

But in the Donnelly well the double casing was found so to contract its caliber as to greatly diminish the supply of salt water, and for that reason it was abandoned after a brief period of use, and the single tubing was restored. It is therefore claimed to have been an unsuccessful and abandoned experiment.

It was said before that the combination in both cases consisted of the same elements, and that they were arranged and operated in substantially the same way. But was the purpose for which the patentee's invention is intended to be used effectuated by the devices employed in the Donnelly well? There is no doubt about this. The useful result contemplated by the invention in question is the avoidance of the effect of the gas upon the pump valves by supplying an avenue of escape for it between the pump tub and the casing. The Donnelly devices furnish the same means for the escape of the gas and the relief of the pump valves, and they were used sufficiently to illustrate and test their complete efficiency in that direction. What more was required to demonstrate the completeness of the device as a means of accomplishing the result contemplated by the patentee? No change in mechanism was needed, and it was successful in operation. This is all that is required to take it out of the category of abandoned experiments. Its use might be altogether discontinued; but this would only leave it open to the public to use it. Certainly no subsequent inventor could take it up and appropriate it exclusively. What was said by the Chief Justice in *Galor vs. Wilder*, 10 How., 477, is decisive on this point.

We do not understand the circuit court to have said that the omission of Conner to try the value of his safe by proper tests would deprive it of its priority, nor his omission to bring it into public use. He might have omitted both, and also abandoned its use and been ignorant of its value; yet, if it was the same as Fitzgerald's, the latter would not, upon such ground, be entitled to a patent, provided Conner's safe and its mode of construction were still in the memory of Conner before they were recalled by Fitzgerald's patent.

The bill must be dismissed with costs.
George Harding and Weir & Gibson, for complainants.
Henry Baldwin, Jr., and C. S. Fetterman for defendants.

Recent American and Foreign Patents.

NEW MECHANICAL AND ENGINEERING INVENTIONS.

IMPROVED COMBINED TIME AND COMBINATION LOCK.

Franklin McDuffee, Rochester, N. H.—By the chronometer locks now in general use, no entrance can be made to the safe except at certain hours, however imperative the necessity, as, for instance, an approaching fire. This objection is completely obviated, as, by this invention, the proper persons arriving can open the lock at any time without waiting for the action of the clockwork to release the bolt. The objects of the invention are secured by the following method: The tumblers, all on the same spindle and operated by one dial, are so arranged that they can be locked on two separate combinations set by two individuals, each person being ignorant of the combinations, except his own. For instance, suppose the president and cashier of a bank are the persons intrusted with these combinations, the cashier can set his own part of the lock without the presence of the president, and he can always unlock the lock at such hours as the clockwork permits, and at no other, and can do so without the presence of the president. He cannot be compelled to open the safe, as he cannot open it alone until the proper hour arrives, yet after that hour he can open without help. This may be done for years without calling on the president. But should the clockwork stop at any time, or should it become necessary to enter the safe at any unseasonable hour, the cashier has only to summon the president, who, using his combination in conjunction with that of the cashier, can open the lock. Neither can open at such time alone.

IMPROVED ROTARY PUMP.

Robert Burns Reynolds, Stockport, N. Y.—This consists of two rotary pistons on parallel axes, both turning in the same direction, so that they have a wiping action on each other instead of the rolling development of one on the other, as has always been the case in pumps of this character.

IMPROVED RAKE TOOTH LATHE.

Sylvester Bisbee, Sumner, Me.—Sliding on the main frame, in guides, is a reciprocating carriage. Mounted on one end of the carriage is a long cylinder, at the other end a short cylinder, each of which contains eight grooves. These cylinders receive, in addition to the reciprocating motion, a rotary turn of one eighth of a revolution, so as to present the empty grooves to the feeding devices, and those containing the rods and blanks to the devices for forming the teeth in proper order, said feeding and forming devices consisting, essentially, of a feed plate, setting knife, cutter head, set-back, saw, ejector, projection, and feed hook, together with the devices for turning the tenon.

IMPROVED SCALE BEAM.

Hiram L. Grisell, Pennville, Ind.—This is a contrivance of tables with the beams and weight of a scale, for the computation of the values of fractional quantities. Example: If fifteen cents' worth of an article worth twenty cents a pound is required, the weight is moved along the beam until it arrives at fifteen on the line marked twenty at the end, when it will show twelve ounces as the required quantity.

IMPROVED PORTABLE RAILROAD TRACK.

Manuel De M. C. Y. Martinez, Havana, Cuba.—This is an arrangement of railway track in short sections, that can be easily handled to put down and take up. The parts are adapted to be laid on the natural surface of the ground, and to be kept in position with but little labor and expense.

IMPROVED RAILWAY CAR TRUCK.

Georg O. Eaton, Warren, Me.—Cars frequently require to be used upon and run from a narrow to a broad gage track, and vice versa. To enable this to be done, it has been heretofore requisite for railway companies to construct and keep on hand, at the junction of the different lines, two sets of trucks, one adapted for a narrow gage, and the other for a broad gage, so that, when a car was required to be changed from one track to the other, it was jacked up, the trucks removed, and others substituted. The expense and loss of time incident to this method constitute serious objections to it, and to obviate them is chiefly the purpose of this invention. To this end, it consists, broadly stated, in making the wheels of the truck adjustable laterally or towards and from each other. The truck is therefore an improvement in that class in which the several wheels are mounted on short independent axles. For particular construction and arrangement of parts, see patent.

IMPROVED COMBINATION LOCK.

Thomas McClanahan Seaton, Parsons, Kan., assignor to himself and John Adams, same place.—This invention consists in making the tumblers of a lock with points that work in the slot of the bolt, and causing the disk knob to slide in a slot of the plate.

IMPROVED MECHANICAL MOVEMENT.

Charles Sandermann, Elizabethport, N. J.—This is for changing reciprocating rectilinear into continuous rotary motion, and is applicable to revolve the shaft of screw propellers, and for other purposes. A reciprocating carriage has hinged stops at both sides, that act on movable cam rollers, traversing on the shaft sections, with spiral twists or grooves in opposite direction, so as to produce continuous rotary motion of the shaft by the reciprocating motion of the cam rollers.

IMPROVED ROTARY ENGINE.

Bruno Brauer, Bremerhaven, Germany, assignor to himself, Friedrich A. Schilling, Sr., and Friedrich A. Schilling, Jr., same place.—This is an improved rotary engine, in which the steam acts directly on the piston shaft, allowing the use of the same with variable expansion, and the ready reversion of the engine. It is not possible to afford a clear idea of the mechanism, which embraces several new and ingenious devices, without the aid of drawings.

IMPROVED LIFTING MACHINE.

August Ficht, Bellasylva, Pa.—This consists of a lifting bar, toothed on opposite sides, between guide ribs, for keeping it in gear with a couple of toothed wheels on a pair of shafts mounted on the top of a frame. Said shafts have cranks or levers to work them, and ratchet wheels provided with pawls to retain the weight at any height. The invention also consists of the supporting frame for the rollers, for working the lifting bar, contrived in two readily detachable parts, to facilitate the application of the machine to a stump or other object to be lifted.

IMPROVED DEVICE FOR DECOMPOSING WATER FOR FUEL.

Milton W. Hazelton, Chicago, Ill.—This consists of a tight pan under the fire grate, into which an air pipe from a fan blower and a water pipe enter below holes of conical form for driving water spray through the holes into the fire above. The inventor supposes that, by the heat of the fire, the steam will be desiccated, and that the hydrogen can be burned as fuel. The invention may prove useful for increasing the draft of furnaces.

IMPROVED DEVICE FOR CLOSING GATES.

John D. Reed, Greencastle, Ind.—This consists simply of a horizontal shaft, journaled to the gate post and rotated by a descending weight attached by a cord to a drum on the shaft. On one end of the latter is bevel gearing communicating with the gate, which is thus shut when the weight descends.

IMPROVED SPEED REGULATOR.

Nathaniel U. Metz, Norritonville, Pa.—This consists of a disk on the driving shaft to be regulated, carrying a pair of centrifugal weights, which are thrown out against the flange of a stationary disk. The friction of the latter is made to move out brake shoes with great force against the flange, to arrest the motion of the shaft in case the belt runs off, or the engine or other power runs too fast.

IMPROVED PAPER-CUTTING MACHINE.

John P. Dunwald, New York city.—This consists mainly of a combination of the swinging and balanced cutting knife with the clamping mechanism of an adjustable cutting gage and of a sliding feed or set gage of special construction. The set gage may be detached entirely, as well as the side guide piece, when the same is not required, or when the paper is to be cut at different angles.

IMPROVED EXCAVATOR.

John P. Bonnell, Elizabeth, N. J.—This is a machine which is movable on wheels along the ground, and contains an endless chain of buckets, which dig the earth and carry it up to a laterally working endless discharger. The buckets are fed up to the work by the power which moves the machine along the ground. The essential part consists of a machine arranged on feeding or propelling wheels as a fulcrum, with a contrivance for elevating and lowering the buckets in advance of the fulcrum to gage the machine for grading ascending and descending inclines, also for running it into and out of the ground in using it for ditching purposes. The buckets are extended outward, at each side, beyond the ends of the drum, over which the said chains work to cut their way in advance of the carrying wheels sufficiently wider than the latter and their housings to enable the apparatus to run freely.

IMPROVED PROPELLER WHEEL.

William S. Wootton, Scottsburg, Va.—This wheel is designed more particularly for the shallow rivers of the West, and is intended to operate either as a paddle wheel, or by grasping the bottom of the river, being provided with flukes for this latter purpose, which catch in the river bed and urge the boat along. It is automatically adjustable to the irregularities of the river bed; and instead of having a central axis, is provided with internally projecting teeth upon its periphery, which engage with and receive motion from one of the pinions of two supporting shafts, of which shafts, the one that transmits the power is stationary, and the other is movable to regulate the elevation of the wheel when employed as a paddle wheel.

IMPROVED MACHINE FOR MAKING BARRELS.

Samuel P. Hodgen and John W. Yelton, Neosho, Mo.—This consists of a circular vertically adjusting follower, arranged over a platform, on which the lower head of the barrel is placed to nail the staves on. The follower is hooped with a band of iron for clinching the nails driven against it, and is employed as a gage, around which to set the staves, and for clinching the nails used in nailing on the hoops. The follower also has a box securely attached in its centers, so that the rod or shaft will pass through it without binding, and at the same time hold said follower perfectly true as it is raised or lowered.

IMPROVED PACKING FOR BALANCED PISTON VALVES.

David Dale, Millerstown, Pa.—This is a contrivance of radial plugs in the pistons, on which steam is caused to act to push out the packing ring, one of the said plugs acting by a wedge between the ends of the ring to expand it, and another, or more if desired, acting by a stiff spring, which bears at its ends on the packing ring and distributes the pressure upon two points.

IMPROVED FEED WATER HEATER AND FILTER.

Georg F. Jasper, Freeburg, Ill.—The purpose of this invention is to still further improve and simplify the feed water heater and filter for which letters patent were granted to the same inventor heretofore, under date of December 1, 1874, and June 8, 1875; and the invention consists in the arrangement of a double water box in the heating tank, in connection with the filtering receptacle below. The exhaust steam is allowed to act at the bottom and top sides, while acting only on the bottom of the upper box, so as to impart a higher temperature to the water in the lower box than in the upper.

IMPROVED RAILROAD GATE.

Harmon Graybill, Cassville, Wis.—This is an improved railroad, farm, or other gate that extends across the track and is automatically opened and closed by the trains. It consists of swinging lateral gate sections, that are thrown up to the outside of the track by the depression of the bearing rails.

IMPROVED HOSE COUPLING.

Calvin L. Martin, Portland, Me.—This consists of two or more spring catches on one section to spring over a flange on the other. The said catches have a lever and a cam rocker, by which to detach them from the flange readily when the hose is to be uncoupled.

NEW CHEMICAL AND MISCELLANEOUS INVENTIONS.

IMPROVED SOLDERING IRON FURNACE.

Edward G. Adams, Cohoes, N. Y.—This consists of a vertical fire box with a center flue and a hood, so arranged over the fire bed that an open space is provided in the coal for the irons. The heat is thus made to pass directly against the irons, so as to warm them quickly.

IMPROVED CARBURETER.

James T. Stewart, Los Angeles, assignor to himself and James Wilson, same place.—This consists of an air drum moving in a water tank, and forcing the air through a connecting pipe into a float filled with gasoline. The gasoline pan is placed into a gas holder filled with water, that raises the pan to keep the air pipe always in the gasoline.

COMPOSITION OR CEMENT FOR PRESERVING FRUIT, ETC.

Charles A. Dards, New York city.—This is a composition employed for the purpose of sealing a soft wrapping paper that has been rendered airtight by a mixture of oil and alum around the fruit, vegetable, or other perishable article. The articles are then packed into boxes, filled with sawdust, and kept in a fresh state for any length of time. The composition consists of starch, a suitable fat, salt, carbonate of ammonia, a suitable vermifuge, alum, citric acid, and water.

IMPROVED MECHANICAL LEDGER.

Otto Sallbach, Pittsburgh, Pa., assignor to himself and Charles Ruhe, of same place.—This invention consists of a series of revolving strips, with numerals indicating dollars and cents, which strips are moved by an adjustable friction roller and shaft, the whole being enclosed in suitable manner. The amount is kept for each customer by entering his name to a certain number on an inside slate, and setting the printed strips to the exact number of dollars and cents by setting, first, a friction wheel to move the lower strip, and then to the upper. The amount due will then be visible through the corner glass plate and indicate to the customer the state of his account, his number and date of last purchase only being placed on the outside. When the account strips have been adjusted, the friction wheel is released from contact with the strips, so that no accidental changing of the same is possible.

IMPROVED BAG HOLDER.

Lealand H. Bristol, Lawrenceville, N. Y.—This invention consists in combining a sliding spout with a bench strap and screw, and also with a wedge-shaped rest, the latter serving to graduate the bag from the spout down to the bench.

IMPROVED BOOT LACE FASTENER.

James McDonald, Campbelltown, Province of New Brunswick, Canada, and F. A. McDonald, Durham, Province of Nova Scotia, Canada.—This invention relates to the ready, secure, and convenient fastening of lace boot strings by means of two plates, one being on each side, and the string being passed through as well as between the plates, before being clamped, so that escape is almost impossible.

IMPROVED WIRE FENCE BARB TOOL.

Homer W. Prindle, Fort Dodge, Iowa.—This is a tool for forming barbs on fence wires, having its lower end bent over to one side to form a hook, and having a slot or notch formed in its edge, close to its lower end, to adapt it for use.

IMPROVED FOUNTAIN PEN.

Robert Douglass, Buctouche, Canada.—This invention consists of a spoon-shaped termination of the back portion of the fountain holder, in the cavity of which is the opening for the issue of the ink, and over which the pen is attached, so as to receive the ink at suitable distance above the point. There is a cock in the ink passage from the bottom of the fountain to this issue, to regulate and shut off the flow of ink at will, and at the top of the fountain is a vent to admit air, for allowing the ink to flow out properly.

IMPROVED HORSESHOE.

Charles D. Rattray and Alexander Robertson, New York city.—This is an improved ice shoe attachment for horses, which may be readily and firmly applied over the common shoe and to the hoof, so as to be used whenever required, and taken off without difficulty. It consists of an ice shoe with sharp calks that is fitted over the common shoe, and attached to the hoof and shoe by curved outer pieces passing through the attachment, and by interior binding pieces and screw nuts screwed on the inner threaded ends of the curved binding pieces.

IMPROVED RUBBER BOOT.

James A. Bates, South Abington, Mass.—This invention consists of a rubber boot provided with a leather counter, applied over the lining of the same.

IMPROVED METHOD OF LABELING MINERAL SPECIMENS.

Charles W. Cannon, Helena, Montana Ter.—Plaster of Paris is mixed with water to the consistence of thick cream, and applied to the specimens in sufficient quantity to form a space large enough to receive the desired inscription. The specimens are then jarred to cause the cement to set with a smooth surface. After the cement has set and become sufficiently dry, a small pointed brush is used for putting on the inscription with India ink.

NEW WOODWORKING AND HOUSE AND CARRIAGE BUILDING INVENTIONS.

IMPROVED STATION INDICATOR.

Charles M. Sexton, Aurora, Ill., assignor to himself and Orlando O. Wormwood, of same place.—This consists of a polygonal roller, that carries the slotted name boards on raised ribs or lugs near the end. The lugs and slots of the boards are alternately set at greater or less distance from the ends of the roller to take up the boards in regular manner. The roller is revolved by a loose pulley and pawl, actuated by a connecting band and spring.

NEW HOUSEHOLD INVENTIONS.

IMPROVED DEVICE FOR HEATING AIR FOR FURNACES.

Charles Thonger, Courtright, Canada.—The object of this invention is to utilize some of the waste heat of a boiler furnace for heating the air supplied to the furnace for the support of combustion. As applied to a locomotive boiler, the smoke passes through the boiler flues to the smoke box, as usual, thence back in a casing, covering and surrounding the upper part of the boiler. The tubes terminate in a breeching, from which the smoke escapes in vertical tubes, which form the smoke pipe, and are surrounded by a casing, down which the air for feeding the furnace passes to the casing on the boiler containing the smoke pipes, and to a jacket at the rear. Thence it passes along the boiler to the ash pit.

IMPROVED GAS BURNER.

Victor Zeis, New York city.—This consists of a carbonizing and pressure-regulating attachment for gas burners, made of a hollow vessel of copper, with a socket to attach to the fixture. A gas tube extends from the socket up to the upper part of the interior; and there is a burner at the top, and a tube extending from it nearly to the bottom. A bell-mouthed tube extends from a point near the top of the burner down through the cap into the carbonizing chamber, for the purpose of deflecting the gas, and causing it to descend and mix with the hydrocarbon vapor before passing through the perforations of the pipe leading to the burner.

IMPROVED AIR COOLER.

William E. Richardson, Buffalo, N. Y.—This consists of a pan or tube to contain ice, arranged in a surrounding case of non-conducting material. There is a space between the two, into which cold air from within the pan may pass through openings in the sides in the bottom of the latter, and also from a coil of pipe entering the pan from outside, and discharging into said space. From the space it may be conducted to cellars or other rooms or places for cooling. It is adapted to many purposes for which low temperature is required, effecting a great saving of ice. The inventor claims that he can cool a room 40x40 feet and 10 feet high, with about 1,500 lbs. ice per twenty-four hours.