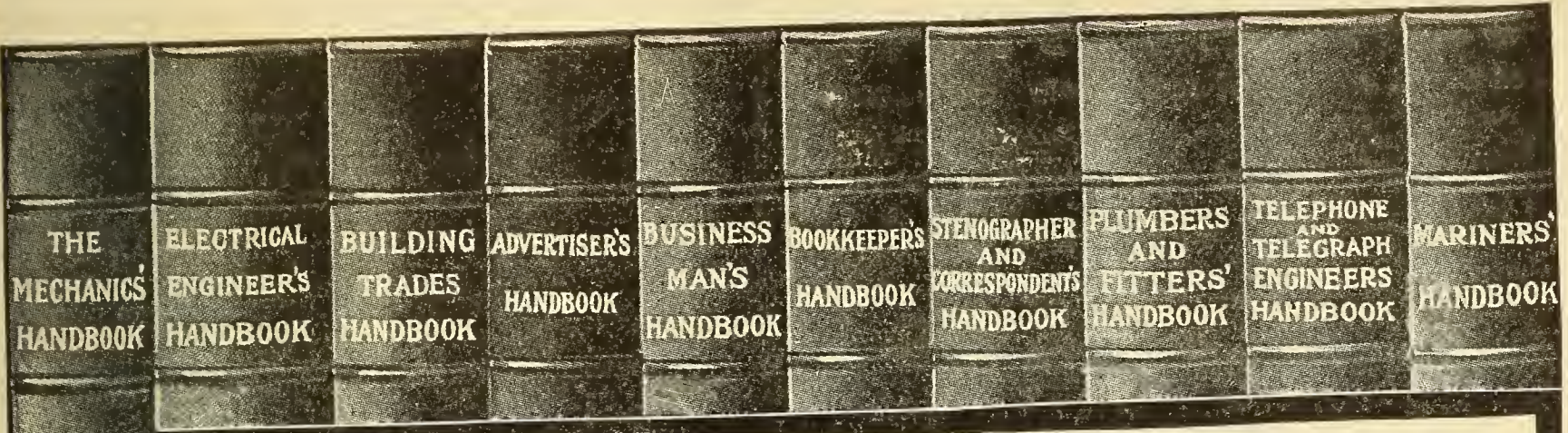
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Contains definitions of 4800 words, terms and phrases used in the electrical profession, also various circuits and wiring diagrams. Just fits the vest pocket, where it is always ready to assist you in solving any perplexing problem that may come up.

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- Elect. Eng. Handbook    —Business Handbook
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- Tel. & Tel. Handbook    —Mariners' Handbook

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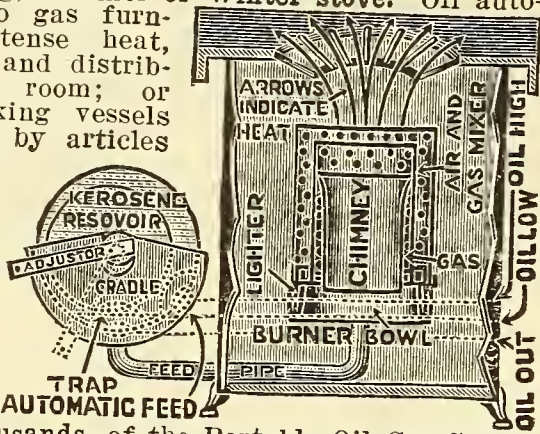
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For our Mutual Advantage mention Popular Electricity when writing to Advertisers.

# PORTABLE STOVE

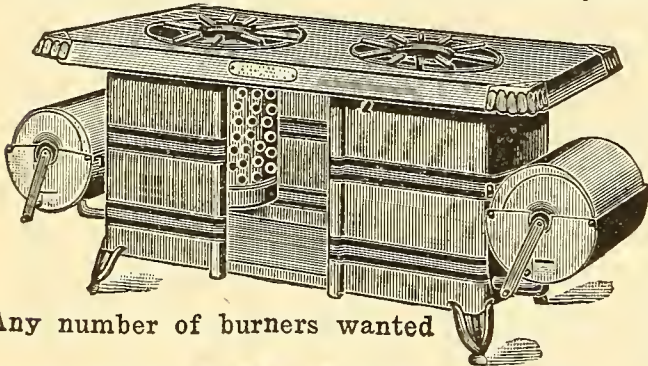
## COMBINED COOKING AND HEATING

The Portable Stove will boil, bake, fry, roast—cook anything. Ideal for quick meals, washing, ironing, hot water, canning fruit, camping, Summer or Winter stove. Oil automatically turned into gas furnishes a steady, intense heat, passed into radiator and distributed throughout the room; or condensed under cooking vessels the heat is absorbed by articles being cooked. Heat under control. **Not Dangerous Like Gas—No valves, no wicks—nothing to clog, close up or get out of order.** Heats rooms—slow fire or fast fire. No flues or chimneys. Light—pick it up, set it anywhere. Many Thousands of the Portable Oil Gas Stoves sent to families in all parts of the world. Men and women enthusiastic over its comfort, convenience and economy.



**WHAT USERS SAY** "It is so convenient and economical," Rev. P. V. Hawkins, Ohio. "It is clean, convenient, no trouble, burns steadily; perfect baking," Henry Schilling, Ill. "For Baking it has no equal," V. E. Bostwick, O. "Bakes pies, cakes, bread; never saw nicer baking done," Mrs. O. Thompson, O. "Never cooked meals so quick and easy," James Newark, Mich. "Baked, cooked, washed, ironed—can do anything my range does," Mrs. M. E. King, Ky. "Cooked for a family of 6 for 5 days with 3 quarts of oil; they are great time and fuel savers," H. M. Irey, Ia. "Heated a room when the temperature was 10 degrees below zero with one radiator," Wm. Baering, Ind. "With the radiator it soon warms up our dining room," J. F. Lisson, Calif. "We are using it to heat our office," McPherson Co., R. I. "Only used a half gallon of oil last week for cooking, baking and ironing." E. N. Helwig, Ont.

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Any number of burners wanted

### PRICE IS LOW

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**AGENTS MAKE MONEY** Quick. Easy. Sure. Show Stove **MAKING GAS**—people stop, look, excited—want it—buy. B. L. Husted, Mich. "Was out one day, sold 11 stoves." W. E. Baird, S. C. "You have the best stove on market; sold 9 in 2 hours. I do not fear competition." (first ordered 1—200 since). Chas. P. Schroeder, Conn., bought 40 stoves one order. Head & Frazer, Tex., write: "Sell like hot cakes; sold 50 stoves in our town." J. W. Hunter, Ala., secured 1—tested it—ordered 100 since. J. G. R. Gauthreaux, La., ordered 1; 155 since. So they go. These men make money. You have the same chance. You should make from \$10 to \$15 a day. Write for our selling plan. Do it today. Send no money.

The World Mfg. Co. 1238 World Bldg., Cincinnati, Ohio

## HOW TO GET BETTER LIGHT From KEROSENE (Coal Oil)

Recent test by Prof. Rogers, Lewis Institute, Chicago, on leading oil-burning lamps show the Aladdin Mantle Lamp is the most economical and gives over twice as much light as the Rayo and other lamps tested. It is odorless, safe, clean, noiseless. Better light than gas or electric. Fully guaranteed. Our burners fit your old lamps. Ask for Catalogue M and learn how to get

### ONE LAMP or BURNER FREE

**AGENTS:** Ball sold over 1000 on money back guarantee; not one returned. Bruner sold \$800 in 15 days. Ask for liberal agency proposition. Sample lamp furnished. **MANTLE LAMP COMPANY, 202 Aladdin Building, Chicago, Ill.**



# The Four Prize Winners

Result of the Contest in Advertisement Writing for Popular Electricity Magazine

We wished to ascertain what experts in the advertising field think are the strong points in Popular Electricity Magazine.

A contest was instituted with cash prizes of \$100, \$50, \$25 and \$25 to be awarded to best four advertisements soliciting subscriptions to the Magazine. 242 advertisements were submitted.

These advertisements were passed upon by three officers of the Chicago Advertising Association and the result of their decision is reproduced on the opposite page.

The four prize winning advertisements will be reproduced, just as they were sent to us, in the May, June, July and August issues.

Popular Electricity Magazine



THE CHICAGO ADVERTISING ASSOCIATION  
75 WEST MONROE STREET, CHICAGO

TELEPHONE CENTRAL 5722

March  
Fifth,  
Nineteen-twelve.

Popular Electricity Publishing Co.,  
54 West Lake Street,  
Chicago,

Gentlemen:—

Your committee appointed to examine and award prizes under terms of your Prize Contest for the best advertisements soliciting subscriptions to Popular Electricity Magazine, desire to report as follows:

242 pieces of advertising copy were received, all of which were separately and carefully examined. We find in the matter submitted a great deal of merit and the selection of the prize winners was not an easy matter but, after careful consideration, we have made the following awards:

1st Prize to L. C. Covell of Grand Rapids,  
Michigan.

2nd Prize to W. J. Smythe of Cedar Rapids,  
Iowa.

3rd Prize to C. D. Wheeler of Ft. Wayne,  
Indiana.

4th Prize to Horace Barrington of New York,  
New York.

Respectfully submitted,

*A. Chamberlain*  
President.

*W. H. Caughan*  
1<sup>st</sup> Vice President

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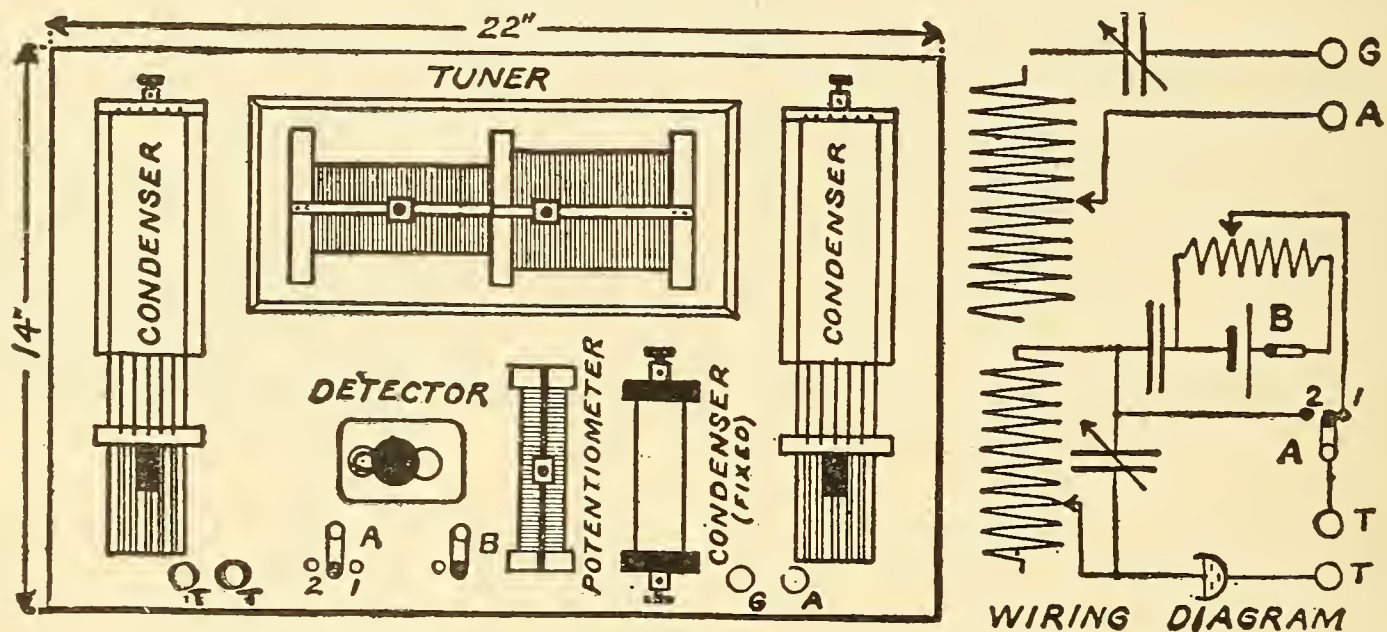


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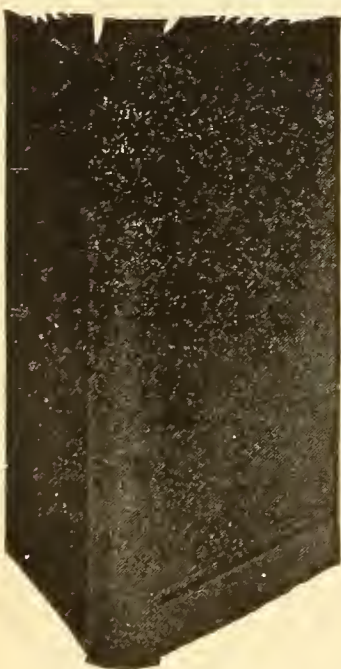
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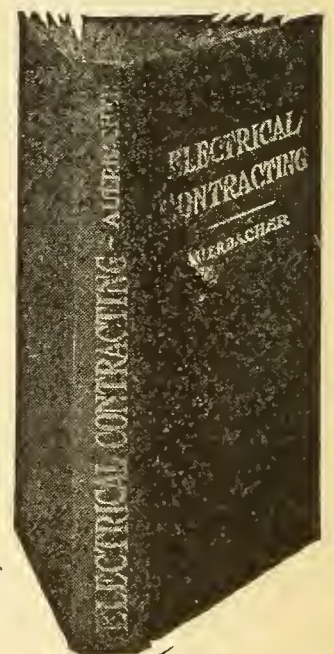
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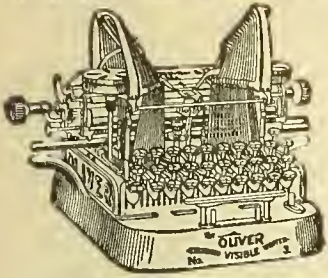


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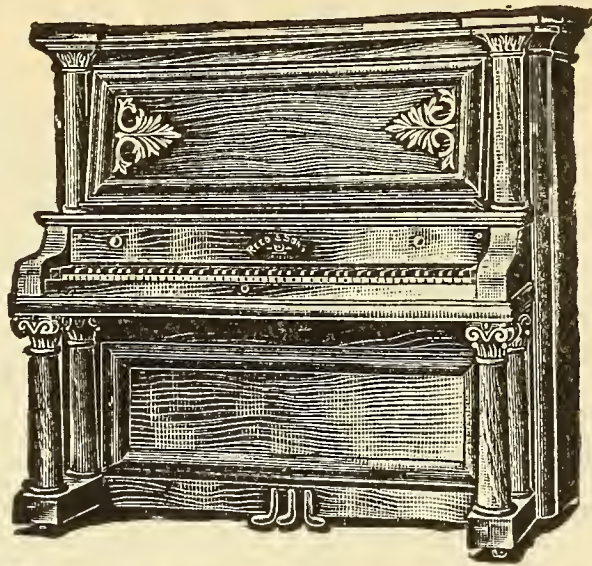
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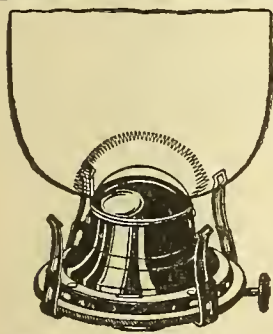
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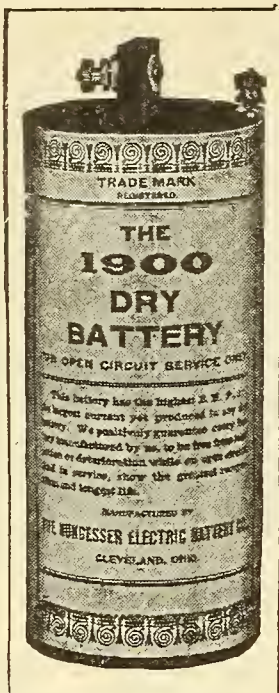
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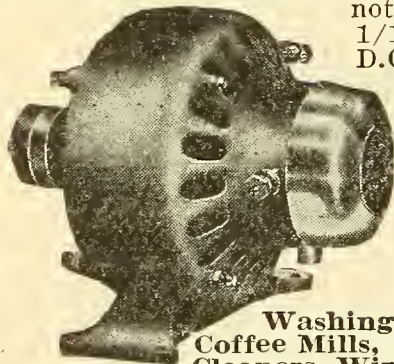
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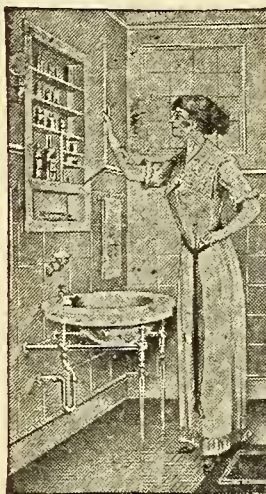
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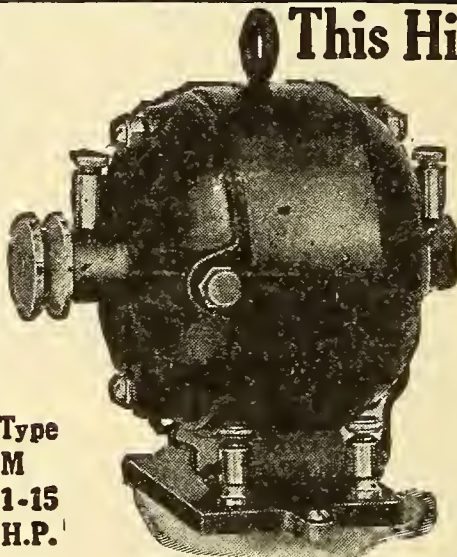
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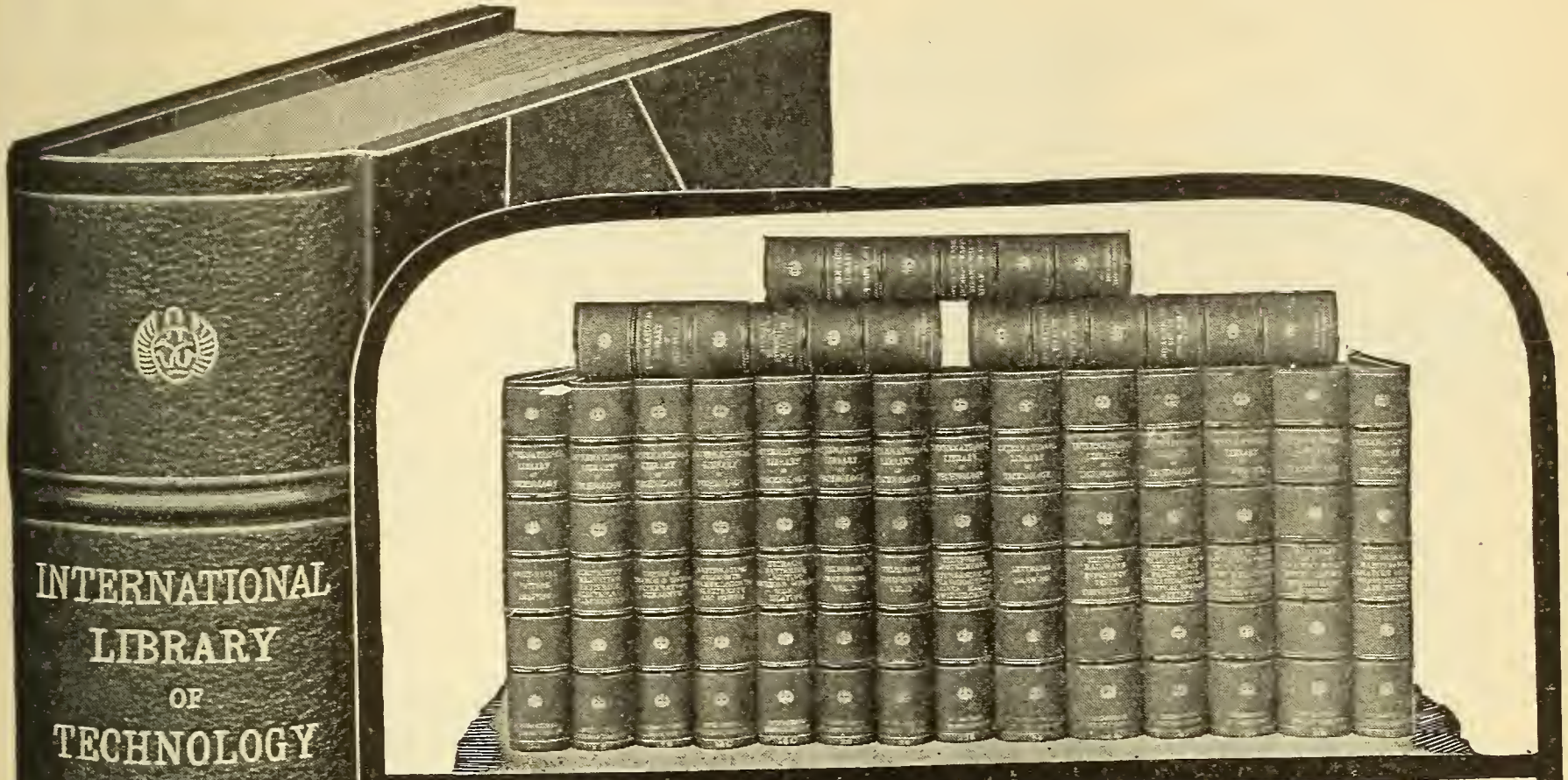
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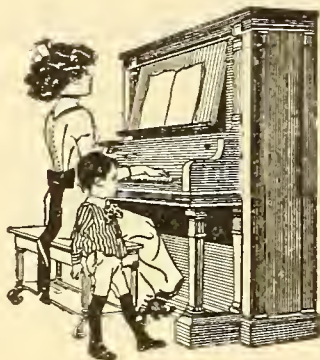
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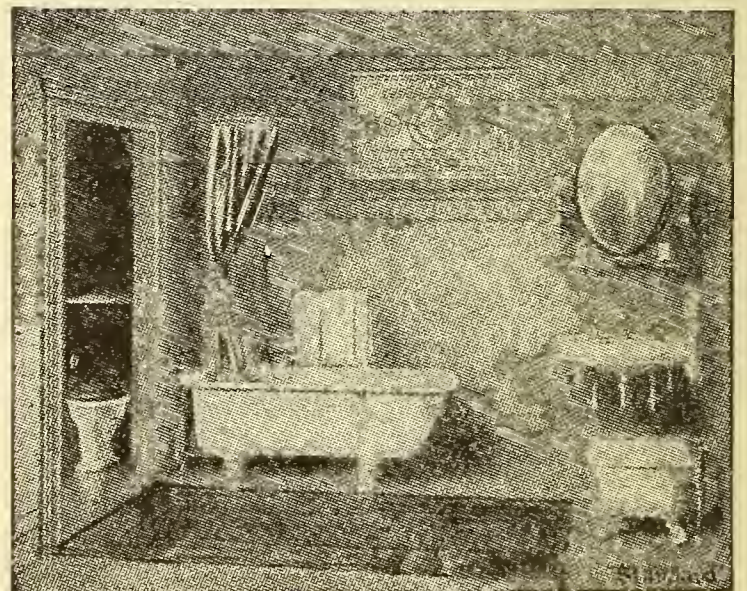


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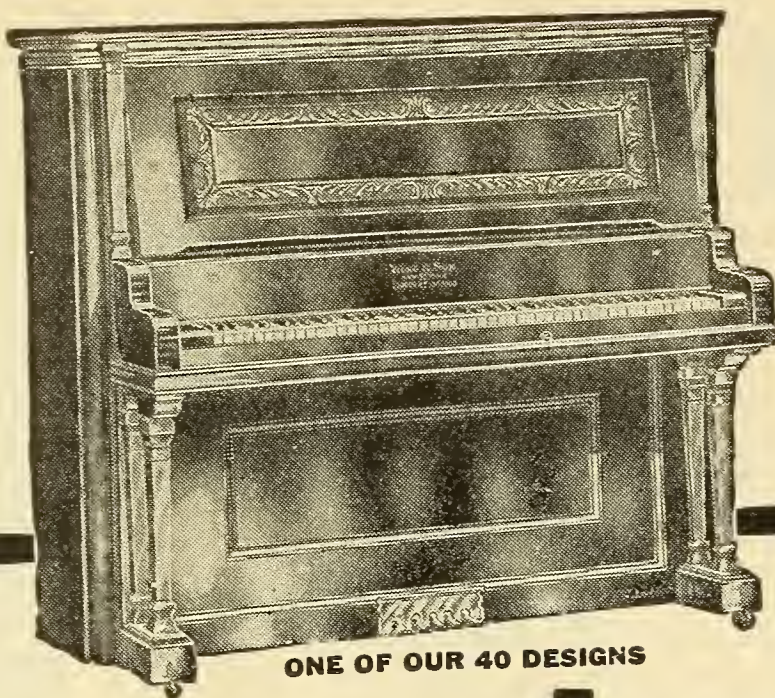
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With this free book we send colored pictures of Wing pianos showing the very latest beautiful designs in cases and we quote **amazingly low** wholesale dealers' prices on these **quality** instruments. Now **write for the book of ten tests** and the Wing prices today. Drop postal or just send the coupon—but do it **NOW!**

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Department 1404  
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My name is .....

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(Est. 1868)

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Gentlemen:—Without the slightest obligation to accept anything or to pay for anything, I would like to get free full information about your wonderful free shipment offer on the new style highest grade Wing Piano. Please explain. Also send free the 156 page "Book of Complete Information About Pianos" and your art catalog of latest style Wing Pianos.

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What Price Do You Want for Your Old Organ or Old Piano?  
We'll Allow You FULL VALUE in Exchange for a WING.

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**T**HE Signal Semi-dress Shirt gives you a neat, spick and span appearance—and you can't beat it for wear. Has all the advantages of the higher-priced shirts—and it doesn't soil so easily and soon wear out.

This shirt is cut coat style for your comfort—no tugging on and off over your head. A three-inch overlap and an extra button at the waist keeps the flap in place. Shirts are cut out at side to improve the fit. Sleeves are slit in the side, reinforced with rip-proof band. The length of the body will please you—and the goods won't shrink in the wash.

## Wear it with or without collar

We make them in a great many different patterns. In light and dark colors. Soft collar attached or two detached hand turned, four-ply collars—just as you prefer. Extra buttonholes for attaching white cuffs.

## Order two from us—examine before you pay

Ask your clothing man first, if he hasn't Signal Coat Shirts, tell us his name, your size and we'll express you a couple. If you like them pay expressman \$1.00 per garment (\$1.25 west of Missouri River). *Write for folder showing styles.*



Also makers of Signal Work Shirts and Overalls

**HILKER-WIECHERS MFG. CO.**

1248 Mound Avenue

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While you are boiling clothes for your washing machine or tub, the Easy Way is washing them on the stove. Dirt dissolved and loosened in all garments at the same time; dirt drops to the bottom or comes off in the rinse. No chemicals; use soap.

**WASHES DAINTY THINGS:** embroideries, laces, curtains without injury—heavy things like blankets, spreads, quilts—farmers' garments, greasy overalls. Saves money, time, labor, aching back and limbs. "The clothes were on stove **WASHING THEMSELVES**, while I was washing dishes," Mrs. M. A. Brooks, S. D. "Done 2 weeks' washing in 45 minutes, without rubbing." F. E. Post, Pa. "The Easiest Washing I ever did." Mrs. A. Cuyler, N. Y.

"Washed a pair overalls full of grease, they were clean." H. Emery, Mich. "Four blankets, five quilts and a spread." J. P. Mitchell, O. **SENT ANYWHERE;** not sold in stores. 100,000 sent to families. Light—12 lbs. Price, \$6.00. Write for description. **AGENTS:** C. O. Garrett, O.: "Showed Easy Way to seven families, sold 6." J. T. Peay, N. C.: "Been out two days, sold 12." Will R. Stephenson made in two months \$726. **THIS IS MAKING MONEY.** You have the same **FREE SAMPLE** offer. Write chance. us to-day.

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IMPORTED from FRANCE

**SEE THEM BEFORE PAYING!**

These Gems are chemical white sapphires. Can't be told from diamonds except by an expert. Stand acid and fire diamond tests.

So hard they scratch a file, will cut glass. Brilliance guaranteed 25 years. All mounted in 14K solid gold diamond mountings. Will send you any style ring, pin or stud on approval—all charges prepaid—no money in advance.

Write for Free Illustrated booklet, special prices and ring measure **WHITE VALLEY GEM CO., D742 Saks Bldg., Indianapolis, Ind.**

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of all kinds for organizations or personal use. Special designs and letterings. Estimates furnished. Complete catalog mailed on request.

**SPECIAL OFFER**—This beautiful fob, rose gold finish (retail value 75c) sent postpaid for only 25c.

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205 W. 119th St., New York



## LIQUOR HABIT CONQUERED

No more misery. Get rid of the drink habit in 3 days.

After being a heavy drinker for years, I was cured and providentially came into possession of the true Remedy for overcoming liquor habit. The drinker who wants to **quit forever**, getting rid of the awful craving, can easily do so, losing no time and enjoying life better than ever before. **Marvelous success.** Safe, reliable, medically indorsed. Inexpensive home treatment.

### Drinkers Secretly Saved

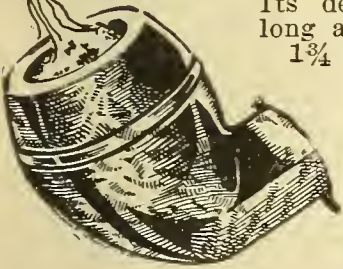
If a person is addicted so strongly he (or she) has lost desire to be rescued, he can be treated **secretly**; will become disgusted with odor and taste of liquor. Legions of testimonials verifying genuineness of my Method. **Joyous news** for drinkers and for mothers, wives, etc., contained in my **Book.** Mailed, plain wrapper, free. Keep this adv. or pass it on. Address **EDW. J. WOODS, 534 6th Ave., 731 B, New York, N.Y.**



**A More Enjoyable Smoke**  
will be yours if you use



"Without a bite or a regret"  
Its delicious, mellow flavor will linger long after your pipe is out.  
1 3/4 oz. 40c; 3 1/2 oz. 75c; 1/2 lb. \$1.65; 1 lb. \$3.30.



Prepaid to any address if dealer will not supply you. You pay for quality and you get it.  
Special: Send 6c for Sample Can and FREE Booklet "How to Smoke a Pipe."  
E. HOFFMAN COMPANY, Mfrs.,  
178 W. Madison St., Chicago.

**\$8!**  
**a Day, and Nobby Merchant Tailored Suit**



**IT'S A CINCH!** You are a live young man, and I want you to get these stylish clothes free and \$8 a day besides. A man nowadays is surely judged by his appearance. You know this. **THIS IS A WONDERFUL OPPORTUNITY.** You owe it to yourself to learn every detail. No experience necessary. Not a cent of money.

**Thousands of Our Agents Are Making Big Money!**

**WE MAKE NO EXTRAVAGANT PROMISES,** but we guarantee every one of our agents our full support and assistance in every way. We furnish advertising matter, names, samples, materials, blanks—everything necessary or desired by our agent, **WITHOUT A CENT OF MONEY FROM YOU.** We help you make money, for it is easier to sell our goods than those of any other house—not only because we help you, but by giving you a suit of our merchant tailored clothes we give you

the best advertising in the world.  
**NO OTHER CLOTHES FIT LIKE OURS**  
**NO OTHER CLOTHES AS LOW PRICED**

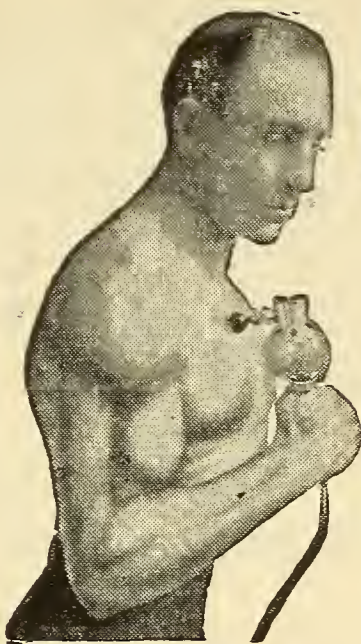
We sell our clothes cheaper than any other tailoring house in America—we give you the same suit at less money or a better suit at the same money than any other house. We guarantee this. Suits, \$8 up.

We operate our own tailor shops—other firms have their work done for them—that increases cost. We buy enormous quantities of woolsens—get wholesale prices; other concerns buy by the piece and pay 20 per cent more for material alone. **EVERY GARMENT MUST PLEASE YOU AND YOUR CUSTOMER. IF IT FALLS SHORT in any way—if not the biggest value at lowest price—SEND IT RIGHT STRAIGHT BACK TO US.**

**WHAT WE GIVE YOU FREE**

We give you the finest, most complete outfit possible (only a firm of our size could furnish it)—handsome portfolio of actual samples of fine woolsens, one you can be proud to show—fashion plates showing models of latest styles to be worn in New York and London—tape measure, charts and improved, accurate, exact measuring blanks, list of confidential costs and discounts, stationery, order blanks, complete and all **FREE. Express prepaid.**

Sit down now and write for details of how you can make all this money—no matter what else you are doing you owe it to yourself to investigate this wonderful money-making proposition. A postal will do.  
**Knickerbocker Tailoring Co., 1902 S. Halsted St., Chicago**



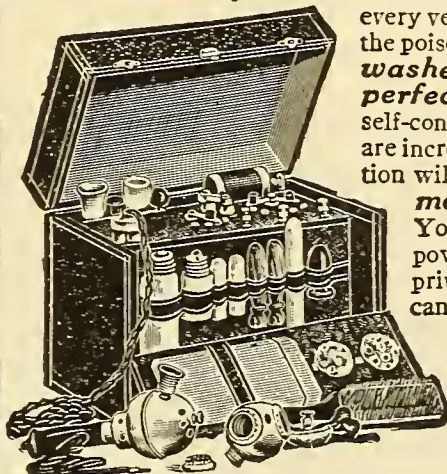
# POWER for YOU!

Power from within! Strength that is *more* than mere muscular strength—the strength of perfect health, abundant nerve force—now within your own reach through

**Vibration!** Nine people out of every ten are only *half alive!* Are you? Listen—

## All the Exhilarating Joys of Life - Strength - Youth

may be returned to you through **Vibration.** For **Vibration is Life itself.** It will chase away the years like magic. Every nerve, every fibre in your whole body will fairly tingle with the force of your own **awakened power!** Stagnation simply cannot exist. You are made over new from head to foot. **All the keen relish, the pleasures of youth,** fairly throb within you. Your blood is sent humming along through



every vein, artery and tiny capillary. All the poisonous matters in your system are **washed away.** Every organ is put in **perfect working order.** Your self-confidence—**your self-respect** are increased a hundred fold. Yes, **Vibration** will do all this, and more, **much more.** And it is within your reach.

You can enjoy its wonder-working powers right at home, right in the privacy of your own room. You can give yourself the same identical treatments which you would receive in the offices of the world's most famous specialists—all without extra charge.

### Special Offer for a Limited Time

For a short time only we are making a remarkable Special Introductory Offer on the White Cross Electric Vibrator—amazing discounts—actual rock-bottom prices direct **if you act at once.**

### The White Cross Electric Vibrator

is the result of years of work and experiment. It is absolutely perfect. If you have your house wired for electricity, you can connect it up as easily as an electric lamp; if not, it will run perfectly on its own batteries.

### FREE BOOK

Sign the coupon and mail it to us today. Get our splendid big

FREE book telling you all about the marvels of **Vibration.**

Read what scientistssay about it.

Post yourself on what it will do for you. Learn all about

the **White Cross Elec.**

**tric Vibrator** and our

limited offer. You are

under no obligations

at all—all you need to

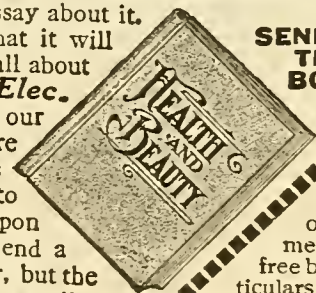
do is to send the coupon

**today**—you can send a

postal card or a letter, but the

coupon will do just as well.

**SEND FOR THIS BOOK**



Lindstrom,

Smith Co.,

218 S. Wabash Av.,

Desk 1404,

Chicago, Illinois

Without any obligations on my part, please send me, free and prepaid, your free book on Vibration, full particulars of the White Cross Vibrator and your Special 60-Day Offer.

**Lindstrom-Smith Co.**

**218 S. Wabash Av.**

Desk 1404

**Chicago, Ill.**

Name.....

Address.....

**WRITE PLAINLY**



# 2c a Week Pays Wash Bill!

Write for  
**FREE Book**

## Electricity or Water-Power Does the Work

### Just a "Twist of the Wrist" Starts or Stops the Machine!

The 1900 Motor Washers are now at work in thousands of homes. They are doing the work formerly done by women, at a cost of 2c a week for power! Saving thousands upon thousands of dollars in wash bills. Saving worlds of wash-day troubles. Leaving the women free to do other work while the machines are doing the washing.

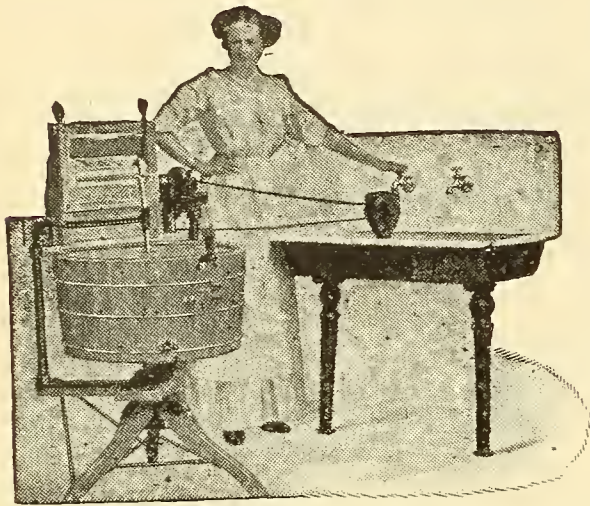
# The 1900 Motor Washer

## Washes a Tubful in Six Minutes!

1900 Water Motor Washer  
Can be connected with  
any water tap instantly



Doing the wringing with  
1900 Electric Motor Washer



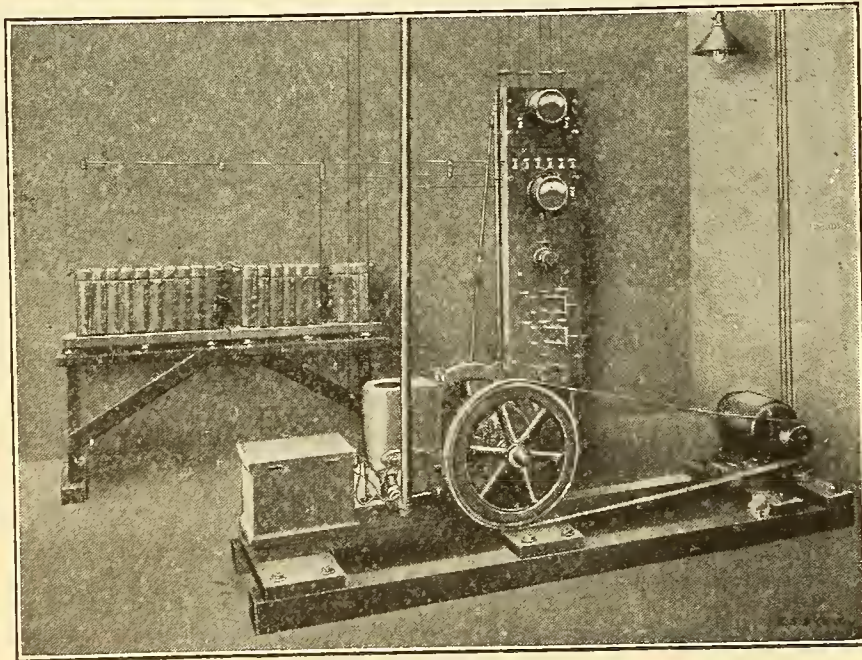
**Handles Heavy Blankets or Dainty Laces**

The outfit consists of the famous 1900 Washer with either Electric Motor or Water Motor. You turn on the power as easily as you turn on the light, and back and forth goes the tub, washing the clothes for dear life. Then, turn a lever, and the washer does the wringing. All so simple and easy that it is mere child's play.

**A Self-Working Wringer Free With Every Washer!**

The motor runs Washer and Wringer. We guarantee the perfect working of both. No extra charge for Wringer, which is one of the finest made. **Write for FREE BOOK and 30 Days' FREE TRIAL OFFER!** Don't doubt! Don't say it can't be done. The free book proves that it can. But we do not ask you to take our word for it. We offer to send a 1900 Motor Washer on absolute Free Trial for an entire month to any responsible person. Not a cent of security—nor a promise to buy. Just your word that you will give it a test. We even agree to pay the freight, and will take it back if it fails to do all we claim for it. A postal card with your name and address sent to us today will bring you the book free by return mail. All correspondence should be addressed to **1900 WASHER CO., 5069 Court St., Binghamton, N. Y.** Or, if you live in Canada, write to the Canadian Washer Co., 355 Yonge St., Toronto, Canada. (23)

# MAKE YOUR OWN ELECTRIC LIGHT



A 15 to 20 Light Electric Plant

The "Chloride Accumulator" is the same type of battery used by the large electric lighting companies, electric railways, telephone and telegraph companies and the U. S. Government. The Storage battery is the most vital part of a plant.

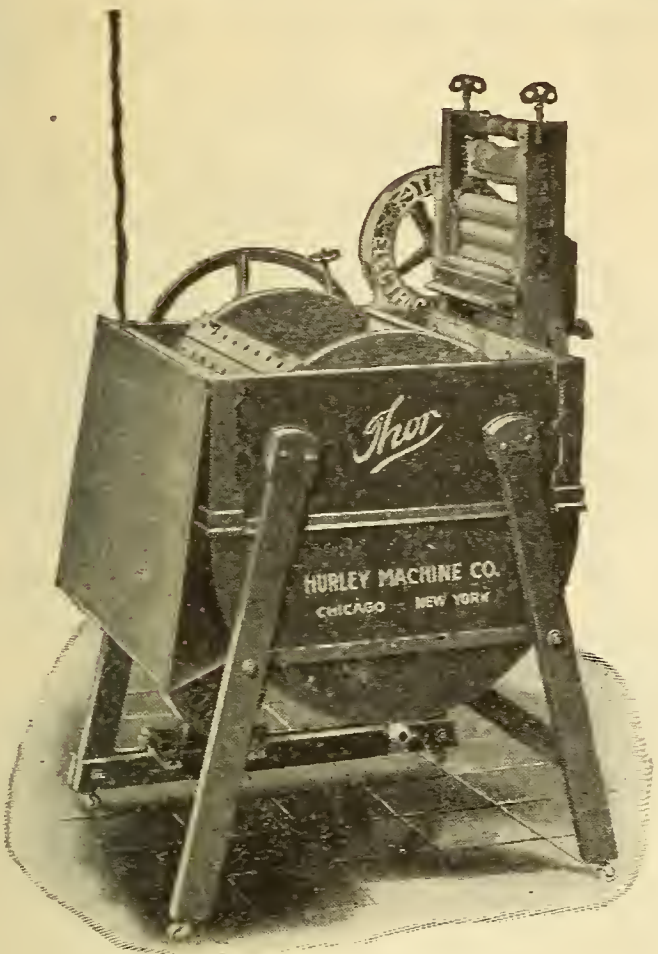
Full information on electric lighting plants can be secured by writing the nearest office for our book, "HOW TO HAVE YOUR OWN ELECTRIC LIGHTING PLANT."

## THE ELECTRIC STORAGE BATTERY CO.

1888 Boston Chicago PHILADELPHIA, PA. 1912  
 New York San Francisco Portland, Ore. St. Louis Cleveland Atlanta Denver  
 Detroit Seattle Los Angeles Toronto

For Gas Engine Ignition, the "Exide" Sparking Battery will give you the very best service

For our Mutual Advantage mention Popular Electricity when writing to Advertisers.



**THOR ELECTRIC**  
Home Laundry Machine

# THE HURLEY LINE

OF  
**ELECTRIC LAUNDRY MACHINES**

29 Sizes and Styles  
to Select From

**\$50 to \$500**

Think of it. Your entire week's washing and wringing done in 90 minutes, without any laborious work and at a cost of only 3 cents for electricity.

## THE THOR

is used and appreciated in more than 36,000 homes. We gave them a two weeks'

### FREE TRIAL

to prove its merits. Why cling to drudgery and excess expense in YOUR home. Don't be skeptical. Select the machine you want and try it. We pay all freight charges if you don't wish to keep it. Sold on easy payments.

Write today, now, for Free Catalog F and name of dealer in your city.

## HURLEY MACHINE COMPANY

27 SOUTH CLINTON STREET, CHICAGO

NEW YORK: 1011 Flatiron Building

LOS ANGELES: Third and Main Streets

## Cook by Electricity

A Cool Cook  
and a  
Cool Kitchen



ONLY a few minutes current from an ordinary lamp socket starts a

### Detroit Fireless Electric

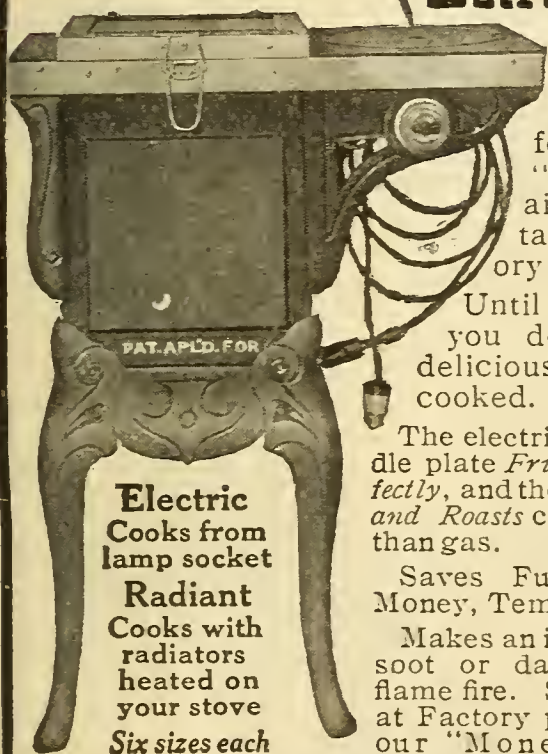
Imprisoned heat cooks the food, and the "Water-sealed," air-tight ovens retain the rich, savory flavor.

Until you've tried it you don't know how deliciously food can be cooked.

The electrically heated griddle plate *Fries and Toasts perfectly*, and the oven *Boils Bakes and Roasts* cheaper and better than gas.

Saves Fuel, Time, Heat, Money, Temper and Energy.

Makes an ideal kitchen. No soot or danger from open flame fire. Sold direct to you at Factory prices. Write for our "Money-Back" Catalog **FREE**



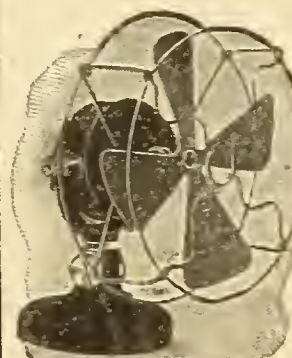
**Electric**  
Cooks from  
lamp socket  
**Radiant**  
Cooks with  
radiators  
heated on  
your stove  
Six sizes each

**Detroit Fireless Stove Co.**  
102 Jefferson Ave., Detroit, Mich.

## A PERFECT ELECTRIC FAN \$6.50

SIX-INCH, SUITABLE FOR INDIVIDUAL OFFICE, HOUSE OR HOSPITAL USE

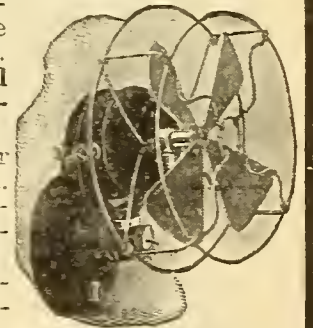
8 inch fan, 3 speeds and switch...\$8.50    8 5/8 inch fan, 3 speeds and switch...\$8.85



**FINISH:** Fine black enamel; guards and blades heavily nicked on brass.

A L L absolutely of the finest quality, noiseless, and no competition.

Desk or bracket. Every conceivable adjustment. Price refunded if not satisfactory.



We prepay express and include free a 75c double-covered silk cord with plug, if you mention dealer's name and voltage desired, Alternating Current or Direct Current.

**SIX VOLT BATTERY FANS** (not toys) at same price and with such small current consumption that they can be run economically on any wet, dry or storage batteries. Fine for boat cabins, sick rooms, and all places which lack lighting current.

Also an exclusive line of **SMALL MOTORS, ORIGINAL "IMP" TORCHES, TOASTERS, IRONS, BELL RINGERS, ETC.**

**The Carleton Company**

178 Summer St.  
BOSTON, MASS.

# WASHING A PLEASURE

NOT A TERROR with the

## “Domestic” Electric Washer & Wringer

“My husband says it’s fun, not work, to wash with a Domestic,” reports a delighted customer.

### WASHES CLEAN

anything washable, in from 3 to 10 minutes, *without injury* to the most delicate fabric. In an average family *will save its cost every year* in lessened wear and tear of goods; and *save you time, hard work and money.*

*The Domestic forces the suds thru the clothes about 100 times per minute.*

Cost of Electricity is about 2c an hour or 5c for the average family wash. The tub is made of metal; no wood to warp, shrink, leak or smell. The inside of the tub being just as smooth as a milk pail, prevents the wear, tear or chafing of the goods, pulling off buttons or the gathering of filth. Can be cleaned in 15 seconds. All the working parts are enclosed, making everything perfectly safe. Equipped with a quickly reversible metal frame electric wringer.

**SIMPLE                      EFFICIENT                      DURABLE**

Sent on Approval Anywhere in the U. S.

**WASHING MACHINES.** Hand, Belt and Motor Driven. \$15 to 125. Send for Catalogue, and our easy payment plan.

**DOMESTIC EQUIPMENT CO.**  
DEPT. P                      30 W. LAKE ST.                      CHICAGO

# QUICK IRONING By Electricity

Your bed and table linen, all plain clothes and flat pieces ironed *in a few minutes*—better finish than flat iron—with no labor at all, at one-tenth the expense of hand work by the

## SIMPLEX IRONER

“THE BEST IRONER”



Simple. Child operates. Just feed clothes through. Costs but 3c an hour to heat and run by any small electric motor, by gas or gasoline—or can be run by hand. Catalog and “Ironing Hints” free.

Write today for 30 day Free Trial Offer.

AMERICAN IRONING MACHINE CO., 55 E. Lake Street, Chicago, Ill.

Let Us Send You This

# EUREKA

## ELECTRIC CLEANER

On **FREE** Trial

Prepaid



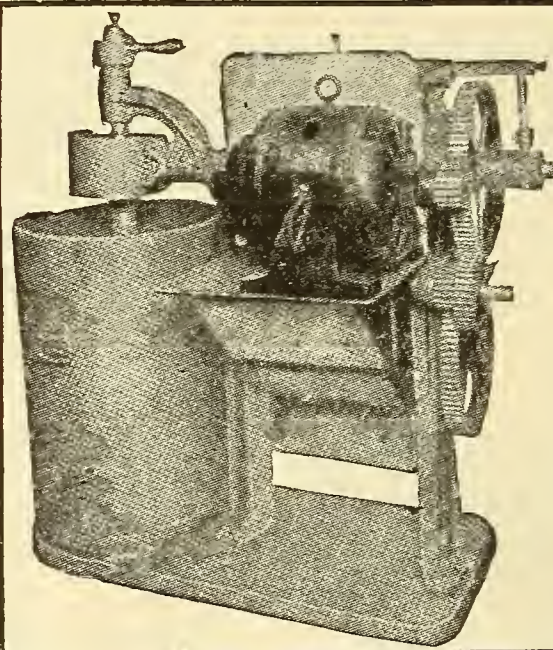
Write for our unequalled introductory offer. It will surprise you.

Any broom, brush, cloth, or other dry cleaner that does not suck in every particle of dust it raises is not only unclean, but unhealthful. No other indoor dry method of cleaning than suction can make your house really clean. The EUREKA cleans floors, rugs, carpets, etc., and our extra attachments clean portieres, walls, furniture—everything. Quickly Pays for itself. Electricity used costs less than one cent per hour. So light a child can use it, yet we guarantee it to clean as rapidly, thoroughly and with as little effort as any other cleaner, regardless of cost. Will you let us prove this broad claim at our own expense? Write today for booklet and full particulars of our Free Trial Offer.

**EUREKA VACUUM CLEANER CO.**

1202 Majestic Bldg.                      Detroit, Mich.

WE WANT AGENTS EVERYWHERE



## The Dewsberry ELECTRIC Power Freezer

Will enable you to produce a better grade of ice cream at a lower price and in less time than by any other method.

These machines are built unusually substantial, and are guaranteed to give satisfaction.

Made in 20 and 40 quart sizes. The 40 quart size runs both fast and slow on A.C. current. Write to-day for circular

**R. A. Dewsberry**

216 N. Morgan St. CHICAGO.

# If You Love Your Wife Buy Her an “EDEN”

## Electric Home Laundry Machine

It takes away all the worry and drudgery of washing and wringing. Helps to keep her young and beautiful.

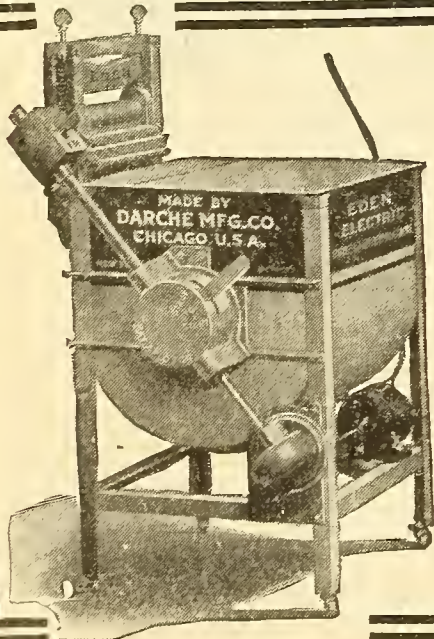
ASK US FOR DETAILS

### DARCHE MFG. COMPANY

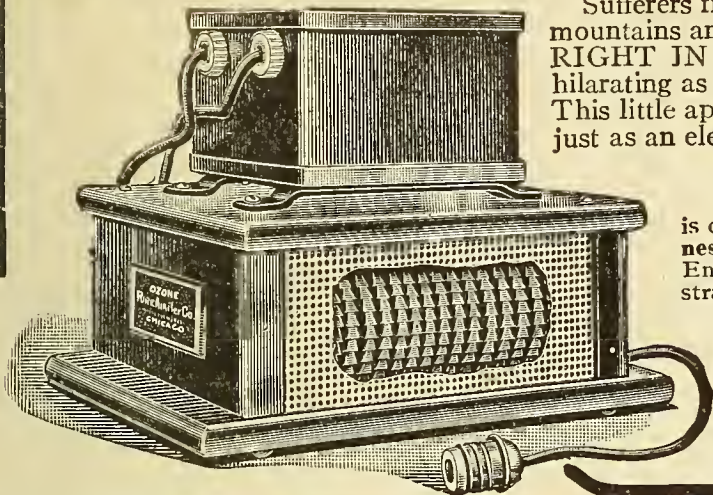
Established 1880

13-15-17 North Jefferson Street, Factory, 23rd and Western Ave.

CHICAGO, ILLINOIS  
Branches, New York, Detroit



# Let Electricity Make Pure Air for You



Sufferers from many ailments travel thousands of miles to breathe the OZONE of the mountains and pine forests. Yet a recent scientific invention enables everyone to have—**RIGHT IN THEIR OWN BEDROOM**—air constantly as pure refreshing and exhilarating as the purest oxygen-filled atmosphere of the piny woods and mountain peaks. This little apparatus is operated by electricity and “ozonizes” the air of the closest room just as an electric storm purifies the out-door air. The

## OZONE PURE AIRIFIER

is of greatest benefit in the treatment of Asthma, Hay Fever, Catarrh, Insomnia, Nervousness, Pneumonia, Typhoid and Scarlet Fevers, Diphtheria, Bronchitis, Tuberculosis, etc. Endorsed by highest medical and scientific authorities a thoroughly tested and demonstrated success.

**Central Station, Electric Jobber and Dealer**, this is the latest Electrical Appliance on the market. Write now for illustrated catalogue, price list and descriptive matter and plan of placing for liberal trial.

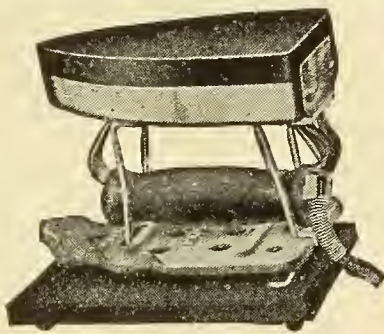
We want distribution throughout the United States in Every Place Where Electrical Appliances are Sold.

### OZONE PURE AIRIFIER COMPANY

307-314 Rand McNally Bldg.

CHICAGO, ILL.

## SIMPLEX ELECTRIC IRON



permits ironing in a cool room with no fatigue from constant trips to the stove. Unlike all other electric irons the

**HEATER IS A PART OF THE BOTTOM OF** the iron, covering the entire ironing surface. It gives the heat directly to the work,

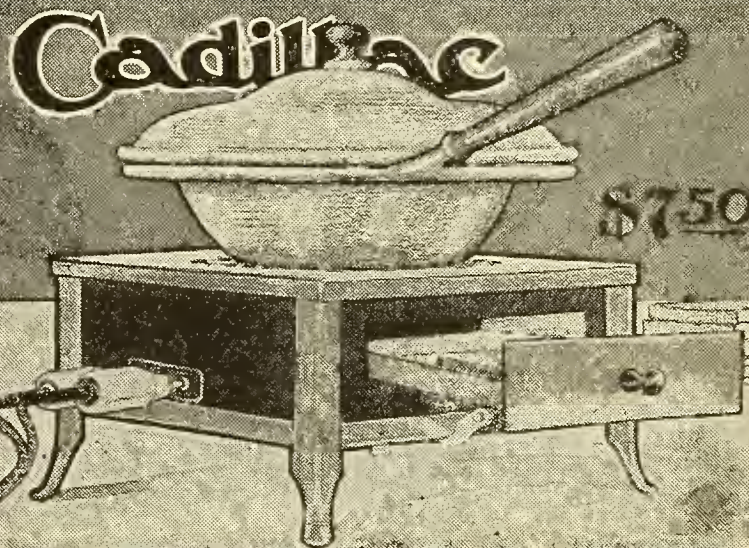
**USING THE LEAST CURRENT FOR THE** same results. The Simplex Iron has cool handles.

*Send for descriptive circular.*

**Simplex Electric Heating Company**  
CAMBRIDGE, MASS.

CHICAGO, Monadnock Block  
NEW YORK, 25 W. 42nd St.

SAN FRANCISCO, 612 Howard St.  
BELLEVILLE, ONT.



So-called Economy is often only Parsimony in disguise. It is not Economy to deny yourself something that you need.

**YOU NEED THE**

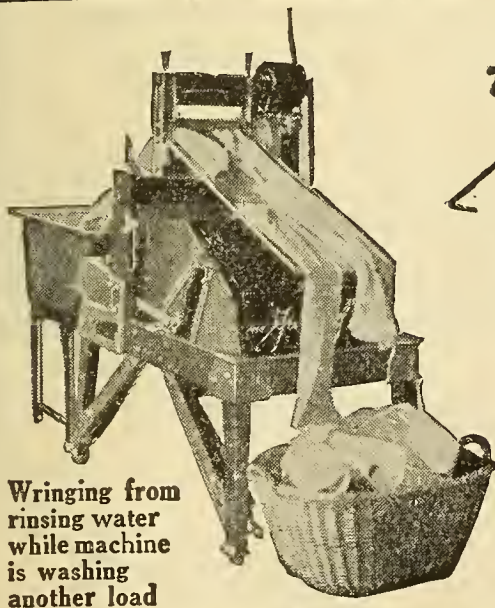
## CADILLAC

**COMBINATION ELECTRIC STOVE AND TOASTER**

if you have electricity in your home.

It can be had from the better class of electrical dealers, or from us direct.

**CADILLAC ELECTRIC MFG. CO.**  
116 Mitchel Street, Cadillac, Mich.



*THE Judd*  
**Electric Washer**

For the home  
“Makes Good.”

Let us tell you why.  
Write today.

**Judd Laundry Machine Co.,**  
129 N. Wabash  
CHICAGO

Wringing from rinsing water while machine is washing another load

## “Pelouze” Electric Iron

**Has Heat Control at Finger Tip**

No need to reach up to the chandelier switch—nor disconnect the cord at iron. Heats quickly—about half usual time. Has hot point and edges.—consumes less current than any other iron. 4 or 6½ lb. size \$5. For sale by all leading dealers. Send for booklet.



**You Can't Burn Your Hair**

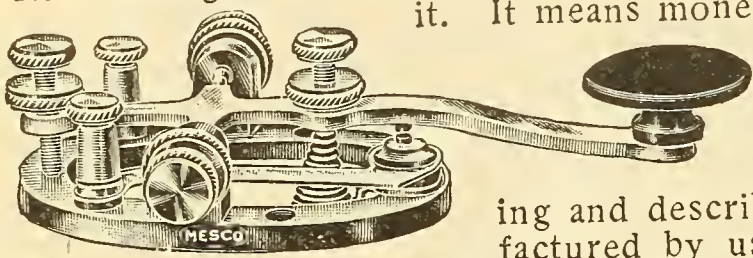
with a Pelouze Electric Curling Iron. Never gets too hot. Handle revolves. Cord can't kink. Shield is removable. No flame, no danger from fire. Cost of current less than one-third cost of alcohol lamp. Iron always bright and clean. Complete with nickel plated stand, \$3.50. For sale by all leading dealers. Send for booklet.



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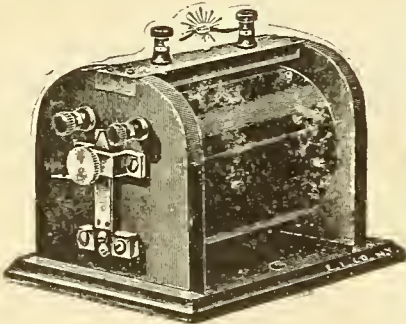
The catalogue will contain about 200 pages illustrating and describing clearly and concisely the various materials manufactured by us, which includes: **Wireless Apparatus; Telegraph and Telephone Material; Ignition Supplies; Electrically Heated Goods; Medical Batteries; Electric Vibrators; Bells; Batteries; Burglar Alarm Contrivances; Automobile and Motor Boat Electric Appliances, etc.** *Be up-to-date and have one. It costs you nothing.*

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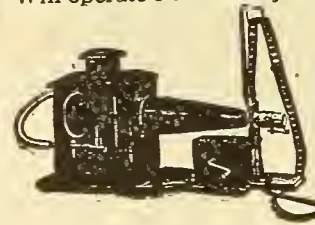
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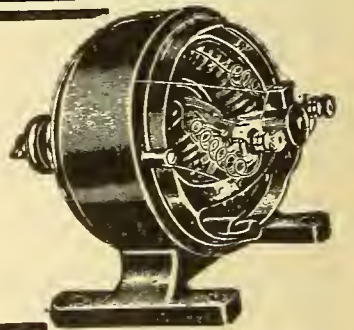
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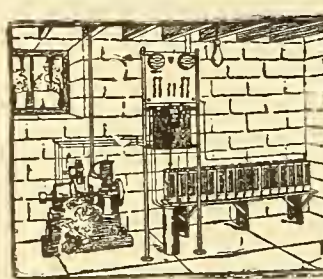
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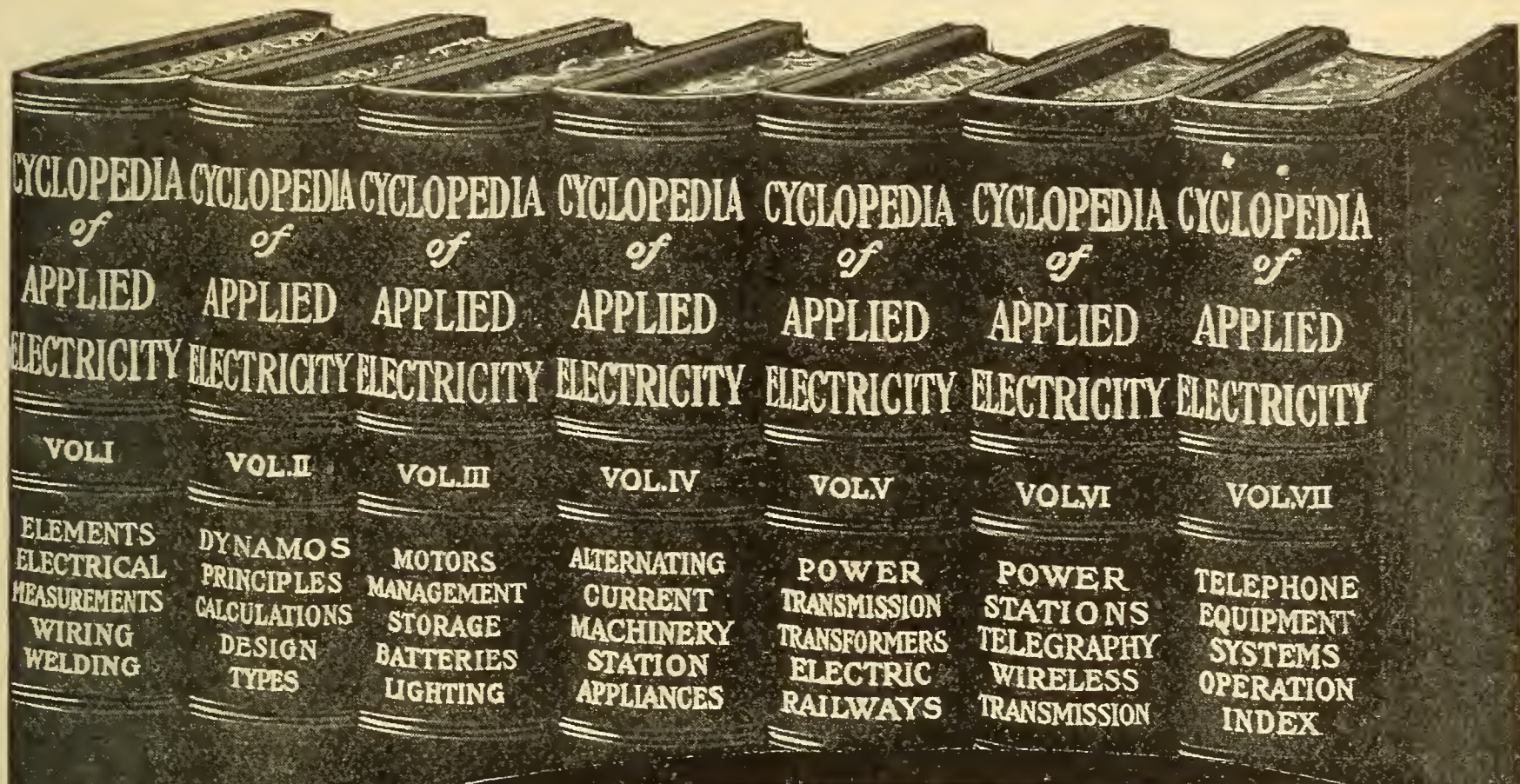
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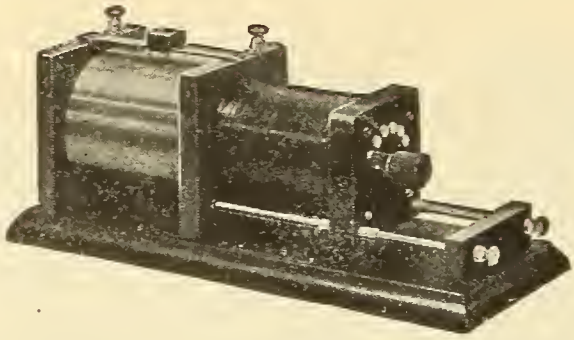
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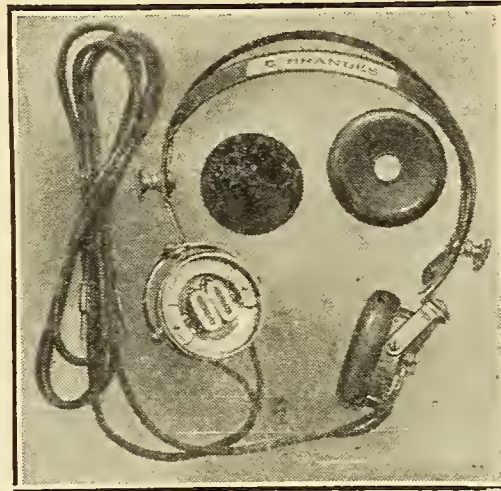
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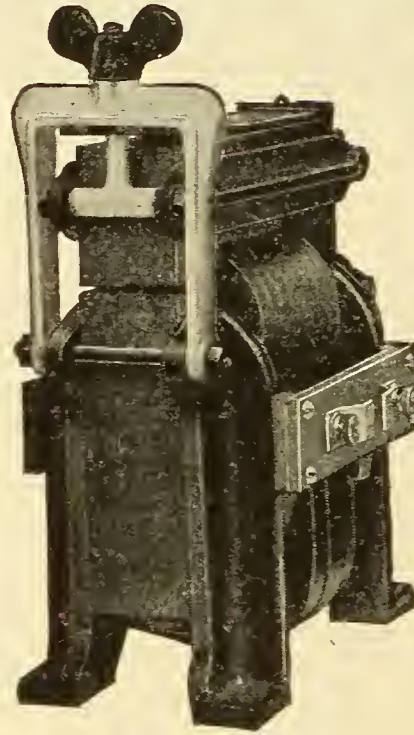
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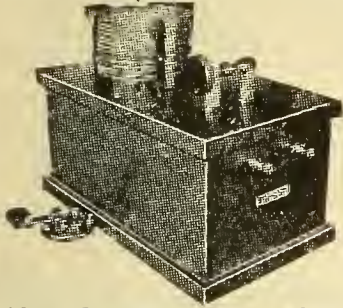
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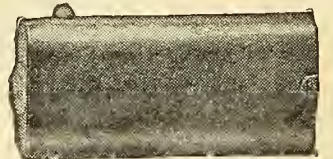
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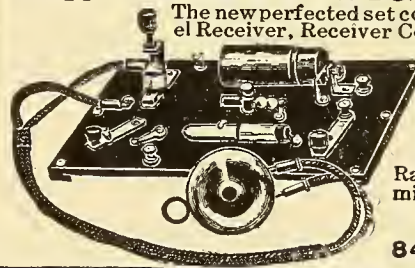
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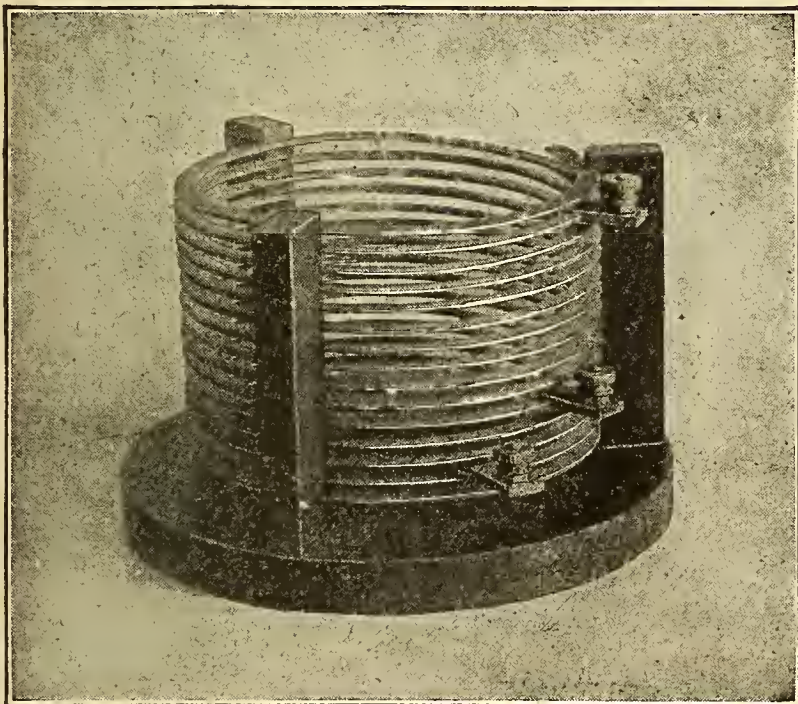
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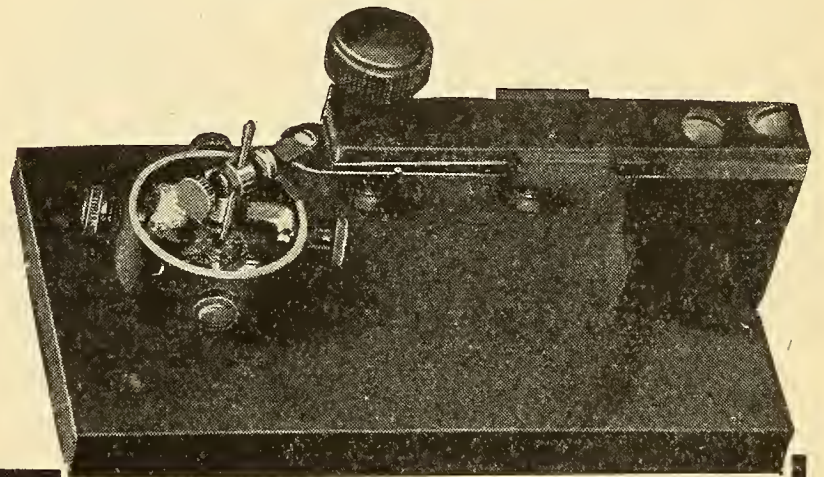
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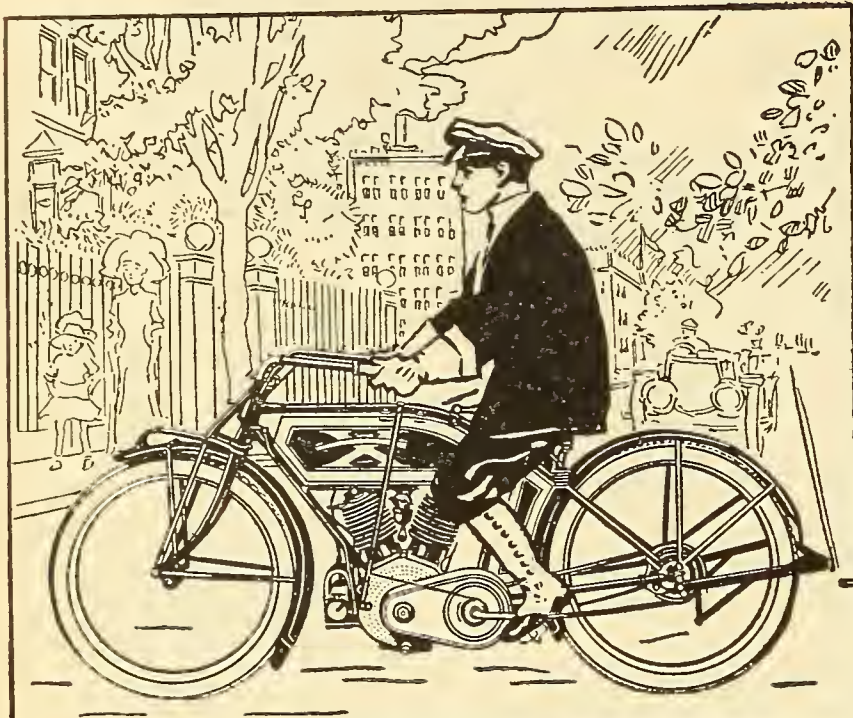
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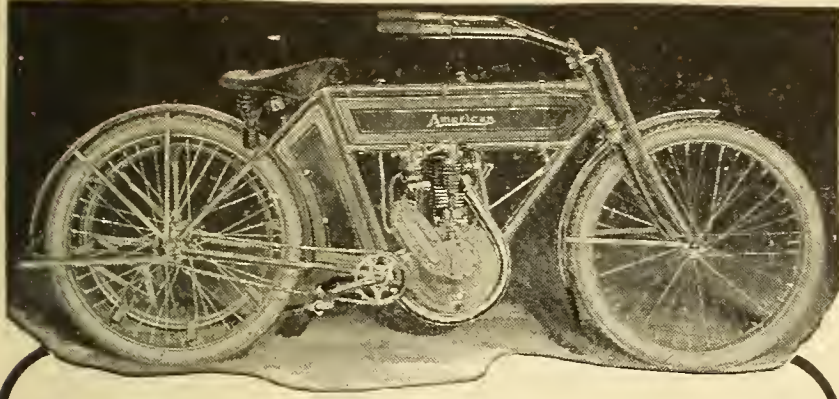
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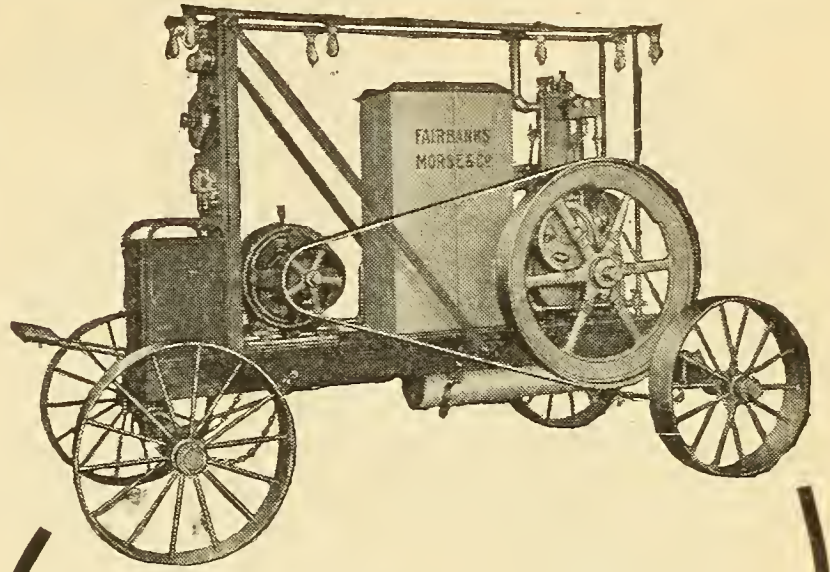
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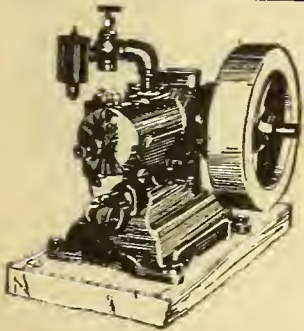
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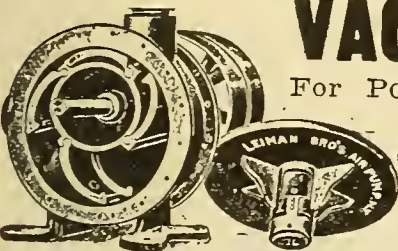
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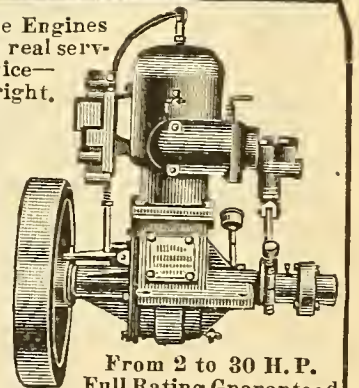
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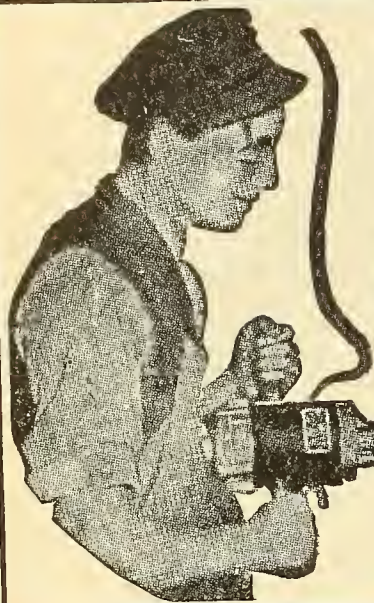
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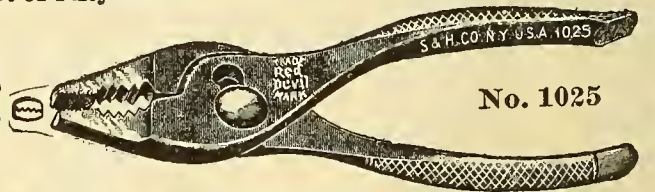
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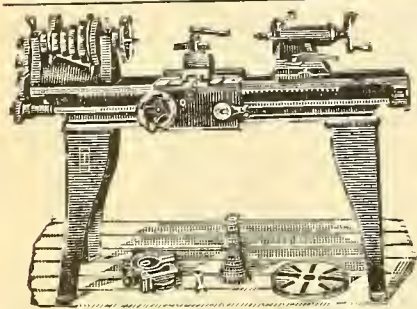
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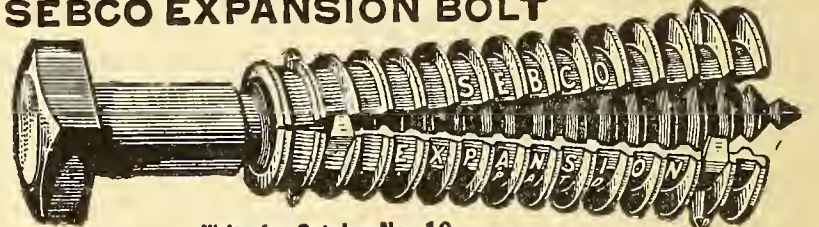
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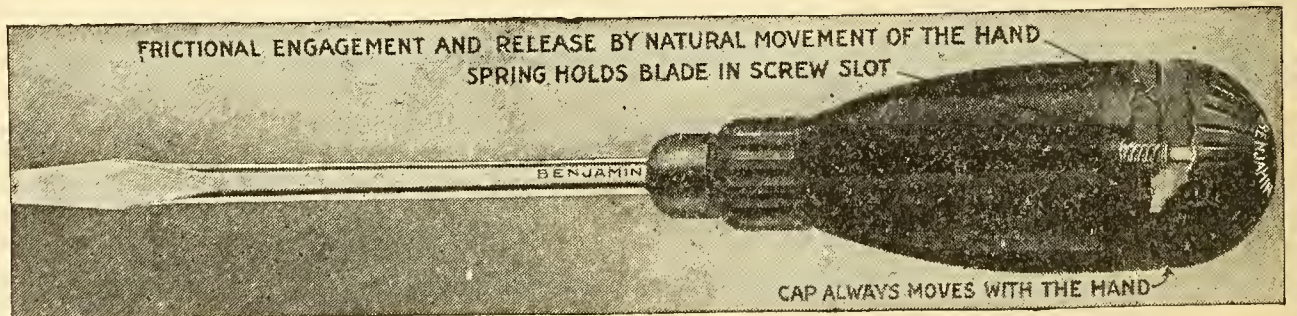
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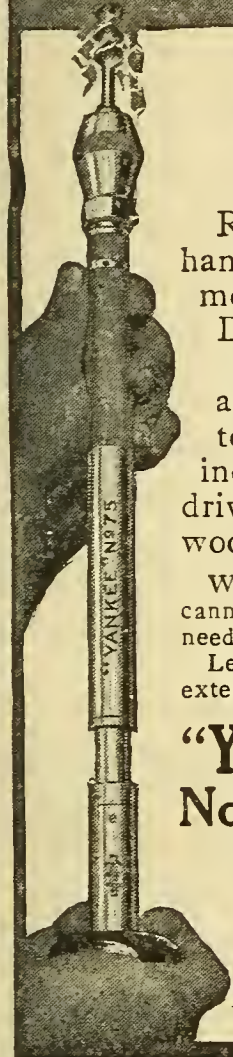
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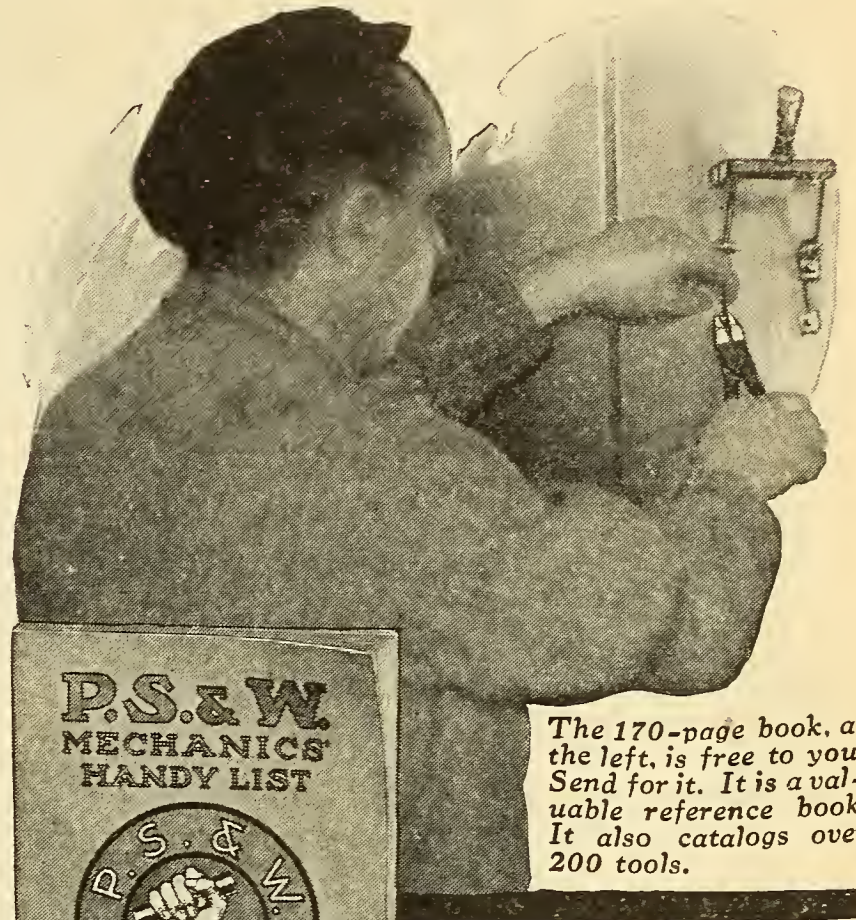
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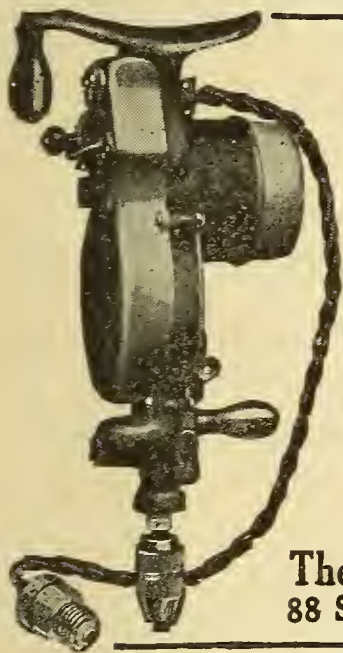
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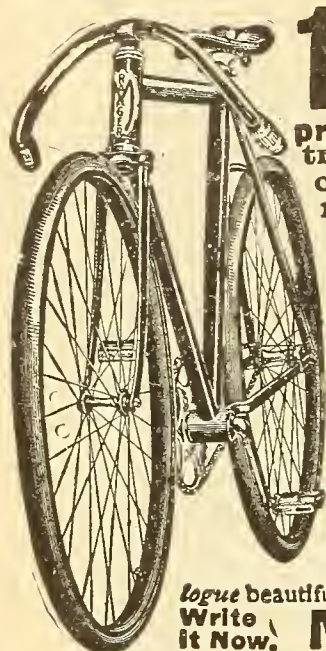
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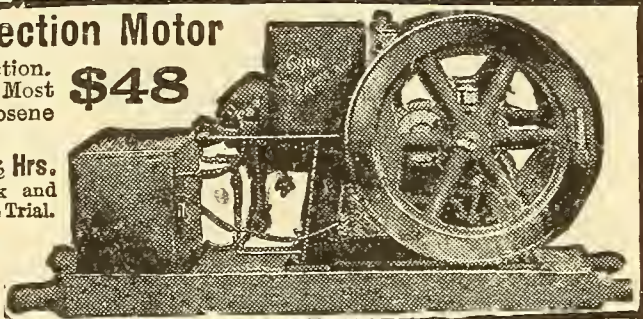
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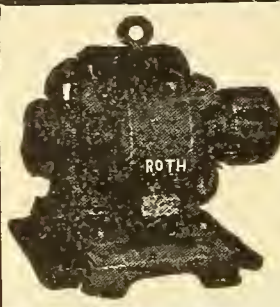
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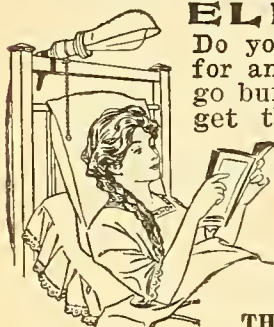
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