

**A SPOON HOLDER ATTACHMENT FOR BOTTLES, ETC.**

An extremely simple and most convenient device for holding spoons for use with medicine and similar bottles, the device being readily attached to or detached from the bottle, is shown herewith, and has been patented by Mr. Alfred W. Hanington, of Ridgewood, N. Y. It consists of a single piece of wire bent upon itself to form the recesses indicated, whereby one or

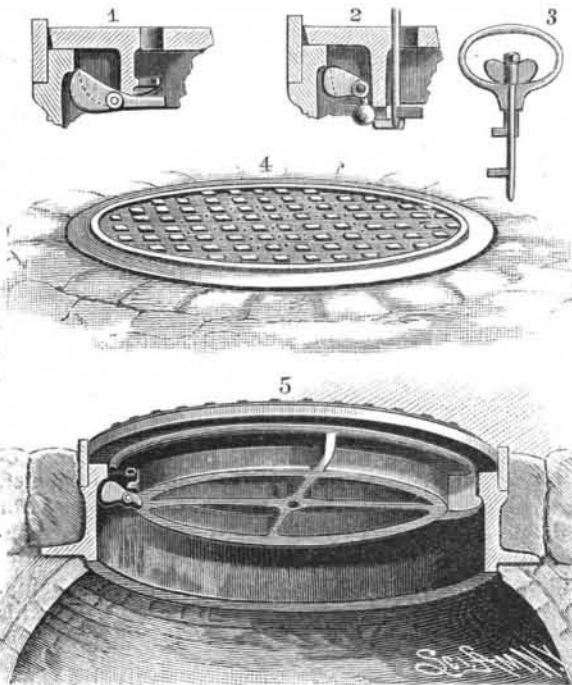


HANINGTON'S SPOON HOLDER.

more spoons may be held in a vertical or horizontal position, the semicircular disconnected ends being adapted to embrace the neck of the bottle, and being made to spring thereon.

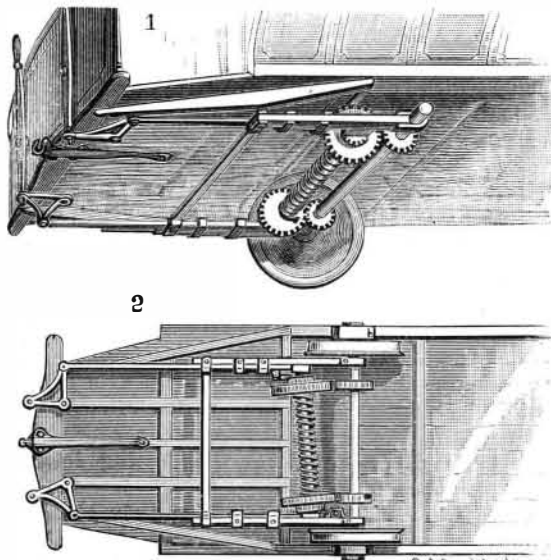
**IMPROVED MANHOLE COVER FOR SEWERS, STREET VAULTS, ETC.**

A manhole cover, which is provided with a simple and effective locking mechanism, is illustrated here-



LOWRIE'S SELF-LOCKING MANHOLE COVER.

with, and has been patented by Mr. Harvey C. Lowrie, City Engineer of Denver, Col. Although devised with special reference to sewer service, the improvement is equally applicable for use with covers to coal holes and other similar outside entrances to vaults located beneath sidewalks or streets, rendering such openings practically inaccessible to unauthorized persons. Fig. 4 is a top view of an improved form of cover, and Fig. 5 is a vertical section, showing a preferred form of man-



DILLENBECK'S CAR BRAKE AND STARTER.

hole curb, with its anchored wide annular flange and the inwardly projecting upper flange, with which engages the pivoted locking bolt or lug. Figs. 1 and 2 show other forms of engaging this locking bolt or lug with the flange of the curb, the line of upward motion of the lug being indicated by dotted lines. This cover is self-locking, when dropped into its seat in the curb, regardless of rotative adjustment, the outer end of the locking lug riding freely over the flange of the curb and then dropping beneath it, so that the cover cannot be again lifted without first lifting the outer end of the lug, which thus serves as a gravity latch bolt. In Fig. 3 is shown a combined key and lifter, the key having a thumbpiece, which may be made integral with its shaft when not combined with the cover-lifting device, this form of key having separately rotative arms or bits. If the key be employed in a simpler form, a permanent handle for the cover can be used, and for covers accessible from below, as for coal holes, etc., the key may be dispensed with.

**A METHOD OF RUNNING STREET CARS.**

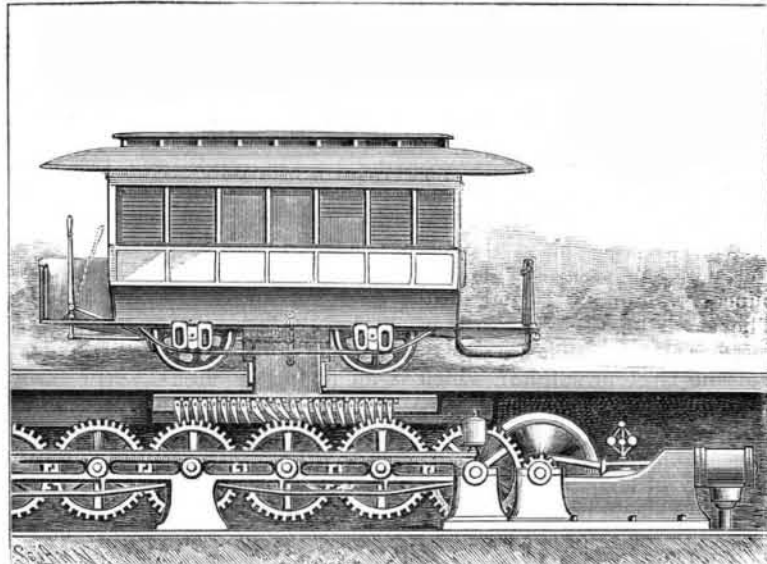
An invention particularly designed to facilitate the operating of street cars, providing for easily stopping and starting the cars, and for propelling them past intersections of car tracks, is illustrated herewith, and forms the subject of a patent recently issued to Mr. Michael McManus, of No. 313 North Second Street, Philadelphia, Pa. Each car has suitable slideways or guides running lengthwise under the center of its bottom, in which the shank of a grip device is fitted for vertical movement, the grip shank passing through a longitudinal slot at the top of a subway casing, in which is a continuous train of gear wheels arranged to engage the grip. The lower part of the grip extends lengthwise within the subway casing sufficiently to cover two or more of the gear wheels, and to this portion of the grip is pivoted a series of pawls, the upper ends of which are adapted to stop against lugs fixed to the grip body, whereby the pawls will swing freely in one direction, but resist pressure in the opposite way. With the motion of the train of gear wheels, each wheel turning in reverse direction with the one meshing with it, the grip pawls are engaged by the wheels turning forward and forced to their respective stop lugs, thus propelling the car, the remaining pawls being swung idly backward by the wheels that are turning in the reverse direction.

The grip shank is connected to the car body by toggle levers pivoted to a rod connected to the lower end of a lever fulcrumed on the car platform, in convenient reach of an attendant, whereby the grip may be lifted or lowered, to free its pawls from or engage them with the gear wheels in the subway. This lever has also connected to it a rod controlling the brake beam, so that when the lever is thrown back, as shown in dotted lines, to lift the grip pawls, the brake shoes will be applied to the car wheels, the pushing forward of the lever taking off the brake. Where two tracks cross each other, the two gear wheels of one line nearest the head of the subway casing of the crossing line are separated sufficiently to allow the grips of the cars traveling on the crossing tracks to clear them, and an intermediate gear wheel is journaled beneath the space between the two separated wheels to continue their motion and allow the grips of the other cars to pass over. For the proper and economical lubrication of the numerous bearings, a pipe extends over the journals of the gear wheels on either side, with necks or nipples entering each bearing, feeding oil or other lubricant thereto from a suitable reservoir, with which the pipe connects. The continuous line or train of gear wheels is intended to be operated by a main driving engine, set up in an underground vault, but auxiliary or relay engines may be set up and connected thereto at different points along the road.

**AN IMPROVED CAR BRAKE AND STARTER.**

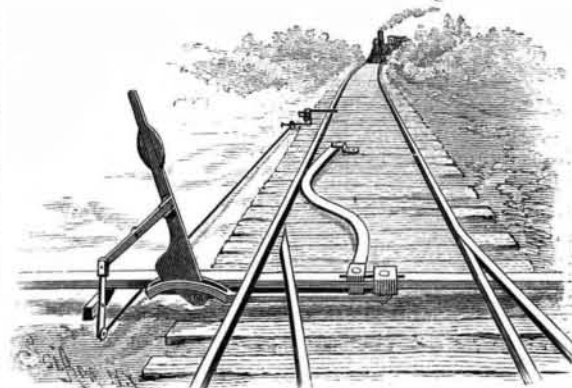
A mechanism by which the force employed in braking or stopping a car is stored in such way that it may be utilized for the purpose of starting the car is shown in the accompanying illustration, and has been patented by Mr. A. V. Dillenbeck, of No. 119 West Main Street, Rochester, N. Y. Fig. 1 is a perspective view of the under side of a car provided with this mechanism, and Fig. 2 is an inverted plan view in which the parts are represented as they appear when the starting mechanism is in position for operation. Small gear wheels are mounted near each end of one of the car axles, and in advance of this axle is held a shaft in bearings carried by rods supported by straps carried by a frame, these rods being free to slide back and forward within the straps, and their forward ends being pivotally connected to bell-crank levers mounted

beneath the platform of the car, the bell crank levers being operated by levers extending above the dashboard, in convenient reach of the driver. A spring is coiled about the shaft that is held in advance of the car axle, and on either end of this shaft are held loose gears, with ratchets engaged by pawls operating in connection with the forwardly extending rods, the spring coiled about the shaft being connected to the



McMANUS' SYSTEM OF RAILWAY CAR PROPULSION.

loose gears on both ends. To stop the car, the movement of one of the levers at the dashboard throws the gear on the shaft held by the rod on that side into engagement with the adjacent gear on the car axle, which winds up the spring and at the same time acts to check the momentum of the car, the gear at the other end of the shaft being held from rotation by its pawl controlled by the other lever. In starting the car, the first gear having been released from its engagement with the axle, and being held by its pawl, the other lever at the dashboard is moved, and throws the gear on the shaft held by the rod on that side of the car into engagement with the adjacent gear on the other end of the car axle, the pawl on that end then permitting the spring which had been wound by the stopping of the momentum of the car to act to

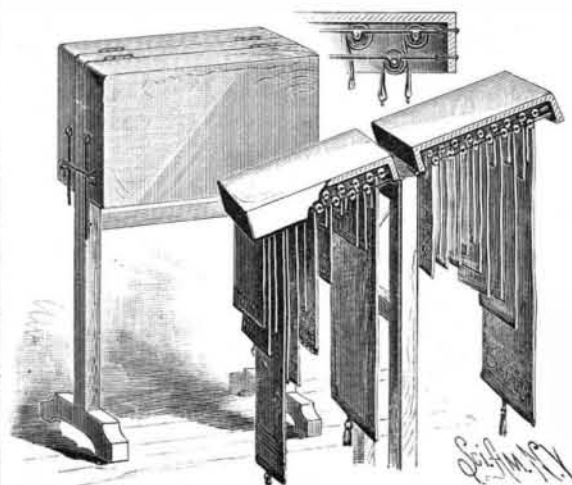


SUFFERN'S RAILWAY SWITCH.  
[FOR DESCRIPTION SEE PAGE 275.]

turn the gear in a proper direction to start the car wheels forward.

**A DISPLAY CASE FOR WINDOW SHADES, ETC.**

A cheap and durable case for storing and exhibiting patterns of window shades, etc., promoting convenience in the selection of styles and protecting the samples from dust, is shown in the accompanying illustration, and has been patented by Mr. Lewis McNutt, of Brazil, Ind. The main frame is mounted on foot pieces, which may be provided with casters, and to each side of the upper cross bar of the frame is hinged a box-like case, with the open side of the box toward the frame. To the ends of the boxes are secured two strips formed with recesses to receive the fixtures upon which the curtains are mounted, the curtains being held from displace-

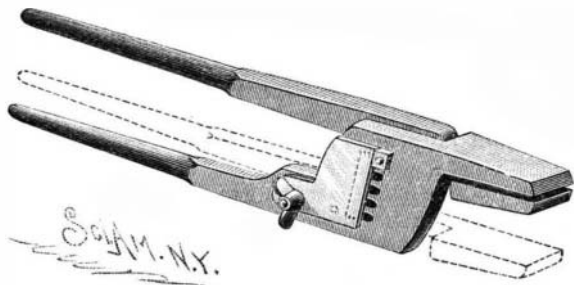


McNUTT'S SHADE EXHIBITOR.

ment by wire rods connected by eyes to the case at one end and engaging by hooks with eyes at the other end, as shown in the detail views. Supporting braces are connected to each end of the cases, and they are arranged to enter properly located recesses in the standards of the frame, in order that the cases may be held extended, as shown in one of the views, when any one or more of the shades may be drawn down for inspection. The strips forming the recesses which receive the shade fixtures break joint with each other, so that the pendent portions of the shades will hang in distinct planes.

**IMPROVED ADJUSTABLE TONGS.**

An improved form of tongs, with which the operator is enabled conveniently to hold a large or small object,



**MANNES' ADJUSTABLE TONGS.**

is shown herewith, and has been patented by Mr. William H. Mannes, of No. 1720 Blake Street, Denver, Col. One of the tong parts carries the pivot pin, and the other has a number of parallel slots leading into a cross slot, a guard plate being held on this slotted tongue part by means of a bolt with a winged nut screwing down on the plate. With the adjustment shown in the illustration, the jaws will hold very small objects. To hold larger articles, the winged nut is unscrewed, allowing the guard plate to swing downward, uncovering the cross slot, when the operator can move the shank of the pivot pin carried by the other tong part to any of the other slots, thus altering the position of this tong part and its jaw to a position such as shown in dotted lines, when the guard plate is again swung upward and screwed in position, engaging one of the sides of the square head of the pivot pin.

**A SWITCH OPERATED BY THE LOCOMOTIVE.**

A novel construction of railway switch, operated by the locomotive without any attention from the engineer, and with which there is no necessity of applying to the locomotive any fixtures, is represented in the accompanying illustration, and has been patented by Mr. James B. Suffern, of Hillburn, Rockland County, N. Y. The movable rails are attached at their free tapered ends to a switch bar, connected with a switch stand, the bar having a slot near its center. To one of the ties, a short distance therefrom, is pivoted a curved track lever having a forked end which embraces the switch bar, being connected therewith by a

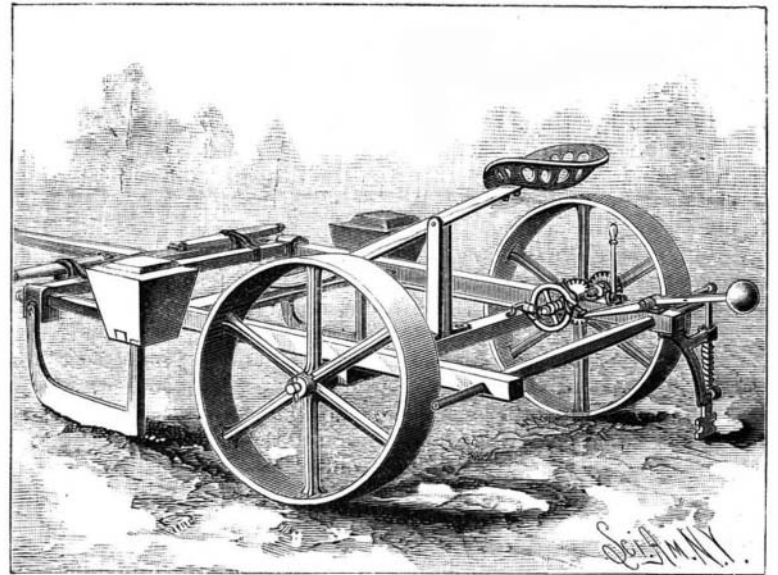
locked in position away from the slot, to permit of the free movement of the track lever without moving the switch bar, or it may be locked against the side of the track lever, when the latter cannot be moved without moving the switch bar. When the weighted cam lever at the side is raised, the track lever is free; but when this weighted lever is depressed, the track lever is locked to the switch bar. A short distance beyond the point at which the curved track lever is pivoted is placed a vertical shaft, with an arm projecting into the path of the locomotive pilot and another arm connected by a rod with a toggle joint operating the weighted lever to move the switch bar. A train approaching the switch from the opposite direction passes over it in the usual way, leaving the main track continuous. But when a train is approaching as indicated in the engraving, the pilot of the locomotive engages the projecting arm connected with the rod which trips the toggle joint and allows the weighted lever to fall, and the track lever being then locked with the switch bar, the engagement of the wheels with the track lever moves the switch rail to render the track continuous, and the train may then pass over the switch in safety without danger of being run on the siding.

**AN IMPROVED CORN PLANTER.**

A novel construction of marking and dropping devices for a corn planter is shown in the accompanying illustration, and has been patented by Mr. Isaac H. Athey, of Marion, Ark. On the drive wheel which operates the dropping and marking mechanism is a gear wheel meshing into another gear wheel mounted loosely on one end of a short shaft held in bearings on the main frame. Sliding on and rotating with this shaft is a clutch, connected with an upright shifting bar, for moving the clutch into or out of contact with a ratchet wheel, whereby the forward movement of the drive wheel imparts a rotary motion to the short shaft. On the latter is a cam wheel with sidewardly projecting arms, which, with the rotation of the shaft, operates a lever connected with the dropping bar working in the seed boxes in the usual manner, the lever being constantly shifted from one side to the other by the cam wheel, thereby imparting a sliding motion to the dropping bar. On this shaft is also held, by set screws, two curved arms, extending in opposite directions, which, with the revolution of the shaft, engage by their outer ends one end of a lever fulcrumed on a bar secured to the main frame. This lever carries a weight at its rear end, and just forward of the weight is a sidewardly extending arm, with a friction roller operating on the marking bar. The latter is held to slide in a bracket secured to either of the side beams of the main frame, the upper arm of

the top of the marking rod, forcing the latter downward until its foot makes an indentation in the ground at the point where the corn was dropped by the dropping bar.

As the machine travels forward, the marking rod swings on its fulcrum, and is lifted and held in vertical position again by the springs, by the time that the weighted lever has been raised by one of the arms on the short shaft, and the marking rod is again pressed downward at the point where the corn was



**ATHEY'S CORN PLANTER ATTACHMENT.**

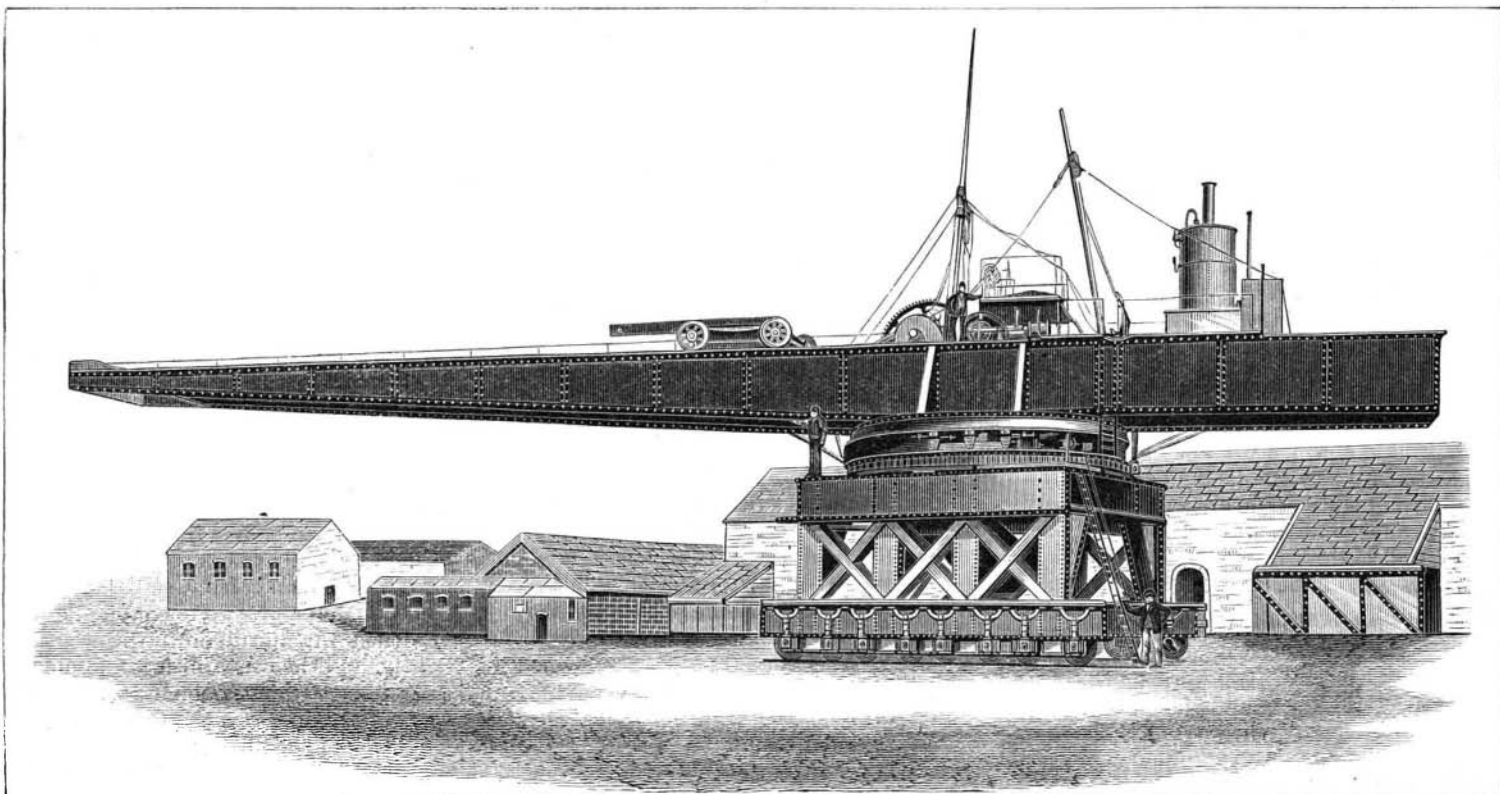
dropped. The machine is simple and durable in construction and very effective in operation.

**Euphorbia Rubber.**

Up to a comparatively recent date, small parcels of this gum have occasionally appeared on the market, but for some time rubber manufacturers could not succeed in satisfactorily making use of it. At last, however, a method has been discovered which renders the gum available for mixing with various kinds of India rubber to the extent of 50 per cent. A piece of vulcanized rubber containing 50 per cent of the euphorbia gum has been tested for some time in an exposed position on a roof, and it has kept better than a similarly exposed piece of ordinary pure (vulcanized) rubber. Mixed with gutta-percha, it prevents the latter becoming brittle. Washers made with 30 per cent of this gum and vulcanized rubber stand well and retain their elasticity. Tubing for supporting high pressures is far less likely to split and crack when a proper quantity of euphorbia gum is employed.

**NEW ALL-AROUND CRANE.**

We illustrate a new all-around crane by Ransomes & Rapier, Ipswich, designed to lift a test load of 33 tons at a radius of 67 feet; the maximum radius which can be



**IMPROVED ALL-AROUND CRANE.**

bolt passing through the slot. The convex side of the curved track lever is normally in contact with one of the rails, so that a car wheel passing along in either direction would throw the track lever away from the rail. Upon the side of the switch bar is pivoted a weighted cam lever, embraced by a yoke, connected with a slide placed on the switch bar beyond the forked end of the track lever, and this slide may be

the bracket having an elongated slot, and its lower arm carrying a friction roller resting with its rim against one side of the marking rod. A spring secured to the side beam of the main frame presses with its free end against one side of the marking rod, on which also is a coiled spring. As the machine is operated by its forward movement, the arms on the short shaft lift the weighted lever, and cause it in dropping to strike

obtained with it in ordinary work being nearly 80 feet. The *Engineer* says: "The machine is self-propelling, being borne on a carriage which is mounted with 32 springs on 16 wheels, and has a gauge of 21 feet and sufficient height to allow a railway train to pass under it. The various motions of lifting the load, traveling, altering the radius, and turning are all performed by the steam engine."