

RECENTLY PATENTED INVENTIONS.

Electrical Apparatus.

REVERSING APPARATUS FOR ELECTRICAL DEVICES.—ROBERT J. HUGHES and ALEXANDER B. SHAW, Duquesne, Pa. This apparatus comprises a reversing controller for connecting the terminals of an electric generator interchangeably with the wires of a two-wire line. The device dispenses with one set of wires usually employed in electric travelers to be found in machine-shops, and enables the motor on the traveler to be reversed with only one set of wires. By means of the novel reversing device employed the current passes through the field-coils as before, but is made to change its direction in the armature-coils in order to drive the motor in the desired direction.

Mechanical Devices.

CHIP-BREAKER.—WALTER L. CROUCH, Thomaston, Conn. The purpose of this invention is to provide a more efficient chip-breaker for molding and similar wood-working machines than has hitherto been known. The invention comprises a carrier arranged to rock around the axis of a rotary cutter and carrying a finger which engages the work to break the chips, and which moves concentrically to the axis of the rotary cutter.

KNEADING AND MIXING APPARATUS FOR SOAP.—ANATOLE and ERNEST DES CRESSONNIERES, Brussels, Belgium. The crushing, kneading and mixing apparatus is designed to subject the soap to an alternate crushing and mixing treatment in shavings, instead of subjecting it to simple crushing by means of three cylinders, thus enabling an absolute homogeneity of the paste to be obtained and permitting its mixture with color while preventing waste of soap. This alternate crushing and mixing is obtained by the arrangement of crushers in couples of two cylinders each provided with a scraping comb and placed in such a way that the shavings from the two coupled cylinders are intermixed for crushing by the next crushing-cylinders, and so on up to the last.

DIPPING-MACHINE.—JOHANN A. JENA, South Bend, Ind. The invention relates to machines for dipping, and particularly for enameling crockery and other goods. At the upper portion of a vat a dish-holder is journalled, provided with end portions having apertures. A rack has a longitudinal inner member adapted to be seated upon the peripheries of the end portions of the holder. Arms extend from the rack inwardly beyond the inner member, and are provided with projections adapted to fit into the apertures of the end portions.

DYNAMOMETER.—KARL LEVERKUS, Charlottenburg, Germany. The dynamometer serves to measure power transmitted from one shaft to another. In the dynamometers usually employed the relative revolution or distortion of the members of which they are composed is too small to render the measuring of the power easy and exact. To remedy this defect the inventor employs a toothed gearing for increasing or enlarging the motion of the lengthwise-movable part. Moreover, this lengthwise-movable part is provided with longitudinal and spiral grooves engaged by rollers on the movable part and the one member. The efficiency of the apparatus is increased and the cost of manufacture very considerably reduced.

ACTUATING MECHANISM FOR RETAINING VALVES IN AIR-BRAKE SYSTEMS.—EDWIN J. EMMONS, Brandon, Manitoba, Can. Mr. Emmons has devised a means by which all the valves are under the control of the engineer and can be simultaneously operated, the ordinary air signal-pipe of the train being utilized. The actuating mechanism comprises an air-motor having connection with the stem of the valve and with the air signal-pipe. The signal-pipe is connected with the main reservoir, and is provided with a reducing valve. The pipe has a controlling-valve. A signal-valve has connection with the pipe. By means of this invention the brakemen are no longer required to turn the handle of each retaining-valve to close the exhaust from the brake-cylinder to keep the brakes on while the engineer is recharging the auxiliary cylinders.

Designs.

TWINE-CUTTER.—BEVERLY P. HERNDON, Florence, Arizona Territory. The device consists of a ring adapted to receive one of the fingers of the hand and an S-shaped prong or arm formed in one piece with the ring and projecting laterally therefrom, the same being adapted to pass over the finger adjacent to the ring and under the next one, so that the device may be conveniently held. The cutter proper is attached to the side of the ring opposite the spring, and arranged transversely thereon, so as to be adapted for convenient use.

BOLT-GUARD.—WILLIAM TAYLOR, 40 East Harrison Street, Chicago, Ill. The bolt-guard is designed for use on doors to prevent the insertion of a case-knife or other thin blade for the purpose of throwing the bolt back. The guard is formed to present an obstruction to the entrance of the blade and so prevent its adjustment into engagement with the bolt and thus forms an efficient guard for the purpose.

NOTE.—Copies of any of these patents will be furnished by Munn & Co. for ten cents each. Please state the name of the patentee, title of the invention, and date of this paper.

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Marine Iron Works. Chicago. Catalogue free.
Inquiry No. 299.—For a machine for making ice in small quantities: adapted for hotel and family use. For logging engines. J. S. Mundy, Newark, N. J.
Inquiry No. 300.—For dealers in electrical supplies, such as small motor and dynamo castings, etc. "U. S." Metal Polish. Indianapolis. Samples free.
Inquiry No. 301.—For gas engine adapted for acetylene gas.
Motor Vehicles. Duryea Power Co., Reading, Penn.
Inquiry No. 302.—For wholesale dealers in rifles and sporting goods.
WATER WHEELS. Alcott & Co., Mt. Holly, N. J.
Inquiry No. 303.—For manufacturers of special wooden and sporting articles suitable for the German market.

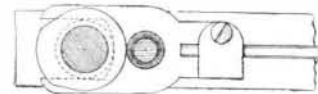
Yankee Notions. Waterbury Button Co., Waterbury, Ct.
Inquiry No. 304.—For a carriage elevator, platform 8 by 15 feet, to hoist 11 or 12 feet, capacity 1,500 to 2,000 pounds, completed and put up.
Brass Cups, Threaded. Bliss Chester Co., Prov., R. I.
Inquiry No. 305.—For the manufacturers of the "Pan-American Electric Lamp."
La Porte Watch School, La Porte Ind. Catalogue free.
Inquiry No. 306.—For catalogues of paint-making machinery.
Handle & Spoke Mch'y. Ober Mfg. Co., 10 Bell St., Chagrin Falls, O.
Inquiry No. 307.—For parties who drill deep wells with a core or bit drill.
Machine chain of all kinds. A. H. Bliss & Co. North Attleboro, Mass.
Inquiry No. 308.—For machinery for extracting grease and moisture from wet glue stock and other animal refuse.
Sawmill machinery and outfits manufactured by the Lane Mfg. Co., Box 13, Montpelier, Vt.
Inquiry No. 309.—For manufacturers of pressed steel for metal boxes.
Rigs that Run. Hydrocarbon system. Write St. Louis Motor Carriage Co., St. Louis, Mo.
Inquiry No. 310.—For manufacturers or dealers in cheap albumen, such as that taken from blood, etc.
SAW MILLS.—Variable friction feed. Send for Catalogue B. eo. S. Comstock, Mechanicsburg, Pa.
Inquiry No. 311.—For parties to make an apparatus for oaking talc.
Ten days' trial given on Daus' Tip Top Duplicate. Felix Daus Duplicate Co., 5 Hanover St., N. Y. city.
Inquiry No. 312.—For manufacturers of motor fans for stores, rooms, etc.
Wanted. Pan Am. Exposition Patent Novelties suitable for souvenirs. Address J. M. B., 320 B'way, N. Y.
Inquiry No. 313.—For Grimme, Natus & Co.'s calculating machine.
For Machine Tools of every description and for Experimental Work call upon Garvin's, Spring cor. Varick Street, N. Y.
Inquiry No. 314.—For the manufacturer or dealer in the "kinodrome."
Guns and Sporting Goods. Keating Wheels. New catalogue out now. The H. & D. Folsom Arms Co., 314 Broadway, New York.
Inquiry No. 315.—For a new, novel and ornamental article for sale in the country, not high in price.
The celebrated "Hornsby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Refrigerating Machine Company. Foot of East 138th Street, New York.
Inquiry No. 316.—For a practical automobile adapted to carry six passengers, the operator and some freight; gasoline preferred.
The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail, \$4. Munn & Co., publishers, 361 Broadway, N. Y.
Inquiry No. 317.—For machines for making spring tickets.
Government Relics—guns, swords, revolvers, saddles, cannons, etc. from Government Auction are now being sold at ridiculously low prices. Send for illustrated lists. Francis Bannerman, 579 Broadway, N. Y.
Inquiry No. 318.—For manufacturers of aluminum novelties.
Wanted—Revolutionary Documents, Autograph Letters, Journals, Prints, Washington Portraits, Early American Illustrated Magazines. Correspondence Solicited. Address C. A. M., Box 773, New York.
Inquiry No. 319.—For hard wood veneer, birch or maple.
Machinery for Sale.—One Cataract Tool Company lathe with slide rests, chasing attachment, milling attachment, counter attachment and chuck; one turret head lathe; five special speed lathes for light brass work. All in first-class condition, nearly new. Address The Vogt Optical Company, Rochester, N. Y.
Inquiry No. 320.—For manufacturers of machinery for making hair felt.
Manufacturing agents to sell the Reagan Improved Shaking Grate. We will guarantee to evaporate 25 per cent more water than any other grate on the market and do this when evaporating as many pounds of water per pound of coal as you do now. Good men wanted in all parts of the United States. Write for particulars and terms. Reagan Grate Bar Co., 209 North Front Street, Philadelphia, Pa.
Inquiry No. 321.—For manufacturers in the United States of antimony goods such as plugs, seats, cocks, etc.
For Sale.—A fine man'g business, articles covered by patent. You will say it is a chance of a lifetime; we have filled export orders to four foreign countries. Answer and we will give you all particulars. Address G., Box 773, N. Y.
Inquiry No. 322.—For manufacturers of novelties for advertising purposes.
Inquiry No. 323.—For manufacturers of fiber conduit.
Inquiry No. 324.—For manufacturers of fire escapes.
Inquiry No. 325.—For a burglar alarm that uses a blank cartridge, and which can be attached to a door or window.
Inquiry No. 326.—For manufacturers of glass marbles or small glass balls, 3/8 or 1/2 inch.

Inquiry No. 327.—Formachinery used in pickling factory, such as steam kettles, etc.
Inquiry No. 328.—For manufacturers of glass bottles for pickles.
Inquiry No. 329.—For manufacturers of a thermometer with an electric attachment which rings a bell when the thermometer gets low or high.
Inquiry No. 330.—For manufacturers of light malleable iron castings.
Inquiry No. 331.—For makers of open eye bolts, size, 3/4 iron.
Inquiry No. 332.—For outfits for making rubber stamps.
Inquiry No. 333.—For manufacturers of steel street letter boxes; to be constructed of well finished soft rolled steel 18 gage English standard, and back to be of Bessemer steel 11 gage English standard.
Inquiry No. 334.—For dealers in electric batteries for discharging dynamite.
Inquiry No. 335.—For parties to make wooden tables and easels in quantities.
Inquiry No. 336.—For a glue filter which will clarify glue liquors.
Inquiry No. 337.—For manufacturers of waxing machines for tissue paper.
Inquiry No. 338.—Wanted to buy one portable, galvanic cautery battery with conducting cables and electrodes.
Inquiry No. 339.—For manufacturers of augers for boring wooden pump logs and runs for fitting the same.
Inquiry No. 340.—For a manufacturer of a hand drilling diamond drill.
Inquiry No. 341.—For parties to manufacture a vehicle simple in construction, propelled by hand and foot power and run on two wheels, front and back and two side wheels.
Inquiry No. 342.—For manufacturers of dynamos of about 8 volts.
Inquiry No. 343.—For dealers in silk-worm gut for use in fishing tackle.
Inquiry No. 344.—For machines for automatic numbering in printing.
Inquiry No. 345.—For machinery for making feather dusters.
Inquiry No. 346.—For manufacturers of pneumatic coating machines for applying whitewash.
Inquiry No. 347.—For parties willing to manufacture a number board, patented, in some Eastern city.
Inquiry No. 348.—For parties engaged in building theaters.
Inquiry No. 349.—For manufacturers of meteorological instruments.
Inquiry No. 350.—For manufacturers of kilns for burning lime continuously; kilns from which the lime can be taken out without interfering with the burning.
Inquiry No. 351.—For manufacturers of air compressors to lift water out of wells.
Inquiry No. 352.—For fans run by spring or weight, for ceiling or otherwise.
Inquiry No. 353.—For machinery for bending brass and iron tubing.
Inquiry No. 354.—For manufacturers of spring steel.
Inquiry No. 355.—For manufacturers or dealers in small ball-bearing hubs, also spokes and nipples for constructing small wheels, of 16 inches in diameter.

having bad luck. What shall I do? A. For permanent magnets use only the best tool steel, Jessop's or Stub's, though fine American tool steel will doubtless give satisfactory results. Harden the ends only glass hard. It is useless to harden the whole length of the bar. Wind a coil into which the bar will slip easily of any convenient size of wire, and with perhaps 100 turns, the number is not important. There should be enough that the coil will not heat badly when in circuit. Put the coil in circuit with your dynamo of lowest voltage, and while the current is flowing push the bar to be magnetized to and fro from end to end of the bar in the coil, stopping at the middle at last. Open the circuit and remove the bar, which should be strongly magnetized.

(8148) R. R. W. asks: 1. In an isolated district would it be feasible to run a 1 or 2 horse power dynamo for private house and barn lighting, by means of a windmill? Could storage batteries be used without great expense when the wind would not blow—the dynamo to be used for charging? A. Very good results have been obtained in operating an electric-lighting plant from a windmill and storage battery in country districts. It must not be expected that the light will be obtained at less expense than oil. 2. Immediately above the photosphere of the sun lies a layer of gases having a spectrum. What name do astronomers give to the spectrum? A. The layer is the reversing layer of the sun. It is composed of the vapors of metals, and the spectrum of a vapor is a line or discontinuous spectrum. Such a spectrum is given by sodium, for example. It consists of two yellow lines. 3. In what year was the first patent for a level gear to a bicycle granted? What book could I look up to learn the particulars? A. We cannot state the year. No one can claim the use of level gear on bicycles uncombined with any other feature.

(8149) A. S. writes: Please give the dimensions of the face of the cam, with a diagram, if possible, of the simple engine described in the issue of the SCIENTIFIC AMERICAN of November 17, 1900. A. The an-



nexed cut shows the cam roller and fork full size.

(8150) W. H. B. asks: Is it necessary, in order to make a spark that the two glass plates of a Wimshurst machine should revolve at the same speed? A. It is not necessary that the plates of a Wimshurst machine should revolve at the same speed, though it is usually simpler to have them do so.

(8151) B. T. M. asks: Which is the heavier, dry air or an equal volume of moist air, each under the same pressure and at the same temperature? A. Moist air is lighter than dry air at the same temperature and pressure. Water vapor is only about 3/8 as heavy as air.

(8152) R. P. W. writes: A curious explosion occurred February 15 at the house of Mr. Rufus P. Williams, Cambridge, Mass. A new, quart, beer bottle was nearly filled with water which had been run through a l'asteur filter. It was tightly closed by the usual beer-bottle device, and at first put into the cellar, subsequently being placed on a marble washstand in a room at, say, 70 deg. F.—about the temperature at which it was filled. After standing some three or four hours, it suddenly exploded, landing the base and neck of the bottle a foot away in the wash bowl. The glass was about 0.5 centimeter in thickness. A. The breaking of the bottle must have been caused by the straining of the glass from some cause in the making of the bottle. It was not an explosion in the ordinary sense of the term. The parts did not fly far enough to be propelled by expanding gas. The force of the cracking glass threw the parts a foot or so. The case of the ink bottle recently published in our columns is similar to this.

TO INVENTORS.

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INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week ending MARCH 26, 1901, AND EACH BEARING THAT DATE.

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

Abdominal bandage, E. A. Richmond.....	670,814
Adjustable wrench, J. C. Burgess.....	670,890
Air brake, F. Linco.....	670,901
Air-ship, O. Olsen.....	670,807
Alarm, C. H. Bryan.....	670,702

(Continued on page 220)

Notes & Queries

HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters or no attention will be paid thereto. This is for our information and not for publication. References to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn. Buyers wishing to purchase any article not advertised in our columns will be furnished with addresses of houses manufacturing or carrying the same. Special Written Information on matters of personal rather than general interest cannot be expected without remuneration. Scientific American Supplements referred to may be had at the office. Price 10 cents each. Books referred to promptly supplied on receipt of price. Minerals sent for examination should be distinctly marked or labeled.

(8144) B. B. asks: What power the motor requires, described in December 8 and 15 copies of the SCIENTIFIC AMERICAN? Also, which are the best batteries to use—the bichromate of potash or storage batteries—and how many of each? If storage batteries are the best, what make is the best, and what size? A. Or cell f either of these batteries will run the motor. It makes no difference which is used. Any size will answer, and any make. We do not suppose there is any such thing as a best in these cells. It requires 4 or 6 cells for doing work.

(8145) A. L. L. asks: 1. Can a satisfactorily illuminated picture be produced with acetylene gas light in a moving-picture machine, or can only oxyhydrogen gas (lime light) and electric (arc) light be used? A. The acetylene burners as used in lanterns do not give much above 100 candles, and it is not supposed that a moving picture can be properly illuminated with such a light. 2. Which is the cheaper to use, acetylene or oxyhydrogen gas, when it is made for its own use, and about what will it cost. A. Acetylene is cheaper than the oxyhydrogen light, but there is in it very much less light. Per candle, we presume acetylene is cheaper. Calcium carbide can now be had for a moderate price. We have not the exact figure for the present time. Our advertisers can give them on application.

(8146) C. W. W. asks: Can hilly roads be climbed easier on a high-gear bicycle, say, 80 or 90, than on a low gear, 55 or 60? What is the philosophy of it? A. The hill can be climbed by rider on a low-gear machine easier than on a high-gear machine, because with the low gear he does not have to lift himself so far up the hill with one tread as with the high gear. A 90 gear goes half as far again for one tread as a 60 gear, and therefore requires 1 1/2 times the work for one revolution of the pedal.

(8147) J. W. B. writes: I am trying to make some bar and U magnets, and am