

## RECENTLY PATENTED INVENTIONS.

## Electrical Devices.

**APPARATUS FOR ELECTRICAL SIGNALING.**—L. DESPRAELES, 20 Rue du Chateau d'Eau, Paris, France. The apparatus is so arranged as to allow of obtaining by means of a cheap construction an easy and ready transmission of signals between two or more stations at the same time. It can be used for signaling by wire, as ordinary telegraphic apparatus, as apparatus for signaling for railway, as fire-alarm, as commutator for electric bolting, as calling apparatus, a commutator in telegraph or telephone stations when several are connected to one and same wire, as registering gyrometer, as sound-controller, and the like. Also used for signaling without a wire as calling apparatus or commutator in being introduced with Morse telegraph into the circuit of the Branly tube.

## Of Interest to Farmers.

**CORN-CUTTING MACHINE.**—C. LEIDY, P. V. JOHNSON, and J. G. MARTIN, Fostoria, Ohio. In this patent the invention relates to harvesting-machines, and especially to that class used for cutting corn. The principal objects of the invention are to provide a machine capable of being drawn by three horses and which will cut two rows of corn simultaneously, which will support a shock and afterward discharge it from the machine, and will cut the stubble.

**BAND-CUTTER AND FEEDER FOR THRESHING-MACHINES.**—F. FREDERICK, Taylor Falls, Minn. In respect to one of its features the invention is an improvement in that class of attachments for threshing-machines in which the feed or advance of the grain to the threshing-cylinder is automatically regulated and kept practically uniform by a governor, preferably by one comprising a friction-wheel variably rotating in contact with a disk upon whose face it is radially, automatically, and variably adjustable for producing fast or slow speed. Operation of the rakes or means for feeding the grain is thus governed automatically according to the quantity and condition of the grain.

## Of General Interest.

**SIGN.**—R. M. PEARSON and W. LETZIG, Little Rock, Ark. The object of the inventors is to provide a new and improved sign which is very attractive both in the day-time and at night, the sign-letters being wholly illuminated and readable on both sides of the sign and illuminated by the same source of light at a comparatively little expense.

**GATE-VALVE.**—R. J. POWERS, Chicago, Ill. The invention has reference particularly to improvements in gate-valves for sewer-pipes, the object being to provide a gate-valve of novel construction so arranged as to automatically close the sewer pipe and prevent the inlet of waste or sediment should a backflow of water occur.

**BOTTLE-STOPPER.**—E. CAMPBELL, Rossland, Canada. The principal object of this invention is to provide a stopper designed to be inserted within a bottle or similar vessel, which stopper after it has been securely sealed in the neck of the bottle is so fractured or marked that it will be impossible to refill the bottle after the original contents have been removed and without insuring detection of the fraud.

**CASING-HEAD.**—F. E. HOWE, Marietta, Ohio. Mr. Howe's invention relates to an improvement in casing-heads and means for connecting it with the casing in oil, gas, or artesian wells so as to prevent the leakage of fluid from the well, its object being to produce a device which shall be efficient, cheap, easily applied, and one which can be applied in varying sizes of casings.

**COMPOSITION OF MATTER FOR FORMING PIPES OR TUBES, ETC.**—J. S. GREGG, Pomona, Mich. The improvement relates to the manufacture of pipes or tubes, etc., from plastic cement, and has for its object to provide a novel plastic composition by means of which tubing can be readily and quickly produced. The materials employed in the manufacture consist of equal parts of a good quality of powdered cement and sand and a suitable quantity of powdered resin, all mixed with water impregnated with liquid glue.

**CAP-FASTENING FOR VESSELS.**—A. BROCKELBANK, Ossining, N. Y. The purpose of this invention is to provide a construction for the neck of a bottle or like receptacle and a construction of cap for the same which will enable the cap or cover to be quickly placed in closed position on the receptacle and turned to a locking engagement with the neck of the receptacle and further turned in the same direction to provide for a convenient removal of the cap or cover from the receptacle.

**RECEPTACLE FOR CIGARETTES.**—A. Q. WALSH, New York, N. Y. The purpose of this invention is the provision of a receptacle especially adapted as a receiver for cigarettes and to so construct the receptacle that ready access may be gained to even the last cigarette therein and so that the cigarettes will be kept moist in a manner which will not affect their color or flavor.

**METHOD OF MAKING CULINARY STOCK.**—W. B. KERR, Medford, Mass. The invention relates to the manufacture of food products; and its object is to provide a new and improved method of making culinary stock, which stock can be readily converted by the consumer

into an easily-digested, nourishing, and palatable stew having the flavor of malted oysters, clams, and like bivalves.

**MEANS FOR SUPPORTING CHINAWARE IN GLAZING-KILNS.**—F. G. HANEY, East Liverpool, Ohio. The inventor's object in this instance is to provide means for reliably supporting dishes and the like in saggers, so that the dishes will be maintained nearly upright and the points of contact between the ware and the supports reduced so as to have scarcely any area, and also that these points of contact with the ware be located where any slight defect will not mar the general surface of the glazed ware.

**CABLE-CLIP.**—W. GREGER, Barron, Wash. This invention has reference to improvements in clips designed for engaging with a wire cable, an object being to provide a clip that will overcome the strain and adapted to pass over the deep-flanged sheaves and also so constructed as to pass freely around the large grip-pulley and under the hold-down-sheaves.

**BATH-SUIT BAG.**—W. A. ALLEN, New York, N. Y. The purpose of this invention is to provide a bag adapted to carry a folded bathing-suit to and from the body of water in which the bath is to be taken, the said bag being particularly adapted for use in connection with bathing-suits for men, and to so construct a bag that it will be durable, economic, simple and waterproof, or substantially so, and to provide a construction of bag which when filled, closed, and locked will constitute a sightly, compact package of small size, having a handle by which it may be readily supported from the carrier's wrist.

## Railways and Their Accessories.

**AUTOMATIC RAILWAY-SIGNAL.**—J. C. LAMBERT, Tonica, Ill. This invention refers to means actuated by passing of rolling-stock over selected portions of a railroad-track which show a signal, sound an alarm, or give both automatically, and has for its object to provide construction for an automatically-operated signal which is reliable in operation, which may be employed on single or double track railroads, signal trains or stations in either direction of travel on the road, and be adapted for repair of signal device quickly and cheaply.

**INCLINED RAILWAY.**—S. E. JACKMAN, New York, N. Y. Mr. Jackman's invention relates to railways such as are principally used for amusement in pleasure resorts, exhibitions, and like places. The object is to provide a new and improved inclined railway arranged to utilize the ground-space to the fullest advantage by providing a long up-track without diminishing the rise thereof for the purpose of requiring less power to haul cars up the track.

**MAIL-BAG-DELIVERY DEVICE.**—J. S. KAUFFMAN, Degraff, Ohio. In the form of this inventor's improvements he employs specially constructed and organized devices at a railroad-station for delivering mail-bags to a catcher therefor on a moving car, as well as other specially constructed and organized devices on the car for similarly delivering mail-bags to a catcher therefor at a station, said devices being adapted to be operated conjointly or practically at the same time and each set being adapted to be operated independently either to deliver a bag or to receive one from the other. The device is inexpensive, effective, and reliable and possesses the capacity for long and repeated service.

## Pertaining to Vehicles.

**BICYCLE ATTACHMENT.**—E. R. PEPPER, Yazoo City, Miss. In this instance the intention of the inventor is the provision of a new and improved bicycle attachment arranged to store up power on a downgrade for use in propelling the bicycle on a level grade or on an upgrade to secure riding as easy as possible. It may be attached to other wheeled vehicles.

## Prime Movers and Their Accessories.

**HYDRAULIC PUMP.**—R. H. RUSSELL, Galveston, Texas. The inventor's object is to provide means whereby fluid may be employed and used over and over again in transmitting power for working the fluid elevating or pumping means. His broad conception comprehends the use of liquid, air, or gas placed under pressure and conveyed to the pump for working it. A liquid-elevating pump is employed having a special reciprocable hollow piston, means for conveying fluid under pressure into the pump-cylinder alternately at opposite sides of its piston, and peculiar means whereby fluid-power means is alternately fed to pumping-cylinder through operation of a controlling-valve.

**SMOKE-CONSUMING FURNACE.**—J. B. HARRIS, Nashville, Tenn. The object of the present invention, which relates to smoke-consuming furnaces, such as shown and described in Letters Patent of the United States formerly granted to Mr. Harris, is to provide a furnace arranged to cause a reduction of the volume of nitrogen in the fire-box by introduction of minute jets of steam to deflect the rising gases and smoke in the fire-box, to bring same near the air-inlet ports for mixture with air drawn in by action of steam-jets, and to insure a more ready and complete combustion of the mixture.

**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 &amp; CO.

Marine Iron Works. Chicago. Catalogue free.

**Inquiry No. 6633.**—For manufacturers of small chains, like bicycle chains, small enough to take the place of tape which operates typewriter carriages.

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

**Inquiry No. 6636.**—For manufacturers of pearl buttons.

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

**Inquiry No. 6637.**—Wanted, addresses of automatic vending machine or coin slot machine manufacturers or dealers.

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

**Inquiry No. 6638.**—For parties manufacturing machinery for making improved cross-head bale ties for hay.

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

**Inquiry No. 6639.**—For manufacturers of artesian wells with automatic pressure system or chemical engines for the purpose of waterworks and fire protection.

One-eighth horse power battery motors, \$5 each. Walsh's Sons & Co., Newark, N. J.

**Inquiry No. 6640.**—For firms selling large machines for loading shotgun shells, same being loaded by power and capacity being 20,000 to 30,000 per day.

Commercially pure nickel tube, manufactured by The Standard Welding Co., Cleveland, O.

**Inquiry No. 6641.**—For manufacturers of machines testing the saturation of paper.

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

**Inquiry No. 6642.**—Wanted, information on the recovery and marketing of wool grease or lanoline; also manufacturers of a plant to extract the same.

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

**Inquiry No. 6643.**—For manufacturers of an endless 36-inch steel band, like an endless band saw, save that it must have a sharp, continuous cutting edge like a knife.

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. 6644.**—Wanted, address of the Discal Engine Co.; also makers of crude petroleum engines.

We manufacture iron and steel forgings, from twenty pounds to twenty-five tons. Crank shafts of all varieties. Erie Forge Company, Erie, Pa.

**Inquiry No. 6645.**—For manufacturers of advertising folders with following imprint: "Patented by Albert Oertel, November 15, 1892." "Copyright 1902 by C. I. Boyer."

We Manufacture on Contract anything in light hardware. Write us for estimates. Edmonds-Metzel Mfg. Co., 143-153 South Jefferson Street, Chicago.

**Inquiry No. 6646.**—For manufacturers of tools for making gold wire and shell jewelry.

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

**Inquiry No. 6647.**—For manufacturers of small steam turbines of  $\frac{1}{4}$  to  $\frac{1}{2}$  h. p.

THE SCIENTIFIC AMERICAN SUPPLEMENT is publishing a practical series of illustrated articles on experimental electro-chemistry by N. Monroe Hopkins.

**Inquiry No. 6648.**—Wanted, addresses of parties selling grinding machines for grinding lenses, etc.

**WANTED.**—Colonial silverware. Any one wishing to sell any authentic silver made in this country during the eighteenth century, please communicate with C. A. M., Box 773, New York.

**Inquiry No. 6649.**—Names and addresses of firms manufacturing spring motors, such as are used for revolving display stands.

**VALUABLE PATENT FOR SALE.**—An indispensable article for women. Has large demand in all department stores. Patent No. 774,191. Address Acme Hygienic Co., 132 West 90th Street, New York.

**Inquiry No. 6650.**—For manufacturers of needle books, containing an assortment of needles; also address of party manufacturing Perfect Dust Beater.

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. 6651.**—For manufacturers of asbestos cloth (not paper) or asbestos wearing apparel.

Space with power, heat, light and machinery, if desired, in a large New England manufacturing concern, having more room than is necessary for their business. Address Box No. 407, Providence, R. I.

**Inquiry No. 6652.**—Wanted, an illustrated price list of ticket-making machines; also firms manufacturing the same.

You can rent a well equipped private laboratory by day, week or month from Electrical Testing Laboratories, 548 East 50th Street, New York. Absolute privacy. Ask for terms and facilities.

**Inquiry No. 6653.**—For manufacturers of inexpensive mixer which will readily mix light material, including loam and straw, well moistened.

We are prepared to handle all kinds of work in the polishing and buffing line. We employ none but the best of help, and feel warranted in soliciting business in these lines. Rostand Manufacturing Co., New Haven, Conn.

**Inquiry No. 6654.**—For manufacturers of wind pumps, such as are used for pumping out barges, boats, etc.

**TO INVENTORS AND MANUFACTURERS.** Representative of large European electrical concern seeks novelties (technical preferred) for exclusive sale. Buys also patent rights. First-class credentials. Write in strict confidence, stating full particulars, to Patent Abroad, Box 773, New York.

**Inquiry No. 6655.**—For manufacturers of automatic novelties and mail order specialties of all kinds.

Gut strings for Lawn Tennis. Musical Instruments, and other purposes made by P. F. Turner, 46th Street and Packers Avenue, Chicago, Ill.

**Inquiry No. 6656.**—For manufacturers of small boxes made of enameled pressed steel or sheet iron.

**Inquiry No. 6657.**—For manufacturers of window display fixtures; also artistic metal signs.



## 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.

(9565) E. M. H. asks: An empty 10-gallon metal air tank weighs 10 pounds. How much dead weight will be required to sink it in fresh water? Charge the same tank with 100 pounds of air, would it hold up more weight than if not charged? Could you pump the air out of the tank so that it would sink of its own weight? A. A tank of 10 gallons capacity will hold about 1.1-3 cubic feet, and when this is sunk in fresh water it will be buoyed up by a force equal to the weight of 1.1-3 cubic feet of water. This is very nearly 83.1-3 pounds. Since the tank weighs 10 pounds, an addition of 73.1-3 pounds in the tank will sink it. If 100 pounds of air are pumped into the tank, it will sink the same as if 100 pounds of lead were put into the tank. We have now 110 pounds total weight of tank and air, and 83.1-3 pounds buoyant force of water. The difference, or 26.2-3 pounds, will be the force with which it will sink. Pumping air out of the tank will make it lighter, and so it will float better. You cannot make a thing sink by pumping air out of it. Air weighs under ordinary pressure about 1.4 ounces per cubic foot, and 1.1-3 cubic feet will weigh 1.2-3 ounces. The tank will weigh 1.2-3 ounces less when the air is pumped out of it than it did when full of air. You cannot pump 100 pounds of air into such a tank. The pressure would be about 9,000 pounds per square inch, and no tank of this size and weight could withstand any such pressure.

(9566) V. F. asks: 1. Why is the core of induction coil made of small iron wires instead of one solid piece? A. The core of an induction coil is made of wire, and not solid, in order to prevent the whirling currents, called "Foucault" currents, which would travel round the core if they could do so. They would heat the core very greatly. 2. Is it the volts, amperes, or watts that make an electromagnet? A. Amperes turns produce magnetism in a coil. One ampere flowing once around a turn of wire is an ampere turn, and the voltage produced by a coil is proportional to the ampere turns in the coil. Hence a coarse wire is used of low resistance, so that there may be a large number of amperes flowing through it, and often many turns are put on, so that the ampere turns may be as great as possible. This applies to the primary winding. 3. Is there any relation between sizes of primary and secondary wires and increase in voltage of an induction coil? Where can I get a book which treats in a simple manner the subject of storage batteries? Also one telling of the process of refining crude petroleum? A. Treadwell's "Storage Batteries," price \$1.75, is a good book; Bottone's "Management of Accumulators," price \$1.50, is also to be recommended. A good book upon refining petroleum is Brant's "Practical Treatise on Petroleum," price \$7.50. 4. It is a law in physics that in the magnetic lines of force, the direction of such lines at any point is a tangent to the curve at that point. What, then, is the direction opposite the middle of a bar magnet? Opposite the end? A. The same rule applies to determine the direction of the magnetic lines when the lines are straight as when they are curved. At the middle of a magnet the tangents coincide with the lines themselves, as they do also at the ends of the magnet. A straight line is a curve with an infinite radius.

(9567) A. W. D. asks: For some time I have been trying to find out what the temperature of the oxyhydrogen flame is, but have been unable to do so. Also, could you tell me if there is any other way, as by the use of a furnace, whereby a person could in the laboratory get a heat equivalent to that of the oxyhydrogen flame? A. The temperature of the oxyhydrogen flame has been variously given by different investigators, from 3,600 deg. Fahr. to 4,400 deg. Fahr. A recent writer gives the latter figure. The temperature of the electric arc is much higher than this, possibly reaching 7,000 deg. Fahr. A valuable book upon this general subject is "High-Temperature Measurements," which we send for \$3. The material "thermit" is considered to give a higher temperature than the oxyhydrogen flame.

(9568) W. E. H. asks: What have you on thermo-electricity or thermopiles in book form, not papers? A. There is no book upon thermo-electricity, that is, a book treating only