

## ENGINEERING INVENTION.

A practical improvement for traction engines has been patented by Mr. Benj. S. Benson, of Baltimore, Md. This invention relates to a combined differential gear and friction clutch designed so that power may be transmitted from a single shaft independently to two sets of wheels at different speeds, and also so that power may be applied with a gradual strain instead of with a sudden jerk.

## MECHANICAL INVENTIONS.

An improved type writing machine has been patented by Mr. A. G. Leming, of Waldron, Ark., the object being a more rapid manipulation of the type writer, and more exactness in its results. This is accomplished by absolutely exact mechanism without the adventitious aid of springs.

Mr. Alex. D. Clarke, of New York city, has obtained a patent for an ore concentrator, an improvement upon a patent granted to same inventor No. 276,775. This invention provides a new device for concentrating ore in placer mining, for washing out and separating the particles of gold and silver from the sand.

Mr. John Creagan, of Cleveland, O., has patented a machine for setting springs which is an improvement on a patent granted to Messrs. Creagan and Tyler in May, 1882. The present invention consists in certain improvements in the parts of the machine, whereby the working of the machine will be practically ameliorated.

A baling press, for cotton or hay, or other bulky substances, has been perfected by Mr. John S. Davis, of Frankfort, Ky., which will compress fibrous material by lever power, an ingenious combination of levers crowding it into a small compass. The object is to use light power—manual or animal—extending through a longer time than that of steam, which concentrates manual power in a short time, but giving out a large amount of useful force.

An improved safety stop for elevators has recently been patented by Mr. Eusebio Salom, of New Orleans, La. Perforated plates and horizontal pins are connected with the guides of the elevator, and the top cross beam of the elevator car is provided with safety hooks which are designed to fall by gravity and engage with these pins, in case the supporting cable with which the gravity hooks are connected becomes ruptured from any cause.

An improvement in circular saws has been patented by Mr. Geo. W. Stinebring, of Shreve, O. This invention consists in making the teeth, which are removable, in the form of a segment of a circle, and in making them concentric, both on the front and back edge, and further in preparing the notches of the saw in which they fit with serrations, to hold the teeth in any position in which they may be shifted to set them to the original gauge after they have been shortened by wear.

Mr. William H. Sterns, of Humboldt, Neb., has invented an improved churn, the object being to improve and simplify the construction of swing body churns in a manner to secure their more perfect balance in action and greater convenience in adjustment and operation. The invention consists in banging the churn body in a yoke or frame suspended from the main frame of the churn, and in the arrangement with the yoke frame for the churn body of an open sided or bent yoke or bar, the axis of rotation of the latter, to cause a movement of the churn body in a circular horizontal orbit as the open yoke swings or rotates to the opposite side to balance the momentum of the churn body, the open yoke acting as a counterpoise.

An improved fastener for the meeting rails of sashes has been patented by Mr. William H. Bayles, of Montclair, N. J. The object of this invention is to provide convenient and reliable means for fastening window sashes, and the invention consists in a window sash fastening constructed with two plates hinged to each other and provided with an interposed spring, and having a catch attached to one plate, and a latch hinged to the other plate, so that the latch plate will swing up when the latch is raised, and will be fastened automatically when swung down. The same inventor has also obtained a patent for a device for locking window sashes to prevent their being opened from without, and the invention consists in a window sash fastening constructed with two plates hinged to each other by a pin, and provided with a spring arranged to close the said plates, and with a pivoted button arranged to hold them open, so that the fastening will hold the sashes securely and can be readily fastened and unfastened.

## AGRICULTURAL INVENTIONS.

Mr. Geo. W. Stacy, of Marietta, Miss., has patented an improved straddle row cultivator, which cultivator is so constructed, however, that it may be used also as a mid row cultivator, or to cut up the roots of small sprouts, briars, etc.

Letters patent have been granted to Mr. Eugene W. Vest, of Sedalia, Mo., for an improved seed planter. This machine, besides being built and constructed in a manner rendering it highly practical and efficient for the work for which it is intended, is provided with an improvement by means of which the depth of the furrow and drill may be readily controlled by the weight of the machine.

## MISCELLANEOUS INVENTIONS.

Mr. Samuel Wilde, of Williams, Cal., has patented a heel for boots and shoes. This heel consists in a seamless shell of sole leather filled with waste scraps mixed with glue and pressed into the shell. The heel is to be attached to the insole of the boot or shoe by means of the ordinary nails or pegs.

Mr. H. Molendo, of New York city, has patented a device for furnishing a supply of water in buildings for extinguishing fires by an automatic pump, driven, either by a located steam engine, or by the weight of water from an elevated tank supplied from a

regular source; the peculiarities of the device being the handy means of admitting the outflow of water to any one or all of the floors at will.

Mr. John Weller, of Griggsville, Ill., has invented a new and improved road cart, the invention consisting of an improved arrangement of springs for mounting the seat on the cart, which is designed to be better adapted to neutralize the swing of the shafts by the horse than other arrangements; and the invention also consists of a spring contrivance for connecting the whiffletree to the shafts, to neutralize the jerks of the horse in pulling the cart.

Mr. Isaac W. Stemen, of Elida, O., has invented a new and improved railroad signal which consists in a revolving signal of targets by day and lamps by night, set on the top of the caboose or other hind car, and geared by belts and pulleys with one of the axles of the car truck, so that the direction of their rotation will show which way the train is running, and their velocity will indicate the speed of the train, and being at rest will show that the train is standing.

A combined folding table and cupboard has recently been patented, which consists in a lower frame provided with drawers which may serve as a bureau, and with a space above the drawers into which the extension table may be folded. On top of this frame is arranged a case provided with shelves upon which books or table utensils may be deposited. The inventor of this device is Mr. Joseph H. Bartine, of Etta, Mo.

Mr. Charles A. Barnes, of West Liberty, Ia., has obtained a patent for an improved tile laying machine. This device is provided with a mould and cutters for cutting away the sides and bottom of the ditch, and the mould board is provided for raising out the cut slice, and grooving the bottom of the ditch, while the tile laying attachment follows the mould board and lays the tiles in the ditch before the earth is permitted to cave in.

Mr. George W. Bowen, of Fort Wayne, Ind., has patented an improved horseshoe. This invention consists of a horseshoe gradually decreasing in thickness from toe to heel, the taper being on its under face, and provided with a continuous calk extending from heel to heel along the outer edge of the bottom of the shoe, and made integral therewith, this calk being flared outwardly to form an enlarged bearing for the foot of a horse.

Mr. P. F. Dean, of Watsonville, Cal., has patented an improvement in the seats for dog carts and sulky wagons to prevent the up and down jolt of the seat dependent on the movement of the horse. The device is the support of the seat on the arms of a semi-rotating vertical crank by means of a suitable arm. The device has also a swivel attachment by which the seat may be turned to the side of the wagon for convenience in getting in and out.

Mr. Herbert W. Kibbe, of Utica, N. Y., has patented a perpetual calendar of convenient form that may be made of sheet metal and of so diminutive a size as to be carried in the vest pocket. It is intended not only as a current weekly and monthly calendar, but as a means of forecasting the days of the week and month, and also of determining the exact date of those which have gone. It requires no mental or written calculation, a merely mechanical operation of turning a disk being sufficient.

Mr. Jacob Coover, of Chambersburg, Pa., has invented improvements in burial vaults to be formed in the bottom or lower part of graves, and the invention has for its object to provide a strong, durable, water tight, and cheap vault, and one which will take up little space and can readily be put in place. The invention consists, principally, of supports having shoulders and lips adapted to support and hold in place the coffin lid. The design is to protect the coffin from the superincumbent weight of earth, and to defend the coffin from desecration.

An intrenching implement for military use, consisting in a combined pick and spade, has been patented by Mr. N. Willoughby Wallace, of 3 Harley Place, Clifton, County of Gloucester, England. The handle of the spade is provided with a cross head in the form of a pick, which is sheathed and pointed with steel to enable it to be used for the purposes of a pick, while the shank and blade are of such form as to enable the implement to be conveniently used either as a pick or as a spade, and to be carried with ease as a part of a soldier's accoutrement.

A hand clothes washer has been patented by Mr. Isaac T. Greene, of Milford, Conn., the design of which is to spare the hands of the washerwoman, and to facilitate the cleansing of clothes by rubbing on the ordinary corrugated washboard. The inventor uses a holder—a small box suitably constructed—which contains a receptacle for soap with a perforated bottom, and under the bottom of which is a series of rollers. By this means the hands need not come in contact with the corrugations of the washboard, nor be exposed continually to the alkali of the soap.

A neat folding book for the reception of hats, bonnets, bundles, or any light articles is patented by Messrs. August Wode and Joseph Miffhin, Jr., of Jersey City, N. J., that is intended primarily for theater and concert room seats, but may also be adapted to other purposes where a protruding book may be in the way when not in actual use. The book is hinged under the seat or shelf, so as to fold up against the under side of the seat when not being used, and can be swiveled out and back, being held in any position by the action of a spring on a nangular projection at the rear of the book.

Mr. Albert R. Yount, of Yountsville, Ind., has invented a new and improved fire escape which relates to that class of fire escapes in which the persons are suspended by means of a rope or cable wound around a drum provided with a governor to regulate the speed. In connection with this invention a drum is mounted loosely on a shaft connected with a governor, regulating the speed, which drum is integral with another drum of less dimensions. On each drum a rope or ca-

ble is wound, said ropes being wound in opposite directions, so that when one is unwound the other is wound up, thus permitting the same escape cable to be used consecutively by any number of persons.

A very convenient adjunct to a step ladder to facilitate the depositing of fruit taken from the tree, either upon the ground or into a wagon or cart, has been patented by Mr. D. Van Trump, of Norborne, Mo. At one side of the ladder is arranged a slide way with a bucket connected with it in such a way, that it may be slid up and down by means of a windlass located at the top of the slide way convenient to the fruit gatherer. A wing is likewise connected with the upper end of the ladder, to enable the person picking the fruit to walk partly around the tree and pick more fruit without changing the position of the ladder than would otherwise be possible.

Some improvements relating to mechanical telephones have recently been patented by Mr. Harvey E. Huston, of Monticello, Ill. In this improvement the inventor has endeavored to provide an instrument in which the sounds will be reproduced more clearly and loudly than heretofore. The invention consists in forming the diaphragm of layers of metal or some fibrous material, and of providing a mouthpiece for the transmitter, so that the whole sound will act without obstruction upon the diaphragm. The invention further consists in forming the wire with strips of wire surrounded with rubber or fabric, and in providing a suitable insulator or support to prevent the vibrations being transmitted to the ground.

Mr. Stephen N. Howard, of Eatonton, Ga., has invented a poke for horses, mules, and other pastured animals that is intended to repress and render abortive their attempts at uplifting gates and loosening fence rails, while not hindering them from grazing. To a head stall, the check pieces of which are metallic straps, there is pivoted a forked bar extending in a single bar beyond the nose, to which is attached by a slide a weight, which may be adjusted as required by the strength of the animal. This projecting bar moves freely in an upward direction, but is made rigid and in line with the animal's nose, by means of rests in the head stall, as soon as the animal attempts to operate on fences by raising his head and "throwing" by the nose or the horns.

Mr. Richard Christie, of Truro, Nova Scotia, Dominion of Canada, has invented a new and improved fire escape, the object of which is to improve that class of fire escapes in which a car is guided on stretched cables and suspended by a rope passing over a pulley and down to a windlass. Two or more chains or cables are united by rounds forming a ladder. One end of the ladder is secured to the roof of the building, or is passed over the roof of the building and held securely on the ground, and the other end of the ladder is secured to a winch on the ground, by means of which winch the ladder can be drawn as taut as may be necessary. A car of sheet iron or wire net may be sent up by the winch, on a supplementary line, provided with a hook to engage with the principal cable and be lowered by means of a guide plate on the principal cable.

## NEW BOOKS AND PUBLICATIONS.

AMERICAN NEWSPAPER ANNUAL. N. W. Ayer & Son, Philadelphia, Pa.

The publishers of this volume claim to give a list of all the newspapers of the United States and Canada, together with information regarding their circulation, date of establishment, distinctive features, advertising rates, and the population of the cities and towns in which they are published. In the first half of the book the States are grouped geographically, and the cities and towns alphabetically; in the other half the States are similarly arranged, but the counties are given alphabetically. The location, natural features, and the chief products form a part of the explanations. The publishers aimed to place at the disposal of the advertiser all the information he might need, and they have collected and conveniently arranged a mass of useful material. The characteristics of any section of the country, and its probable value to those seeking business, may be obtained at a glance.

ELECTRICITY AND ITS USES. By J. Munro. Illustrated by eighty-four engravings. The Religious Tract Society, London, England.

The author's object is to give the general reader some account of the many new applications of the electric current, avoiding minute details and technical terms. The first three chapters are devoted to frictional, or static electricity, voltaic and thermo piles, and induction, the latter subject being concisely and accurately treated and its importance in the practical uses of electricity pointed out. The remaining chapters are taken up with land and submarine telegraphy, the telephone and microphone, the photophone and telephotograph, the induction balance, dynamo electric machines, the electric light, power, and heat. While the principles of the dynamo and of the arc and incandescent lights are generally explained, the author's lack of space prevented anything but a running account of their various modifications. The same remark applies to the other divisions of the book.

MANUAL OF THE RAILROADS OF THE UNITED STATES FOR 1883. By Henry V. Poor. H. V. and H. W. Poor, publishers, 70 Wall Street, New York. Effingham Wilson, Royal Exchange, London.

This is a complete compendium of the railroads of the United States, giving their routes, lengths, debts, bonds, stocks, values, equipments, and an official showing of their financial condition. The scope of the book comprehends all the railroads in the States and Territories, with their foreign connections, and the accompanying maps delineate the routes and show the salient points on the roads. The volume is quite bulky, containing 1,055 pages, and is intended for office use and desk reference. It is quite exhaustive in its details of information.

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