

D. F. Phillips,

Railroad Switch,

N^o 8,531.

Patented Nov. 18, 1851.

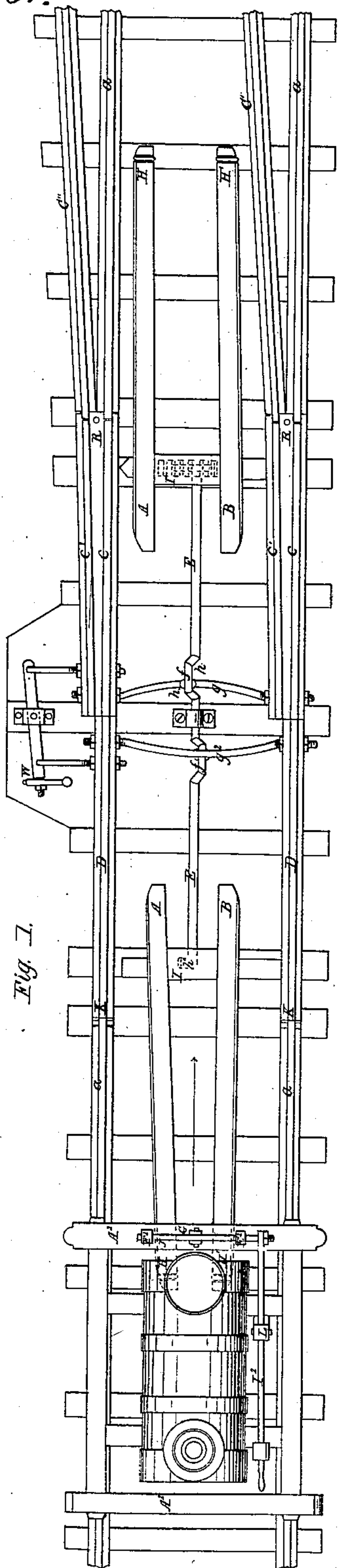


Fig. 1.

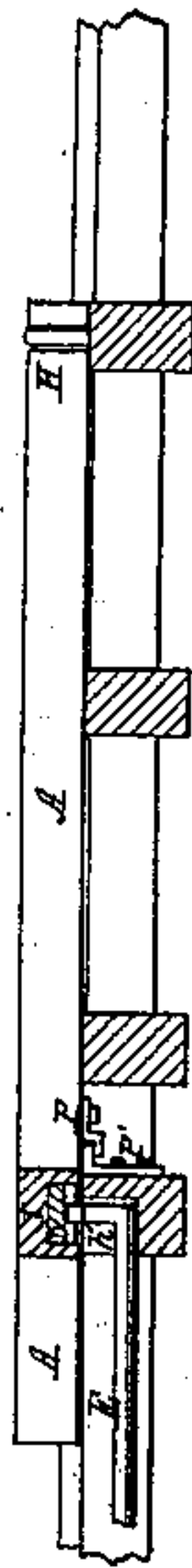


Fig. 2.



Fig. 4.

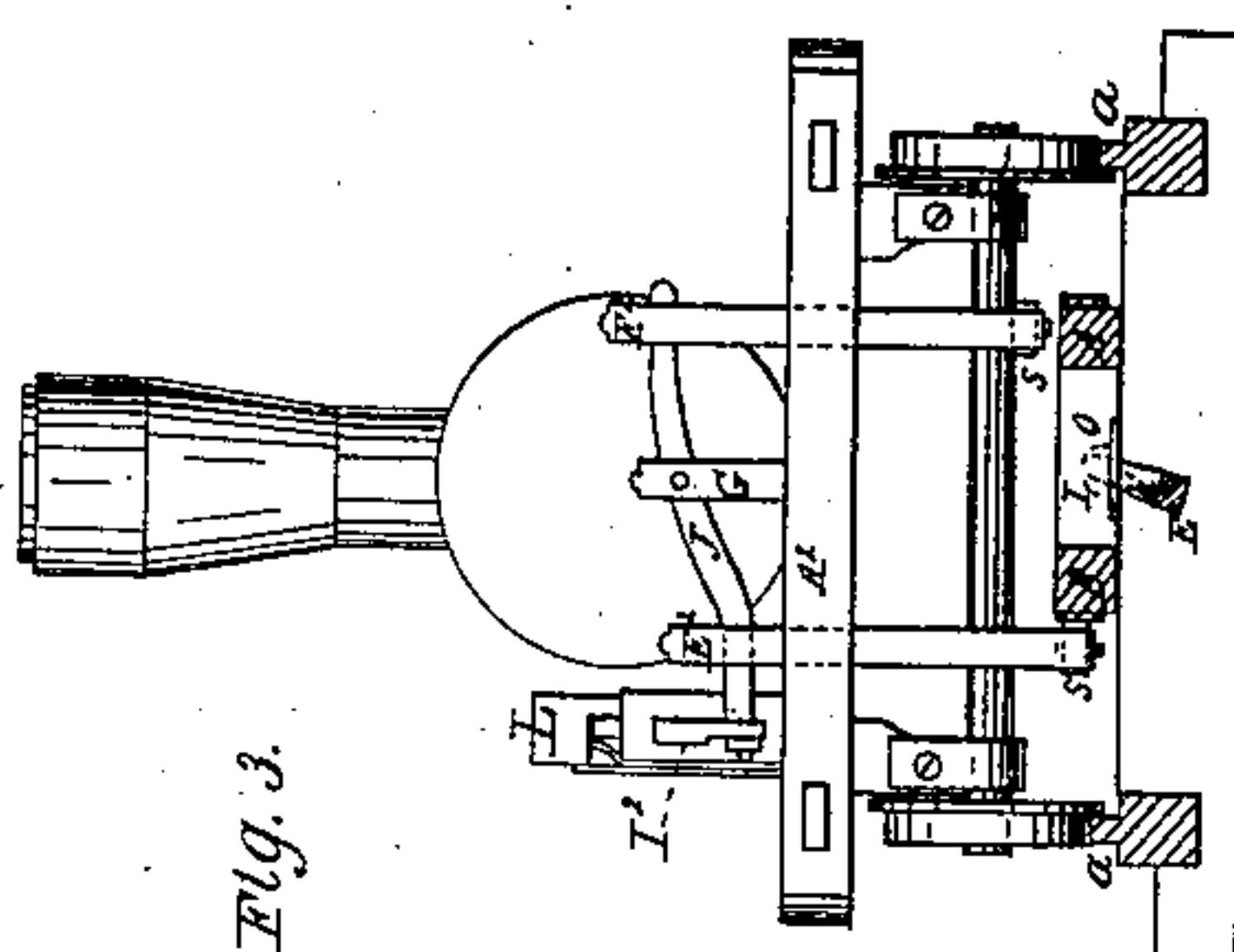


Fig. 3.

UNITED STATES PATENT OFFICE.

DAVID F. PHILLIPS, OF REPUBLIC, OHIO.

RAILROAD SWITCH.

Specification of Letters Patent No. 8,531, dated November 18, 1851.

To all whom it may concern:

Be it known that I, DAVID F. PHILLIPS, of Republic, in the county of Seneca and State of Ohio, have invented a new and useful Improvement in Railroad Switches, called "Phillips Safety-Switch," described in the following specification, reference being had to the accompanying drawings, making a part of the specification.

Figure 1 is a plan or top view, showing the main track, turn out, lever bars, switch and locomotive. Fig. 2 a vertical section of a set of lever bars, to exhibit the holding plates, and mortise in the cross piece, and crank end of the connecting rockshaft. Fig. 3, an end view of the locomotive, showing the sliding arms and levers for raising or depressing the same, when the switch is to be moved for the turn out on main track. Fig. 4, exhibits a cross section of the lever frame, with a rack and segmental pinion for moving the same instead of the crank end.

My improvement consists in placing between the rails of the track, sets of lever-bars, which operate simultaneously on a connecting rock shaft, and cross bars which are separately connected with a double movable section of the railroad track, whereby the passage of the locomotive over the track is made to operate on these lever-bars, through the agency of vertical sliding arms, connected with the frame of the locomotive and thus moving laterally as desired the said lever-bars, which, in connection with the double sections of the rail, form a compound switch, actuated by depressing or raising the vertical slide arms of the locomotive; thus, preventing accident from the accidental or designed displacement of the R. R. switch, as the engineer upon the locomotive can control the direction of the switches at his pleasure and continue on the main track or turn off on the side track, without the aid or necessity of a switch-tender, thereby insuring safety to the train in passing switches.

Connected with the rail of the principal track *a, a*, and forming a part thereof is a movable section *D, D*, hinged at *K* Fig. 1, of any desired length, reaching to the center of the switch; on the opposite side of the center of the switch *I* place a similar section of movable rails *C C* of the same length and hinged at *R*, having attached to the same plate a section of the rail of the sidetrack *C'*, the curve is more regular, as the angle formed with the main track and the turn

out, or side track when united, is halved by the lateral movement of the section *C'* of the sideling or turn out rail, and section *D*, of the main track *a, a*.

The lever-bars *B, B* movable on hinges at *H' H'*, are placed between the rails *a a* of the main track, on opposite sides of the center of the switch, and when moved toward the switch bar by the sliding arm *E²* on the locomotive, are made to assume a position parallel to the outer rail of said main track *a a*, the other lever bars *A, A*, also hinged at *H H* and connected with *B B*, by cross pieces *I, I*, are also placed on opposite sides of the center of the switch, and assume a position parallel to the outer rail of the side track *C'* or turn out, when operated on by the arm *F²* on the locomotive.

On the underside of the cross piece *I* of the lever bars *A* and *B*, is a mortise *o* for the reception of the crank end *h'*, of the rock shaft *E, E*, shown in dotted lines Figs. 3 and 1; or if a pinion or sector Fig. 4, is used instead of the crank end *h'* a rack is attached to the underside of the cross piece *I* instead of the mortise *O*. The centerward ends of the bars *A* and *B* are confined to the cross ties, placed under the rails, by plates *P* on the underside of said lever bars, locking into similar plates *P'* placed on the cross ties, and admit only of lateral motion of these lever bars *A, B*.

The rock shaft *E, E* is mounted in bearings at either end and at its center and extends from one cross piece to the other and is provided with cranks *f f* on opposite sides of the center in opposing position which are crossed with bars *g, g²*, having projections *h h* on each side of the cranks *f f*, one of these bars *g²* unites the movable section *D D* of the main track *a a*, the other cross bar *g* unites the movable portion of the side track, or turn out *C' C'* with the central rock shaft *E*.

Fig. 3 is a view of the locomotive with the levers and sliding arms *E²* and *F²* for adjusting the switch, and so arranged that the control of the switches may be under the engineer's command; on the cross bar *A²* of the locomotive frame is placed a vertical post *G* in which is mounted the fulcrum or pivot for the lever *J*, passing through slots in the upper ends of vertical sliding arms *E²* and *F²*, which are provided at their lower ends with anti-friction rollers *S S*, intended to play or pass over the side of the bars *A A*

or B B, before described and delineated in Fig. 1. These sliding arms E^2 and F^2 are thrown in contact with the bars A A or B B by the lever I^2 mounted in a stud L and attached to the end of lever J by being depressed or raised alternately by the engineer. If it is desired to pass a left hand switch and continue on the main track the sliding arm E^2 on the locomotive is depressed and thrown in contact with the side of the lever bar B, which moves the same parallel to the main track $a a$ and thus connect and securely lock the sections of the main rails till the train has passed. But should it be desired to run upon the turn out or side track $C' C'$, the sliding arm F^2 is lowered and brought in contact with the sides of the lever bar A, which are in like manner made to assume a parallel position with the rails on the turn out or side track $C' C'$.

It will thus be seen that as the train of cars is approaching the switch, the engineer by elevating or depressing the lever I^2 raises or lowers either of the vertical sliding arms (E^2 or F^2) as may be desired, whether for continuing on the main track or for passing onto the turn out, or side track, irrespective of the position of the switch, or the direction of the running train, and the moment the arm of the locomotive comes in contact with the lever bar, the switch is shifted and securely held in the proper position by the weight of the cars upon the two sections of the main rail either of which forming a lock to the other till after the passage of the train.

As a modification of my improvement, I propose furnishing the inner ends of the sections D with protuberances or tenons which will match into cavities in the adjacent ends of the sections C C, the latter being made to have a longitudinal movement and furnished with springs at their pivoted ends, whereby they are permitted to recede when the protuberance is passing from one cavity to the other in moving the ends of the rails D D, either opposite the end of the rails of the main track or side track, whereby the two sections of the rail D C and C' when united, are securely locked and held in that position until required to be changed, which is done at the option of the engineer.

Another modification consists in connecting the inner ends of the double lever bars, by means of other levers pivoted at the middle thereof to the cross ties of the rails and united at their centerward ends by pivot

joints and uniting the ends of the additional sections to one set of the connecting levers by a cross bar, which is united by a short central pivoted bar to the cross bar, which unites the ends of the switch, whereby the movement of one set of the lever bars is made to simultaneously govern the movement of the opposite set of lever bars and thus form a lock to each other.

Having thus described my invention and improvements in the self adjusting and locking switch for railroads, I wish it to be understood, that I am aware that the relative position of the switch with the main track or turn-out or sideling tracks has been changed by the action of the mechanism attached to the cars, as well as by devices attached to the locomotive in various ways, and therefore I do not claim changing the switch by apparatus or devices actuated by the cars or locomotive; nor do I claim constructing and operating a switch composed of a single movable section of the main rail. But

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

1. The employment of the additional movable sections D D in combination with the sections C C' forming the switch, whereby the lateral movement of each is halved or divided in opposite directions, and a more regular curve is produced than that resulting from the use of the single movable section or switch, and thereby insuring safety, the weight of the train of cars on one section of the switch forming a lock to the other section as one section cannot move without the other till the train of cars shall have passed therefrom as herein fully set forth.

2. I also claim the combination of the double central lever bars A B, A B, with the central connecting rock shaft E, having two cranks f projecting in opposite directions to which are attached the cross bars $g g^2$ for uniting the double sections D C C' whereby the switch is adjusted, as fully set forth and shown on the drawings.

In testimony whereof I have hereunto signed my name before two subscribing witnesses.

D. F. PHILLIPS.

Witnesses:

JOHN F. CLARK,
A. E. H. JOHNSON.