RECENTLY PATENTED INVENTIONS.

Mechanical Appliances.

PRESS GEAR. — Charley L. Stanley, Montezuma, Ga. This invention relates especially to press gears for operating cotton presses, providing therefor a simple and durable gear which may be quickly reversed, so that the follower may be moved back and forth without stopping the machine. A friction pulley and driving wheel are mounted, one in stationary and the other in movable bearings, and there is a recessed support adjacent to the wheel and pulley in which fits a pulley block having a pulley to contact with the friction pulley and driving wheel, there being a lever mechanism for raising the driving wheel shaft. This gear is also adapted for use with other kinds of presses and machinery.

LUBRICATOR. — Karl A. Jakobson, Christiania, Norway. This is a device adapted to be conveniently connected with machinery to lubricate its parts, and consists of a cylinder of two diameters, a reservoir being connected with the larger portion of the cylinder, while there is a valve-controlled opening in the other portion, a plunger of two diameters being held to slide in the cylinder, the smaller portion of the plunger carrying a slide valve to fit the smaller portion of the cylinder. The plunger serves as a pump to suck oil down from the reservoir and force it outward through suitable tube connections to any part of the machinery, the plunger being connected by a crank with a shaft carrying a ratchet wheel, and moved with a step by step movement by the machinery.

OIL CAN. — Charles B. Underhill, Lancaster, N. Y. This invention covers an improvement upon an oil can formerly patented by the same inventor. The oil can has a spring bottom, while a cap containing air vents closes the upper opening of the body, there being a spring-controlled valve in the cap, so that when the bottom is pressed inward and released a vacuum is made in the can which automatically opens the valve. The can may be used in any position, and when it is almost empty a small quantity of oil may be forced out with as much facility and force as when the can is nearly full.

BRICK MOULD.—Charles E. Simpson, Portsmouth, Ohio. The die, according to this invention, consists of a frame with recesses in its side walls, lugs on the lining plates fitting the recesses and flanges overlapping the edges of the die, there being a filling of easily melted metal between the lining and frame. Lead or Babbitt metal may be used for this filling, whereby the lining plates are held in place, the plates being readily removed by heating the die when it is necessary to replace a worn plate with a new one. Brick moulds fitted with such dies with removable lining plates are especially adapted for use in pressing firebrick, red brick, tiles, etc., as the lining ordinarily wears out much faster than the die in such service.

COTTON CONDENSERS. — George P. Melchior, Bellevue, Miss. This invention provides a simple and novel form of safety cap, so that if the condenser belt slips from the condenser drum an outlet will be opened for the cotton, to prevent it from accumulating and choking within the condenser casing. An intermediate mechanism is provided between the cap or gate and the condenser drive belt, an operating device being supported on the belt and arranged when the support is removed to open the gate by gravity, while the gate may also be opened at will by the operator.

PUMP. — Stephen G. Mills, Wichita, Kansas. This is an improved form of pump designed to allow water to flow out of the bottom of the piston cylinder in order to prevent its freezing up in cold weather. A check valve is hinged to a spring plate at the bottom of the cylinder, a rod extending upward from the plate to a notched lever pivoted in the stock, whereby the plate may be raised, the extent which it may be lifted being governed by an adjustable stop. A priming mechanism is also provided for priming the stock after it has been emptied.

WINDMILL PUMP REGULATOR.—Daniel A. Ferrier, Crete, Neb. This invention provides a device operated by a float and designed to automatically throw the mill in the wind when the cistern is low and throw it out of the wind when a sufficient supply has been received, the construction being such, also, that should the mill be thrown in the wind too suddenly, the pull rope, wire or chain controlling the mill will not be subject to undue strain. The mill wheel may also be thrown into the wind by drawing downward on its rope or cable when the cistern is full.

PIPE CONNECTIONS.—Wilhelm Thielmann, Styrum, near Mulheim, Germany. The manufacture of angle pipe connecting joints in a simple and effective manner is provided for by this invention, which has been likewise patented in eight European countries. A blank of suitable shape is cut out of malleable cast iron, steel, or other metal, and is bent to shape while hot by a machine, with its edges forming the seam adjacent to each other; the moulded angle pipe joint is then placed on the mandrels of a machine and the adjacent edges of the moulded pipe joint while in a heated condition are welded together by being compressed in the machine.

Agricultural.

COTTON CHOPPER AND SCRAPER. — Albert Whitley, Woodville, Miss. This machine is designed to scrape the edge of a row of plants, and chop it out at intervals, to convert the continuous row into a series of hills. A running wheel with cams on its side is mounted on an axial shaft in the rear of the main frame, a slotted chopping arm embracing the shaft and being pivoted to the frame in front, while a chopping hoe is attached to the arm in the rear, a spring forcing the chopping arms against the cams.

MOWING MACHINE.—Edward Bartlett, Belleville, Canada. The cutter bar of this machine is adapted to be raised or lowered as desired, and tilted to and from the ground, in a convenient and expeditious manner, while the machine is light and strong, and comparatively inexpensive. Combined with the main frame and a vertically swinging frame carrying the cutting apparatus is a crank shaft, the cutter-operating arm being connected to the main frame, the crank, and the cutter bar, by universal or ball and socket connections, while a longitudinal spring connects the arm and the swinging frame and acts as a cushion for the crank shaft. In this machine the shoe can be raised sufficiently high to carry the channel bar at an angle of forty-five degrees to the ground.

HAY FORK.--John Anderson, Hickson, North Dakota. The arms of this fork are fulcrumed upon the trunnions of a central lifting beam, two arms upon each of the trunnions, the arms being inwardly curved and consisting of two hinged members, the upper member of each arm carrying a spring-controlled latch adapted to engage with the upper end of the lower member, trip ropes being attached to the latches and means provided for operating the ropes. The device is simple and inexpensive, and will lift either long or short hay, while it can be readily operated to dump the hay cleanly from the carrying arms.

PLANTER MECHANISM. — Albert J. Helvern and William B. Schwalm, Walton, Ind. This invention relates to the driving mechanism for the seed drop bars of planters, and is an improvement on a former patented invention of the same inventors. Combined with the seed drop bar is an actuating mechanism consisting of an endless chain in which are pivoted fingers having a shovel like lower end and a forwardly inclined head, with cavities in one side face, while spurs projecting forward from the under edges of the links between the fingers are adapted to enter the cavities of the fingers, and hold them while in action in a perpendicular position.

Miscellaneous.

PROCESS OF TREATING ZINC ORES.—William West, Denver, Col. This is a reissued patent for a process of eliminating zinc from complex ores. The ore is roasted to form sulphurous acid gas and oxidize the zinc, and the gas is cooled to 180° F. and passed in gaseous form with steam, without oxidation, into sulphuric acid, through a previously roasted charge, to form soluble sulphite of zinc, and then immediately leached out, separating the zinc sulphite with warm water. The leached ore residuum is simultaneously dried by the transit of the hot sulphurous acid gas, thereby cooling the latter. The zinc is thus separated and recovered from the other metals in a single economical operation, the remaining metals being left in good condition for further treatment.

WRAPPER PASTER.—David W. Collins, Philadelphia, Pa. This device has a paste-holding pan with a longitudinally apertured bottom and an inner bottom having a series of perforations over the apertures of the lower bottom, while there is an adjustable paste discharge controlling slide beneath the lower apertured bottom. The apparatus is designed to automatically supply paste and lay it on the part of each wrapper to be pasted, being more particularly applicable for use with newspaper and similar wrappers, but also suited for use for general purposes, economizing space and obviating the scattering or dropping of paste.

PASTING MACHINE. — George W. Leiman, New York City. The pasting of paper or fabric in tape form is provided for by this machine, which has two graded reservoirs connected by a valved pipe, a paste wheel revolving in the smaller tank, while a shaft carrying a reel is journaled in a hanger over the larger tank, there being a driving connection between the reel shaft and the paste wheel shaft. There is a frictional feed device and a guide pulley, a tape reel being secured to the upper shaft, and a brush is located between the feed device and the paste wheel. The paste is fed from the smaller to the larger reservoir as needed, that the paste wheel may not carry any more paste than is needed, all surplus material being removed from the fabric or paper treated, and the pasted tape being delivered from the machine for convenient application to any object.

TWINE CUTTER. — Frank Grigsby, Alma, Neb. This invention covers an improvement in the class of twine cutters which have a blade and spring plate so arranged that the twine or thread is drawn between them and thus severed. It is a very simple device, adapted to be conveniently attached to a counter or any suitable support, and consists of a twine holder of spring metal having a reversely bent or hook shaped portion, and a shank section similar to that of the cutter, which is arranged parallel and close to one edge of the holder. The end of the twine is held by the holder, after cutting, in convenient position to be again taken hold of when the next bundle is to be tied.

SHUTTER FASTENER. — Edwin T. Keener, Moberly, Mo. This fastener is a simple and inexpensive form of the latch hook type, and is a practical device to securely lock a pair of shutters and release them from the inside of an apartment without raising the sash. The fastener mechanism is mainly supported in a separable casing, and comprises a rocking latch connected with the inner end of a sliding operating rod provided with a locking device to lock the latch against rocking when the rod is turned in one direction.

PORTABLE FENCE.—Charles E. Harris, Winnipeg, Canada. The posts from which the sections of this fence are supported have each a bed beam to which a plate or block is transversely attached, the post proper having recesses at its upper end, and being secured to the plate or block and bed beam. The fence is designed to be staunch and durable, and capable of being expeditiously and easily set up on even or uneven ground, its sections being also readily disengaged for removal.

CHIMNEY CAP. — Joseph A. Hodel, Cumberland, Md. A vibrating valve which automatically adjusts itself to prevent downward draught is employed in this cap, the base plate of which has flanges fitting the chimney flue, while its inverted semicircular cap portion has lateral flanges fitting under retaining brackets or plates, the valve being pivoted in the cap to swing against flanges when vibrated. The construction is simple and inexpensive, and the cap is designed to be thoroughly effective for its purpose.

FIRE ESCAPE. — Michael O'Reilly, Boston, Mass. The hoisting apparatus of this device is carried by a main frame on a truck, or may rest on any convenient support, and has drums operated by cranks to move cables, running over sheaves secured to different points on a building, conveniently operated brakes being provided, and the cables being adapted to raise and support a car opposite any desired part of a building, to carry people safely to the ground, the car being also capable of carrying firemen with their hose and holding them in position to direct a stream of water efficiently.

FIRE ESCAPE.—Peder Thoresen, Svelvig, Norway. The buildings to which this escape may be applied have pulleys at intervals near their cornices, from which depend small wire ropes, by which larger ropes may be hauled up over the pulleys. The escape proper consists of a tubular chute of canvas, whose upper end is suspended on a hinged bar supported by the large rope to be swung horizontally, a bent rod holding the chute open near its top, and a cord extending downward through it, which may be grasped by a person descending in the chute, to regulate the velocity of descent.

EXERCISING MACHINE. — Frank G. Gollon, Hoboken, N. J. This device has a platform horizontally fulcrumed between standards on a base, with an adjustable seat, and friction rollers journaled in an opening in the platform near its forward end, a cord attached to the platform and connected with its base passing over the rollers. The machine is designed to afford amusement as well as exercise, and is capable of adjustment to accommodate persons of different weights, while it is of simple construction and may be readily taken apart and packed in a small space.

CHURN DRIVING MECHANISM.—Charles D. Olds, Barnard, Mo. A shaft with a crank arm is mounted in a supporting frame having guide rods in which slides a crosshead, a pitman being connected to the crank arm and to the crosshead, a rod secured to the latter having an angular extension to which the churn dasher is attached. The device is simple and durable in construction, and is designed to greatly reduce the labor of churning.

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Notes & Queries

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(3391) P. J. H. asks: 1. How would the flow of water vary to a pump with the height lifted? A. The flow to and through the pump will be the same for various heights, but more power would be required to run the pump with the higher lift. 2. What is the relation between the velocity and friction of water in horizontal pipes? A. Friction of water in pipes is nearly as the square of the velocity. 3. A tank of water 20 feet high by 15 feet in diameter has a horizontal pipe 1 inch in diameter and 100 feet long connected to its bottom. What would be the velocity of its discharge per second? A. The velocity of flow will be 0·89 of a foot per second, and will discharge 0·47 of a cubic foot per minute. See SCIENTIFIC AMERICAN SUPPLEMENT, Nos. 788, 789, 791, 792, 793, 799, and 805 for an excellent series of articles on hydraulics.

(3392) J. M. S. asks the best thing for keeping my shoulders straight. I have tried shoulder braces, and they do not give me good satisfaction. A. A thorough course of good gymnastic exercise would probably straighten you and help you to keep so.

(3393) O. asks: How many gallons of water evaporated into steam will give one horse power pressure with a properly constructed engine? Also how much can the common gas we burn be compressed in strong canvas gum lined bags? A friend said 3 feet into 1 foot space. I supposed it could be much more. A. 3½ gallons of water to the horse power per hour. You cannot compress gas in a bag, such as you describe, to above a ¼ to ½ pound pressure; 3 feet in 1 foot is equal to 30 pounds pressure. For this pressure a metallic cylinder is the best.

(3394) N. B. N. writes: 1. I weighed one hundred and sixty-six pounds about a year ago, and I now weigh only one hundred and forty-two, a loss of twenty-four pounds. I am healthy, eat hearty, sleep sound, and am never sick. I am a blacksmith by trade. Can you tell me the reason of this loss of weight and give me a prescription by which I can regain my former weight? A. Your health being good, there is no advantage in additional weight. You can probably increase your weight by eating more nitrogenous food. All kinds of sweets and sweetened food tend to produce fat. 2. Please give a receipt for the most sensitive invisible ink used with heat and not with light. A. Write with a solution of cobalt chloride. It will appear when the writing is submitted to some heat. Or use a weak solution of nitrate of copper. It gives an invisible writing which becomes red by heat. 3. Give the size of wire to use on an electric bell on a line of 1,000 feet and how many Leclanche cells it will take to run it. A. Use No. 16. About four cells of battery will be required. 4. Can you tell me how the wax on the drum of a phonograph is prepared, and how it is put around the axle or shaft? A. The composition of the phonograph cylinder is a secret. The cylinders slip on a conical drum.