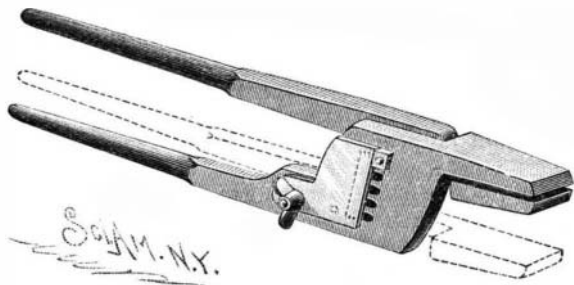


ment by wire rods connected by eyes to the case at one end and engaging by hooks with eyes at the other end, as shown in the detail views. Supporting braces are connected to each end of the cases, and they are arranged to enter properly located recesses in the standards of the frame, in order that the 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

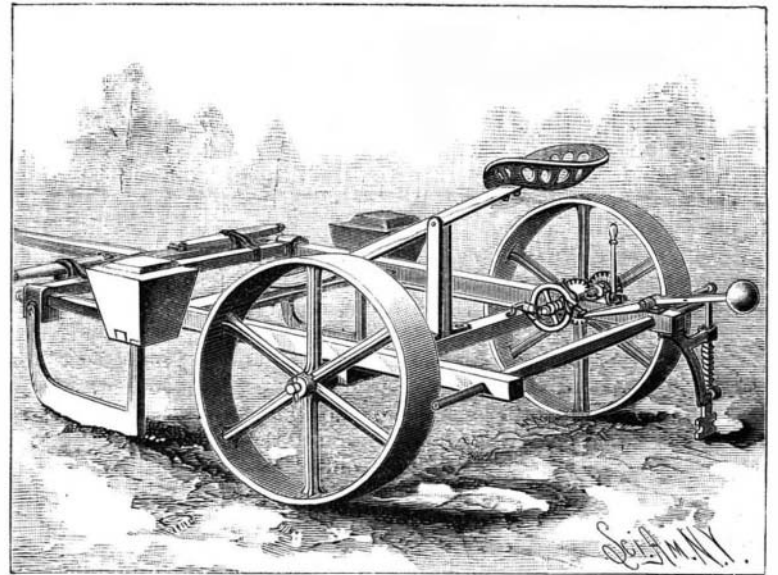
locked in position away from the slot, to permit of the free movement of the track lever without moving the switch bar, or it may be locked against the side of the track lever, when the latter cannot be moved without moving the switch bar. When the weighted cam lever at the side is raised, the track 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.**

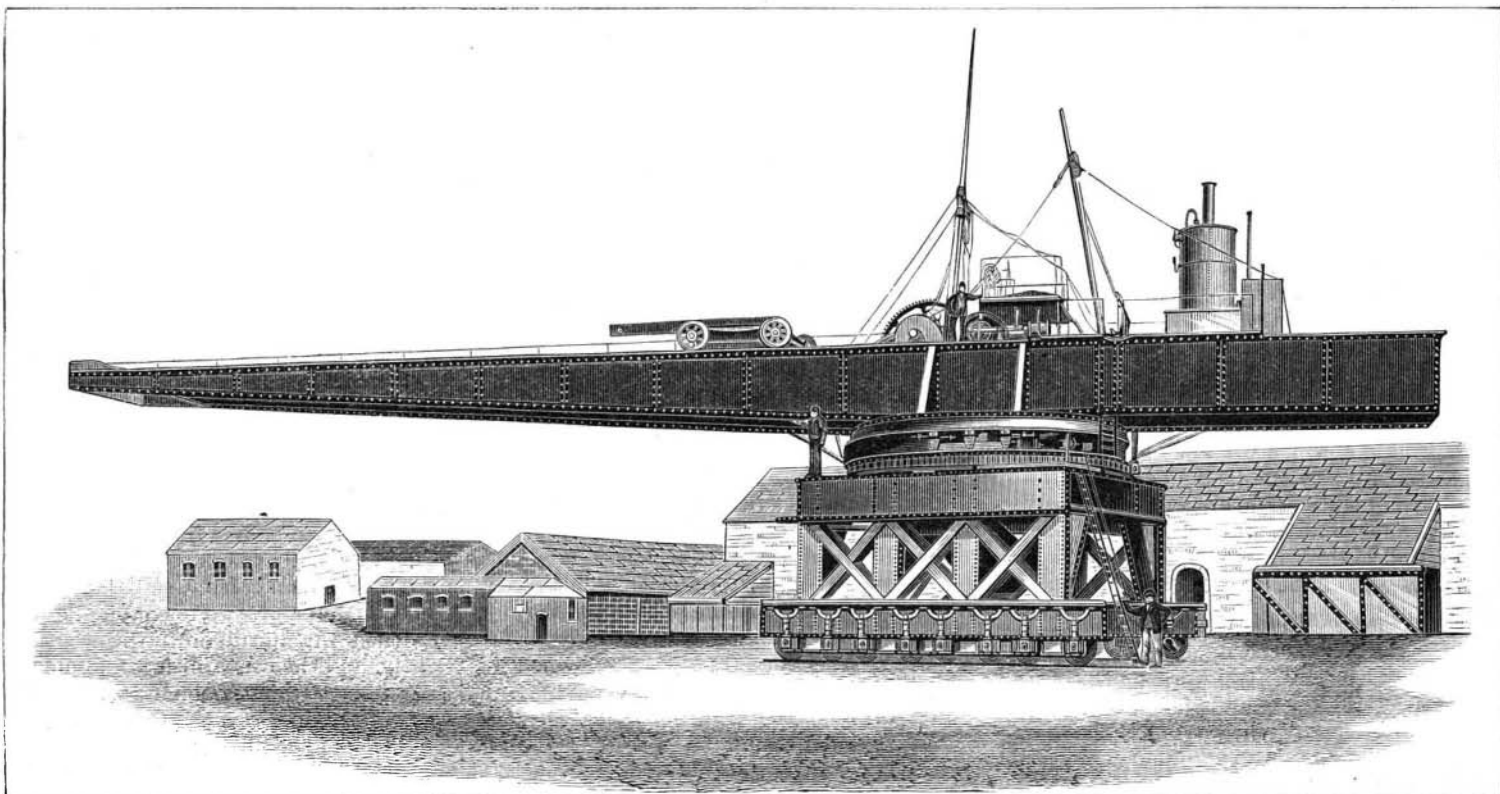
dropped. The machine is simple and durable in construction and very effective in operation.

**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."