

RECENTLY PATENTED INVENTIONS.

Engineering.

POWER DEVICE FOR PUMPING WELLS.

—Joseph J. Kwis, Findlay, Ohio. According to the novel construction provided by this invention, a practically direct connection can be made between the engine or other motor used and the mechanism employed for operating the surface rods in oil pumping machinery, the motion being so communicated through the driving wheel as to prevent any twisting strain whatever on the shafts. The device is compact, durable and inexpensive, and may, if necessary, be secured to a single timber, dispensing with a built-up foundation.

Mechanical.

PIPE WRENCH.—Edward B. Charlet,

Kewanee, Ill. This wrench has a slightly curved, toothed forward end, and in an opening in the rear of the curved toothed portion is pivoted a hook-shaped jaw, having teeth to operate in conjunction with teeth on the stock. In a notch in the stock is held the rear end of a spring whose forward end bears against the back of the hook-shaped jaw, to throw it into engagement with a pipe or other article to be gripped, a sleeve holding the spring in position, and the tension of the spring being increased by slipping the sleeve forward.

Agricultural.

CULTIVATOR.—George McDougall, Cedar

Junction, Kansas. For the cultivation especially of listed corn, this cultivator is made with parallel runners connected by arches, above which is the driver's seat, the rear end of each runner being inclined inwardly and carrying upon a spindle a cultivator disk. By means of levers which extend up within convenient reach of the driver the cultivator disks may be brought to any desired angle to the row of corn under cultivation, and locked in such position, causing the dirt to be heaped up to a greater or less extent around the roots. Arms extend outwardly from the runners to smooth the ridges between rows.

DISK PULVERIZER.—David Harper,

Scott County (Post Office, Neelyville, Morgan County), Ill. Upon a pair of axes supporting a main frame, according to this invention, is mounted a front and a rear series of rotating disks or pulverizers, the series on each axle being adapted to be moved to an adjusted position in unison, and the series on one axle being held for movement independently of the series on the opposing axle, by means of operating levers which extend up through the platform in convenient reach of the driver. All of the disks on the rear shaft may, if desired, be set crosswise to the right or left, and held to such position by pawl and rack devices on the lever, the cultivator being designed to leave the ground in proper condition for the harrow after the first cut.

Miscellaneous.

MECHANICAL CALCULATOR.—Robert

Duncan, Knoxville, Tenn. This is a device more especially designed to facilitate computing the charge to be made for a guest at a hotel, without mental figuring, and it may also be used for ascertaining amounts due workmen, or, with slight changes, for computing interest, etc. It comprises a casing in which are mounted a calendar and cost price disk and a rotary rate disk. Four separate divisions of the day are noted for computing the cost from the time of entry to the departure of a guest, the clerk then simply moving the disks to correspond thereto, and finding in a properly marked division the total sum due, indicating the amount of the bill.

TALLY SHEET.—Herbert L. Baker,

White Castle, La. For books having tally sheets used by lumbermen this invention provides an improved sheet arranged to permit of readily writing the tally marks in the proper spaces, and to indicate at a glance the total number of feet in any number of pieces of lumber. The sheet has a head line of figures to show the number of pieces tallied on each line, a column of figures to show the amount of each piece tallied, and spaces for receiving the tally marks, whereby the lumberman can conveniently keep tally on the sheet at the proper place and at the same time instantly read the total amount in feet.

SECTION LINER FOR PARALLEL

RULERS.—John C. Richardson, Middlesborough, Ky. An attachment enabling the user of a parallel ruler to conveniently and rapidly draw with the ruler sectional lines equally spaced apart forms the subject of a patent issued to this inventor. An arm slidably and adjustably held on one member of the ruler has its other end projecting over the other member, the projecting end being provided with a foot adapted to engage a stop pin on the member over which the free end of the arm projects.

MUSICAL INSTRUMENT.—Benjamin

McLanchlin, Boston, Mass. This invention is for an improvement in instruments of the banjo, guitar, mandolin and violin type, whereby may be obtained a tone of greater volume and purer quality, while also affording convenient means for raising and lowering the pitch of the instrument after the strings have been tuned. It consists principally in the employment of a resonator, located in the body of the instrument, its upper surface being adapted to engage the bridge, and it being engaged by an adjusting screw, whereby the resonator may be moved to and from the bridge to increase or decrease the resonant qualities of the instrument, and raise or lower or change the key or pitch, without necessitating the manipulation of the keys. The invention also provides a novel arrangement of the bridge.

FRAMING FOR FURNITURE.—John C.

Horn, Chicago, Ill. In the construction of such articles as desks, bureaus, chiffoniers, etc., this invention provides for their framing by means of corner posts having dovetail slots, longitudinal bars and locking bars having tenons on their ends, etc., in such manner that the

furniture may be put together without using glued joints for holding the parts, and so that it may be shipped in knock-down form without liability to marring the finish, and readily put together without any special skill. The construction is such that all the work of preparing the parts may be done by machinery, thus making such furniture comparatively inexpensive, while it is of less weight than ordinary furniture.

KNIFE GUARD.—Frank W. Waite and

William D. Broadwell, Petersburg, Va. This is a device adapted to be applied on the cutting edge of a knife and held there by spring tongues, to limit the depth of cut, thus adapting a portion of the blade to the especial purpose of removing the rind or skin from fruits or vegetables and absolutely preventing this portion of the blade from cutting into the article being prepared, although leaving the greater portion of the blade available for slicing, cutting, etc. The device is simple and inexpensive and readily applied or removed from the blade.

CURRYCOMB AND BRUSH.—Martin V.

B. Gr. Grey, Moscow, Ky. This is a combination implement adapted to be used separately or together, the brush being hinged to the comb and adapted to be folded back thereon with its back toward the back of the comb, or to be turned down to have the same face with the comb, there being means for fastening the brush in either of these positions. It is evident that when the comb and brush are fastened in line with one another the horse is both combed and brushed by each single stroke. Springs connect the currycomb with the handle frame, and its teeth thus become somewhat yielding, as are the bristles of the brush.

CARRIAGE CALL.—John A. Kunkel,

New York City. The noise and confusion usually attendant upon the calling of carriages when theaters are out or the opera is over, or after a numerously attended reception, often amount to a very serious annoyance, and to obviate this difficulty is the object of this invention. In a casing with guideways are placed multiple series of transparent plates, each carrying a numeral, and means are provided whereby, on simply pulling a cord, the attendant may elevate any desired numeral designation so that it may be seen by everyone in the vicinity, the range of the device covering any designation from 1 to 999, and thus taking in the number of any carriage it may be desired to call.

BALE BAND TIGHTENER.—John L.

Duval, Houston, Texas. To permit the operator to conveniently place the bands in position and fasten the ends together after the bale is pressed, this invention provides for the use of platens, each having grooves or recesses for the bands, while spring-pressed bars extend between the grooves or recesses and beyond the face of the platen, serving as guides for the bands and a support for the bale before it is compressed, the bars receding into recesses in the platen when pressure is brought to bear on the latter.

NON-REFILLABLE BOTTLE. Louis J.

A. Fernandes, New York City. This bottle is made entirely of glass, and has a valve, so arranged that the contents of the bottle may be poured out, but the bottle cannot be again refilled for use as an original package. Within the neck is a valve cage, and an upper extension of the neck, in which the cork is placed, is fitted on and held in position by a suitable cement, after the bottle is filled. A spring presses the valve to closed position when the bottle is held upright or in horizontal position, but, when the bottle is tipped farther over, the spring yields to allow the valve to open and the liquid to flow out.

DISTILLING APPARATUS.—Jose Galle-

gos, Antigua, Guatemala. This invention provides means whereby the pressure within the apparatus will be kept practically constant, by connection with an expansion chamber whose capacity is regulated by a counterweight, thus preventing any excessive pressure that might burst the apparatus. Any loss of vapors of the substance under distillation is also most effectively provided against.

NOTE.—Copies of any of the above patents will be furnished by Munn & Co. for 10 cents each. Please send name of the patentee, title of invention, and date of this paper.

NEW BOOKS, ETC.

ELECTRIC SMELTING AND REFINING.

By Dr. W. Borchers and Walter G. McMillan. Philadelphia: J. B. Lippincott Company. Pp. 415. Price \$6 50.

The "Elektro-Metallurgie" of Dr. Borchers has been for quite a period a leading authority upon the subject with German engineers, and this volume is a new edition of this work, translated and with additions by Mr. McMillan, lecturer on metallurgy in Mason College, Birmingham. The author has had twelve years' practical work in chemical and metallurgical industries, and treats of all those metals in whose extraction and working the electric current has found any application, excluding, however, electrolytic analysis and electroplating. To each chapter is also added a short survey of the purely metallurgical methods of treating the metals, so that the reader may compare such processes with the electrochemical processes. All of the descriptions are brought down to include the most recent developments in the art, enough being stated under each of the various metals, separately, to give a good general idea of the present industrial position of that branch of the subject.

Modes of Motion; or, Mechanical

Conceptions of Physical Phenomena. By A. E. Dolbear. Boston. Pp. 119. Price 75 cents.

The professor of physics at Tufts College endeavors, in this little volume, to make it clear how one kind of energy is converted into another kind, and the conditions needed for transforming it. Electrical and magnetic phenomena are presented as depending upon simple mechanical conditions, and a chapter is given to luminous ether.

Business and Personal.

The charge for insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in the following week's issue.

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- The celebrated "Hornsbv-Akroyd" Patent Safety Oil Engine is built by the De La Vergne Refrigerating Machine Company. Foot of East 138th Street, New York.
- The best book for electricians and beginners in electricity is "Experimental Science," by Geo. M. Hopkins. By mail, \$4. Munn & Co., publishers, 361 Broadway, N. Y.
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Notes & 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. 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.

(7221) W. A. P. asks: 1. What is water hammer and its causes? A. Water hammer in pipes is caused by the surging of the water in partially filled steam or water pipes. In steam or return pipes in heating apparatus air or steam may be lodged in places along horizontal pipes, separating portions of water, which, by the natural condition of moving water, produces wave motion and impact upon the inner surface of the pipe. In water pipes the presence of air in horizontal pipes produces the same action as in heating pipes. The absence of air in the water pipes of a house near the bibbs causes water ram by the sudden closing of a bibb, due to the arrest of the momentum in the long column of water in motion. The air chambers in plumbing work act as a cushion. 2. How can the true water level in a boiler be told when it is foaming, and what is the best thing to do when you find that the boiler is foaming? A. The water level may be judged from the mean of the water surge in the water gage. If gage cocks only are used, the approximate water level may be judged from the manner of opening the gage cocks. By slightly opening the gage cocks one after the other, you may obtain clear steam from the upper gage, a drizzle of water and steam from the middle gage and more solid water from the lower gage, when the mean height between the middle and lower gage, with variations suitable to high or low water. A boiler may foam from excessive use of steam or from foul water, want of cleaning, etc. An engineer should always be able to judge whether the boiler is too small for its work or whether dirty water and want of cleaning is the cause of foaming.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

OCTOBER 12, 1897,

AND EACH BEARING THAT DATE.

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