RECENTLY PATENTED INVENTIONS.

Agricultural Implements.

CULTIVATOR.—G. K. SPITZENBERG, Forsthaus Linzmühle, near Pfaffendorf, Brandenburg, Germany. Primarily this implement is for forestry cultivation, but may be used also in agriculture and horticulture. The soil to be treated is loosened and mixed to the required depth, by means of rotarily-moving knives or blades, without reversing the layers of soil. This is done in such manner that (in forest soil) the vegetable soil will be most plentiful on top and no sharply-defined line will exist between loosened and unloosened soil. Pressure is then brought to bear on the loosened soil, which is finally covered with a fine loose granulated layer.

BAND-CUTTER AND FEEDER.—J. H. FLORENCE and J. E. MISNER, Wichita, Kan. In the operation of this machine, the straw carrying the grain is fed to the endless carrier and is carried upward to the band-knives, which cut the bands. Thence it passes to one of the retarders near to the upper right-hand end of the carrier, this retarder having considerable speed, after which it passes over this to the other retarder, which has a comparatively slow speed, and thence to the wheat-wheel, the straw being operated upon by the rotary knife. The straw-gate prevents the straw from passing through, so that the knife acts directly upon the straw; otherwise the device works as any other similar feeder.

Dentistry.

MANUFACTURE OF DENTAL CROWNS.—E. V. WILLIAMS, Argyle, Wis. Practically embodied in the patent here presented are certain new and useful improvements in the manufacture of dental crowns, whereby a seamless crown is produced conforming in every detail as nearly as possible to the original tooth.

ARTIFICIAL TOOTH.—W. F. WHEELER, Spencer, Mass. Mr. Wheeler furnishes in his dental invention new and useful improvements in artificial teeth whereby their cost is greatly lessened, and at the same time a very strong and durable attaching stud is provided. The stud can be made of less expensive metal than that required for the socket, and as both are not made of the same expensive material it is evident that the tooth can be very cheaply manufactured.

Electrical Devices.

ELECTROHYDRAULIC VALVE.—C. ENBERG and J. ERICKSON, St. Joseph, Mich. This invention relates to an appliance operated by electricity for opening and closing a valve for a hydraulic conduit or analogous structure. By aid of the mechanism of this device, an operative may open and close any hydraulic valve, however cumbersome, by the mere pressure of a finger. If desired, the wires may be run any length, and the operative be able to actuate the valve from such distance.

Engine Improvements.

EXPLOSIVE-ENGINE.—J. WILLOUGHBY, Brooklyn, N. Y. In its preferred form this engine embodies a double crank-shaft to which are connected the rods of four pistons, working, respectively, in four cylinders, and giving four impulses to the shaft during every revolution. By air compressing means the products of combustion are swept out of the cylinders immediately before fueling, which operation is controlled by a cam working in time with the movement of the cam-shaft.

APPARATUS FOR TESTING PRESSURE-GAGES.—A. G. WOOD, New York, N. Y. The device enables an inspector to make a quick connection with the gage to be tested without disturbing the gage's position or connection to accurately test the gage, and in case of such gage being located on a locomotive, for instance, to allow of testing it along the route, whether the engine be dead or under steam.

AUTOMATIC CYLINDER-COCK.—E. L. JONES, Memphis, Tenn. When water of condensation collects and is allowed to remain in steam-cylinders it will form a resisting medium that is only slightly compressible and frequently causes cylinder-heads to be forced off by the reciprocating action of the piston within the cylinder. Mr. Jones's device will automatically drain off the water of condensation which may collect in a steam-cylinder. The contrivance may be operated by hand to drain off any water of condensation when the engine is not running.

Hardware.

NUT-LOCK.—W. NOBLE, West Union, W. Va. The inventor adapts this improvement for general application to screw-bolts without alteration of the bolts and also upon square or hexagonal nuts with but slight change, that will not materially add to cost of production, the nuts being held at any desired point on the bolt thread against displacement, but capable of removal by a suitable wrench.

SPIKE-PULLER.—T. G. BROWN, Gillespieville, Ohio. Certain details of this tool provide increased usefulness over those heretofore made and at the same time afford maximum strength to withstand rough usage. Adjusting means are provided by which the pivoted jaw may be set as desired to insure proper gripping action. The puller will effectively grip hard and smooth spikes and spikes of varying sizes.

Miscellaneous.

GALLEY.—P. J. COONEY, Philadelphia, Pa. The improvements in this invention are directly allied to the printing business, and more particularly to the production of a galley having an efficient lockup so arranged as to avoid distortion of certain delicate parts of the galley. The quoin, screw, and all parts of the device are non-detachable, so that the user always has a complete galley ready for use.

VITRIFIABLE PHOTOGRAPHIC DECORATION.—L. CRABTREE, Newark, N. J. Embodied in this invention are new and useful improvements in vitrifiable photographic decoration for producing photographs especially designed for decorative effects on china, glass, earthen, and stone wares, enameled metals, or other material yielding to vitrifiable decoration, the photograph appearing indestructibly on the finished article in a desired color and without a gelatin carrier.

COOLER.—F. GUTTENBERG, Brooklyn, N. Y. This is a portable device arranged to keep the liquid cold without danger of becoming contaminated by ice or other cooling medium, the construction allowing quick removal of an empty receptacle or the ready insertion of one filled with plain water, or liquid, to be cooled.

OBSTETRICAL SHEET.—SARAH FAULKNER, New York, N. Y. Incorporated in this sheet is a pad of two or more, preferably six, sections or members placed one upon the other and so attached that a solid section may be quickly and easily removed, exposing a lower and clean section. The several sections are so constructed that they will be comfortable to lie upon and of an absorbent nature with protective covering, which will prevent one section soiling another or the bedding.

RIDING-STIRRUP.—W. G. MURPHY, Yankton, S. D. A rider wearing an ordinary boot, shoe, or any footwear, can use this device with ease and freedom, as the movable shield is so shaped that it conforms to the instep, and a broad convex surface minimizes the friction on the foot. The stirrup resists the strain or pressure of a falling horse, and the shield tends to brace and strengthen the side portions of the stirrup which will not give way and break when fallen on. The shield has a free swinging play in an upward and rearward direction; but is so disposed that the upward movement is limited or arrested by the cooperation of the stirrups in order that the shield may be prevented from moving too far and to cause it to drop by gravity back to its normal operative position.

SUSPENDERS.—I. WECHSLER, Brooklyn, N. Y. This invention bears particularly on improvements in the back rings for suspenders, the purpose being to provide a back ring so advantageously arranged that the suspenders may be turned in it and held in position to pass over the wearer's shoulders or turned and held in position to serve as a belt.

DISPLAY-CABINET FOR RIBBONS.—N. LAFON, Earlington, Ky. Mr. Lafon has produced a ribbon-holding device that will exhibit the ribbons while in wrapped-up condition, and he has aimed to provide a cabinet with features that adapt it for convenient service to expose the end portions of ribbon bolts for inspection while in the cabinet and to suffer the removal of any bolt or ribbon, as may be desired.

CHAPLET AND SHRINE OF THE HOLY ROSARY.—T. SAULT, New Haven, Conn. The purpose of the inventor is to here provide a new and improved chaplet and shrine of the holy rosary designed for devotional purposes and arranged to enable a person to successively display pictures of a religious character one at a time and in proper order, according to the designated devotional exercise.

SLED ATTACHMENT.—E. C. WHITNEY, West Fitchburg, Mass. To prevent sleds from sluing or moving sidewise and at the same time to avoid complicating or increasing the cost thereof, the invention provides a gripper-plate of such novel form and arrangement that when the sled moves straight ahead the plate lies in inactive position, but as soon as the sled begins its sidewise movement the gripper-plate automatically becomes active and firmly grips the surface on which the sled is running, thus preventing sluing. The attachment is mainly intended for use in logging and other sleds carrying heavy loads, although it is applicable to sleds of all sorts.

LANTERN-FRAME FOR LAMP-CHIMNEYS.—E. F. WEIDIG, New Orleans, La. This invention is a lantern-frame, consisting of a base, wires rising from the base to a height to extend above a lamp-chimney, and a spring-bail connecting the wires and composed of crossed arms, a coil integral with the arms and forming a finger-hold, and a ring embracing the arms at the point of crossing. The frame, in connection with a crimp-top chimney and a candle, will form a very serviceable lantern.

RULER.—T. RAMSAY, Invercargill, Southland, New Zealand. Mr. Ramsay's improvements relate to rulers used in ruling and measuring paper and for analogous purposes. The invention belongs more particularly to that type of rulers in which there are two members, together forming a square. To persons accustomed to use rulers it will be readily apparent that this device can be applied to many uses.

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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Coin-operated machines. Willard, 284 Clarkson St., Brooklyn.

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Dies, stampings, specialties. L. B. Baker Mfg. Co., Racine, Wis.

Inquiry No. 3809.—For manufacturer of small motors and dynamos, also address of firm who makes Porter motors.

Blowers and exhausters. Exeter Machine Works, Exeter, N. H.

Inquiry No. 3810.—For makers of small hardwood cases.

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

Inquiry No. 3811.—For manufacturers of papier maché frames.

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

Inquiry No. 3812.—For a machine for weaving wire and wooden slats.

Manufacturers agricultural implements for export. Hobson & Co., 17 State Street, New York.

Inquiry No. 3813.—For parties who furnish material for fitting up an open hearth acid and crucible steel casting plant, using fuel oil.

For Machine Tools of every description and for Experimental Work call upon Garvin's, 149 Varick, cor. Spring Streets, N. Y.

Inquiry No. 3814.—For firms dealing in materials used in photogravure.

Let me sell your patent. I have buyers waiting. Charles A. Scott, Granite Building, Rochester, N. Y.

Inquiry No. 3815.—For dealers in all parts of watches and clocks.

SAW MILLS.—With variable friction feed. Send for Catalogue B. Geo. S. Comstock, Mechanicsburg, Pa.

Inquiry No. 3816.—For manufacturer of small motors and turbines.

PATENT FOR SALE.—No. 699,938. Entire or by State and county rights. Address E. H. Trunx, 953 Warren Avenue, Chicago, Ill.

Inquiry No. 3817.—For manufacturers of small mills for wet grinding suitable for experimental work in glass and pottery.

FOR SALE.—Brick factory 22,000 feet space, power plant, side track. Immediate possession. F. A. Clark, 184 Dearborn Street, Chicago.

Inquiry No. 3818.—For manufacturer of fancy silk cord and narrow tape.

Hand machines for marking and for cutting ovals and circles in all kinds of sheet material. Price reasonable. F. W. Starr, Springfield, Ohio.

Inquiry No. 3819.—For manufacturer of "Star" foot power screw-cutting lathe.

Manufacturers' Advertising Bureau, New York. Trade mediums a specialty. Lowest known rates. References. Correspondence solicited.

Inquiry No. 3820.—For manufacturer of solar motors.

Manufacturers of patent articles, dies, stamping tools, light machinery. Quadriga Manufacturing Company, 18 South Canal Street, Chicago.

Inquiry No. 3821.—For firms making compressed air machinery.

Crude oil burners for heating and cooking. Simple, efficient and cheap. Fully guaranteed. C. F. Jenkins Co., 1103 Harvard Street, Washington, D. C.

Inquiry No. 3822.—For makers of stenciling machines.

PATENT FOR SALE OR ROYALTY.—Waterproof, malleable iron truck and cap for flag staffs. Andrew A. Brengel, 123 North Street, Jersey City, N. J.

Inquiry No. 3823.—For makers of envelope-making machinery.

The largest manufacturer in the world of merry-go-rounds, shooting galleries and hand organs. For prices and terms write to C. W. Parker, Abilene, Kan.

Inquiry No. 3824.—For manufacturer of machinery for making wooden faucets.

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. 3825.—For makers of coal conveyors or elevators.

WATER POWER FOR SALE.—Reliable 1,500 horse power located in State of New York. Owner would equip and rent power. Davidson, Box 773, New York.

Inquiry No. 3826.—For makers of vending or slot machines.

WANTED.—One of the "Simple Electric Motors" described in the Scientific American Supplement, April 14, 1888. State price and what year the motor was made. The older the better. Address Motor, P. O. Box 773, New York.

Inquiry No. 3827.—For manufacturer of artistic furniture hardware, drawer handles, hinges, etc.

Wanted—Revolutionary Documents, Autograph Letters, Journals, Prints, Washington Portraits, Early American Illustrated Magazines, Early Patents signed by Presidents of the United States. Valentine's Manuals of the early 40's. Correspondence solicited. Address C. A. M., Box 773, New York.

Inquiry No. 3828.—For manufacturer of pipe or bolt machine that cuts two threads at once.

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Inquiry No. 3829.—For dealers in parts for direct current motors, using primary battery.

Inquiry No. 3830.—For manufacturer of balloons and silk for same, also dealers in rubber tubing.

Inquiry No. 3831.—For address of parties that furnish power plants.

Inquiry No. 3832.—For makers of small bicycle pumps, etc.

Inquiry No. 3833.—For address of builders of iron and steel piers.

Inquiry No. 3834.—For manufacturers of fancy metal novelties.

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.

(8843) A. C. A. writes: Is it possible to use watchcase telephone receivers as transmitters, and if so, how? A. It is possible to use a telephone receiver which contains a magnet and a coil as a transmitter for short distances. But such an arrangement is not used even for short distances, because the microphone is much more sensitive as a transmitter. This is used in some form in almost every transmitter in the country.

(8844) A. L. asks: Can any other metal be used in the elements of the Edison storage battery instead of nickel and iron, provided one is a superoxide? If not, why so? Could not the same metal be used in both elements provided again that one is a peroxide? Could not an oxide be used instead of a peroxide? A. No other metals can be used in the Edison storage battery than he has used, else it is no longer an Edison battery. There are metals which can be used for storage cells. It is, however, most probable that the most efficient have now been tested, and that none so good as these will be found. This will not however discourage inventors from still searching and trying to discover other forms. If a metal forms two oxides, it can be used for both plates. Treadwell's "Storage Battery" treats the subject quite fully.

(8845) W. S. O. asks: About how many ampere turns will it require to economically saturate a solid soft-wrought iron or steel core, 4¼ inches by 10 inches long, to be used as a field core for alternating generator of the induction type? A. About 750 ampere turns will be required to bring a bar of iron 4¼ inches in diameter and 10 inches long to practical saturation.

(8846) E. F. asks for the dimensions of a spark coil, size and amount of wire, also how long the core should be. Is there any insulation between primary and secondary winding? A. Jump spark coils are made in all sizes according to their use. Norrie's "Induction Coils," which we can send you for $1, gives full details for lengths of spark up to 12 inches. The details of construction are quite too long for a letter. A coil giving an inch and one-half spark is described in our SUPPLEMENT No. 160 and one giving a 6-inch spark in SUPPLEMENT No. 1,124. These papers are ten cents each. Our SUPPLEMENT, No. 1,402 has a valuable article upon the cores of coils and data for the winding of a full series of sizes. You may find all the instruction you require in this article. Strong insulation is always used between primary and secondary in large coils.

(8847) F. M. F. asks how the black lead is applied to wood in making electrotypes. I desire to copperplate wood, but am unable to get good results, owing to trouble in coating same with the black lead. A. Stir the black lead into melted wax, and apply this coating while warm; if it cools off too rapidly and is found to crack, a small amount of Venice turpentine can be mixed with the wax.

(8848) W. F. B. writes: Will a Fuller battery answer for an electro magnet described in "Experimental Science" instead of the bichromate of potash? I am unable to get a battery of that description with carbon inside and zinc outside; they are all made the reverse. Does the core of this magnet get saturated, and refuse to hold the armature? A. A Fuller bichromate battery will answer perfectly for the electro-magnet in "Experimental Science." A bichromate battery with the carbons on the outside of the zinc is just as good as any. It is the way they are usually made. Your idea of a magnet core is erroneous. The more strongly it is magnetized the more strongly it attracts, until a point of saturation is reached, when no further increase takes place and the attraction remains the same. If it does not attract at all, it is because there is no current flowing through the wire.

(8849) W. H. V. T. asks how to wire a clock to ring bells every hour. A. A clock can be wired to ring bells at equal intervals, as of an hour, by causing the minute and to close the circuit. This can be done outside the dial by a piece of watch spring bent so that the hand touches it, and makes a brief contact. It can be done on the inside of the case by a pin on the wheel which moves the