

RECENTLY PATENTED INVENTIONS.

Agricultural Implements.

CULTIVATOR.—DANIEL G. BURKHARDT, Dayton, Wash. By reason of the improved construction devised by this inventor, each of the ground or supporting wheels of the machine can be independently adjusted, so as to enable the driver to raise or lower the other end of the machine-frame or both ends simultaneously. The frame is light and simple and is constructed of wood or angle-steel.

REVOLVING SULKY HAY-RAKE.—AMOS R. BLACK, Parkdale, Colo. The rake is designed speedily and cleanly to rake heavy crops, damp hay, or green alfalfa. In connection with the wheels, a revolving sleeve is used, to which spring rake-teeth are secured, which are adapted to bear on the ground. Rigid, radial arms are fixed to the sleeve; and lever mechanism is adapted to bear on the arms, thereby temporarily increasing the pressure and tension upon the teeth in action.

COVER FOR HAYSTACKS.—SAMUEL G. RAYL, Tama, Iowa. This cover for haystacks is formed of separable sections provided with stringers projected beyond one of the sections and respectively running in the planes immediately adjoining the planes of the stringers of other sections and having lateral engagement with the stringers of the sections. The sections may be adjusted to form a cover of any size desired.

Engineering Improvements.

REVERSING-VALVE FOR ENGINES.—ALOYS HAFERKAMP, Dnieburg, Prussia, Germany. The method of regulating the speed and work of the reversing rolling-mill engine is imperfect, because the high-pressure steam cannot be utilized as much as possible by allowing it to expand. The present invention employs a sliding-valve with Allan's or Trick's channel and provides a second set of steam-ports in the valve-box or cylinder besides the usual first set. The first set admits high pressure steam to the cylinder when the engine is running as usual; while the second set serves to admit the steam to the cylinder on reversing the engine should the cranks be in an unfavorable position. The sliding valve works with either the first or the second set of steam-ports.

PIANO ACTION.—JOHN H. BELL, Lawrence, Kans. Heretofore the only yielding of the mechanism of a pianoforte action has been due to the slight condensation which takes place in the felt used at points of contact between the different parts. To avoid this objection, the inventor interposes a spring between any two parts of the action and transmits motion from one of the parts to the other. The spring improves the touch by making the action more pliable under pressure; the durability of the instrument is increased by preventing the severe shock which many parts are compelled to bear in the use of the old construction; and the tone is improved.

CUPEL-MACHINE.—ALBERT C. CALKINS, Los Angeles, Cal. In assaying by cupellation, the alloy of precious metal is placed in a shallow vessel made of bone ash and is heated in a current of air which oxidizes the lead and other impurities and allows them to be absorbed by the vessel of bone-ash. This machine is a new, practical device for rapidly compressing the bone-ash into the form of cupels and shallow vessels. The machine comprises a plunger jointed to a lever having two separate fulcrum-bearings, one of which comes into action during the first part of the stroke to give a powerful compression, and the other of which comes into action during the last part of the same stroke to discharge the compressed cupel.

RAISING OR LOWERING APPARATUS FOR MINES, ETC.—DAVID DAVY, Broomcroft, Parkhead, England. The invention comprises an elevator composed of a pair of endless chains having cages slung therefrom. Guides cause the cages to deviate from the plane of the chains and to assume a position midway between the ascending and descending members of the chains on reaching the landing stage at the top and bottom of the shaft. The cages hence remain for a sufficient period at the dead points of their motion to permit their being loaded and unloaded, although the chains continue in motion.

DRILL FORGING AND SHARPENING MACHINE.—WILLIAM J. EVANS, Butte, Mont. The device consists of two forming-dies composed of a tenoned block horizontally channeled across its working face, the back wall of the channel being sloped to widen it toward the rear end. A fuller projection is located on the lower edge of the working face of the die and has its upright face sloped from the rear forwardly. To renew the cutting edges it is necessary only to heat the drill-body and introduce it between the dies so as to enter two of the drill-wings in the channels. The reciprocation of all the dies spreads the wings at their free ends to normal width, and at the same time sharpens the dull edges. The drill is changed in position by rotation so as to bring all the wings successively into the channel.

Railway Appliances.

LOCOMOTIVE BOILER.—CORNELIUS VANDERBILT, Jr., Manhattan, New York city. It is the object of this invention not only to enable the boiler to resist the strain due to expansion and contraction, but also to provide a more effective heating surface so as to obtain a very rapid generation of steam. This end is attained by the use of a special fire-box cylindrical in cross-section and placed eccentrically in a fire-box section. The rim of the fire-box is transversely corrugated. The axis of the fire-box section is inclined to the horizontal to reduce the water-space below the fire-box line at the rear end of the box; and the forward end of the fire-box is submerged to a less extent than the rear end so as to increase the effective heating-surface and obtain the rapid generation of steam mentioned.

Miscellaneous Inventions.

SHOULDER-BRACES AND SUSPENDERS FOR STOCKINGS.—ELLEN ROUSE, 57 Lancaster Gate, London, W., England. These combined shoulder-braces and suspenders for stockings and other objects of children's and ladies' wearing apparel fulfil the function of a shoulder-brace calculated to promote an erect carriage without causing discomfort. The device is readily adjustable to suit figures of different degrees of fullness

and height and is capable of yielding to all movements of the body.

GAUZE-CARRIER.—CLINTON TYNG COOKE, Hutchinson, Minn. The inventor has devised an instrument especially designed for introducing gauze into cavities of the human body for the purpose of drawing away fluids contained therein. The instrument will rapidly, firmly, and in many cases painlessly pack gauze into cavities and wounds in such a manner that the gauze will not come into contact with the superficial walls of the cavity until it reaches the desired point. The gauze is thus introduced aseptically.

TEMPER-SCREW.—JAMES J. DAVIN, Washington, Pa. The invention avoids the necessity of the set-screw generally passed through the clamping-socket as the only means of holding the rope or cable while drilling oil-wells. The swivel-bar is directly linked to the C-socket or clamp-socket, and the rope-clamp is independently connected with the swivel-bar. The clamps are so fitted in the socket that they will be secured against lateral movement and may be quickly placed in position in the socket or removed therefrom.

TEMPORARY ACCOUNT-BOOK.—ROBERT W. HAMILTON, San Diego, Cal. The book is designed to receive loose account-slips or the like in alphabetical order so that they may be readily found at the end of a month when the ledger is made up. The book comprises main and auxiliary leaves. The auxiliary leaves properly indexed serve to subdivide the alphabetical index so that the account-slips of different persons whose surnames begin with the same letter can be separated as much as possible.

FOLDING-SEAT.—HENRY S. KIDD and MICHAEL H. DEPUE, Washington, N. J. This invention consists of a small, light seat provided with rockers and so constructed as to be readily folded and packed in a small space. The legs of the seat are somewhat S-shaped and are disposed in pairs, the legs of each pair crossing at approximately right angles and being pivoted and locked together. A rung at the pivotal points connects the pairs of legs. The legs are also fastened together by two cross-pieces from which the canvas seat is stretched. A folding detachable back, suitably braced, forms part of the seat, and may be thrown into or out of use.

APPARATUS FOR EXTRACTING PRECIOUS METALS FROM ROCK, SAND, ETC.—JAMES F. LATIMER, Toronto, Canada. The apparatus consists of a receiver having a hopper bottom provided with a valved outlet and a valved inlet. Mounted on the receiver and having a contracted opening in its top, is a cylinder provided with two outlets and one inlet. Water admitted through the inlet rises through the narrow opening in the bottom of the cylinder and passes out through the outlets carrying off the lighter impurities and scum at the top and the heavier ones at the bottom, while the gold or other ore falls into the hopper of the receiver.

SANITARY ATTACHMENT FOR TELEPHONE TRANSMITTERS.—WILLIAM LENDEROTH, Manhattan, New York city. This simple invention consists of a wire frame having a ring and bent arms which clamp it on the front of an ordinary conical transmitter. Three wires project forward from the ring forming a cage in which is inserted a temporary paper cone which may be removed and destroyed after the telephone has been used.

LAMP-CHIMNEY AND MEANS FOR SUPPORTING SAME.—ALBERT S. NEWBY, Kansas City, Mo. The invention, which is intended for lamps with incandescent mantles consists in surrounding the burner with an asbestos band having indentations in the bottom of the chimney where it contacts with the asbestos. By this arrangement the chimney is held firmly on the burner and is not liable to break from contact with the heated metal, while the descending rays of light are not obstructed, as in the usual burner.

CALENDAR ATTACHMENT FOR PENHOLDERS OR PENCIL-CASES.—GEORGE N. VITANOFF, Sophia, Bulgaria. The invention consists of a circular metallic case that can be slipped on the end of a pen or pencil, in which case are three drums on which are marked the day of the week, date, and month. The drums are rotated by turning serrated disks. A fourth drum carries a tape on which is printed a miniature calendar.

STRINGED MUSICAL INSTRUMENT.—FRANK L. PATCH, Phillipsdale, R. I. The instrument has a flat pear-shaped body and a hollow handle with a finger-board on its face fitted with the usual string-tightening keys. A U-shaped knee-rest is attached to the bottom and a hand-rest is placed beside the strings at the bridge, which projects slightly over the opening in the body. A set of springs on the bottom of the bridge project a short distance parallel to the strings and carry on their ends a transverse-rod provided with small balls. By tilting the instrument properly, the balls are brought into contact with the strings and give a tremolo effect. By making the handle hollow, the vibrating power of the instrument is greatly increased.

FIRE-ESCAPE.—THOMAS J. NICHOLS and HARRY N. TENNILLE, Manchester, Va. The apparatus consists of a circular car tapering beneath a flooring. In the conical bottom thus formed is placed a small windlass upon which a rope is wound. The end of the rope passes over a pulley on a bracket fastened to the building and is secured to the floor of the car. One end of the windlass drum is provided with notches in which a holding-dog may engage, and an automatic brake-shoe also operates on the drum. The descent is made by pressing a button in the floor with the foot. The brake can be regulated by the pressure on the button.

ADVERTISING-APPARATUS.—JAMES C. POWELL, 299 Eighth Avenue, Manhattan, New York city. The object of this invention is the displaying of a series of advertising sheets at stated intervals. The invention consists of a square operating-shaft hung horizontally at the top of the frame and driven by a clock-train. An endless apron consisting of slats suspended from the operating-shaft carries a series of advertising banners connected at their ends so as to form an endless belt around the apron, and flexible connections are provided between the middle of the banners and the apron, so that the banner, when displayed, drops suddenly into view.

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Notes & Queries

HINTS TO CORRESPONDENTS.

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(7764) N. E. R. asks: Can you furnish any papers on the construction of accumulators or storage batteries for 110 volt incandescent lighting? A. No different accumulator is required for this purpose, only a larger number of cells, and, if the surface is for a long time between charging, a larger size of cell. A practical storage cell was described in SUPPLEMENT, No. 1195, price 10 cents. We do not however recommend amateurs to undertake to build a storage battery for the sake of saving money. It is probably cheaper and certainly better to buy from regular dealers a well-made battery.

(7765) F. A. M. asks: 1. How can I coat the iron tip of a circuit breaker that dips in mercury cup with mercury? A. Try rubbing the clean bright iron with bichromate battery solution, at the same time applying the mercury. Better replace your iron contacts with platinum, and the trouble will disappear. 2. What book have you on alternate currents that deals with its relation to impedance and capacity in series and parallel? A. The best book for a beginner in electric science to read is Thompson's "Elementary Lessons in Electricity and Magnetism." Price \$1.40 by mail. 3. Also, what work of reference on chemistry, organic and inorganic, do you recommend? A. We recommend and can supply Bloxam's "Chemistry, Organic and Inorganic. With Experiments." Price \$4.50 post paid.

(7766) C. B. asks for the plans of a 1 horse power motor to be run on a 500 volt current. A. We have no plans for the motor you describe. Such machines present special difficulties in construction, with the insulation, for example, so that they are beyond the resources of the ordinary amateur. We should not advise the attempt to construct one, except in a well-equipped electrical shop, in which place our plans would not be needed.

(7767) C. L. W. asks: Have the phrases "as many again," and "twice as many" the same or different meanings? A. These two phrases have exactly the same meaning, as a reference to any dictionary will show.

(7768) J. P. S. asks: What is the highest practical speed at which a one horse power gas (or oil) engine may be run? To obtain one effective horse power at above speed, what size cylinder and length of stroke must be used? Also to what per cent should compression be carried? One explosion every two revolutions. Would it be necessary to use a water jacket on cylinder, or will corrugations exposed to air be sufficient for cooling? What will be the approximate average pressure, using gasoline for the explosive mixture? A. All speeds up to 1,000 r. p. m. have been claimed by makers and operators of explosive motors. The higher speeds may have been realized when the motors are running light or not doing work; 300 to 500 revolutions per minute is our experience with such motors doing normal work with compression about 40 pounds per square inch. The size of cylinder varies greatly according to the required speed; say from 4x5 inches to 5x6 inches. Water jackets have been dispensed with where air can be utilized over ribs on the cylinder for increasing the surface, mostly for vehicles. An average pressure of from 40 to 60 pounds may be realized by the proper vaporization and air mixture.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Issued for the Week Ending NOVEMBER 21, 1899.

AND EACH BEARING THAT DATE.

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

Table listing various inventions and their patent numbers, including items like 'Advertising hitching post, Coleman & Ritchey', 'Air and utilization thereof, compression of, Pettie & McCutchan', 'Air brake, J. J. Nef', 'Air cooling device, T. H. Gore', etc.

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