

## ENGINEERING INVENTIONS.

An electric railway signal has been patented by Mr. Joseph McMasters Scott, of Allegheny, Pa. The invention consists of an electric circuit connecting the central office and the signal box, and of a signal block, which when moved alternately opens and closes the main line circuit, making a block signal which the operator cannot change without notifying the central office.

A frame for power drilling machines has been patented by Mr. John S. Wallace, of Nelsonville, Ohio. It has a cylinder with apertures near one end, an inlet pipe with a valve, and a pawl pivoted on one end of the cylinder, in combination with a piston operating in the cylinder and carrying rack teeth engaged by the pawl, with other details, making a frame especially adapted for quick adjustment in mines.

## AGRICULTURAL INVENTIONS.

A combined cotton chopper and cultivator has been patented by Charlie L. Ferriotti, of Armour, Texas. It is constructed in such a manner as to bar off the rows of plants, chop the plants to a stand, and dirt the standing plants, at one passage along the rows, the construction being simple and the machine being easily controlled.

A listing cultivator has been patented by Mr. William R. Wilson, of Waterville, Kansas. It can be attached to any ordinary cultivator, and is designed to level the ridge between the rows and work the dirt gradually to the corn without injuring it, leaving the ground level, so that it can be worked as easily as planted corn with an ordinary cultivator.

## MISCELLANEOUS INVENTIONS.

A fence machine has been patented by Mr. George W. Williams, of Economy, Ind. This invention covers a novel form of tension device, and a peculiar twisting device, for cheap, durable, and efficient fence building.

A machine for making veneer dishes has been patented by Messrs. Charles H. Treat and Andrew B. Banghart, of Georgetown, Del. This invention covers a novel construction, combination, and arrangement of parts in a machine designed to saw out the veneer disks and form the dishes in a continuous operation.

A dispensing apparatus for soda and mineral waters has been patented by Mr. George A. Hearn, Jr., of New York City. Combined with a decorative counter, which is itself a refrigerator, are the necessary coils, connections, ice and sirup jars, with self-measuring distributors, a suitable ice cream repository, and other novel features.

A photographic camera has been patented by Mr. William H. Lewis, of Brooklyn, N. Y. The invention covers novel means for focusing and indicating the focus in connection with a sliding ground glass and plate holder carrier and a lens or lens tube, which has or may have a fixed position, with other new and useful features.

A garment supporter has been patented by Mariana T. Jones, of Boston, Mass. It consists of an upper garment supporter loop provided with a spring strip or loop, the object being to provide means whereby the upper loop, usually caught upon the button of the waistband, will be held to the button and prevented from accidental displacement.

A bathing stove has been patented by Mr. Gustav Boegler, of Karlsruhe, Baden, Germany. The invention consists of a boiler mounted above the fireplace and provided with a central conical compartment, having a downwardly extending flue with water circulating pipes, making an improved stove for heating water as well as rooms.

A riveting machine has been patented by Mr. John S. Snedeker, of New York City. It consists of a vertically sliding tool holder carrying the tool, and an adjustable rivet block having a seat for the head of a rivet, the machine being specially adapted for riveting the ends of hoop iron together without first punching a hole.

A churn dasher has been patented by Mr. Martin O. Dolson, of Wichita, Kan. The dasher rod has screw wheels so arranged that they revolve in opposite directions when forced up and down through the cream, making a dasher which is simple and inexpensive, and which may be easily taken apart for cleaning.

An artificial tooth crown has been patented by Mr. George A. Colomb, of Convent, La. It is composed of an outer composition shell and an incorporated hollow metal structure, making a tooth crown of novel construction, to be inserted on the roots of natural teeth, which it is designed to seal up and protect from decay.

A motor has been patented by Mr. Josiah P. Watson, of Leesburg, Texas. It is designed as a cheap and efficient churn power to be used in connection with the ordinary form of vertically reciprocating dasher churn, and the invention covers various novel features of construction and arrangement of parts.

A key for stringed instruments has been patented by Mr. Hiram W. White, of Yankton, Dakota Ter. A shaft is mounted to have a sliding movement in its bearings and carrying a loosely mounted pinion, with means to effect the coupling of the pinion, a worm gearing with the pinion and having its shaft supported in open-ended sockets of brackets.

An animal exterminator has been patented by Mr. William H. Leininger, of Salem, Oregon. The invention consists essentially of two cylinders, one arranged to fit over the other, and with a valve of novel construction, making a convenient device for forcing a volume of smoke within the burrows of squirrels and other animals.

An animal trap guard has been patented by Mr. William R. McCracken, of Brady, Ohio. Combined with the toothed jaws are guards of less width than the jaws, and extending above and in alignment with them, whereby an open space is left between the guards over the teeth of the jaws, to prevent animals caught in the trap from gnawing themselves loose.

A box for holding ruffling has been patented by Mr. Abraham H. Engel, of New York City. It is a simply constructed receptacle, designed for shopkeepers' use, and is so made that the goods may be held therein and advantageously exhibited and measured off to customers without exposing or handling the whole piece or length of goods.

An egg preserving compound has been patented by Nils Colling Jurgens, of Clifton, Texas. It consists of a composition consisting of silicate of sodium, gum arabic, sugar, and water, the compound to be applied by dipping or in any other way so as to effectually exclude the air, and by which eggs may be kept a long time without regard to the weather.

A pencil sharpener has been patented by George R. Lewis and Helen L. Bowman, of Lamoille, Ill. It is a rectangular box with a cover, to which are attached one or more sheets of sandpaper, and hung on hinges formed of cranked or offset wires, arranged to close the top of the box or rest in an inclined position, so the dust from the pencil points will go in the box.

A key board attachment for pianos and organs has been patented by Mr. John H. Rheem, of Ottumwa, Iowa. The invention consists of a box supported over the key board and provided with a device for operating five keys by pressing on two levers at a time, the levers projecting from the top of the box, and there being a device for indicating different keys.

An embankment protector has been patented by Mr. Abraham M. Kanfers, of Holland, Mich. It consists in a covering of willow branches, cane, bark, cornstalks, or other flexible material, to the required depth, fastened by means of stakes and cross wires, the stakes having conical or pyramidal points applied to and projecting beyond their lower ends.

A hand power attachment for sewing machines has been patented by Mr. James M. Cosby, of Elberton, Ga. This invention covers a combination of a lever having a spring fulcrum and a special pitman adapted to connect the lever with the treadle of the machine, whereby the machine may be operated by hand through a lever operating in unison with the treadle.

A hand ironing machine has been patented by Mr. Frank Corbett, of New York City. Combined with a closed casing are inclosed rollers journaled therein, with detachable journals and screws for holding the journals in place, the machine to be heated by placing in a frame, so that all the heat will be combined within the casing, upon the top of a stove, range, or furnace.

A horse detacher has been patented by Mr. John A. Berg, of Ashburton, New Zealand. It consists of a special device of shaft or thill coupling, giving increased facility for detaching the shafts or pole of the vehicle, and so that it can be done by the driver from his seat in case the horse runs away, while giving a firm and substantial coupling for ordinary use.

A wagon box has been patented by Mr. Francis Fisher, of Scotia, Neb. Combined with the wagon body is an upper removable section, hinges connecting the body and upper section, with handles rigidly connected to the upper leaves of the hinges and free at their lower ends to strike the sides of the body and support the sides of the upper section in an inclined position, with other novel features.

An adjustable bed for invalids has been patented by Mr. James Miller, of Adelaide, South Australia. The invention covers novel features of construction in a bed which may be swung sidewise to cause the invalid to take any desired position on either side, and also may be adjusted at its head portion to support the upper part of the body as wished between a lying and sitting posture.

An egg carrier has been patented by Mr. Augustus Heliner, of St. Elmo, Col. It is constructed with inner cells and an outer case, being preferably made of paper, the outer casing having a removable top, and a light base piece having upwardly extending wires connected with a detachable handle, making a light, strong, and cheap carrier, which may also be used for fruit and other articles.

An attachment for smelting furnaces has been patented by Messrs. Elliott R. Moffet, Jr., and Oliver R. Moffet, of Joplin, Mo. It consists of a series of pokers arranged to be operated from the side, and to be thrown inward and upward by a shaft turned by a crank, the pokers being arranged in connection with a shovel or plunger, to obviate the necessity of standing in front of the fire when stirring or poking it.

A feed grinder has been patented by Messrs. Isaac and James C. Jay, of Arapahoe, Neb. With the frame and hopper and its support is a reciprocating grinding plate and a rocking grinding cylinder, with cranks and driving mechanism arranged to grind the grain as it passes between the plate and cylinder, the machine being simple in construction, but readily adjustable to grind different kinds of grain.

A mechanical movement has been patented by Mr. August C. Arneson, of Clark's Grove, Minn. It consists in an annular internal gear supported on a suitable frame, with shaft journaled axially to the gear and having a gear wheel, between which and the annular gear is placed a traveling pinion on a tumbling rod connected with the driving shaft by means of a universal joint.

A supporting column for drilling machines has been patented by Mr. Miffard F. Smith, of Weir City, Kansas. The operating mechanism of the machine is carried by a single post, which is so arranged that it may be swung upon screws, by which it is supported and upheld without in the least interfering with the rigidity of the connections, the machine being more especially applicable for the drilling of coal.

An apparatus for preserving eggs forms the subject of two patents issued to L. Adelle Haggood, of Randolph, N. Y. It consists in a tilting case containing trays made of slats, in which are fitted compartment frames made shorter than the trays and arranged to slide therein, there being yielding cushions at the ends of the trays for preventing the breaking of the eggs, so they may be readily turned for preservation, and stored or shipped.

A fence building machine has been patented by Mr. W. H. Harry Fauber, of Marshfield, Ind. This invention provides a light, portable hand fence building machine, wherein the tension upon the wires employed to bind the pickets to place may be varied as desired, and also provides a novel form of twisting attachment and an operating mechanism therefor, means for accurately adjusting the pickets as to height, and other novel features.

An apparatus for dyeing skeins has been patented by Messrs. Charles Meadowcroft and Peter Denanhouer, of Philadelphia, Pa. It is calculated for dyeing skeins of silk, wool, etc., and made to readily govern the number of revolutions of the carrying frame, while the latter will be automatically elevated from the vat when the set number has been reached, the frame being adjustable to any size of skein, and designed to carry them so they will not become tangled.

The ventilating of tobacco curing houses forms the subject of a patent issued to Mr. Nelson Bruette, of Jefferson, Wis. The general features of construction called for by this invention are close sides, with base ventilators fitted therein, a turret ventilator, with rotatable body having opposite closed and open sides, with pivoted vanes and means for raising and lowering them, whereby a downward or upward draught may be induced through the curing house by arranging the vanes and the base ventilators.

A machine for casting and finishing type has been patented by Messrs. Leon and Auguste Foucher, of Paris, France. Combined with a carriage which slides on a fixed block are knives or cutters to cut or trim the top and bottom sides of the type, the carriage having a jaw which, together with the top cutting knife, carries the type to the bottom cutting knife, a plunger being pressed downwardly by a lever acted upon at its one end by a cam track, with other novel features, for making type ready for use.

A pneumatic clock has been patented by Mr. Rudolf C. Wittmann, of East New York. Combined with gearing operated by weights are two wheels revolved at intervals by the gearing, rods or bars being connected with the wheels, and tubes having compressible bulbs, which can be compressed by the rods, compressible balls at the other ends of the tubes carrying the bulbs, and mechanism connected therewith to revolve the wheels, with other features, whereby a number of hands on different dials can be operated from a single clock.

## NEW BOOKS AND PUBLICATIONS.

A SYSTEMATIC HANDBOOK OF VOLUMETRIC ANALYSIS. By Francis Sutton, F.C.S., F.I.C. Fifth edition. Philadelphia: P. Blakiston, Son & Co. 1886. Pp. 491. 90 illustrations.

We need only say that this work is welcome as bringing Sutton's Volumetric Analysis down to date. The original book has been so long the standard, and is so well known, that description seems hardly necessary. Under the section devoted to gas analysis, one of the most valuable features of the work, we find the Hempel and one or two other recent apparatus described. The production of new and revised editions of standard works is a movement in the right direction, provided they are well in advance. The determination of carbonic acid in air has so very recently been satisfactorily worked upon, that we can pardon the little said upon this subject.

TABLES FOR THE DETERMINATION OF COMMON MINERALS. By W. O. Crosby. Boston: J. Allen Crosby. 1887. Pp. 74.

This work is a useful one, but its utility would be enhanced had it been extended to include more minerals. The tables are strictly determinative ones, and the characteristics of the different species are given in columns, in the order of morphological, physical, and chemical properties. All the tests represented under these three heads are what may be termed working or field tests. A careful review and description of these methods precedes the tables. A list of apparatus and reagents especially for blowpipe work comes next. A synopsis of the rational classification of minerals into sub-kingdoms, and these into classes, is given. Next comes a general empirical classification, founded entirely on luster, color, streak, and hardness, and referred by page numbers to the tables. The tables follow, the first column of which contains an analytical key, by which the empirical classification is continually referred to. The remaining columns of the tables cover species name, composition, luster, color, streak, hardness, tenacity, specific gravity, form, cleavage, other properties, and confirmatory chemical tests. In reducing the role of chemistry to the subordinate one of confirmation the author has done wisely, as the aim of the student of mineralogy should be to recognize minerals by their appearance and external characteristics. A useful note on how to use the tables, and an index of the 189 minerals described, ends the work. We regard it as an admirable effort in a somewhat neglected field, and should hail the appearance of a more comprehensive treatise on the same lines with much pleasure.

L'ANNEE ELECTRIQUE, OU EXPOSE ANNUEL DES TRAVAUX SCIENTIFIQUES DES INVENTIONS. By Ph. Delahaye, Baudry & Co., Publishers, 15 Rue St. Peres, Paris, France. Pp. 380.

This work is a review of the progress made in the application of electricity to the arts and industries during the year 1886. The book appears to be carefully prepared, and is written in an agreeable style. It is divided into several divisions, treating of such themes as electric lighting batteries, the telegraph and tele-

phone, electricity in the atmosphere, electricity as employed in medicine and on railroads, and its uses as a motive force on tram cars, etc., electrolysis, metallurgy, etc. It presents much information in a practical form, suitable for ready use and reference.

\*\* Any of the above books may be purchased through this office. Address Munn & Co., 361 Broadway, New York.

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Iron and Steel Wire, Wire Rope, Wire Rope Tramways. Trenton Iron Company, Trenton, N. J.

The 9th edition (22d thousand) of "Trantwine" appeared in March, 1885. It was larger than its immediate predecessor by over 150 pages, the new index alone being more than twice as large as that of the 8th edition. Many of the old articles were modernized, and many new ones added. The present edition contains still further improvements.

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