RECENTLY PATENTED INVENTIONS.

Engineering.

LINK VALVE GEAR. — William A. Winn, White Hall, Ill. This improved gear permits of a bearing for the outer end of the valve stem to prevent binding of the block in the link, at the same time permitting of the shifting of the link with greater ease. The sliding block has a longitudinal opening through which extends a pivot pin fastened in the sides of the block, there being a valve stem or extension for it holding bearing blocks and engaging the pin, a plate fastening the extension to the stem and holding the bearing blocks in place. The construction is such that the wear of the several parts can be readily taken up, thus preventing lost motion and at the same time reducing friction to a minimum.

MOTOR. — George W. Mings, New Castle, Col. This is a motor adapted to be actuated by the current of a stream, and is more especially designed to operate a pump for irrigating land adjacent, or for placer mining, etc. The invention consists principally of a water wheel mounted one a frame supported on two boats held adjustably one to the other. The frame is pivotally connected with the boats, and means are provided for swinging the boats on their pivots to adjust their front ends that more or less water may pass between them.

Railway Appliances.

CAR BRAKE. — Edward A. Kinley, Breesport, N. Y. This brake is of simple construction, and designed to afford means to exert great pressure on four wheel treads simultaneously by the expenditure of moderate manual force. Transverse bars lapping at their inner ends are pivotally supported to swing horizontally, brake blocks being held on their outer ends and toggle levers pivoted at their inner ends, while links are pivoted to the blocks and the outer ends of the levers, a draught rod being connected to the pivotal support of the levers.

ELECTRIC SIGNAL.—John M. Brasington, Morven, N. C. This invention relates to signals designed to warn an engineer of a break or obstruction in the track in a more effective way than it could be done by lights or signal boards. The invention covers novel features of construction and combinations of parts, whereby a bell is automatically rung by the signal in the cab of the locomotive, the bell continuing to ring until the engineer's attention is attracted. The construction includes a mechanism for setting a signal post on the track by the falling of a bridge or viaduct, and also a portable signal post adapted to be clamped to a rail.

Mechanical Appliances.

SAW FILING MACHINE. — George N. Clemson, Middletown, N. Y. The front edge of one tooth and the back of the adjacent tooth are filed simultaneously by this machine, the stroke of the file feeding the saw one or more teeth as may be required. Combined with the frame carrying the file-reciprocating mechanism is a pivoted guide for receiving and guiding the saw, a reversible file holder, and mechanism for reversing the file to change its angle to adapt it to file the teeth passing in opposite directions through the machine, means being also provided for changing the angle of the file with reference to its longitudinal movement, to cause it to feed the saw at opposite angles during its working movements.

BRICK AND TILE CUTTING MACHINE. —Richard A. Drawdy, Jacksonville, Fla. This invention relates to machines adapted to cut a continuous stream or bar of clay into bricks, tiles, etc., and provides a simple machine by means of which the clay may be rapidly cut, and the bricks and tiles left with well defined edges, means being provided for preventing the clay from sticking to the carrying rollers and for receiving the severed articles from the cutting table proper in such a way that they will not be broken or damaged.

GAUGE.—Sabin F. Brown, Denver, Col. A centrally-pivoted face plate of this gauge is free to vibrate in either direction, and a transverse stop or guide bar behind the face plate serves at its ends to limit the swinging movement of the face plate in either direction. The gauge is of simple and durable construction and designed more especially for use on sheet metal shears and other cutting machines, being arranged to gauge for straight work, such as is done by the ordinary gauge, or for angular cuts, without turning the sheet over for cutting successive sections.

PUMP. — Paden B. Riggins, Sheffield, Iowa. In this pump, the discharge pipe is connected with a lever or other suitable actuating mechanism, and is mounted to slide vertically, being rigidly connected with the piston and forming its piston rod, the lower end of the pipe opening into the hollow piston. A valved suction pipe is held in the lower end of the closed casing in which the cylinder is mounted, a valve in the hollow piston being alternately seated on the apertured top and bottom of the piston.

ELEVATOR FOR MINING CARS. — Thomas Wakefield, Ely, Minn. This cage of this elevator is provided with permanent track rails, and a vertically movable frame hung on the under side of the cage carries movable track rails, means being provided to raise the movable frame and extend the rails thereon between the permanent rails. The construction is simple and durable, and is designed to hold the car or other vehicle in place while the cage is in transit in the the shaft, and securely lock the cage in the uppermost position to prevent accident when loading or unloading.

Musical.

UPRIGHT PIANO. — John U. Fischer, New York City. The case of this piano is completely closed in front by a pivoted key board and adjustable panels, means being also provided for the compact stowage of all parts within a case having no projecting points, to facilitate transportation by reduction of bulk. A lid-vibrating device is also provided designed to enable a skilled performer to produce remarkably fine results in the modulation of sound volume, while the hands are employed in the manipulation of the keys, the escape of the sound volume from the top of the case being controlled by foot pressure.

PIANO SOUNDING BOARD.—The same inventor has obtained a patent for a sounding board designed to be highly resonant, adapted to direct sound toward the top of the instrument, and capable of resisting injury to resonance due to shrinkage of the material. The board is stiffened by vertical ribs on its front face and is plain on its rear face, being held by its edges against the sides and bottom of the case, and supported vertically by a keeper strip at each side edge independently of a back board, from which the sounding board is projected away, forming an intervening unobstructed resonant chamber.

PEG FOR VIOLINS.—George H. Rowe, Belton, Texas. This invention provides a key having a slot or channel extending from a point upon its outer surface diagonally downward in the direction of its center, and thence practically in a horizontal and reverse direction, whereby the string may be expeditiously, conveniently, and securely attached and as readily removed. The angular slot takes the place of the usual string aperture.

Miscellaneous.

OIL PURIFIER.—Rudolph Metz, Philadelphia, Pa. This purifier is adapted to separate and purify oil from waste material, the apparatus being of simple construction and such as may be easily cleaned out while holding the oil so that the purest may be drawn first. It has a main tank with an inlet pipe delivering in jets at the bottom, a strainer over the inlet pipe and an outlet pipe leading from the tank from within the strainer, a hopper in the upper portion of the pipe also having a strainer from which a pipe leads downward into the tank bottom, there being a steam pipe around the hopper pipe, and a number of discharge cocks one above the other in the side of the tank.

SPRING CONVEYER.—Oliver L. Jones, Cold Spring Harbor, N. Y. This is a revoluble screw conveyer adapted to be forced into a bank under constant pressure, so that when kept revolving it will work easily and rapidly, the material being carried by the blade and deposited in the rear of the conveyer, which is adapted for use in either a natural or an artificial bank, as a culm pile. The conveyer, while being forced into the bank by springs, to maintain a constant endwise pressure, is revolved by means of a crank or a pulley to which a belt may be applied.

CASH DISH.—David M. Perine, Baltimore, Md. This is a shallow dish with a thin flexible base, its upper surface covered with a series of rigid nipples, the base being inclined downward toward the center and provided with a drainage perforation, the dish being designed to facilitate the gathering up of small coin returned to a customer as change.

BLANK BOOK. — James W. Burris, Uvalde, Texas. This invention is designed as an improvement upon the Megee-Miller blank book, adapting it for use of typewriters and others requiring a book whose sheets or leaves may be readily detached and again secured together after being written upon. The sheets are detachably connected with a binding strip by means of a cord or cords, the strip being arranged parallel to the folded edge of the sheets and the cord formed into a series of loops which pass through openings in both the sheet and the strip.

WATCH REGULATOR.—Sirus E. Kochendarfer, Hollidaysburg, Pa. This invention provides a device whereby the undue expansion of the hair spring will be opposed and the increased momentum of the balance will be counteracted, in cases of shock or jar, thus permitting of only the normal action of the balance and hair spring and preventing the overheating or breaking of the roller jewel. A lever is pivoted to the regulator arm and furnished at one end with two studs, which embrace the outer coil of the hair spring, and at the opposite end with a single stud, held normally near but not in contact with the outer surface of the outer coil of the hair spring.

GAS STOVE. — Frederick W. Bean, Ogden, Utah Ter. This stove has two closed drums, one within the other, each having inlet and offtake pipes leading to the outer air, there being a burner under the inner drum and a water pipe extending through the two drums. The stove is simple and inexpensive, and is designed to throw out a great deal of heat with the use of a small amount of gas, heating water which may be utilized for a bathroom or otherwise, and affording means for supplying pure air to a room and carrying off all noxious products of combustion.

COOKING UTENSIL. — Patrick Lee, Boise City, Idaho. A multiple cover device for cooking utensils of various kinds is provided by this invention. It consists of a series of parallel apertured plates fitted to slide one upon the other, the lowest plate having an overhanging handle, and a pivot extending through the handle uniting the several plates. It is adapted for use as a close cover when desired for pots, kettles, boilers, and cooking or baking pans, and to fit and receive down within it vessels for cooking generally.

CENTRIFUGAL CREAM SEPARATOR.—Carl A. Hult, Stockholm, Sweden. The casing of this machine is preferably cylindrical, and it is especially adapted as a hand machine, although it has a driving pulley by which the drive shaft may be rotated by power. It is designed to thoroughly separate cream from milk or butter from milk, and the separators have two movements by which centrifugal force is employed in the separation of the fluids, or the solids from the fluids.

BEE ESCAPE FOR HIVES. — Granville H. Ashworth, Sedalia, Mo. When honey is to be removed from the storing chamber, the bees are allowed to escape therefrom into the brood chamber to facilitate the removal of the honey, and to aid in this purpose a board is inserted between the two chambers, centrally in which is a novel passageway forming the subject of this invention. It consists of a rectangular casing with projecting and sloping sides, at one end of which are hung fingers easily raised by a bee to permit of its passage from the storing to the brood chamber, but preventing the backward passage of the bee.

ANIMAL TRAP. — William H. Harden, Quitman, Ga. This trap is intended especially for rats and the like, and the invention provides a simple and novel construction of tripping and self-setting devices, the rat which is caught, in its efforts to escape, resetting the trap for the next rat.

FAUCET. — Samuel I. Merrill, Los Angeles, Cal. This invention relates to lever spout faucets more especially applicable to oil cans, in which the spout when closed shuts up under cover of the can or vessel and when open projects downward and outward. The invention provides for a special construction of such faucet in connection with a recess, cavity or chamber in the can or vessel, where the faucet is securely fastened, and where it will be fully protected and out of the way when the can or vessel is being shipped.

DISPENSING DEVICE.—John Neumann, Brooklyn, N. Y. The cooling and serving of malt liquors at a bar or counter are provided for by this invention by means of a compact, neat, and convenient device, whereby the liquor will be cooled before serving by the glass or measure, and the drainage from the draw cocks will be collected in proper compartments of the device. The apparatus is provided with the necessary pumps and draw cocks, and storage coils located in an ice receptacle, and the dispensing device is portable, to be placed at any desired point within the counter or bar.

SOLE. — Ferdinand Ephraim, San Francisco, Cal. This is an improvement in soles for "ironclad" or hob-nailed boots or shoes, there being attached to the inner sole a wire gauze plate carrying a series of nails clinched to it and having tapering heads adapted to fit in a series of similar tapering apertures in the outer sole or tap, the ends of the nail heads being exposed through the apertures to take the wear. The top lift of the heel may also be similarly protected.

TRACE IRON.—William J. Dankworth, Gatesville, Texas. Two leaves pivotally connected with each other are adapted to fold one on the other, one leaf having a hook passing through an aperture in the other leaf and adapted to engage the trace, and loops being arranged in line with each other on the leaf for the passage of the trace. The iron may be readily connected with the end of the trace without the employment of rivets, and may be easily attached to or detached from the hame.

SASH HOLDER.—Charles Scheibel, San Francisco, Cal. This is a window lock of extremely simple character, capable of application either to an upper or a lower sash. The sash has a recess to which leads a bore in which is a sleeve having a rib, a spindle turning in the sleeve, and an eccentric in the recess of the sash secured to a spindle, to which is attached a handle having a lip adapted for engagement with the rib of the sleeve. The device also acts as an anti-rattler, and serves to prevent the entrance of dust when the sash is locked.

SASH CORD. — Leedham Binns, Philadelphia, Pa. This invention relates to a double loop sash cord or rope composed of a single length doubled over upon itself to form two strands, which are twisted together, thus forming a loop integral with the doubled-over twisted cord at either end of the latter. A link or hook at the upper end of the cord is adapted to pass down through a bore into a pocket in the sash, a locking ring detachably engaging the link or hook within the pocket and preventing withdrawal through the bore.

MEDICINAL FOOD. — Andrew D. McKay, Liverpool, England. The combined constituents of this food are designed to make up a perfect article alike for infants, invalids, and generally for sufferers from indigestion, while the food is palatable and nutritious. The food contains dextrin, egg albumen, pepsin, hypophosphite of iron, hypophosphite of calcium, and other ingredients in prescribed proportions, which are mechanically mixed without the taking place of any chemical change.

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 ORGANIC ANALYSIS OF POTABLE WATERS. By J. A. Blair, C.M., D.Sc. 'Edin., L. R. C. P. Lond. Second edition. Philadelphia: P. Blakiston, Son & Co. 1891. Pp. ix, 120. (No index.) Price $1.05.

This little work in very attractive form treats of the albuminoid ammonia and oxygen processes at ordinary temperatures, of the latter process at 100° C., the sulphuric acid process for organic nitrogen, and the sulphuric acid and permanganate process for organic carbon. It will be found a useful *resume* of the well known processes summarized above.

ON THE MODIFICATION OF ORGANISMS. By David Syme. Melbourne: George Robertson & Co. London: Kegan Paul, Trench, Trübner & Co. Pp. vii, 164. No date, no index.

This work is written with the view of showing that the theory of natural selection is not to be absolutely accepted, and that its acceptance is still beset with difficulties of the most serious character. Natural science suffers no greater danger than that from dogmatism and the influence of great names. The theories framed to account for its phenomena and the laws we attempt to draw for it should be open always to criticism. For this reason such books as Mr. Syme's are very welcome and tend to do good.

NOTES AND EXAMPLES IN MECHANICS. By Irving P. Church, C.E. New York: John Wiley & Sons. Price $2.

This is a companion volume to the "Mechanics of Engineering" by the same writer, containing notes and practical examples, algebraic and numerical, to illustrate more fully the application of fundamental principles in mechanics of solids. It has also a few paragraphs relating to the mechanics of materials and an appendix on the "Graphical Statics of Mechanism."

The American Art Printer for April, published by C. E. Bartholomew, New York City, is, as usual, replete with matter of live interest to every *attache* of a printing or publication business who delights in noting the possibilities always afforded by artistic typography and perfect presswork. The gem of the number is a half-tone reproduction direct from a photograph and etched on copper by W. H. Bartholomew, the plate being printed in a regular type form, but presenting a firmness of outline, delicacy of shading, and perfection of detail such as is rarely met with in the finest steel plate work. The numbers of such a magizine should be kept in every office where printing is done or printers being made.

Isaacs' Artificial Perpetual Calendar. We have examined some very ingenious calendars invented by Mr. S. H. Isaacs, of this city, whose functions are denoted by the above name. They consist of stiff pasteboard, to which sliding cards manipulated from the back are adjusted. By properly working the sliding cards all calendar information can be at once procured in a few seconds. Thus, to determine the day of the week corresponding to a given date in the present, in the last or in the next century is an operation requiring but a fraction of a minute for its performance. Two additional tables explain how the tables can be applied to the entire Christain era, and also as far into futurity as may be wished. One of the calendars shows a calendar for a single month, the other one shows a year's calendar. The latter also has a most ingenious arrangement for determining the date of Easter Sunday. In both calendars the leap year is taken full cognizance of, and the data apply for all leap years.