

## RECENTLY PATENTED INVENTIONS.

## Agricultural Implements.

**HAY-STACKER.**—HENRY PARRENT, Giltedge, Mont. The invention relates to that form of stacker in which the hay is loaded into the wagon on top of a rope-sling arranged to be hitched to a rope running to a pulley on an elevated support and thence extended to the snatch-block, so that the entire load is, in one operation, pulled off the wagon, raised and dumped. The stacker-wagon in this invention has inclined plank skids extending from the floor to a support on the front end of the body and thence over and above the team, so as to allow the team to be driven directly under the elevated platform and the load to be taken from the wagon directly over the team.

**MACHINE FOR REMOVING PITH FROM CORN-STALKS.**—GEORGE R. SHERWOOD, Kearney, Neb. It is the purpose of the inventor not to split the stalks entirely, but to leave them unsplit at one side—an end which is attained by a novel arrangement of splitting disks and presser-shoes. The stalk, after being split by a disk, is received by a saddle by which it is straddled and supported while it is being acted upon by pith-removing devices. After this main operation is completed, the stalks are subjected to the supplementary action of a finishing brush, which removes any particles of pith which may still adhere to the stalk. It is probably a new departure to subject the pith in the stalks to a final or finishing action after the main pith-removing operation.

## Electrical Apparatus.

**TELEPHONE SYSTEM.**—MALCOLM S. KEYES and JAMES H. SPENCER, Manhattan, New York city. These inventors have devised a telephone system designed for use in stores, factories and hotels, and arranged so that the several stations in the system can be readily connected without the use of an expensive exchange. Each station in itself forms a central station, and but one movement for a call is necessary whether the receiver of the other station be on or off. The invention comprises principally an induction-coil having both primary and secondary coils connected by wires with the several stations to form circuits, a receiver in one induction-coil circuit, and a transmitter in the other.

**ATTACHING-PLUG FOR FLEXIBLE-WIRE CONNECTIONS.**—DANIEL MCGLONE, Long Island City, New York city. By using this plug, the electric lamp or other device can be moved about without twisting the wires, and thereby causing a bad electric connection. The plug is arranged for attachment to the supporting-structure connected with one of the line-terminals. A carrier of insulating material is mounted to turn on the plug and carries two circuit-conductors for the wires, one conductor being in contact with the plug and the other being arranged for contact with the other line terminal.

## Mechanical Devices.

**MOTOR APPARATUS.**—JOHN E. TYLER, Roxobel, N. C. This improvement in motor apparatus embodies a series of tanks, connecting pipes, and pumping and driving mechanism, whereby a circulation of water from tank to tank will effect the continuous operation of the actuating devices and a readjustment of water from tank to tank to secure the desired operation of the parts. The pipe connection between the tanks is controlled by a valve operated by a cylinder and piston. Electrically-operated devices control the supply of power to the cylinder. A float operated by the liquid in the pipe connection makes and breaks the circuit in the electrically-operated devices.

**CARRIAGE-SHIFTER AND LINE-SPACER FOR TYPE-WRITERS.**—JAMES M. CRAMER, Santa Margarita, Cal. The present invention provides improvements in carriage-shifting and line-spacing devices for type-writers. The shifting device is of simple construction and will quickly return the type-writer carriage to its initial or starting position after being released by pressing upon a key. The device is so placed that it will not interfere with the ordinary working of the machine or change its appearance. A simple line-spacing device operated by the carriage is also provided.

## Railway Appliances.

**SPIKE-PULLER.**—WILLIAM FIELDEN, Port Oram, N. J. The spike-puller comprises a bed-plate adapted to rest on the top of a railway-rail, a fulcrum-block mounted to rotate in a horizontal plane on the plate, a lever fulcrumed in the block, and jaw-carrying levers carried by the first lever. The parts are so arranged that the device can be moved from place to place along a rail or any number of connected rails, and that the gripping-jaws can be shifted from one side of a rail to the other without lifting the device.

## Miscellaneous Inventions.

**DIE-PLATE FOR EMBOSSED MACHINES.**—JOSEPH EBERHARD, 217 Ten Eyck Street, Brooklyn, N. Y. This improved die plate is covered with small screw holes and the metal die is fastened to it in the proper position to register with the celluloid die. As the screw holes are quite small and very numerous, the plate being completely covered with them, the die may be adjusted very accurately.

**DEVICE FOR APPLYING WALL PAPER.**—ALBION W. POSTER, Millbridge, Me. This device consists of a flat back piece from the side of which protrudes a row of bristles. Mounted on the back piece above the bristles is a roller for applying the paper. The sheet of wall paper is thrown over this roller, and while being matched with one hand is easily applied with the other by means of the roller and brush. The tool is provided with an extensible handle.

**NON-REFILLABLE BOTTLE.**—SALVATOR PENNY, 368 West 11th Street, New York, N. Y. In the neck of the bottle is placed a flat conical valve, which is covered by a movable plate having scalloped edges. A conical plug rests on this plate, and its small end fits loosely in the bottom of the stopper proper, which is cemented in the upper end of the neck. This stopper has a central opening for a cork, and when the cork is in place, it

presses down the conical plug tightly against the valve, keeping it closed. The bottom portion of the stopper tapers and is smaller than the neck. Horizontal holes run through it and small lugs also project. When the bottle is being emptied, the liquid passes out from the valve through these holes to the main opening. The lugs engage a spring, which holds the valve closed more securely.

**PROCESS OF SEPARATING PRECIOUS METALS FROM ORES.**—WILLIAM H. BAKER, Deadwood, S. D. The pulverized ore is first submitted to the action of a potassium cyanid solution, is then thoroughly agitated by beaters, and heated to the boiling-point by steam. The solution is next separated from the tailings. The tailings are washed with the solution in the boilers, the steam thus produced being used in heating a subsequent mass of ore and cyanid. The solutions in the boilers, after becoming heavily charged with the metals, are evaporated to dryness. The residue is then fused to a red heat and allowed to cool, after which the saline mass is dissolved in water, leaving a residue of gold and silver in a porous state.

**APPARATUS FOR CLEANSING BEER PIPES.**—WILLIAM A. SCHMIDT, Manhattan, New York city. The apparatus consists of a portable boiler, on top of which a small retort is mounted. A bell-shaped cover is clamped to and separated from the retort by a perforated partition upon which are placed the cleaning chemicals. A valved pipe connects the boiler with the retort, and from the side of the latter projects a short valved pipe adapted to be fastened to the beer-pipes. This horizontal pipe is connected with a vertical, valved pipe which terminates near the bottom of the boiler. By properly manipulating the valves, water, steam, or a mixture of the two, may be forced into the pipes. The steam gradually dissolves the chemicals and carries them along to cleanse the pipes.

**TARGET.**—WILLIAM PARNALL, Bristol, England. This invention provides an indicating mechanism for targets, which mechanism comprises a dummy target having a centrally pivoted lever adjustable in various angular positions. The lever carries a plate containing a flap colored the same as the plate when closed, but showing some brilliant contrasting color when opened. By means of this flap, the position of the bullet is located approximately. Both the target and the signal target are mounted in an upright frame, suitably pivoted and balanced by counter weights, so that one may be swung down and the other up, or vice versa, by moving a small lever.

**FIRE-ESCAPE.**—MARY K. MCGOWAN, Brooklyn, New York city. An endless rope ladder passes over two drums, one at the top of the building hung from springs and the other at the first story, held from moving upward by projecting arms having longitudinal movement. The upper drum is suspended from a movable carriage, which allows of the ladder's being shifted to any position along the front of the building. Rope loops are provided in the rooms of the building, and these are intended to be hooked to the rungs of the ladder in order to support a person while descending.

**WEATHER-SIGNAL INDICATOR.**—THEODORE A. and HELEN B. FROELICH, Manhattan, New York city. This indicator is designed for use in schools. It consists simply of an upright post mounted on a square base having beveled edges. A vane is pivoted on top of the post over the usual letters indicating points of the compass; while on a wire support parallel to the post miniature weather signals are displayed. Thermometer, barometer, cloud, and wind-scales with pointers are mounted on each of the four beveled sides.

**TROLLEY.**—HERBERT HIRSCHMAN, Salt Lake City, Utah. The invention provides an attachment for preventing trolley-wheels from jumping the wire, although permitting them to pass freely any obstructions. Two standards are clamped to the fork of the trolley-wheel; and on the top of these are pivoted transverse arms crossing the wire and overlapping in the center. The arms are held in place by coiled springs on the outer side of each standard, and will immediately fly back into place after passing a switch or other obstruction. They will be separated when the rope is pulled, thus allowing the trolley to be placed on the wire.

**MOORING DEVICE.**—FREDERICK B. LANGSTON, Brooklyn, New York city. An ordinary mushroom-anchor is provided with a hollow shank through which passes a hollow tube, pointed at its lower end, and projecting a short distance below the anchor. Air or water under pressure is forced through the tube and escapes through the bottom, loosening the mud or sand sufficiently for the anchor to be embedded. A funnel-shaped opening in the top of the shank permits of finding the embedded anchor when the mud is loosened, if it be desired to raise it.

**UMBRELLA-CARRYING DEVICE.**—SOPHIA MCCRAE, Manhattan, New York city. This device consists of a simple strap provided with a small ring at each end. The strap is the length of an umbrella rib; and when not in use one of its rings passes over the tip of a rib and the other over a ferrule. A snap-hook fastened to the upper ring is made to engage a ring on a chatelaine-chain, when it is desired to carry the umbrella; and a short chain connected with this ring passes around the handle, thus holding the umbrella securely in place.

**FIFTH-WHEEL.**—JAMES K. THOMA, Winfield, Kan. This invention provides a ball-bearing fifth-wheel for wagon and carriages. The wheel is divided into four quarters by spokes in the top member; and near the end of each of these spokes is a hole in which fits a steel ball. These four balls give a bearing surface, although they have no lateral movement. A single ball is also placed in each of the four arcs into which the raceway is divided. These balls move laterally when the carriage is turned.

**STEAMER-CHAIR.**—ARTHUR H. PINNOCK, Kingston, Jamaica. The chair consists of a rectangular frame made of side pieces with a rung connecting them at the top and bottom. A similar leg near its center frame is pivoted to this main frame at right angles. The leg-frame is provided with two cleats, and on the upper cleat are pivoted two latch pieces. The seat-frame is pivoted to the main frame about half way between the floor and the leg-frame. A strip of canvas extends from the rung at one end of this frame to the rung at the top of the main frame, forming the seat of the chair. The other end of the seat-frame has a number of rungs so

placed that when the frame is in position between the cleats it may be adjusted and held firmly by the latches.

**PROCESS OF MAKING SUPERPHOSPHATES.**—GEORGE SCHÜLER, Stettin, Germany. This process consists in boiling certain proportions of phosphoric acid and finely ground phosphates together, and, after they have cooled, in drying, grinding, and sifting them. The resulting superphosphate contains 47 per cent. of phosphoric acid soluble in water, and only 34 per cent. of insoluble acid. By this process lime and other low grade phosphates may be successfully used in manufacturing superphosphates.

**STRINGED MUSICAL INSTRUMENT.**—FREDERICK STROB, Bronx, New York city. The instrument consists of a violin, a cithern, and a mandolin arranged side by side on one base and sounding board. One end of the violin portion of the instrument projects so that the bow may be readily drawn over the strings. The instruments may be played separately or together by two performers.

**FISHING-LINE FLOAT.**—ALPHEGE BOURKE, Valparaiso, Ind. The improvement consists in placing a small coil of wire on the side of an oval-shaped cork float, between the two end edges. The line passes through these eyes and between one of the wire coils, where it is held securely. This arrangement permits of adjusting the float quickly and with ease.

**BUTTON.**—HEINRICH KINDMANN, Brooklyn, New York city. The button is in two parts, the button proper and the back. The latter part contains a funnel-shaped groove adapted to receive metal prongs on the back. The prongs pass through a hole in the fabric and are forced into the groove by special machinery.

**JAR FOR WELL-DRILLING TOOLS.**—HARRY W. RANK, McDonald, Pa. The invention provides improvements in jars used in connection with well-drilling apparatus for the purpose of shaking the drill loose whenever it binds in the rock. The jars consist of interlocked chain-like links, which are slotted. One link has its cross-head passing through the slot of the other. Each link is formed of a solid piece of highly-tempered metal, the side parts or reins having their temper reduced slightly. Thus the knocking heads are left very hard to withstand the battering and the reins are toughened to withstand the tensile strain.

**MAGAZINE PLATE-HOLDER.**—WILLIAM F. FOLMER, Brooklyn, New York city. The plate-holder consists of a box having a light-tight bag on one side. The plates are inserted through the back, which is removable and has a spring pressing them forward. The holder is attached to the camera in the usual way; and a slide is drawn to make the exposure. The front plate is then moved sideways into the bag, where it is grasped by the fingers and thrust in at the back end of the holder.

**GATE.**—CHARLES STEEL, Ethridge, Tenn. The gate is supported upon two parallel frames which move together and swing it to one side. An upright on one of these frames carries a cross-arm parallel with the frame; and a cord connected with this cross-arm moves the gate, first unlatching it by tightening a cord connected with a latch.

**CHURN.**—JAMES W. MAXEY, Plymouth, Ind. The churn is mounted on a simple frame on which is also placed a hand wheel adapted to drive the churn by a belt. The driving mechanism of the churn is detachable and is located entirely above the cover. The mechanism consists of a vertical shaft turning in ball bearings and having a pulley on top. A small door in the cover of the churn permits of examining the contents.

**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.

## NEW BOOKS, ETC.

**INDICATING THE REFRIGERATING MACHINE.** By Gardner T. Voorhees, S.B. Chicago: H. S. Rich & Company, 1899. 16mo. Pp. 179. Illustrated. Price \$1.

The problems concerning refrigeration are comparatively new ones, and any aid which the mechanical engineer can obtain in solving them is sure to be warmly welcomed. The author is a mechanical engineer for a Boston cold storage company, and is therefore well fitted for performing such a task. The tables are certain to prove of great value.

**TRANSMISSION DE L'ENERGIE ELECTRIQUE PAR UN FIL ET SANS FIL.** Application du système aux communications téléphoniques et télégraphiques et aux signaux électriques en Général. Par Emile Guarino-Foresio. Liege. 1899.

**TÉLÉGRAPHIE ELECTRIQUE SANS FIL.** Répétiteurs. Par Emile Guarino-Foresio. Liege. 1899.

**Steam Engineering.**—We have received the first number of the periodical of this name. It is a consolidation of "Live Steam" and "The Engineer's Magazine" and is published by The Industrial Press, 9 Murray Street, New York city. The first number is highly satisfactory. There is a great opportunity for a paper of this kind, and the first number is an earnest of even more satisfactory issues to come. It is filled with valuable matter, and the illustrations and diagrams are well executed and printed. It is published at \$1 per year.

We have received the "Electric Railway" number of Cassier's Magazine. We have on other occasions reviewed two notable numbers: the "Niagara Number" and the "Marine Number." The "Electric Railway Number" is fully up to the high grade of the other two. It consists of 292 pages of reading matter and over 200 illustrations. The articles are all written by specialists and they number eighteen in all. The whole forms an elaborate text book of modern street railroad construction and we congratulate our contemporary upon the production of such a handsome periodical. The number is mailed on receipt of fifty cents, and it is beautifully printed on fine paper.

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## Notes &amp; Queries

## HINTS TO CORRESPONDENTS.

Names and Address must accompany all letters or no attention will be paid thereto. This is for our information and not for publication.

References to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn.

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(7713) F. A. G. writes: I have expected weekly to see an account in the SCIENTIFIC AMERICAN of the alleged discovery of a new and powerful source of electricity, which is creating quite a sensation in New York at present. Can you tell me the nature of the fraud, for such a discovery is improbable? A. We are frank to say that we do not know to what this inquiry refers. We only know what comes under our notice. But when one wants information of this sort, it is a great assistance to us if he will inclose the clipping which has attracted his attention to the matter, or give as clear an account as he can of it. We receive a great many inquiries that are so indefinite as to be impossible of answer. We must make this one the basis for the request to all our esteemed friends to state their cases as fully and exactly as possible, and we will be as helpful as possible.

(7714) C. L. E. asks (1) why the gas generated from calcium carbide and water is called acetylene. A. The acetylenes are a series of compounds of carbon and hydrogen in which the hydrogen molecules are two less than twice as many as the carbon molecules, or algebraically the formula is  $C_nH_{2n-2}$ . There are several members of the acetylene series. The one which is used for lighting, and which is popularly called by the name of the series, has, in chemistry, the name ethine. 2. Why the name of X rays is given to the Roentgen rays. A. The name "X" was applied by Prof. Roentgen to the rays which he discovered, to denote their mysterious or unknown character. As every one knows, X is used in algebra for the quantity whose value is unknown or to be determined. Others have applied the professor's own name to these rays, and in time it is probable the name X will pass out of use, and Roentgen take its place.

(7715) W. W. P. asks how to connect Leyden jars whether in series or multiple. A. For experiments with a Leyden jar battery, connect the jars in multiple. To connect them in series each jar must be insulated from the earth. On discharging them you only get the effect of one jar. In multiple, the quantity of electricity is greater in proportion to the number of jars.

(7716) F. K. S. asks: Could you give me a formula for making a paste for mounting photos on glass (face next the glass), and directions for making same?

A. Gelatine.....	4 oz.
Water.....	16 "
Glycerine.....	1 "
Alcohol, 90 per cent.....	5 "

Swell the gelatine, use hot and avoid air bubbles.

(7717) J. I. asks how vibrations of 288,224,000,000,000 per second are measured. A. The number of vibrations per second performed by a wave motion such as that of light is not measured directly; but is determined by calculation. The wave length is first found, and the number of vibrations per second is then found by dividing the velocity of light by the wave length. This process is the same as finding the number of steps a person must take in walking a mile by measuring the length of one step and then dividing the mile by the length of one step. Your next question would