

RECENTLY PATENTED INVENTIONS.

Engineering.

LINK VALVE GEAR.—William A. Winn, White Hall, Ill. The link, according to this invention, pivoted near its middle with the reversing mechanism, and is formed with a slot arranged in line with the draught, the link block being fitted to slide in the slot and pivotally connected with the valve stem connection, while eccentric rods are pivotally connected with the sides of the link at its upper and lower ends. The link block has a U-shaped flanged body part carrying the wrist pin for the valve stem connection, and a cap for holding and adjusting the body part in the link, the improvement being designed to reduce friction and strain to a minimum, and facilitate the convenient adjustment of the several parts to compensate for wear.

ENGINE TENDER SCOOPS.—Caleb N. Devinney and Simon Hafner, Philadelphia, Pa. This invention provides a mechanism for automatically raising the scoops when the tender tanks are filled. A float piston is located within a dome constructed on the tank, and there is a rod and lever connection between the float piston and the lifting device of the water scoop, whereby the latter will be raised when the tank is filled. A mechanism is also provided whereby the engineer or fireman may, by means of compressed air, quickly raise or lower the scoop independently of the automatic apparatus, the improvement being designed for ready and inexpensive application to any tender, to be connected with an ordinary scoop.

FURNACE.—Absalom Backus, Jr., Detroit, Mich. This furnace has an arch connected with the top of the bridge wall and extending within the fire chamber some distance over the grate, there being an opening beneath the arch between the grate and the bridge wall, the opening being provided with dampers operated by a special mechanism. The construction is such that the arch serves as a superheater, adding to the intensity of the heat below the center of the boiler. The air admitted is under perfect control, and the heat is designed to be directed against the boiler throughout its entire length, the improvement being adapted to insure perfect combustion and economy of fuel.

Railway Appliances.

CAR SIGNAL.—Mahlon A. Gerber, Mahony Plane, Pa. The signal designed by this inventor is more especially adapted for use on freight trains, to enable the rear brakeman to signal to the engineer. The car or caboose in which the signal is located carries an air pump and reservoir, the pump being so connected with the axle that the reservoir will be kept full of compressed air by the motion of the car. The reservoir has a safety valve and a gauge, and is connected with a whistle at the top of the car, whereby the whistle may be blown by the brakeman or conductor whenever necessary. The pump can be worked by hand to supply compressed air to the reservoir when the car is at a standstill.

AUTOMATIC CAR DUMP.—John Story, Lonaconing, Md. Mining work is the especial object of this improvement, devices being provided whereby, as the loaded cars travel down to the dump, they will have their gates first automatically unlocked, when the car will be dumped and switched by gravity to another track for return to the mine. A tippable section of track is arranged at the intersection of two track sections, both on a down grade, but running in reverse directions, and the trippable section is pivotally supported in such manner as to engage the loaded car passing down from one track, tilt it, and at the same time shift the section to come in line with the other track section, as the car falls back in position after discharging its load, to admit of its return to the place of filling.

RAILWAY TRACK BRAKE.—This is another patent of the same inventor for a brake which shall be disconnected from the cars on which it acts, and may be made act successively on all the cars. The improvement consists of one or more horizontal brake bars arranged parallel to the track and just above the rails, while swinging links are pivoted at one end to the brake bars and at the other end to a fixed support, with means for giving the bars a parallel motion. This brake is adapted to clamp the edges of the wheels as they pass along, to retard the momentum of the car or stop it altogether.

CAR BRAKE.—Augustus J. O'Neill, Butte City, Montana. This device is more especially designed for use on cable roads. Combined with a plate adapted to extend into the slot of the cable conduit, and having brake shoes to engage the conduit, is an arm pivoted on the brake and carrying the pivot of the plate, the arm being under the control of the operator, while bell crank levers are pivotally connected with the arm and links are pivotally connected with the bell crank levers and the plate. The brake is of simple and durable construction, and has the superior advantage of holding the car to the track when braked.

Mechanical Appliances.

CENTRIFUGAL FORCE PUMP.—Edward S. Nicholas and Joseph R. Turner, Greenville, Ohio. In this pump a hollow revolvable inverted duplex cone is mounted to turn near the top of and within a casing which combines a water receiver and an air chamber. The construction is designed to be simple and durable, and to reduce friction to a minimum, so that the motive power employed is utilized to the greatest advantage.

SAWING MACHINE.—John B. and James P. Coan, Vincennes, Ind. In an adjustable frame is mounted a rocker supporting a platform and seat for the operator, while handles are connected with levers whereby the platform may be caused to rock backward and forward, the operator following with his body the motion imparted to the levers. The front end of the platform has a head pivotally connected with the saw, which is thus operated to cut logs, etc.

COTTON GIN FEEDER.—Ralph Hathaway, Memphis, Tenn. This invention consists of a

lever controlled from the gin lid and controlling the feed pawls of the feed roller. When too much cotton has been fed into the gin, the speed of the roller is automatically reduced about one-half, while in case of an obstruction in the gin the feed is stopped entirely, being set in motion again when the surplus cotton has been worked off. The improvement constitutes a simple, durable and effective feeding mechanism.

WRENCH.—Cicero T. Hammack, Birmingham, Ala. This wrench has two fixed jaws, and in one side of one of the jaws is a dovetail recess from which an opening extends through to the outside of the jaw. An auxiliary jaw with a dovetail tongue is adapted to fit in the recess and be locked in position there by a fastening device. By having a set of such auxiliary jaws the wrench is readily adapted to all classes and kinds of work.

Agricultural.

MOWER AND REAPER.—Tom O. Sundet and Salve W. Brekke, Neilsville, Minn. Combined with the frame and cutting apparatus is an operating wheel rigidly mounted on the axle, a tubular sleeve capable of longitudinal movement being also mounted on the axle, while a vibratory lever is pivoted to the tubular sleeve and adapted to be moved in and out of engagement with the operating wheel. The mechanism is exceedingly simple and easily operated, and is designed to give powerful leverage and insure lightness of draught.

FRAME FOR MOWER AND HARVESTER.—Samuel M. Pryor, New Castle, Ky. This improvement is more especially designed for a front cut reaper and mower, to take the place of the usual heavy and cumbersome frames now employed. The improved frame is simple and durable in construction, and easily built, while it is so made that the various parts of the machinery may be easily attached to it, means being also provided for placing the machine under the easy control of the driver.

COTTON CHOPPER.—Henry P. Tobin, and March Holman, Allendale, S. C. A gear wheel held to turn on the axle rotates a disk provided with radial cutter carriers, supporting cutters arranged diagonally to the axis of the disk, the blades revolving as the machine moves forward to thin out the plants. One or more covering plows are secured to rearwardly extending beams for turning up the soil, and the machine is designed to be simple, inexpensive, and very effective in operation.

Miscellaneous.

GYROSCOPE.—George E. Sire, Besancon, France. This is a simple device which may be used as a scientific toy and as an instrument of mechanical demonstration. It consists of a block having a central recess and a grooved face, a suspension cord being secured in the grooved portion of the block while an axis carrying a disk is pivoted in diametrically opposite sides of the recess.

COVER FOR SAP PAILS.—Titus Stowe, Readsborough, Vt. This cover has a supporting and attaching device, formed of a single piece of wire, whereby it may be readily placed in the desired position on a tree, and swung down to cover the pail or swung up for inspection or when the pail is to be removed. It is designed to protect the sap collected within the pail or bucket from rain, dust, dirt, etc., or from exposure to the sun.

ADDING MACHINE.—Joseph E. Blackshaw, Pittsburg, Pa., and George H. Rogers, Birmingham, Ala. This is a simple and compact machine, adapted to readily add small or large sums. Within a circular metal casing pivoted on a base plate is a ring graduated on its outer edge with divisions representing hundreds and on its inner edge with units up to a hundred, while a central toothed disk has graduations and teeth corresponding to those on the inner edge of the ring, there being means for rotating the disk, and an index hand at the outer circumference of the ring, gears connecting the disk to the index hand. The adjusting or counting arm is centrally pivoted, and bent up to form a handle and then outwardly, having a rocking spring action in entering or withdrawing its tooth from the notches of the disk.

CALENDAR.—George H. McKee, Darlington, S. C. A casing made of two hinged sections contains this device, one of the sections containing a stamp box or compartment, while the other has a main dial, a mouthplate, and a lock dial and detent. The device is designed to be carried in the pocket, and to enable the user to quickly determine the day of the week of any date in the period comprehended in the calendar, while it at the same time furnishes means for conveniently carrying postage stamps, etc.

EDUCATIONAL TOY.—Milton H. Rowland, Gladstone, Mich. A toy sled, wagon, chair, or other suitable base, has the letters of the alphabet and Arabic numerals marked on it, and perforations are made through the characters to receive different colored pegs or pins, which may be arranged to mark our words and indicate numbers, the device being also employed as a toy.

ALBUM.—Bernard Branner, New York City. This album is adapted to open oppositely and is centrally supported to revolve on a fixed shaft, while a folding picture holder has a hinged and a swiveling connection with a folding album case. The invention is an improvement on a former patented invention of the same inventor, providing additional novel features for the album and supporting frame, whereby the device is rendered more convenient and the exhibition of the contents of the album is facilitated.

MUSICAL INSTRUMENT.—William Van Deventer, Tacoma, Washington. This invention provides a tail piece for stringed instruments which is simple and durable in construction, and permits of conveniently and quickly attaching or detaching the strings. The tail piece has on its upper end a series of J-shaped slots, the several slots forming projections on

which are fastened the ends of the strings, which can thus be quickly and securely fastened and are readily removed to replace a worn out string by a new one.

DERRICK.—Charles E. Swift, Tonica, Ill. This is a strong and simple construction more particularly designed for conveniently hoisting and setting various structures, such as towers for windmills, electric lights, etc. It is adapted to be readily set up near the structure to be hoisted, and has a suitably constructed base on the front end of which are bearings in which is journaled a cross piece supporting in its middle the derrick boom. The boom is preferably made in several sections spliced together, and is strengthened by a series of plates arranged one above the other and connected with each other by truss rods.

WEIGHT RELEASING DEVICE.—Elias B. Birge, St. Paul, Minn. This invention provides an improvement in mechanism for opening or closing doors of fire engine houses, etc. A plate on a side wall supports a pipe into which projects an arm of a catch lever, a bar in the pipe supporting at its lower end a weight and the upper end of the bar being engaged by the catch lever, there being also attached to the weight a rope connected with a sliding bolt or other fastening for the door to be opened. A trip wheel actuates the lever mechanism for releasing the weight.

RANGE BOILER.—Ira G. Lane, New York, and Arthur H. Lovejoy, Whitestone, N. Y. The boiler is supported by brackets at the ends and near the back of the range, and is inclosed by a vertically swinging cover. One of the brackets has two bores connecting with the boiler at the top and with the water back, the connection being very simple and such as to insure a free circulation of water, while the boiler and the connections are entirely concealed, the boiler also assisting to heat the hot air closet located between the brackets.

LAMP BURNER.—Charles Pabst, Philadelphia, Pa. A wick suspending and adjusting device is provided by this invention, consisting of a pair of spring arms having integral lateral projections at their free ends, and a cross bar pivoted for limited vibration in the projections, the cross bar having pointed fingers, and the fingers and arms extending in parallel planes. The device is designed for use with burners in which a flat wick is used, facilitating the adjustment of the wick, and affording improved means for increasing the oil feed of the wick when in service.

LATCH.—Benjamin Edwards, New York City. This latch has a sectional casing, in which is a spring pressed bolt having lugs at each side, while the follower has a cam projection and a guide block secured in the casing and projecting partially over the follower, with other novel features. The latch is designed to be simple, durable, and inexpensive to make, having but few parts and operating with very little friction.

TRANSOM LIFTER.—Robert F. Hatfield, New York City. This is a simple device by means of which a laterally or horizontally swinging transom light may be held or locked more or less fully open as desired, the device also assisting in holding the transom light closed. It consists of an upright rotatable rising and falling rod applied to the casing, and having an upper radially bent branch arm in connection with the transom light in front of its hinges, there being a fixed spring catch to receive the branch arm when the rod is lowered.

ROAD CART.—Annie R. Chittenden, Osceola, Iowa. This invention relates to a two wheeled vehicle, to the axle of which are secured bars having their rear ends bent upwardly and outwardly, while a spring secured to the rear part of the seat and foot box support is connected to the ends of the bars by link connections, a spring secured to the foot box also having its end connected to the bars by link connections. The construction is simple and durable, and is designed to support the weight of the occupants on the axle, relieving the animal of all strain and obviating the disagreeable jar frequently found in carts as now constructed.

HORSE ARRESTER.—John Siebel, Oskaulosa, Iowa. This is a simple and inexpensive device for application to wheeled vehicles to automatically arrest an animal standing hitched to the vehicle if the animal attempts to start or run away, obviating the necessity for hitching the horse to a post, or the use of a heavy weight attached to a halter. A toothed wheel is formed on the inner end of one of the wheel hubs, and a gear segment adapted to engage the toothed wheel has an upwardly extending bar carrying a fork or loop to which the driving reins may be secured. A cam lever is pivoted on the side of the bar, and a downward movement of its handle causes the gear segment to engage the toothed wheel on the hub.

ANIMAL TRAP.—Hans H. Thielleson, Custer City, South Dakota. This trap consists of a receptacle having a counterbalanced trap door in its top, there being a mirror above the downward swinging end of the trap door, and a perforated bait box in front of the mirror, open at its inner end to permit its contents to be reflected in the mirror. The trap is arranged to reset itself after an animal is trapped.

NOTE.—Copies of any of the above patents will be furnished by Munn & Co., for 25 cents each. Please send name of the patentee, title of invention and date of this paper.

NEW BOOKS AND PUBLICATIONS.

THE HISTORY AND DEVELOPMENT OF STEAM LOCOMOTION ON COMMON ROADS. By William Fletcher. London: E. & F. N. Spon, 1891. Pp. xv, 288. Price \$3.

The history of the traction engine in this work is divided into the following periods: The periods of speculation, of experiment, of successful application, and finally the modern period. An introduction gives the early history of steam traction, and a chapter toward the end of the book gives practical notes on the design and construction of road locomotives. The work con-

tains such an amount of interesting matter that our room is not enough to adequately review it. It will be of peculiar value at this day, when the spreading movement for good roads makes the road traction engine a near possibility in this country. The English law practically prohibits them, but even in England they are made for export to foreign countries and to the English colonies.

ESSENTIALS OF BACTERIOLOGY. By M. V. Ball, M.D. Philadelphia: W. B. Saunders, 1891. Pp. 159. Price \$1.

This work, although nominally one of a series of quiz compends, really makes an excellent presentation of its subject. It is designed especially for use by the medical student, but from its low price, numerous illustrations, and generally attractive style, will have many other readers. The subject of bacteria culture is of fascinating interest, and popular manuals like the present will do much to extend its study.

COMMON SENSE IN MAKING AND USING STEAM. Facts for the consideration of proprietors of steam plants, by one who has paid for his experience. The Mason Regulator Company, Boston, Mass. 1891. Pp. 60. Price 25 cents.

This little work, so graphically described in the title page, is due to Mr. W. H. Bailey, M.E., of Rochester, N. Y. It treats of all the generalities of the steam plant, its location, boilers, their qualities, and care required to preserve them, grate bars, furnaces, fuels, the engine, indicator cards, and by no means least interesting, the management of firemen and engineers. The work concludes by a section on convenient rules, tables, and facts, and brief items of useful information. A six-page index sets a good example to more pretentious manuals. It is sufficient to say that the subject is attractively treated, and we are sure will prove entertaining as well as useful reading to many mill owners and others interested in getting most power out of coal or liquid gaseous fuels.

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