

## ENGINEERING INVENTIONS.

A combined feed pump and condensing apparatus has been patented by Mr. John Hout, of Springtown, Pa. This invention consists mainly of a whistle or alarm attachment to the safety valve for indicating the internal pressure and working condition of the auxiliary force or feed pump, and relates particularly to a former patented invention of the same inventor.

## AGRICULTURAL INVENTIONS.

A hay rack has been patented by Messrs. Jonas H. Hittle and Aurin D. Davis, of Mackinaw, Ill. The construction is such that the side and end pieces may be arranged on the wagon box to form a rack for carrying hay, and by a different arrangement may be adapted to carry hogs, calves, and other animals.

A stalk cutter has been patented by Mr. Robert M. Pierson, of Mayesville, S. C. Any number of pairs of cutters may be employed, but the construction is such that as the machine moves forward the stalks will be caught by the concave edges of revolving cutters and brought against the forward moving edges of stationary cutters, by which they will be cut to pieces and passed rearward.

A fertilizer distributor has been patented by Mr. Van Brunt Magaw, of Flatlands, N. Y. With the hopper and the side drive wheels is an intermediate smaller drive wheel, so one of the side drive wheels can drop into a depression in the ground, without affecting the operation of the machine, with other novel features to promote convenience and accuracy in distributing fertilizers.

## MISCELLANEOUS INVENTIONS.

A cap nut has been patented by Mr. Chas. D. Thatcher, of Columbus, O. This invention consists principally in making the head of the nut separate from the main body of the nut or cap, the two parts being subsequently secured together by suitable means for completing the nut.

A machine for making and covering cords has been patented by Mr. Alfred Fornander, of Brooklyn, N. Y. This machine is a novel construction for twisting and covering the several strands of a cord with silk or other material, and then twisting the twisted and covered strands together to form a cord.

A carriage top prop has been patented by Mr. Charles D. Thatcher, of Columbus, O. It is so constructed that the employment of screw threads is dispensed with in connecting the bolt with the bow plate, the bow plate and bolt being locked together by means of an offset and lug.

A safety snap hook has been patented by Mr. Henry R. Hammond, of Foster Center, R. I. The snap hook has a pivoted and notched latch and a sliding and spring-pressed bolt, with a hook engaging the notch of the bolt, the hook being readily operated by hand, but one that cannot be accidentally detached.

A folding wardrobe bed has been patented by Mr. Adam Schieffer, of New York city. It consists of a case, with pivots to receive the bed bottom, and such other arrangements that the bed can be readily folded into a shallow case, and easily folded and unfolded, being firmly supported when unfolded.

A bottle stopper has been patented by Mr. Michael I. Dougherty, of Carbondale, Pa. It may be used for all bottles stoppered on the outside, may be quickly applied or removed with one hand, and if one part of the stopper is overworn or injured it can be replaced without discarding the whole stopper.

A bench for jointing lumber has been patented by Mr. Clarence A. Williams, of Webster City, Iowa. This invention relates to certain improvements on a former patented invention of the same inventor, and consists of a special arrangement, construction, and combination of parts.

A press for moulding letters from artificial stone has been patented by Mr. Chester A. Weller, of New York city. The artificial stone mixture is filled into a hopper, thence moved where it can be pressed by a lever, movable press plate, and die, and delivered by the machine for drying and finishing.

A screw driver has been patented by Mr. James M. Ricketts, of Charleston, Ill. This invention consists of an attachment for holding screws upon the point of a screw driver, a rectangular frame being placed on the lower or point end of the screw driver, and having guide slots to hold jaws which secure the screw.

An improved gate has been patented by Mr. Wiley M. Grisham, of Winchester, Ill. The object is to afford means whereby a rider may open a gate on approaching it, and close it on leaving, without dismounting, and means are provided for raising the gate latch and opening the gate by one continuous movement.

A fire escape has been patented by Mr. Thomas D. McKinzie, of Colorado, Texas. This invention is designed to save life from burning ships as well as houses, and provides means whereby a boat or car may be lowered from the side of a vessel, or a car may be raised or lowered to and from the windows of a house.

A brick machine has been patented by Mr. Robert Underwood, of Bowling Green, Ky. The material placed in the mill is ground and tempered by the action of the fingers on a revolving shaft, and settles down through an opening in the bottom plate into the moulds, which are completely filled by the action of a pressure roller.

A stump puller has been patented by Mr. David L. Grossman, of Rutland, Ind. The base frame has bars at its forward part, supporting pulley blocks, and a rope or chain, and at its rear end is a capstan and sweep for pulling the stumps, the whole being constructed to be easily operated, and yet simply made and powerful in operation.

An elevator has been patented by Mr. Samuel Keim, of Altoona, Pa. It is a contrivance of mechanism and supporting frame for working an elevator

platform by a hand crank for raising and lowering barrels and other heavy goods out of and into cellars, and also for loading and unloading wagons, and other like uses.

A draught bolt has been patented by Mr. Frank Wirtz, of Appleton, Wis. It is made in two jointed half sections, and provided with pinches, wrenches, hammer, hatchet, nail pull, and screw driver, these tools being so arranged as to provide for their convenient use on removing the bolt from its place in the tongue.

A belt fastener has been patented by Mr. Louis C. Gleason, of Ter ville, Conn. It consists of a plate of metal with one or more rows of hollow punches adapted to be driven through the belt ends, and the edges of the punches then turned down upon the belt, forming an annular rim upon the belt, holding the fastener firmly and securing the ends of the belt together.

A hame tug has been patented by Mr. Charles Hostert, of Hastings, Minn. It is so constructed that the tug is adapted to all the adjustments required, both up and down upon the hame, and as to lengths, so that a perfect fit of the hame tug may be always effected, and the invention may be readily applied to hames already in use.

A combined table, bedstead, and chair has been patented by Mr. Robert C. Balke, of Bloomington, Ill. This is a novel construction and arrangement of the sectional jointed sills or side rails of the bedstead, in combination with head and foot boards and folding chairs, making an article of furniture which can be changed in character according to necessity.

A dumping wagon has been patented by Mr. Henry Hild, of Britt, Iowa. This invention provides means whereby the driver may direct the power of the team either to haul the load to dump it, or to return the parts of the wagon to their normal position after dumping, and embraces a special construction and combination of parts with this object.

A stave jointing machine has been patented by Mr. Willard F. Wellman, of Belfast, Me. It joints both edges of a barrel stave at once, and makes the proper curve for the bulge on staves of all widths; it is also automatic, except as to the putting on and taking off of the staves and the starting of the saw carriages when the staves are set ready for jointing.

A fence making machine has been patented by Mr. George Q. Adams, of Quincy, Ill. This invention covers various novel features in mechanism for aiding manual labor in making fences of wires and pickets, by twisting the wires between the pickets, spacing the pickets, and winding into a roll the finished fence.

A ditching machine has been patented by Mr. Charles Sheldine, of Boone, Iowa. It has a series of carrier forks, the shafts of which are pivotally secured to an endless chain, and it automatically raises the earth out of the ditch that the machine cuts, and deposits it on the surface of the ground at the sides of the ditch.

A brick machine has been patented by Mr. Napoleon M. Plante, of Verplanck, N. Y. This invention provides a novel construction of the operating mechanism of brick machines, to make provision for graduating the pressure on the clay and to insure the moulding of clean, sharp cornered bricks of uniform density from clays of different qualities or stiffness.

A cotton sack holder has been patented by Mr. John B. Robinson, of Dresden, Texas. The object of this invention is to provide a simple, inexpensive device for holding sacks or receptacles upon pickers of cotton or other plants or fruits, so as to distribute the weight of the sack and contents over the body of the picker and to enable him to work more easily.

A cockle seed separator has been patented by Mr. Richard B. Wilson, Jr., of McLeansborough, Ill. It is made of a series of inclined sieves, sieve boards, and discharge spouts and chute, arranged in a vibrating shoe, a cylinder covered with perforated sheet metal, and a driving mechanism, the construction covering a variety of novel features.

A combination drawing instrument has been patented by Mr. Joseph McM. Scott, of Allegheny City, Pa. It consists of a triangle, with the margins figured with different scales, having also another triangle, a protractor, irregular curves, circles, ovals, and other figures cut within the margins, so one instrument will serve the purpose of many single instruments.

An elevating and dumping apparatus has been patented by Mr. Benjamin K. Prater, of Mount Olive, Ill. The elevator platform is hung to be raised and lowered, and so that it may be swung to one side at the top of the shaft, while there are devices to hold the car or box on the platform, so that when the latter is tipped the load will be emptied, with other novel features.

A quartz crushing machine has been patented by Mr. Cyprian Dandurand, of Virginia City, Nevada. The beater arms are pivoted to the periphery of a horizontal rotating drum, to be thrust down the descending side of the drum on the quartz lying on a die bed, and there is a novel combination of screens to facilitate the discharge of the pulverized ore, with other novel features.

A wagon box strap has been patented by Messrs. Dwight H. Finch and William H. Natrass, of Aurelia, Iowa. Instead of the usual wooden cleats for securing end gates, this invention covers the use of a metal cleat or strap made in one piece, and centrally grooved, the lengthwise ribs at either side of the groove preferably having a facial outline, to give the necessary strength with lightness.

An excavator has been patented by Mr. Cyrus Howard, of Pittsburg, Pa. With the excavator truck body are two sets of wheels with an axle for each set and means for rigidly fixing either axle from turning under the truck, with various novel features, so the excavator will take up earth from the line of excavation and deposit at some distance to one side or on a wagon.

A diffusing, defecating, and circulating apparatus has been patented by Mr. Reginald M. Sandys,

of New Orleans, La. This invention covers improved arrangements for charging the tanks, means for heating apparatus for effecting the circulation, and for examining the liquor, in the manufacture of sugar from cane, bagasse, sorghum, or beet roots, for the more thorough extraction of the juice from the plants, and the treatment of the residues.

A combined horse power and jack has been patented by Mr. Alfred Mauck, of Toronto, Kansas. Combined with the base frame is a pivoted frame having upwardly projecting rabbeted arms, sweep sockets, and a separable wheel, the drive rope or chain being connected with pulleys connected by a short belt and attached to shafts pivoted to a frame, whereby the machinery may be driven at a greater or less speed as desired.

The manufacture of razor blades forms the subject of a patent issued to Mr. James Memmott, of Worcester, Mass. The invention consists of the mode of forming the blades by cutting the blanks from steel bars rolled with concave sides, then bringing the blanks under a trip hammer to the general form of two razor blades placed edge to edge, then by means of dies bringing the blanks to the desired shape, with the edges properly hammered, and cutting the blades apart.

## NEW BOOKS AND PUBLICATIONS.

A TREATISE ON VALVE GEARS. By Dr. Gustav Zeuner, Zurich. Translated from the German by Prof. J. F. Klein. E. & F. N. Spon, London and New York.

German thoroughness in mathematical demonstration and the indefatigable working out of details are distinctively characteristic of this book. It has been accepted as good authority and attained general acknowledgment among German engineers, having reached its fourth edition. Double slide valves, or gears with independent cut-offs, receive in this edition much more attention than was formerly given to that branch, this part of the book having been entirely rewritten. Simple fixed expansion valves, the most prominent of those with variable expansion, and the best known forms of cut-off gear, are described separately and with great thoroughness of detail.

COUNTRY COUSINS; SHORT STUDIES IN THE NATURAL HISTORY OF THE UNITED STATES. By Ernest Ingersoll. Harper & Brothers, New York.

This is in no way a text book, but its twenty-one chapters afford so many breezy sketches, many of which are of practical adventure in various parts of the world. A good proportion of the matter has heretofore been published in the leading magazines, which is no poor criterion of its good character, and it is now presented in the shape of a handsome and entertaining volume.

FISHES OF THE EAST ATLANTIC COAST. By Louis O. Van Doren and Samuel C. Clarke. The Angler Publishing Company, New York.

This is a text book on the salt water fishes that are taken with hook and line from northern Maine to the Gulf of Mexico, giving the scientific and popular descriptions, their habits, and when and where and how they are caught. The illustrations are numerous, and are photo-likeliness of the fish.

## Received.

ANNUAL REPORT, U. S. LIFE SAVING SERVICE, 1883. Sumner I. Kimball, General Superintendent. Government Printing Office, Washington, D. C.

BOARD OF SUPERVISING INSPECTORS OF STEAM VESSELS. Proceedings Annual Meeting; Revised Rules and Regulations. James A. Dumont, Inspector General. Government Printing Office, Washington, D. C.

JOURNAL OF ROYAL SOCIETY, NEW SOUTH WALES, 1883. A Liveridge, F.R.S., Editor. Trubner & Co., London.

SUEZ CANAL. Report on to U. S. Navy Department. By Prof. J. E. Nourse, U. S. N. Government Printing Office, Washington, D. C.

PUBLICATIONS OF THE WASHBURN OBSERVATORY OF THE UNIVERSITY OF WISCONSIN. Vol. II., 1883.

## Business and Personal.

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Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 141.

Curtis Pressure Regulator and Steam Trap. See p. 222.

Brass & Copper in sheets, wire & blanks. See ad. p. 222.

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Friction Clutch Pulleys. D. Frisbie & Co., Phila.

Tight and Slack Barrel Machinery a specialty. John Greenwood & Co., Rochester, N. Y. See illus. adv. p. 222.

Magic Lanterns and Stereopticons of all kinds and prices. Views illustrating every subject for public exhibitions, Sunday schools, colleges, and home entertainment. 136 page illustrated catalogue free. McAllister, Manufacturing Optician, 49 Nassau St., New York.

Stay bolt taps, true in pitch and straight. ratt & Whitney Co., Hartford, Conn.

Woodwork's Mach'y. Rollstone Mach. Co. Adv., p. 222.

C. B. Rogers & Co., Norwich, Conn., Wood Working Machinery of every kind. See adv., page 270.

Shipman Steam Engines.—Small power practical engines burning kerosene. Shipman Engine Co., Boston. See page 285.



## HINTS TO CORRESPONDENTS.

Name 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, and tries 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 mail, each must take his turn.

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(1) E. J. P. asks: 1. Have the satellites of Jupiter, Saturn, etc., been observed to have an atmosphere, and has aught to indicate the presence of water been noticed on any of them? A. Nothing known of the physical condition of the satellites of the other planets. 2. Has Sir W. Herschel's observation in regard to equal axial rotation and yearly revolution of Jupiter's moons been confirmed by subsequent observers, and has this been likewise observed in the case of Saturn, Uranus, and Neptune? A. Herschel's theory in regard to axial rotation of satellites has not been confirmed.

(2) W. E. M. asks if there is any efficacy in the so-called mad stone for the cure of a mad dog bite. A. The stories which have so often been told of the virtues of the "mad stone" are utterly without foundation. It is a mere popular delusion, unworthy of notice. 2. How many square feet of heating surface it takes for an automatic cut off engine of one horse power, steam pressure 500 pounds? A. 10 square feet.

(3) E. C. W. asks: Does it require more fuel to keep the boiler pressure at 60 pounds than it does at 40, when neither boiler nor engine is over-worked? If no more, will it take less? A. There is more heat radiated from all parts heated by the steam at 60 pounds than at 40 pounds; also the waste products of combustion pass up the chimney at a higher temperature at 60 pounds than at 40 pounds. With ordinary engines having no automatic or variable cut off, where the regulating of the steam is done by a common governor valve, and with no particular economy in the steam spaces between the governor and the cylinder, the lower pressure is no doubt the most economical. With the latest and most improved types of automatic and adjustable cut-off, the economy of high expansion favors the higher pressure and a corresponding saving of fuel.