the vanes will be swung open. Levers, *B*, are fulcrumed in the upper spokes and to their outer ends the connecting rods, *A*, are attached by means of links. Loosely mounted on the main shaft is a collar to which the inner ends of the levers, *B*, are connected in such manner that they can be raised and lowered by shifting the collar on its shaft and yet are free to revolve about the collar, which is kept from turning. A rod connects the collar with a bell crank, *C*, which, in turn, is connected to a ball governor not shown in the illustration. This governor, which is of the usual centrifugal type, is geared to the power shaft of the motor and operates to automatically raise or lower the rods, *A*, thus controlling the inclination of the vanes, and regulating the speed of the motor by varying the surface area on which the current can act. In this way uniform action of the motor is secured regardless of the speed of the current. The machine may be used as well at the mouth of a harbor, for the wings are self-reversing and will adjust themselves to the ebb and flow of the tide. Mr. H. H. Granger, of Davenport, Wash., is the inventor of this improved current motor.

Brief Notes Concerning Patents.

Ever since the present sewing machine was brought to perfection, efforts have been made to devise a system whereby sewing may be carried out direct from two reels of thread, thereby dispensing with the winding of spools and threading of shuttles, but with indifferent success. The problem, however, has now been solved by Mr. Dennis Flanagan, a Lancashire mechanic, after some fourteen years' continuous experiments. The feature of this invention is the distinct simplification of the sewing machine, there being a small number of parts. There are no vibratory or eccentric motions, every movement being positive in its action. As there are no spools to wind, the loose balance wheel is dispensed with. As a reel of cotton is regularly wound a uniform stitch is obtained, while the double take-up gives an elasticity to the tension. The machine sews perfectly on both fine and heavy materials.

The horse suffers from many ills, the direct result of his unbecoming and unnecessary haste in eating. Confronted by a generous display of oats in the feed-box, he cannot resist the inclination to bolt one mouthful, so that he may take another at the expense of his health. A style of feed-box has been recently worked out by Samuel Cunningham, chief of the Lockport, N. Y., fire department, by which this unwarranted haste on the part of the animal is checked. In this new invention the feed is delivered to the animal through a cone-shaped device with a hole in the bottom. The horse secures a mouthful of food by pushing his nose into the cone, and the oats are forced up within reach of his mouth through the hole, but the secret of the operation of the invention is that the animal cannot push his nose into the cone until he has disposed of the previous mouthful. In this manner he is compelled to eat his meal in a more deliberate and wholesome manner.

Oil for the purpose of quieting the sea has been in use for many years, but an extremely novel means of applying the oil has been recently devised by Vice-Admiral Guimares of the Brazilian navy, who has made a gun for the special function of doing this work. The gun is called a "bottle gun," and in use occupies a place on deck in the forward part of the boat. In case of a very turbulent sea, the gun is loaded with a bottle containing sawdust which has been soaked with oil. The discharge of the weapon breaks the bottle into innumerable pieces, and the contents are scattered over the surface of the sea for some considerable distance, and the effect on the troubled water is at once noticeable. If this operation is followed at intervals of five minutes, and the missile shot ahead of the boat, a peaceful path is prepared for the craft, and if she is at anchor or lying-to, one round every twenty minutes is said to be ample. The gun is of special construction to meet the demands of the peculiar missile, and it is said that an ordinary wine bottle may be utilized to contain the charge of sawdust.

Almost anyone who thoughtfully contemplates the construction of a baseball cannot but help admire the ingenuity of the man who designed the cover. This consists of two parts, each of which is a complete geometrical design, and when applied to the exterior of the sphere, covers the same in a very thorough manner. The man who originally worked this design out died a few weeks ago. He was Elias Drake, and he lived at Middleboro, Mass., and during his lifetime he invented a number of other useful devices, and enjoyed the reputation of a rather prolific inventor. He thought out the idea of the baseball cover in 1855, and it was adopted two years later by George and Harry Wright and has been in use ever since. Mr. Drake neglected to take out a patent on this cover, for the reason that he thought it too trivial; but when the game became more popular, and the business of making the balls developed into a big industry, he regretted that he had overlooked the formality of protecting himself.

RECENTLY PATENTED INVENTIONS.

Electrical Devices.

ELECTRIC LOCK.—N. W. WEBB, New York, N. Y. The invention relates to electric door-locks connected with an electric alarm at a distant point. The object is to provide a new and improved electric lock arranged to give an alarm when tampered with by unauthorized persons before such persons can open the door sufficiently to effect an entrance into the house.

ELECTRIC BELL-RINGER.—I. W. HALL, Brownwood, Texas. In this case the invention relates to electric bell-ringers, the more particular object being to provide a simple, reliable, and efficient bell-ringer which may be operated either by electric wires from a distance or by merely pressing a push-button.

PROTECTED RAIL.—L. STEINBERGER, New York, N. Y. In the present patent Mr. Steinberger's invention has reference to railways, the more particular object in view in his improvement being the production of a protected rail which may be employed in various relations for supplying current to electric railways.

Of Interest to Farmers.

SEED-PLANTER AND FERTILIZER-DISTRIBUTER.—J. A. BOUCHILLON, Pelzer, S. C. Separate hoppers are employed in this planter and distributer, each being provided with means for agitating its contents and feeding the same to discharge-orifices, the machine being supported upon a bearing-wheel from which the agitators are operated. By the means used the labor of guiding and supporting the machine vertically is reduced to a minimum.

HUSKING-MACHINE.—O. C. MOORE, Morrow, Ohio. Mr. Moore's invention relates to corn-huskers, it being more particularly directed to the feed mechanism for the snapping-rolls. To obviate the many difficulties that occur in operating husking-machines and to provide a mechanism which will allow the applying of the proper pressure to the snapping-rolls and at the same time secure automatic feed is the principal object of the inventor.

DEHORNER FOR CATTLE.—C. E. BINNINGS, Stamford, Texas. This inventor's improvement relates to instruments for dehorning cattle. His improved dehorner admits of general use, but is of special value in removing the embryo of partially-developed horns of exceedingly young cattle. After the removal, it is impossible for a horn to grow out.

Of General Interest.

PORTABLE GARMENT-HANGER.—A. M. TAYLOR, Port Ewen, N. Y. The aim of this inventor is to provide a hanger which is simple and durable in construction, cheap to manufacture, readily set up for use and easily folded for convenient storing in a traveling-bag, valise, and the like, and arranged to conveniently support a number of articles, such as a coat, vest, overcoat, trousers, and hat.

PRICKING-PUNCH.—C. E. TRAXEL, Rome, N. Y. In the present patent the invention has reference to improvements in tools for pricking metal for the starting of drills or the like. The object in view of the inventor being the provision of a tool of this character that will be practically automatic in its operation.

VALVE.—E. F. RIDDLE, Wellsville, Ohio. This automatic gas-cut-off valve acts by gravity to close when the gas supply and pressure is shut off or fails, and when once closed the valve stays closed until opened by hand. The object of the invention is to produce a valve quick and certain in operation, and which will not leak in either open or closed position. When open the valve does not reduce or obstruct the gas passage or pressure, and it is simple in construction and neat in appearance.

CABLE-GRIP.—A. J. NEFF, Houston, Texas. The grip is to be used in connection with cableways. The object of the improvement is to produce a grip of simple construction which will operate to grasp the moving cable firmly and which will operate automatically to apply its grasping force when a load upon the grip is applied.

WATCH-PROTECTOR. — J. MIDDLEBROOK, Barre, Vt. In this instance the invention pertains to improvements in devices designed to be placed in a person's pocket to prevent the accidental or fraudulent removal of a watch, the object being to provide a watch-protector of simple and novel construction that may be detachably secured in a pocket and that will be inexpensive.

WRIST-SUPPORTED BLOTTER.—B. MONIS, New York, N. Y. The inventor's more particular purpose in this case is to adapt the blotter for use upon the wrist of the operator, so that it may be used when desired without materially interfering with the use of the pen. The invention relates to blotters, such as used by bookkeepers and writers of various kinds.

PIPE-BAND FASTENING.—A. W. FIGHT, Ballard, Wash. The aim of the invention is to provide an absolutely secure connection with which the ends of the band may be engaged and tightened to any desired tension. To attain this a "shoe" formed of an integral metal plate with an opening therein, is employed. This plate is bent around a head on one end of the band, forming the shoe in essentially U-shaped-cross-sectional form, and the other end of the band being fitted in the shoe and having a nut thereon engaged with one end of the shoe, so that by tightening up the nut any tension may be exerted on the band.

DRYING AND ROASTING FURNACE.—C. E. BALLOW and E. STEIN, Guanacevi, Durango, Mexico. The invention resides particularly in a peculiar combination of a drying and roasting furnace, so that the two may be collectively operated, producing better results than heretofore. Its peculiar devices agitate the ore as it passes through the furnaces, these devices consisting of the combination of shelves and rollers which thoroughly work the ore and retard its downward movement sufficiently to enable the necessary drying and roasting operations.

UMBRELLA.—J. V. SYBRANDT, Springdale, Col. The invention pertains to umbrellas and similar articles, and is capable of application to canopies, tents, and the like. The chief object of the inventor is to provide means whereby an article of the class mentioned can be made of any desired form without interfering with its capacity of being folded.

Heating and Lighting.

CARBURETED-AIR MACHINE.—F. PICARD, Montreal, Canada. The invention relates to the class of carbureters in which rotating fabric is caused to be immersed in the hydrocarbon liquid such as gasoline. The patentee provides a duplicate arrangement of fabric-supporting devices of special form. A fan delivers the air against both the fabrics. The fan and the fabric supports are rotated by a small hydraulic or other motor, and a special automatic mechanism is provided for controlling the supply of air and the motive fluid through the movements of the gasometer bell.

Household Utilities.

ATTACHMENT FOR BEDSTEADS.—H. E. HENWOOD, New York, N. Y. This improvement refers to attachments for bedsteads, and particularly to those adapted for the raising of invalids from the mattress or other supporting-surface. Its principal object is to provide such an attachment which may be applied to an ordinary bedstead without rendering it necessary to alter the bed structure itself, this application being capable of accomplishment without the use of tools.

CHAIR.—J. B. LAWRENCE, New York, N. Y. In this patent the invention relates to improvements in chairs of that class adapted to be converted into a bed or couch and to be used either as a rocker or fixed chair, the object being to provide a chair of this character that may be easily and quickly adjusted as to its various positions and rigidly held as adjusted.

CLOTHES-CLOSET.—M. L. HENRIOUD, Pueblo, Col. The object of the invention is to provide a closet which is adapted to be set up and attached conveniently to the wall in an apartment or living-room. A specific object is to enable closet-space to be produced in rooms not having closets under such circumstances as may arise when rooms are occupied temporarily as sleeping-rooms. It affords means for increasing the ordinary closet-space of the room when found insufficient.

AWNING.—W. H. BROWN and H. M. BRADBURY, New York, N. Y. The improvement made by these inventors relates to a ventilated awning; and the principal objects thereof are to provide means for permitting a circulation of air, and especially for allowing the air which ordinarily collects near the top of an awning and in the upper part of a room to be discharged through the awning itself.

Machines and Mechanical Devices.

CLAMP FOR PRINTING FILM FRAMES.—B. DAY, West Hoboken, N. J. Mr. Day's present invention relates to frames of the general type described in his former Patent No. 666,087. It covers a device analogous to a hinge, and suitable for use upon printing-film frames of the kind made by the inventor. The frame is of wood, and the clamp grips the frame detachably. The clamp consists of two parts, movable relatively to each other by means of a cam, so as to press firmly upon opposite edges of the frame. One of these parts has two resting places or contact faces, the other having only one. Pressure upon the frame is therefore applied at three separate points, thus insuring exactness in fit. All of the contact faces are milled with ribs parallel with the grain of the wood.

CHANGE-MACHINE.—T. I. POTTER, San Francisco, Cal. The purpose of this invention is to provide a machine adapted to any cash-drawer and from which change may be quickly and accurately made in predetermined amounts by simply pressing one or more of a series of keys, each designating a certain amount, and to provide a series of storage-chambers for the coins from which the change is to be made.

MOLDING-MACHINE.—B. F. POTTER, Ashtabula, Ohio. Mr. Potter's invention relates to a molding-machine which is capable of molding articles of many characters and can be used with plastic materials of various kinds. It is especially applicable, however, to the molding of hollow building-blocks of concrete and the like. One of the principal objects of the invention is to generally increase the efficiency without complicating the structure of machines of this character.

DITCHING-MACHINE. C. P. GABLE, Ruston, La. In this case the improvement is in the nature of a ditching-machine designed to dig new ditches or clean out old ones; and it consists in the novel construction and arrangement of parts of a portable machine designed to take up the dirt and deposit it on one side or the other of the ditch.

DOUGHNUT-MACHINE.—W. W. GRAY and P. C. VAN FLEET, Riverside, Cal. This apparatus forms dough into rings to produce doughnuts. As these are ordinarily cut out from a sheet in the presence of free flour to prevent sticking, the dough between the cut rings is rolled over and again cut, resulting in a product becoming more and more tough as this operation continues. Moreover, the loose flour collects in the frying-fat and soon burns, thickening it so that it must be frequently strained, and often completely spoiled. To obviate such difficulties are the principal objects of the invention.

MIXING-MACHINE.—J. B. CROSS, Oneonta, N. Y. This invention refers to mechanical means for mixing together the ingredients used in the production of bread, cakes, or pastry-dough, and has for its object to provide novel features of construction for the mixing-machine that are very simple and inexpensive, convenient to operate, readily taken apart for cleaning, and are strong and durable.

SAFETY DEVICE FOR ELEVATORS.—C. W. HOFFMAN, New York, N. Y. The object of the invention is to provide a device for elevators arranged to insure quick application of the brake-shoes in case of accident, to prevent the cage from acquiring too much momentum by falling a great distance, and then powerfully apply the brake-shoes to hold the cage in the initial position.

YARN-PRINTING MACHINE. — W. K. HAWK, Falls of Schuylkill, Pa. The object of the invention is to provide a new and improved yarn-printing machine arranged to permit printing yarns of any desired length, and more especially such as are required in the weaving of large rugs known as "art-squares," the arrangement being such that the same printing-drum will answer in printing long or short yarn.

BUTTER CUTTER AND MEASURER.—G. ERICSON, Brooklyn, N. Y. In the present instance the invention of Mr. Ericson has reference to the provision of a novel means for cutting out from a larger mass of butter a print or regularly-formed block of butter and for the simultaneous weighing or measuring of the print or block.

SHINGLE-MACHINE. — A. Z. BODREAUX, Berwick, La. This invention relates particularly to attachments to shingle-sawing machines in which the saw rotates in a horizontal plane, the object being to provide a simple device for ejecting the spalts from the machine instead of manually removing the same, as in the usual practice, thus obviating the possibility of cutting the attendant's hands or fingers by the saw.

Prime Movers and Their Accessories.

TURBINE-ENGINE.—M. D. KALBACH, Lebanon, Pa. The rotary member of the engine consists of a disk formed with two radial rows of vanes projecting from the periphery. Be-

tween the two rows is a stationary annular abutment which separates them. The steam is fed in at the top of the casing against opposite sides of the disk, but acts on only one half of the circumference at a time. In operation the steam first impinges on the vanes, whence it is deflected into ducts in the casing, only to be redirected against the vanes a little farther down, and deflected into lower ducts. Thus the steam threads its way in and out until the exhaust port at the bottom of the casing is reached. The ducts are made successively larger to allow for expansion of the steam. To reverse the engine the steam is conducted against the opposite half circumference of the disk.

INJECTOR.—G. H. Boetcher, Cambridge, Ohio. This injector comprises a nozzle, a conduit into which the nozzle extends and which is provided with an opening beside the nozzle into the outer air, a casing adapted to contain a body of liquid and having a liquid-discharge opening and an air-discharge opening and into which the conduit extends, and a sleeve surrounding the end of the conduit within the casing and flaring outwardly into close proximity with the casing and being provided with an opening at the side of the conduit end.

CURRENT-MOTOR.—A. A. Morton, Walla Walla, Wash. The invention refers to improvements in motors operated by steam-currents; the object being to provide a motor simple in construction, having no parts liable to get out of order, and that will be operated by currents of any force and regulated as to the throw of its transmission-rod leading to machinery on shore.

CARBURETER FOR HYDROCARBON-ENGINES.—J. H. Johnston, 145 Rue de la Pompe, Paris, France. This invention pertains to improvements in carbureters for hydrocarbon-engines or motors, and has for its object to provide a carbureter in which the admission of the air for the formation of the explosive mixture shall be automatically regulated according to the extent of aspiration of the engine or motor, and consequently according to the speed of the latter, in such a manner that the richness of the mixture will always remain at the most suitable point for the proper working of the motor.

STEAM-BOILER.—J. P. Karr, Monticello, Ind. Mr. Karr's improvement pertains more particularly to an attachment to steam-boilers, the object being to provide means whereby the boiler capacity may be increased over steam-boilers as heretofore constructed and without corresponding increase of fuel consumption. Broadly stated, it consists of a portable independent section adapted to be placed at the rear end of return-flue boilers or the smoke-box end of direct-draft boilers.

Railways and Their Accessories.

RAILWAY-TIE AND HEATING DEVICE THEREFOR.—C. S. Chapman, Ridgewood, N. J. The invention comprehends a railway-tie possessing in itself certain valuable characteristics, but has reference more especially to means for heating simultaneously any desired number or all the ties of a line or section of railway and incidentally or indirectly the rails supported thereon by which to effect the melting of snow and ice accumulating on the rails during the cold seasons.

CAR.—T. H. Proske, Denver, Col. This invention relates to the removal of material loosened by blasting operations carried on in mines, tunnels, and like work. Its object is to provide a car more especially designed for directly receiving the material resulting from the blasting operations and for allowing quick and convenient removal of the material from the breast of the mine or tunnel and to permit dumping of the material outside of the tunnel or mine from either end or side of the car.

Pertaining to Vehicles.

SANDING DEVICE.—A. L. Moss, Sandusky, Ohio. The object of the inventor is to provide a device, more especially designed for use on automobiles and like vehicles and arranged to permit the chauffeur to throw the device quickly into action to sprinkle the road-bed with sand whenever required with a view to prevent the vehicle-wheels from slipping, especially when the road-bed is wet or otherwise rendered slippery.

SPRING BOLSTER. W. J. Foster, Myrtle-point, Ore. Provision is made in this case for novel details of construction for the bolsters employed whereby springs are associated with the bolsters and adapted for absorbing shocks sustained by the loaded wagon in moving over a rough road-bed. The invention relates to springs employed for cushioning the impact of a load on a vehicle, such as a freight-hauling wagon.

Designs.

DESIGN FOR A COLOR-EXHIBITING STAND.—W. H. Reese, Milwaukee, Wis. The designer's claim is for an ornamental design consisting of a color-exhibiting stand. The invention comprises an upright frame on two posts connected by cross pieces in which pivotally turns revolving portion containing two rows of places for the exposition of materials of different colors.

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.**
MUNN & CO.

Marine Iron Works. Chicago. Catalogue free.

Inquiry No. 7459.—Wanted, importers of gum amber and copalite.

For mining engines. J. S. Mundy, Newark, N. J.

Inquiry No. 7460.—Wanted, a metallic or mineral powder of the color of silver or aluminium.

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

Inquiry No. 7461.—Wanted, machinery to manufacture an article similar to a round nail or pin.

Drying Machinery and Presses. Biles, Louisville, Ky.

Inquiry No. 7462.—For makers of or dealers in spray pump nozzles.

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

Inquiry No. 7463.—For makers of slot machines for selling cigars.

I sell patents. To buy, or having one to sell, write Chas. A. Scott, 719 Mutual Life Building, Buffalo, N. Y.

Inquiry No. 7464.—Wanted, makers of a roaster for coffee and peanuts.

WANTED.—Patented specialties of merit, to manufacture and market. Power Specialty Co., Detroit, Mich.

Inquiry No. 7465.—Wanted, German-made paper, litho or oliograph front picture frames for cabinets.

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. 7466.—For makers of a practical milking machine.

WANTED.—Ideas regarding patentable device for water well paste or mucilage bottle. Address Adhesive, P. O. Box 773, New York.

Inquiry No. 7467.—Wanted, for shipment to Bombay, kerosene, paraffine and other heavy oils for motors.

LATEST ADVERTISING NOVELTIES.—High-grade Illustrating, Designing and Printing. Catalogues a Specialty. Smith & Berkley, Holland Bldg., St. Louis, Mo.

Inquiry No. 7468.—For makers of street railway supplies.

FOR SALE.—Six horse-power kerosene engine, Mietz & Weiss make. No dealers. For price and particulars address Geo. F. Lufbery, Jr., P. O. Box 174, Elizabeth, N. J.

Inquiry No. 7469.—For dealers in sand, such as used in hour glasses.

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

Inquiry No. 7470.—For makers of embossing machines for name plates.

FOR SALE.—A small manufacturing plant in operation, well equipped for manufacturing wrought specialties. Reason for selling, other interests. Address Box 1163, Hartford, Conn.

Inquiry No. 7471.—For dealers in ornamental and plain iron, brass and copper and supplies used in making bent iron articles.

Absolute privacy for inventors and experimenting. A well-equipped private laboratory can be rented on moderate terms from the Electrical Testing Laboratories, 548 East 80th St., New York. Write to-day.

Inquiry No. 7472.—Wanted, addresses of makers of large alarm clocks with dial from 8 to 12 inches or more.

INVENTIONS WANTED.—Undersigned will consider one or two good patented or patentable inventions to manufacture on royalty. Something in popular demand preferred. Honest treatment guaranteed. F. Raniville Company, Grand Rapids, Mich.

Inquiry No. 7473.—For makers of aerial wheels or propellers.

Inquiry No. 7474.—Wanted, a machine which will wire and seal wooden boxes mechanically and automatically; boxes are 8 inches by 8 by 12½ inches.

Inquiry No. 7475.—Wanted, an electric machine for welding cotton ties.

Inquiry No. 7476.—Wanted, a plan for a 16-foot torpedo stern power boat.

Inquiry No. 7477.—Wanted, powdered metal called "thermit."

Inquiry No. 7478.—For manufacturers of up-to-date machinery and apparatus for a canning factory.

Inquiry No. 7479.—For manufacturers of safety matches, i. e., those which have a specially prepared igniting surface.

Inquiry No. 7480.—Wanted, case-hardened steel or other metal cylinders, 20, 30 and 40 inches long, 10¼ or 10 3-16 inches outside diameter, surface to be perfectly true and smooth longitudinally and circumferentially; walls ¼ inch thick, or less.

Inquiry No. 7481.—For manufacturers of machines and appliances for a quarry.

Inquiry No. 7482.—For manufacturers of electrical process for smelting iron.

Inquiry No. 7483.—For manufacturers of small combination locks.

Inquiry No. 7484.—For parties making or selling ⅛ or 3-16 inch flexible wire rope.

Inquiry No. 7485.—For manufacturers of marine gasoline engine of about 15 h. p., and who would be willing to sell the necessary castings and working drawings.

Inquiry No. 7486.—For manufacturers of pickering-drawing machines.

Inquiry No. 7487.—For dealers in aluminum and makers of aluminum goods.

Inquiry No. 7488.—For manufacturers of wireless telegraph apparatus.

Inquiry No. 7489.—For manufacturers of celluloid in sheets.

Inquiry No. 7490.—For manufacturers of machines for digging ditches for tile drains.

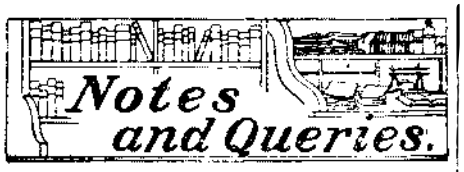
Inquiry No. 7491.—For manufacturers of "Ransom Mixer" for concrete work; also "White's Improved Road Oiler" for hot or cold oil.

Inquiry No. 7492.—For manufacturers of hand circular saws.

Inquiry No. 7493.—For manufacturers of thin woods and veneers for scroll work; also imported hard woods.

Inquiry No. 7494.—For manufacturers of machines for making pins, needles, pencils, nails, hinges, screws, etc.

Inquiry No. 7495.—For manufacturers of non-reusable bottles.



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.

(9835) C. J. H. asks: Please answer through your Notes and Queries the following: How many watts will ten sixteen-candle-power electric lamps consume in one hour? A. Ten 16-candle lamps consume about 550 watts. Now watts have no dependence upon time. In one hour these lamps will consume 550 watt-hours. A watt-hour is one watt exerted for one hour, and is the basis for rating electric current in making bill for its service.

(9836) P. asks: When did the words "In God We Trust," appear on our coins? A. The phrase "In God We Trust" was first used on the half-eagle or five-dollar gold piece in 1866. In 1878 it appeared on the silver trade dollar piece. In 1876 it appeared on the silver half-dollar, and on the silver quarter-dollar and the nickel five-cent pieces of 1876. The two-cent bronze piece of 1864 had it. It appeared on the coinage by authority of Congress.

(9837) C. H. W. asks: 1. If an electro-magnet will lift ten times its weight, what will be the result if it is mounted on about the center of a four-wheeled vehicle that does not weigh any more than the magnet, and just behind the magnet is mounted a flat piece of the same kind of iron, which weighs just as much as that used in the magnet, and is so fixed that it can be made to all but touch the magnet? Now we have ten times the weight of the magnet less the weight of the vehicle, the iron plate, and the loss of magnetism in the air space. Will the magnet pull the vehicle or will it not? A. From your description of the arrangement of a magnet, a vehicle and a piece of iron we are not able to see why there should be any motion produced. A magnet rests on a vehicle and near it in the same vehicle is a piece of iron. Why should the vehicle move? There seems something lacking in the description, and we can only suggest that you try your own arrangement and see what results. 2. In nickel-plating small articles of brass by electroplating, about how long is it necessary for them to hang in the solution? A. A coating of nickel can gain a thickness sufficient to cover in three or four minutes. To deposit a thick coat will require much longer.

(9838) X. asks: Could you let me know through your paper if electricity can be taken out of the human body, and if so by what means; also if it can be put in the body, and how? A. If the meaning of your inquiry is, "Can all the electricity be taken out of the human body?" we answer: No. Electricity can be put into the human body in the sense in which you seem to use the expression by placing the person upon an insulated platform and connecting him to a source of electricity. He will be electrified to the potential of the current he is connected with.

(9839) E. B. C. asks: 1. Will you kindly tell me how much and what kind of wire (size and covering) will be suitable for winding a magnet on a soft iron core 8½ inches long, for use with Edison 110 or 115-volt contact current? A. We do not know what you wish to do with an electro-magnet, and it is not possible to give very good advice upon winding an unknown quantity. Still we may say that you should not wind the magnet with wire enough to put it directly upon a 110-volt circuit. The amount of wire required is too great. Five pounds of No. 24 single cotton-covered copper magnet wire will allow one ampere to flow; so also will 12 pounds of No. 22. These quantities seem to us quite out of the question. The heating in the interior of such a winding must soon char the insulation and injure the magnet. It is far better to wind six layers of No. 14 copper magnet wire on your core, and then use the magnet with an external resistance, a rheostat, which need not cost much, and can be bought from dealers in lanterns. The wire will carry a good current to magnetize the core, and the rheostat will dissipate the larger part of the heat from the larger current used. 2. Is there any device for recording the keys or notes struck by a piano player? A. An attachment has been used for recording the notes struck on a musical instrument, such as an organ or piano. We do not know whether it is in existence now or not. It did not seem to attract musicians to any great extent.

NEW BOOKS, ETC.

CEMENTS, LIMES, AND PLASTERS. By Edwin C. Eckel, C.E. New York: John Wiley & Sons, 1905. 8vo.; pp. 710. Price, $6.

This work is a very complete summary of the composition and character of raw materials, method of manufacture, and properties of the various cementing materials used for building and engineering to-day. It is divided into seven parts as follows: Plasters; Limes; Magnesia and Oxychloride Cements; Hydraulic Limes, Selenitic Limes, and Grappier Cements; Natural Cements; Portland Cement; and Puzzolan Cements. The book is illustrated with no less with 165 figures, diagrams, and half-tones. There are several maps of the United States, showing the locations of natural and Portland cement plants, gypsum mills, etc. The book contains 254 tables, giving all possible information regarding the various cements, both natural and artificial, and also regarding cement machinery, and the cost of operating the same. The book is exceedingly comprehensive in character, and will be found valuable by all engineers.

HANDBOOK OF LITHOGRAPHY. By David Cumming. New York: The Macmillan Company, 1905. 12mo.; pp. 243. Price, $2.

This book is a practical treatise for all who are interested in the process of lithography. Lithographic stones—their properties, defects, and preparation; transfer inks and papers, and the various kinds of transfers, as well as arranging and patching up work for transferring; drawing on stone for black and color work, and transferring work to the stone; the preparation of stones for printing; hand-press and machine printing; the principles of chromo-lithographic drawing and printing; and paper of various kinds, qualities, and printing conditions, are some of the subjects discussed. The book has a number of colored plates, showing the different tints used in ordinary lithography. It is a very complete and interesting handbook, and a book which will be found useful to all lithographers.

TRAZIONE A VAPORE SULLE FERROVIE ORDINARIE. By G. Ottone. Milan: Ulrico Hoepli, 1905. 32mo.; pp. 469.

MANUALE DELL' INGEGNERE ELETTRICISTA. By Attilio Marro. Milan: Ulrico Hoepli, 1905. 32mo.; pp. 689.

LE ABITAZIONI POPOLARI. By Effren Magrini. Milan: Ulrico Hoepli, 1905. 32mo.; pp. 309.

RESISTENZA DEI MATERIALI E STABILITA DELLE CONSTRUZIONI. Dr. Guido Sandrinelli. Milan: Ulrico Hoepli, 1905. 32mo.; pp. 471.

INDEX OF INVENTIONS

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AND EACH BEARING THAT DATE

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

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