

RECENTLY PATENTED INVENTIONS.

Engineering.

CENTER BLAST PIPE FURNACE.—Charles Johnson, Rutland, Vt. The center blast pipe of this furnace is formed in sections with tyure openings between them, the pipe having at its top a perforated cap and a safety device for preventing the molten metal from passing through the tyure openings and perforations. Complete combustion of the fuel is insured around and over the cap by forcing air and oxygen through the cap, and the molten metal will be allowed to run out of the furnace rather than pass into the center blast pipe, should the attendant fail to draw the metal at the proper time. The air also keeps the safety apparatus cool, and allows the operator to see into the cupola at all times.

HYDROCARBON BURNER.—Simeon A. Barrett, San Bernardino, Cal. This is a burner of simple and durable construction, more especially designed for burning crude oil of a low gravity without danger of forming an asphaltum or other residue, and thus avoiding a clogging of the burner. The oil feed pipe is surrounded by a steam supply pipe to cause the steam to spray the oil at the end of the oil supply pipe. The sprayed oil moves forward with the steam in the retort, so that the steam is superheated and the oil brought to the point of vaporizing, the mixture finally passing through the mouth of the burner to be ignited and burned in the firebox of the boiler.

Mechanical.

WINDING APPARATUS.—James S. Brown, Eureka, Cal. This invention relates to donkey engines and like machines used for logging and similar purposes. The object of the invention is to provide improved winch heads for winding apparatus, whereby wire ropes or cables may be used upon winches without forming kinks in the cable, whether the end or the middle of the middle of the cable is put upon the winch heads. The invention consists principally of a series of drums or spools mounted to rotate in unison. One of the spools receiving the rope or cable from the load, the line being then wound alternately on the other spools and in separate grooves thereon, by means of gears attached to the drum shafts and each meshing with the gear or gears adjacent, whereby a uniform peripheral speed is secured to each drum.

LANTERN.—Martin Killian, Central City, Col. The object of this invention is to construct a lantern which may be used in any way in which an ordinary lantern may be employed, and which may be also attached to a kettle for the purpose of enabling the contents of the same to be heated. The lantern is also provided with means so that it can be suspended from an overhead support or from an upright support. The lantern is also provided with devices by means of which it may be attached either to a receptacle or to a fixed object in a simple and economical manner.

VALVE.—Edouard Marchaut and Albert Dormoy, Bordeaux, France. The object of this invention is to provide a new and improved valve more especially designed for draining the water of condensation of a steam pipe or other device. In brief, it consists of a pipe coupling comprising two flanged members or sockets adapted to receive pipe sections, means for connecting said sockets, one of the sockets having an opening leading from its inner surface at a distance from the abutting surface of the sockets. An outlet pipe is inserted in the same opening and a valve is provided adapted to be seated on the end of the outlet pipe.

REVERSING MECHANISM.—Frank E. Gowen, Norrie, Col. This is an invention relating to sawmill sets and like machines, for which the inventor provides a new and improved working mechanism arranged to enable the operator to conveniently impart a turning motion in either direction to a shaft, wheel, or like device. By simply moving a lever the operator can impart the desired motion to the setting shaft, either in a forward or backward direction.

Bicycles, etc.

PNEUMATIC TIRE.—Henry Clay Williams, Trenton, N. J. The object of this invention is to provide an improved pneumatic tire for bicycles and other vehicles, and it is arranged to form a yielding flexible tread which insures easy riding, prevents slipping, and assists in the forward propulsion of the wheel. The tread is formed with a series of curved ribs parallel with each other, each rib being highest at the longitudinal center of the tire and being extended up each side of the tire and being regularly tapered, so as to have an arc-shaped edge which intercepts or runs into the cross sectional arc of the tire. Each rib extends across the longitudinal line of the tire and is disposed diagonally with relation to this line. The tire also has a rib running along the longitudinal line of its tread and crossing the highest portions of the ribs.

Electrical.

TELEPHONE TRANSMITTER.—Horace C. Alexander, Bonham, Texas. This device comprises a metal shell open at its front and having a central opening through its rear wall, a carbon disk in the shell having a central cell extended through it, and a series of cup-like cells in which are granulated electrodes, while a soft textile material between the diaphragm and carbon disk is cemented to the latter. The interposed soft material prevents rattling of the diaphragm, and by cementing it in place it cannot become crimped or displaced, and allow the escape of the granulated material in the cells.

Agricultural.

HAND SEED PLANTER.—Charles F. Merwin, Kyle, Texas. This planter is especially adapted for planting cotton seed, the dropping of the seed being effected by a forced feed, whereby the seeds are separated, irrespective of the lint which ordinarily causes

them to cling together. The device has a lower wedge-shaped seed chamber, through which a plunger or slide is adapted to be pushed, forcing open a hinged plate and depositing the seed in the ground, the movement of the plunger also rotating a stirrer in an upper seed chamber adapted to carry a supply of seed, the feed being positive with each up and down movement of the plunger.

Miscellaneous.

CAN WASHING MACHINE.—F. A. Seuffert, the Dalles, Oregon. For thoroughly and automatically cleaning cans after they are filled with fish, preserves, etc., this machine is made with two oppositely arranged brushes with their adjacent runs rotating in opposite directions, between which the cans are passed. The machine is in use at the Dalles Fishery of Messrs. Seuffert Brothers Company, cleaning 100,000 cans in ten hours' work, without needing any special operator, the workmen simply placing the filled cans on a belt that runs along a table in front of them, the belt passing the cans through the brushes and depositing them clean on another table, ready for the crimping. The machine easily does the work for two or three filling machines and can toppers.

EXTENSION STEP.—Samuel R. Hamilton, Farmersville, Texas. This is a step for cars or other vehicles, and comprises a shaft pivoted beneath the lowermost of the fixed steps, L shaped brackets pivoted at the outer end of one arm to the shaft, a step fixed to the other arm and a spring attached thereto and adapted to swing the pivoted step back under the fixed steps, there being means for swinging the pivoted step forward and locking it in a horizontal position. The device is strong and of simple construction, and makes it possible to do away with boxes or other supports used to assist in getting up to the first or lower step.

WINDOW OR DOOR SCREEN.—John A. Stenen, Hillsborough, North Dakota. To allow flies, mosquitoes, etc., to escape from a room, and prevent their return, this inventor supplies the window or door screen with one or more transverse bars in which are openings, the outer portions of the openings, communicating with the outer air, being quite small, and their inner portions large. The outer openings may be partially or entirely closed by trap plates moved by an operating rod. As flies generally move upward on a screen, the design of the improvement is to accelerate their passage out, while limiting the possibilities of their entering.

KETTLE BAIL ATTACHMENT.—Fred A. Morris, Genesee, N. Y. This inventor has devised a clamping attachment to be so applied to the bail and to the pot that when the bail is carried downward the attachment will be entirely out of the way and the top of the pot or kettle will be open to its full extent, admitting of the convenient application of a strainer or other device. The attachment is also designed to facilitate holding the bail firmly in upright position, and may be utilized to lock the cover partially or fully over the vessel, so that its liquid contents may be poured out and the solids retained, without danger of scalding or burning the hands.

MUSICAL INSTRUMENT.—Jay E. Walker, Lincoln, Kansas. A movable tuning bar, forming an attachment for stringed instruments of the banjo and guitar class, has been devised by this inventor, by means of which the pitch of the strings, after they have been tuned in the ordinary way, may be raised or lowered without tightening or loosening them. A transversely elongated nut slides longitudinally on the finger board, the nut being formed with two connected sections having limited independent movement, and the strings passing between the sections and being engaged by their contiguous faces.

NON-REFILLABLE BOTTLE.—Harry L. B. Lee, Brooklyn, N. Y. This invention provides a bottle and stopper which are useless after once being emptied, as the bottle may not be refilled. Permanently fixed in the bottle neck is a stopper sleeve with a partition at the bottom from which an outwardly opening valve is constructed as a flexible and collapsed tube, there being arranged in the sleeve above the valve inclined partitions with alternated openings, an air inlet tube passing through all of the partitions and beside the tube valve. The partitions prevent the insertion of any small instrument by which the valve might be manipulated or tampered with, and when the stopper is once fixed in place in the neck of the bottle it cannot be removed.

WIND WHEEL.—John W. Pippin, Rock Springs, Texas. This wheel is keyed on a horizontal shaft journaled in a rotatable skeleton frame supported by a skeleton tower, forming a light but strong support for the rotatable parts. The wheel body is supported, braced and attached to the shaft by light and inexpensive means, but in the most secure and rigid manner, the design of the invention being to secure a rapid descent of the pump rod and thus enable the wheel to raise more water in a given time. Means are also provided for relieving the shock incident to rapid descent of the pump rod, whereby severe strains and injury to the wheel proper are avoided.

COPYING MACHINE.—Jules Frydman, Paris, France. This machine has a number of independent divisions which may be referred to when desired and impressed with a copy of any writing, as in copying accounts of sales slips in mercantile houses, each salesman or clerk then having one of the key plates referring exclusively to a definite web. A revolvably mounted disk carries a number of copying sheets, the disk coating with a stamp and a moistener, and the machine being also provided with a numbering attachment. The construction is such that it is impossible for any of the webs to be tampered with or fraudulently impressed.

WINDMILL.—Edward J. Scovel and Charles F. Ross, Sannem, Ill. In this mill the fans are placed on a vertical shaft in such form and distance apart as to secure as near as possible a screw or auger shape, and inclosed in a tubular casing, with a hood at

the top, the air in operation flowing down through the casing as it acts on the fans. The great amount of surface presented by the several fans is designed to enable the mill to do good work in a light breeze.

NON-REFILLABLE BOTTLE.—William S. Hannaford, 312 North Marengo Avenue, Pasadena, Cal. This inventor has devised a bottle which cannot be opened and refilled without mutilating the bottle, the bottle to be used to prevent fraudulent imitations of genuine goods. In addition to using a cork, a flange surrounds the neck of the bottle and is connected thereto by a relatively weak section, a cap being inserted in the opening, and having internal automatic locking means by which its withdrawal is prevented. The cap cannot be released without breaking the flange.

BOTTLE WASHER.—Emil Kersten, Richmond, Va. This invention provides a machine for soaking and sterilizing bottles, and to facilitate thoroughly cleaning them both on the inside and on the outside. It comprises a tank adapted to receive a cleaning liquid, and a wheel mounted to revolve therein, the wheel having on its face supports standing in an inclined position, on which the bottles to be cleaned are placed. The tank is of such width as to prevent the bottles from sliding off the supports during the time the bottles travel through the liquid in the tank.

MUSIC LEAF TURNER.—Hiram Hammond and Robert Hammond, Lake George, N. Y. This is a device adapted for use in connection with a music stand or music rack on a piano, the music leaves first being attached to clamps or clips forming part of the device. The device is of simple and inexpensive construction and entirely independent of the instrument. Any leaf may be so readily and quickly turned as not to interfere materially with the rendition of music by the performer, and after all the leaves have been turned they may be simultaneously restored to their original position.

MUSIC BOX DAMPING DEVICE.—Henry Langfelder, Jersey City, N. J. For music boxes having reeds sounded by star wheels, this inventor has devised a spring damper adapted to engage the tongue and formed with a curved or bent portion, while a wheel operatively connected to the tongue sounding mechanism is arranged to move the spring damper, the wheel engaging the damper at the end of the bent portion opposite to that engaging the tongue, the bent portion curving around the wheel.

LEAD-LINED PIPE JOINT.—Douglas G. Brighton and Edwin M. Venning, London, Eng. According to this invention, a lining of lead is inserted or moulded in an iron or other pipe, the lead lining being continued, expanded, fitted or moulded into the joint of the exterior pipe or shell, so as to become, by fusion, pressure or otherwise, a part of the jointing material. The improvement is applicable to iron or other pipes with ordinary spigot and socket joints, but the inventors have devised a novel form of spigot and socket joint designed to facilitate the process of jointing.

DUST COLLECTING AND SEPARATING MACHINE.—John Shaw and Charles Scott, Woodburn, Oregon. To collect dust from any source and separate the air from it, discharging the dust in a stream where desired, these inventors employ a suction fan which discharges the dust-carrying air into a revolving hood, so that the air and dust travel in a revolving column, and the dust particles are thrown outward toward the inner surface of the hood and beyond the belt of air, whereby the dust and air are separated in consequence of the greater specific gravity of the dust particles. The casing for the fan is formed by the hood, which revolves with the fan.

BARN FRAME.—Robert S. McPheeters, Sand Creek, Minn. This is a frame designed to combine simplicity, economy and strength in the highest degree, and be also specially adapted for convenience and expedition in unloading hay, etc., and feeding stock. The basement has a central driveway with hatch; the frame has inclined rafters and connecting ridge pole, there being purlins and converging braces set on center posts, a track and carriage thereon beneath the ridge pole, with hay sling suspended from the carriage for elevating hay and conveying it to either end of the barn.

Designs.

MESSAGE BOX.—Augustus A. Weller, Port Jervis, N. Y. This patent is for a simple and inexpensive style of box in which messages may be placed for collection, the box having a transparent front section, enabling one to see when there is a message in the box. The inventor designs to utilize his invention in the establishment of a messenger service for towns and villages.

DISPLAY RACK.—Osborne E. Sully, Spencer, Iowa. A simple form of bent wire or rod device, formed and braced to give strength and lightness, is afforded by this invention to facilitate the exhibition of goods.

MEAT HOLDER.—Charles P. Loughridge, Nevada, Cal. This design comprises a combination rod support adapted to hold meat in various forms, holding the meat in position for convenient handling and examination.

PAPER LANTERN BLANK.—George T. Brown (of Brown & Williamson), Winston, N. C. This is a conveniently foldable blank having side sections with openings adapted to receive suitable transparent coverings or any desired inscriptions, the design being economical of material.

BICYCLE CROWN.—Hugh D. McCarty, Providence, R. I. In this design top and bottom plates each have elliptical end openings and central round openings, tubular bosses connecting the plates. The edges of the plates project slightly beyond the outer surfaces of the bosses.

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.

A NEW WORK ON MECHANICAL DRAWING. Easy lessons in mechanical drawing and machine design, arranged for self-instruction. By J. G. A. Meyer. To be issued in 24 quarto parts of about 32 pages each. First and second parts issued. New York: Arnold Publishing House. Price 50 cents each part.

The name of Mr. Meyer, formerly associate editor of the American Machinist, is a guarantee of the completeness of this undertaking. The numbers issued are excellent examples of line engraving of machine drawings with figured details. The text will furnish full details in elementary mechanics, graphic statistics, strength of material and useful data for designing simple and compound steam engines, boilers and gearing. It is a valuable work for the student, as well as for workmen who are ambitious to get at the head in their handicraft.

MONETARY SYSTEMS OF THE WORLD. By Maurice L. Muhleman, Deputy Assistant Treasurer United States. New York. New York: Charles H. Nicoll. Pp. 239. Price \$2.

At the present time, when the air is full of the sophisms and fallacies of those who have ways of mending our monetary system, out of hand as it were, it is a pleasure to note the appearance of such a book as this—a study of present currency systems and statistical information relative to the volume of the world's money. The author's knowledge is practical, and his position is such that he speaks as one with authority. The book also contains abstracts of various plans proposed for the solution of the currency problem in the United States.

ROCKS, ROCK WEATHERING, AND SOILS. By George P. Merrill, Curator of Geology in the United States National Museum and Professor of Geology in the Corcoran Scientific School. With numerous illustrations. New York: Macmillan & Company. Pp. 408. Price \$4.

A book brimful of facts obtained by workers in divers fields is here presented by an author whose position has given him the best of opportunities to become acquainted with the results of all who have studied the physical properties of decayed rocks, as well as the origin, structure and mineral composition of rocks. The publications of the United States Geological Survey, the National Museum, and the Bulletins of the Geological Society of America have been drawn upon for materials for illustration, and many of the mechanical analyses have been made by the United States Department of Agriculture. In those instances, however, which are deemed of most importance, the author himself has not merely collected the materials, but made his own chemical analyses and microscopic determinations. The work forms a highly important addition to our practical knowledge of geology, looked at especially from the agriculturist's standpoint.

STEAM BOILERS. By Cecil H. Peabody and Edward F. Miller. With plates made to scale and numerous other illustrations. New York: John Wiley & Sons. Pp. 380. Price \$4.

Two professors of the Massachusetts Institute of Technology here present a carefully executed work on the designing and making, managing and caring for boilers, the book being designed primarily for students in technical schools and colleges, but giving, in concise and convenient form, a great amount of matter with which the practical engineer should always keep himself familiar. The various types of boilers in common use are described, and the important questions of combustion, corrosion and incrustation are most intelligently treated. Grate areas and heating surfaces, and other proportions of furnaces and boilers, are described according to the best current practice, and the testing of materials, riveted joints, stays, etc., with the accessories of safety valves, gages, and traps, are given full consideration. A most interesting feature is found in the tables of details of vessels and machinery of the most notable Atlantic liners, representative vessels of the British navy, and the principal ships of our own new navy.

YEARBOOK OF THE UNITED STATES DEPARTMENT OF AGRICULTURE, 1895. Washington: Government Printing Office. 1896. Pp. 656.

We have here another valuable government report, got up in excellent style as regards practical features, and one which indicates considerable and well directed activity on the part of the agricultural department. It is a book which should be in the hands of every progressive farmer, the most varied topics of agriculture being included in its scope. We note especially an article by Roy Stone on co-operative road construction; a short but excellent contribution to the cause of good roads, which we all hope to see in the future. The exhibition of the department at Atlanta receives adequate treatment. The only thing missing, which we note on a short inspection, is a treatise on mushrooms; active interest in the subject is of extremely recent growth and it will doubtless be considered in the next report.

HANDBOOK OF STRUCTURAL FORMULÆ. For use of students, containing 180 structural and stereo-chemic formulæ. By Henry Leffmann. Philadelphia: P. Blakiston, Son & Co., 1012 Walnut Street. 1897. Pp. 57. Price \$1.

While some exception may be taken to this book in its avoidance perhaps of certain formulæ and its arrangement without any accurate reference to systematic order, it is an excellent contribution to the study of chemistry and one which we would strongly recommend to students. It would have been interesting had the author given his authorities for some of the formulæ, notably those of asymmetric sulphurous and sulphuric acids. Chemistry should unquestionably be studied by broad formulæ, and the author deserves congratulation.