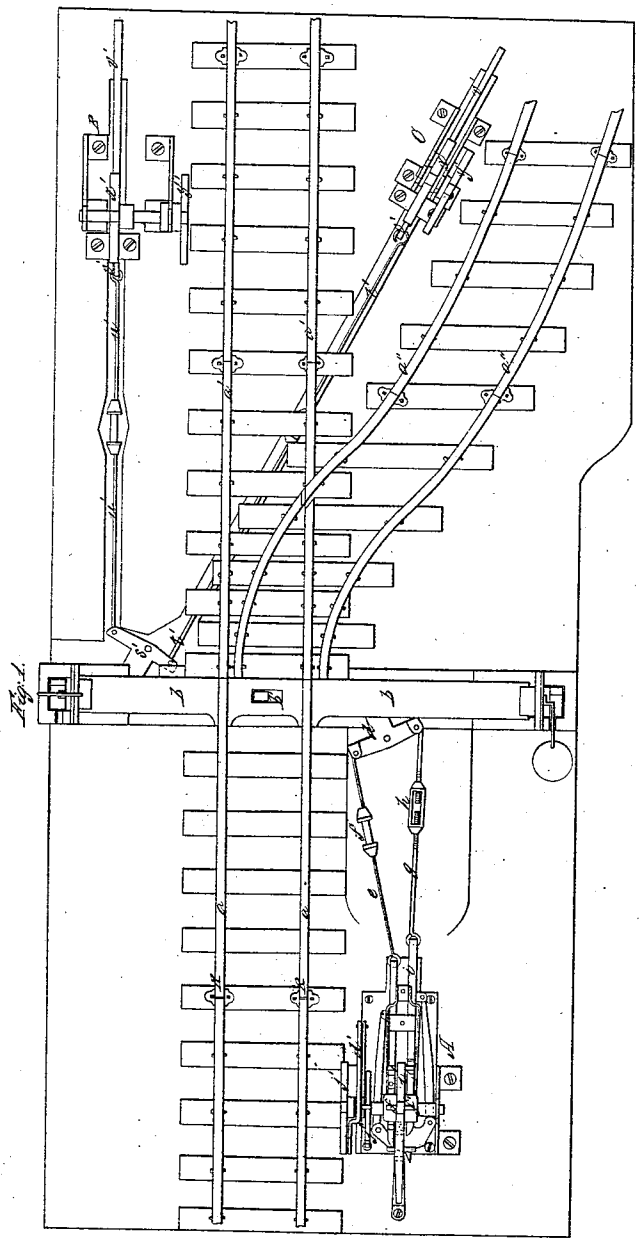
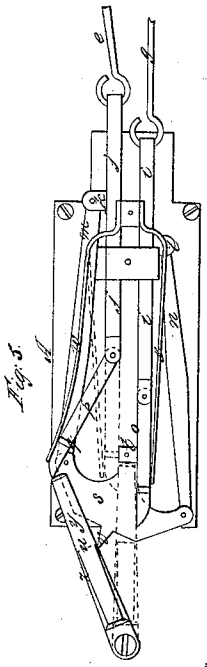
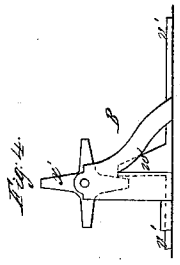
J. C. Whitson,

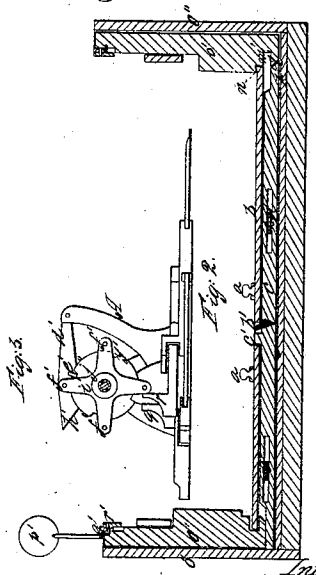
Railroad Switch,

No. 29,208, Patented July 17, 1860.









Witnesses:
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UNITED STATES PATENT OFFICE.

J. C. WHITSON, OF MARION, NORTH CAROLINA.

RAILROAD-SWITCH.

Specification of Letters Patent No. 29,208, dated July 17, 1860.

To all whom it may concern:

Be it known that I, J. C. WHITSON, of Marion, in the county of McDowell and State of North Carolina, have invented a new and useful Improvement in Railroad-Switches; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1, represents a plan, and Fig. 2, a central vertical cross section of my self-acting rail-road switch. Figs. 3 and 4, are side elevations, and Fig. 5 a plan of detached parts of the apparatus; Fig. 5 is drawn on a large scale.

Similar letters of reference, in each of the several figures indicate corresponding parts.

The nature of my invention consists, first, in the combination of sliding bars, each provided with two links, toothed head block, arm, star-wheels, slotted disk and wedge shaped pawl, or their equivalents for the purpose of operating a railroad switch by the locomotive as it approaches the turn-out; second, in the combination of the above device with two devices, each of the latter consisting of a sliding bar and two star wheels, for the purpose of operating a rail-road switch by the locomotive coming from either end of the main track or from the branch track; third, in the combination of a slotted sleeper and a wedge shaped switch bar with wedge shaped and slotted lifters for the purpose of locking the switch rail; fourth, in the combination of the wedge shaped switch bar, wedge shaped slotted lifters and vanes, for the double purpose of locking the switch bars and raising and lowering the signal vanes.

To enable others, skilled in the art, to make and use my invention, I will proceed to describe its construction and operation.

The end rails *a*, *a*, of the main track, are pivoted at their rear ends or otherwise held so that they can swing about the points R, R, and their forward ends are secured to a sleeper *b*. On shifting the sleeper *b*, to the right or left, the main track rails *a*, *a*, will be caused to connect either with the continuation *a'*, *a'*, of the main track or with the branch track *a''*, *a''*.

The switch bar *c*, is pivoted to two T-shaped levers *d*, *s'*, the fulcrum of lever *s'*, being in front, and that of lever *d*, being in rear of the switch bar, as seen in Fig. 1. These levers as they are operated, by devices A, B, C, hereafter to be described so as to swing to one side or the other, serve to shift the switch-bar *c*, and sleeper *b*; thereby effecting the required track connections.

The switch bar *c*, is wedge shaped at both ends, as seen at *k'*, Figs. 2, and operates in conjunction with two upright lifters *o'*, *o'*. These lifters are free to slide in vertical grooves in the switch frame *o''*, *o''*, and the lower end of each of the lifters, presents an inclined surface *l'*, to the wedge shaped end *k'*, of the switch bar. When the switch bar is shifted to one side, the wedge shaped end *k'*, acting against the incline *l'*, forces the lifter *o'*, on this side upward while the lifter on the other side drops down as soon as the other wedge *k'*, has passed from underneath the lifter.

Vanes *p'*, *p'*, are pivoted to the switch frame at *r'*, and rest with their bent arms *q'*, upon the upper face of the lifters *o'*. As one of the lifters is raised by the above described action of the switch bar, the upper face of the lifter, acting against the bent portion *q'*, of the vane arm raises the vane, while the other vane drops together with its lifter. Thus the vanes are made to indicate the position of the switch bar, in order that the conductor of a train approaching the switch may see it at a distance. Each of the lifters is also provided with two recesses *n'*, *m'*, immediately above the incline *l'*, the lower recess *m'*, being deeper than the upper *n'*. The depth of these recesses is such that the distance between the back part of the short recess *n'*, of one lifter, and the back part of the long recess *m'*, of the other lifter, shall be equal to the length of the sleeper *b*, which is arranged on top of switch bar *c*, and between the two lifters *o'*.

The whole device is arranged so that one end of the sleeper will always be in the short recess of one lifter, while the other end is in the long recess of the other lifter and vice-versa, by which means, the sleeper will always be locked, whether it has been shifted to the one or to the other side to make the required connection.

As the sleeper *b*, cannot be shifted before one of the lifters has been raised so as to bring the long recess of this lifter opposite to this end of the sleeper, the sleeper is not permanently fastened to the switch bar *c*, but is provided with a slot *b'*, into which takes a pin *c'*, projecting from the switch

bar. This slot b', is of such a length that the pin c', will move through it without moving the sleeper b, until the wedge shaped end of the switch bar has raised one of the lifters so as to bring its deep recess m', opposite to the end of the sleeper. The pin having now arrived at the end of the slot, moves the sleeper end into the recess m', while the opposite sleeper end withdraws from the long recess of the other lifter, until the latter drops down, and this end of the sleeper fits into the short recess of the lifter, thereby locking the sleeper in the manner already described.

Each of the devices A, B, C, for operating the T levers d, s', is provided with two star wheels j', i', and x', y', arranged upon a horizontal shaft. The outer star wheel j', or y', is to be operated by a pin or bolt which may be made to project from the locomotive of an approaching train so as to strike one of the arms of the star wheel if it is desired to shift the switch. When the outer star wheel j', or y', has thus been struck so as to make part of a revolution, the arms of the inner star wheel i', or x', will operate the switch shifting devices in the manner now to be described.

The arms of the star wheel i', are provided with lateral pins f, projecting from both sides of the wheel so as to be in range with two cogs r, q, rising from two arms o, p, which are linked to sliding bars i, j, respectively.

The sliding bar j, is connected to one end of T lever d, by means of a rod e, while the sliding bar i, is connected to the other arm of said T lever by means of rod g. The sliding bars i, j, are arranged in suitable guide ways so as to confine them to a forward and backward parallel motion. Arms m, n, are also linked at k, l, to the sliding bar j, i, respectively, the upper ends of the link arms m, n, being pivoted to the outer ends of a head block s, which head block is pivoted to the frame of the apparatus a, t, midway between the outer ends.

A tooth v, projects from the rear part of the head block s, and acts against the front end u, of an arm z, which arm has its fulcrum somewhat in rear of head-block s.

A tongue y, extends from arm z, forward and between the links o, p.

As the star wheels are operated the pin f', of one of the arms of star wheel i', strikes that one of the cogs r, q, which is, according to the position of head-blocks s, more forward. The pin bearing against this cog; for instance; r draws the link o, sliding bar i, and connecting rod g, backward. This end of the head-block s being linked to the sliding bar i, will also swing back, while the other end of the headblock, together with link m, sliding bar j, and connecting rod e, moves forward. During this motion of the head block, the tooth v, bearing against u, causes the arm z, to swing to one side, and the tongue y, to move the link p, and cog q, out of the way, while the continuation of pin f, which bears against cog r, passes by, instead of coming in contact with cog q. By the time the pin f', and cog r have moved back a sufficient distance, the tooth v, slips by the face u and arm z, and link p, are caused to return to their original position by the action of a spring w. The cog q, will now be forward of cog r, and when the star wheel f, is operated by another train passing by, the pin f', will come to bear against cog q, the sliding bar j, and connecting rod e, will be drawn backward, and in fact the whole operation of the apparatus A, as above described, will be reversed: the effect of which will be to return the switch to its original position.

Each of the devices B, C, is provided with a single sliding bar v', provided with a cog w', to be acted upon by the arms of the star wheel x'. The two rods w', and t', of the two devices B, C, are connected to the two opposite ends of T lever s', so that on drawing the sliding bar v', of device C, forward, the sliding bar v' of the other device B, will be pushed back. A return train on track a', or a^2, will strike the star wheel of device B, or C, respectively, and thereby make the necessary track connection for getting onto the main track a. Any following return trains traveling on the same track will strike the star wheel next to its track without operating the device because the cog and sliding bar have already been moved back by the preceding trains, and the switch is already in proper position for passing on to the main track. A return train however, which approaches the switch after a return train on the other track has passed, will find the cog and sliding bar in condition to be operated upon; and in striking the star wheel next to its track will shift the switch so as to make the connection with the main track A.

Thus it will be seen that my self-acting switch meets all necessary conditions, and it may be made to answer for any number of branch tracks by simply providing each branch track with a device similar to B, C.

The connecting rods are made adjustable by double screw nuts as represented at f, n, Fig. 1.

It is intended to box up the devices A, B, C, leaving merely the outer star wheels exposed so as to protect them against injury.

Each of the star wheel shafts may be provided with a disk j'', having in its circumference, as many slots as there are arms in the star wheels. The cog e', of a click d', hinged at its rear end to the main frame in taking into one of these slots, prevents the

disk and together with it the shaft and the star wheel from moving before the click has been lifted.

The forward end h', of the click, is wedge shaped and is intended to be struck so as to lift the click by the pin or bolt projecting from the locomotive before the said pin or bolt strikes the star wheel. The star wheel on being struck will then make a part of a revolution until the cog e', takes into the next slot. The star wheel will thus always be in exact position to be acted upon by the said pin or bolt.

What I claim as my invention and desire to secure by Letters Patent, is—

1. The combination of yielding bars j, i, each provided with two links m, p, and n, o, toothed head block s, arm z, star wheels i', j', slotted disk j'', and wedge shaped pawl d', or their equivalents substantially as and for the purposes set forth.

2. The combination of the above device A, with two devices B, C, each of the latter consisting of a sliding bar v', and two star wheels x', y', substantially as and for the purposes set forth.

3. The combination of a slotted sleeper b, and a wedge shaped switch bar c, with wedge shaped and slotted lifters o', o', substantially as and for the purposes set forth.

4. The combination of the wedge shaped switch bar c, wedge shaped slotted lifters o', o', and vanes p', p', substantially as and for the purposes set forth.

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Witnesses:

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JOSEPH SEWALL.