

the same result if the field and armature were cast? A. If cast iron of the same size as the wrought iron parts were used, the magnetism would be cut down about one-half, and the motor reduced in power to the same degree.

(8063) J. L. C. writes: Kindly inform me the most practical dimensions, etc., of an induction coil suitable for gas engine ignition upon motor bicycle.

(8064) L. A. T. writes: Please give, through Notes and Queries, the process of case-hardening of tools such as taps, dies, etc. A. Heat the surface to be case-hardened sufficiently hot to melt yellow prussiate of potash (potassium ferri-cyanide) powdered and sprinkle on, and again insert in fire and heat to "cherry red," when treat to bath of clear cold water.

(8065) C. W. B. writes: Please give me the rule for finding the horse power of an engine. Also state what proportion of the power of the engine is required to operate the ordinary slide valve.

(8066) E. P. asks: 1. Please tell me whether a person on a private ground-circuited telephone line should hear the conversation on other private, ground-circuited telephone lines, if he were not connected at the switchboard?

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending

FEBRUARY 5, 1901, AND EACH BEARING THAT DATE.

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

Table listing inventions such as Acetylene burner with two or several flame rays, Acid and preparing same, trimethyl pseudo uric, etc.

Table listing inventions such as Bed foot rest, invalid, Beer cooling and preserving apparatus, Beer cooling apparatus, Beer storage house, Belt, apparel, etc.

WOOD or METAL Workers Without Steam Power should use our Foot and Hand Power Machinery. SENeca FALLS MFG. CO. 695 Water St., Seneca Falls, N.Y.

ELECTRIC AUTOMOBILE. DIRECTIONS, with many illustrations, for making a complete machine from two bicycles are given in SUPPLEMENT No. 1195.

ENGINE & FOOT MACHINE SHOP OUTFITS. LATHES. SEBASTIAN LATHE CO. 123 W. 24 ST., CINCINNATI, O.

Foot and Power and Turret Lathes, Planers, Shapers, and Drill Presses. SHEPARD LATHE CO., 123 W. 24 ST., CINCINNATI, O.

Walworth's Solid Die Plate. Price List on application to WALWORTH MANUFACTURING CO., 128 TO 136 FEDERAL STREET, BOSTON, MASS.

Automatic Machines FOR FORMING WIRE from coil into shapes similar to cuts. We can furnish machines or goods, as desired. BLAKE & JOHNSON, WATERBURY, CONN.

THE EUREKA CLIP. The most useful article ever invented for the purpose. Indispensable to Lawyers, Editors, Students, Bankers, Insurance Companies and business men generally.

NEW B... QUEEN & CO. Optical and Scientific Instrument Works, 1010 Chestnut Street, PHILADELPHIA, PA.

BARNES' UPRIGHT DRILLS. Complete line, ranging from Light Friction Disk Drill to 42" Back Geared Self-Feed. W. F. & JOHN BARNES CO., 1999 Ruby Street, ROCKFORD, ILL.

Universal Bevel Protractor. Blade 7 in. long, 1 1/2 in. wide, be slipped back and forth with length or turned at any angle around the circle. ONE SIDE OF THE TOOL IS FLAT. THE L. S. STARRETT CO., 370 N. ALBANY ST., CHICAGO, ILL.

THE ELECTRIC HEATER. A VALUABLE paper, with working drawings of various forms of the electrical heaters, including electric soldering iron, electric pad for the sick, etc.

12-inch Pipe cut off and Threaded with ease by one man and a FORBES PATENT DIE STOCK. Smaller sizes proportionately easy. Send for Catalogue. THE CURTIS & CURTIS CO., 6 Garden St., Bridgeport, Conn.

If You Want the Best Lathe and Drill GHUGKS. WESTCOTT'S Strongest Grip, Great Capacity and Durability, Cheap and Accurate. Westcott Chuck Co., Oneida, N. Y., U. S. A.

ACETYLENE APPARATUS. Acetylene number of the SCIENTIFIC AMERICAN SUPPLEMENT, describing, with full illustrations, the most recent, simple or home-made and commercial apparatus for generating acetylene on the large and small scale.

DEFIANCE MACHINE WORKS. DEFIANCER OHIO U.S.A. BUILDERS OF HUB, SPOKE, WHEEL BENDING, WAGON, CARRIAGE AND HOOP MACHINERY. AUTOMATIC SCREW DRILL. SEND FOR CATALOGUE.

Table listing inventions such as Garbage furnace or crematory, Garbage receptacle, Garment edge protector, Gas apparatus sight device, Gas cut off, automatic, etc.

Table listing inventions such as Leather rolling machine, Leather splitting machine, Leather treatment of, E. A. Warren, Leaves from their stems, apparatus for separating flexible portions of, L. P. Whitaker, etc.

Table listing inventions such as Leaves from their stems, separating, W. A. Hudson, Leaves from their stems, separating flexible portions of, W. A. Hudson, Lemon squeezer, J. A. Russell, Life saving raft boat, H. Redden, etc.

Table listing inventions such as Loom, warp tension mechanism, G. F. Hutchins, Loom, warp tension mechanism, G. F. Hutchins, Loom, warp tension mechanism, G. F. Hutchins, etc.

Table listing inventions such as Lubricator, G. J. Bingham, Mail bags or pouches, means for catching and delivering, G. W. Sebastian, Mail box, F. J. Slezzer, etc.

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