

ing of air-exhausting mechanism, is improved by this invention. Liquid air is received into a chamber which is provided at one end with a collapsible bulb and at the other with an outlet-valve, other valves being provided for controlling the escape of air.

SHINGLE-CUTTER.—M. KNAPP, Enid, Oklahoma. In this patent the object of the inventor is to produce a device which will efficiently serve the purpose for which it is designed, be rapid in its operation, and easily applied. Mr. Knapp's invention relates to shingle-cutters, and is intended especially for the purpose of trimming or cutting the course of shingles on the comb of a roof.

DOUGH-KNEADING MACHINE.—G. M. EULER, St. Louis, Mo. In the present invention the improvement has reference to dough-kneading machines and analogous devices in which it is desirable to knead or work a plastic substance such as dough and in which it is desirable to shift the same from one pan to another with a minimum expenditure of labor.

FRICITION-CLUTCH.—A. P. BROWN, New York, N. Y. In this patent the invention relates to improvements in friction-clutches for shaftings or pulleys, an object being to provide a simple and novel means for holding the friction parts together with a uniform pressure, thus reducing the wearing away of the parts to a minimum.

MANUFACTURE OF PASTED TUBES FOR CIGARETTES.—A. BENOIT, J. GUENIFFET, and J. NICHAULT, 7 Rue Déparcieux, Paris, France. It frequently happens by a former arrangement that paste expelled by pressure becomes deposited on an inner support to such extent that the passage of the paper tube is prevented. The present invention avoids this, because the pressure required for the pasting operation is produced by two means located outside of paper tube with interposition of a supply-surface within the latter. Obstruction of these means is therefore not feared, but occurring, can be removed at once. The device has the effect of flattening the tube between the two pressing parts; but the tube's cylindrical form is restored immediately after pasting by a device located beyond the pressing parts.

WELL ATTACHMENT.—H. W. CLARK, Mattoon, Ill. Mr. Clark's principal objects are to provide means for increasing efficiency of the associated pumping mechanism and for the cleaning of the well-casing. Considerable increase in efficiency results from the production of the vacuum within the casing and it will also avoid the waste of power in pumping air, as is liable to occur when the well is open at the top. The ready and effective means of keeping the casing free also adds to the pump efficiency.

Prime Movers and Their Accessories.

STEAM-BOILER.—J. F. HECKMAN, Hermann, Mo. The invention relates to steam-boilers; and the principal object of Mr. Heckman is the provision of a steam-boiler of a construction by which the collection and removal of all sediment or scale deposits therein are facilitated and the effectiveness and working capacity of the structure materially increased or enhanced.

VALVE-MECHANISM.—H. L. GERKEN, New York, N. Y. In this case the invention relates particularly to improvements in valves and distributing mechanism for radiators, the object being to provide a valve of simple construction and positive in its operation that will permit a supply of steam, hot water, or refrigerating liquid to one or more divisions of a radiator or to one or more radiators at will.

Railways and Their Accessories.

DERAILMENT-GUARD.—E. MUELLER, Alsen, N. Y. The present improvement relates to a safety attachment for the trucks of railway-cars, the same being adapted to slide upon the rails and afford support for the trucks and also automatically apply the air-brake when the wheels of the truck are derailed.

Pertaining to Vehicles.

VEHICLE.—P. A. LINDROSE, Hattiesburg, Miss. The invention relates particularly to improvements in trucks to be used as a part of an eight-wheel wagon for carrying heavy loads, such as timber and the like, an object being to provide a truck that will be very strong and of comparatively simple construction. By ball-and-socket connections the front and rear axles are permitted vertical movement to a certain extent one relating to the other in passing over rough ground. The formation of an eight-wheel wagon is secured by the provision of a loop-plate by which two trucks may be hooked. In backing, means are provided when necessary to lock a bolster to prevent the latter turning.

VEHICLE-WHEEL.—B. GASTAL, Pelotas, Brazil. The object of this invention is to provide a wheel which is simple and durable in construction, more especially designed for use on railroad-cars, street-cars, wagons, and other vehicles, and arranged to reduce noise and the vibration incident to the wheel traveling on the rail or road to a minimum.

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.

Business and Personal Wants.

READ THIS COLUMN CAREFULLY.—You will find inquiries for certain classes of articles numbered in consecutive order. If you manufacture these goods write us at once and we will send you the name and address of the party desiring the information. **In every case it is necessary to give the number of the inquiry.**
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Marine Iron Works. Chicago. Catalogue free.

Inquiry No. 6195.—For the manufacturers of the electric candy machine.

AUTOS.—Duryea Power Co., Reading, Pa.

Inquiry No. 6196.—For the manufacturers of an ice-making machine, constructed entirely of metal, consisting of two parts, one part hermetically closed, containing the mechanism, the other being the ice producer; the principal feature of the machine being that the ice is produced without the aid of any preparatives of any kind.

"U. S." Metal Polish. Indianapolis. Samples free.

Inquiry No. 6197.—For manufacturers of leather pockets for pooltables.

Perforated Metals, Harrington & King Perforating Co., Chicago.

Inquiry No. 6198.—For manufacturers of musical bells.

Handle & Spoke Mch. Ober Mfg. Co., 10 Bell St., Chagrin Falls, O.

Inquiry No. 6199.—For makers of "Milwaukee Calyx-eyed Needles."

If it is a paper tube we can supply it. Textile Tube Company, Fall River, Mass.

Inquiry No. 6200.—For addresses of manufacturers of gage rods and hydraulic thermometer combined.

Adding, multiplying and dividing machine, all in one. Felt & Tarrant Mfg. Co., Chicago.

Inquiry No. 6201.—For polished sheets of hard rubber 1-16 to 1/4 inch thick.

Sawmill machinery and outfits manufactured by the Lane Mfg. Co., Box 13, Montpelier, Vt.

Inquiry No. 6202.—For glass shell vials for putting tablets up for the market.

Leyden Chemical Works. Sole manufacturers of all luminous preparations. 666 East 182d Street, New York.

Inquiry No. 6203.—For corks one-half the usual length and 1/4 inch diameter.

In buying or selling patents money may be saved and time gained by writing Chas. A. Scott, 719 Mutual Life Building, Buffalo, New York.

Inquiry No. 6204.—Wanted, names of makers of umbrella linings for manufacturing umbrellas.

Patented inventions of brass, bronze, composition or aluminum construction placed on market. Write to American Brass Foundry Co., Hyde Park, Mass.

Inquiry No. 6205.—For parties to make mountings of aluminum for 3/4-inch lens.

We manufacture anything in metal. Patented articles, metal stamping, dies, screw mach. work, etc. Metal Novelty Works, 43 Canal Street, Chicago.

Inquiry No. 6206.—For makers of electrically operated rheostats which will prevent the variation of more than 2 degrees within a closed vessel subjected to an outside variation of 120 degrees.

The celebrated "Hornsby-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Machine Company, Foot of East 138th Street, New York.

Inquiry No. 6207.—For a machine for vending peanuts.

A. Bensing Co., 245 Broadway, New York, manufacture the "Rapid Replicator" for making many copies of writings, that is marvelous as a money-labor saver.

Inquiry No. 6208.—For makers of air pumps, or air parts for experimental work.

Scientific Wonder.—Toplit perpetual lamp wick. No trimming, no gas, no explosion. Samples 15 cts., two for 25 cts. Murphy, 110 Newark Ave., Bloomfield, N. J.

Inquiry No. 6209.—For manufacturers of different kinds of lighting systems for buildings, such as gasoline, acetylene, etc.

FOR SALE.—One No. 9 Blake & Johnson double-gear rolling mill, diameter and face of rolls 10 x 15 inches. In A1 condition, never used. Bausch & Lomb Optical Co., Rochester, N. Y.

Inquiry No. 6210.—For manufacturers of carriage or axle nut for axles that are worn and have become long.

Manufacturers of patent articles, dies, metal stamping, screw machine work, hardware specialties, machinery and tools. Quadriga Manufacturing Company, 18 South Canal Street, Chicago.

Inquiry No. 6211.—For makers of steel office furniture, such as desks, filing cases, etc.

Send for new and complete catalogue of Scientific and other Books for sale by Munn & Co., 361 Broadway, New York. Free on application.

Inquiry No. 6212.—For makers of electric cars for carrying about 20 passengers across country between stations (about ten miles).

FOR SALE.—Patent for self-heating soldering iron, at a bargain. Patent No. 774,064. Heating medium is gasoline. Address Mr. Pearl Gilbert, c. o. Navy Department, Washington, D. C.

Inquiry No. 6213.—For manufacturers of machinery for making wooden tubs and buckets for fruit, candy, etc.

WANTED.—Gasoline engine to build on royalty arrangement, or would buy. Chicago machinery manufacturing house. Engine must be practical, powerful, and adaptable mainly to small runabout automobiles. Address Machinery, Box 773, New York.

Inquiry No. 6214.—For manufacturers of wire-weaving machinery.

Inquiry No. 6215.—For makers of a small watch charm monkey wrench and novelties of this character.

Inquiry No. 6216.—For dealers in stoves with hot water back, to supply hot water in large quantities.

Inquiry No. 6217.—For makers of electrical tools.

Inquiry No. 6218.—For a lamp that burns kerosene oil and uses a mantle, similar to the Welsbach mantle.

Inquiry No. 6219.—For machines for knitting stockings and underwear.

Inquiry No. 6220.—For machines for making small nails.

Inquiry No. 6221.—For machines for making cigarettes.

Inquiry No. 6222.—For machines for making or rolling tin foil.



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.

(9479) H. W. L. asks: 1. Will dipping a razor into boiling water affect the temper in the least? I find that it gives a much smoother shave by so doing, and attribute it to the possible melting of microscopic saw edge. Nearly every barber, however, will tell you that it will soon ruin a razor by taking out the temper. A. We have supposed that the improvement in the edge of a razor, which is brought about by dipping it into hot water just before shaving, is caused by the heat expanding the edge and thus closing up the fine serrations of the edge, and rendering the edge smoother than before. This does not bring the steel up anywhere near the temperature required to draw the temper. We cannot believe that it has any effect upon the hardness of the blade. We have done it on razors for years, and never thought they grew soft. When a razor becomes soft, it seems more reasonable to suppose that the edge was at first harder than the blade farther back, and by honing and grinding the hard edge is worn off, bringing the wear down to the softer part of the blade. 2. How can I make the white paste that the several ink manufacturers put up, both in tubes and jars? A. For a durable white paste, dissolve white glue in water of twenty times its weight. Stir, and while hot add four times the quantity of starch paste, boil and stir. When cooling, add a few drops of carbolic acid. We can look up the patents on so-called "library pastes," and send you three or four copies for \$1.

(9480) H. L. C. asks: I wish to know of some simple method of sensitizing paper or cloth for blue-print work. My idea is to make blue prints on letterheads, handkerchiefs, etc., and I wish to get the formula for sensitizing same. A. To prepare blue-print paper, take potassium ferricyanide, red prussiate of potash, 1 ounce, and dissolve in 5 ounces of water. Make a second solution by dissolving 1 ounce of citrate of iron and ammonia in 5 ounces of water. Keep the two solutions in well-stoppered bottles. They will keep indefinitely. For use take equal parts of the two solutions, and mix in a dimly-lighted place; pin the sheet of paper to be coated upon a board and apply this mixture, by lamplight, to the paper, with a soft brush, a swab of cotton, or a small sponge, as rapidly and evenly as possible, in strokes first lengthwise and then crosswise, then pin up to dry in the dark. The work must be done in the dim light, since the liquid is sensitive to the light as soon as the two solutions are mixed. Be very careful in the use of these liquids, as all cyanides are poisonous. See SUPPLEMENT Nos. 584, 679, and 1385, price 10 cents each, mailed.

(9481) H. O. N. asks: 1. Have a small hand dynamo which is rated at 10 volts, 1 ampere. Could this be used to recharge a small dry battery, and how long would it take to recharge one battery? A. Your hand dynamo will charge five dry cells in series. We cannot tell how long it will require to recharge the cells; a long time with one ampere of current. You cannot charge one cell alone with the dynamo, the voltage is too great. Allow two volts per dry cell, or five cells in series for ten volts. 2. On page 468, Vol. 2, "Experimental Science," Prof. Trowbridge speaks of attaching Leyden jars to the poles of his storage batteries. What effect would a Leyden jar have on the voltage and amperage of a voltaic cell? A. The battery which Prof. Trowbridge describes has 10,000 cells in series or 20,000 volts in direct charge. This is sufficient to charge a condenser or Leyden jar, so that a heavy shock would be had from it. A Leyden jar would not be appreciably charged by a single cell of battery. 3. What is the usual height from crest to hollow of a wave on the Atlantic during an ordinary storm, and what is the highest that has ever been recorded? A common phrase in descriptions of a storm at sea, "when waves run mountain high." Is this exaggeration, or is this the appearance of the waves when on board a ship? A. Storm waves on the ocean are from 30 feet to 40 feet in height, and seldom exceed 50 feet. These numbers are on the authority of Prof. Davis's "Physical Geography," which we can supply you for \$1.50 by mail. Such a wave would look "mountain high" if you looked up at it from its trough, expecting it to break over you.

NEW BOOKS, ETC.

MAXWELL'S THEORY AND WIRELESS TELEGRAPHY. New York: McGraw Publishing Company. 12mo.; pp. 247; 145 illustrations. Price, \$2.

This excellent work contains, in a single volume, two distinct parts entitled, respectively, "Maxwell's Theory and Hertzian Oscillations," by H. Poincaré, translated by F. K. Vreeland, and "The Principles of Wireless Telegraphy," by Vreeland.

The part of the book entitled "Maxwell's Theory and Hertzian Oscillations" comprises a popular version of Maxwell's great treatise divested of its abstruse mathematics, together with a graphic account of the confirmation of Maxwell's theory by the subsequent experiments of Hertz and his followers.

This portion of the book certainly fills a long-felt want. To the person of average training Maxwell's writings have little or no meaning, because of their mathematical nature. In this book Maxwell's theory is presented in the light of mechanical analogues or models, accompanied by simple explanations. The experiments of Hertz are also portrayed so as to be readily understood.

The second portion of the book is devoted to the principles of wireless telegraphy, and to some extent follows the style of similar publications. Two noticeable improvements, however, are made, to wit, the elimination of much threadbare literature of a historical nature, and the omission of the usual misleading accounts of the alleged commercial success of the various "wireless systems," used principally for the sale of stock to the public.

GETTING A LIVING. The Problem of Wealth and Poverty—of Profits, Wages, and Trades Unionism. By George L. Bolen. New York: The Macmillan Company, 1903. 8vo.; pp. 769. Price, \$2.

Immediately the question thrusts itself upon us, From what standpoint does the author write—from that of labor or of capital? Of employer or of employee? And until that question is satisfactorily answered, we shall all be inclined to regard the discussion with suspicion. Mr. Bolen defines his position in a convincing preface. He has been, at different times of his life, employer and employee, both in small industries and in large; has been a striker, and has been struck against. His experiences cover North and South, country districts, great cities, and large mines. To do him justice, the volume gives both sides of the case with commendable impartiality, and presents, aside from any personal opinions of the writer, a mass of facts that are matters of record. No man will be the worse for reading the book, and no man can read it without profit and enlightenment. Mr. Bolen seems to have no pet scheme or pet theory to advance, but simply states and discusses facts as they appear to him, with a view to opening men's eyes to actual conditions, and leading them to see that measure of right which is usually to be found on both sides of most vexed questions.

WHAT HANDWRITING INDICATES. An Analytical Graphology. By John Rexford. New York and London: G. P. Putnam's Sons, 1904. 12mo.; pp. 142; illustrated. Price, \$1.25.

Nothing strikingly new or original is claimed for this work, but the author has presented his material in such a way that it is readily accessible to the student, whereas in most works dealing with graphology one has to memorize all the signs and their significations before accomplishing much in the way of actual analysis. The specimens of handwriting offered as illustrative of different styles and traits are numerous, and include facsimiles of writing from the pens of authors, statesmen, criminals, lunatics, and men half asleep.

MECHANICAL DRAWING SIMPLY EXPLAINED. By F. E. Powell. London: Percival Marshall & Co., 1904. 12mo.; pp. 78. Price, 25 cents.

This pamphlet is a reprint of articles published in the Model Engineer, and in it the author attempts to show the student, apprentice, and amateur engineer briefly how to set about such drawing-office work as his case requires, besides enabling him to understand mechanical drawings and assisting him to prepare practical drawings or sketches of his own. The chapter on "Drawing for Reproduction" gives some useful hints to the tyro. The book is illustrated by nearly fifty cuts, giving samples of drawing, methods, and instruments.

INDEX OF INVENTIONS

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

November 8, 1904

AND EACH BEARING THAT DATE

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

Abbrading material and mounting therefor, R. Gardner 774,513
Advertising, etc., apparatus for, H. J. Chart 774,647