E. J. Stearns.

Railroad Switch.

No. 5,752. Patented Sept. 5, 1

Fig: 1.

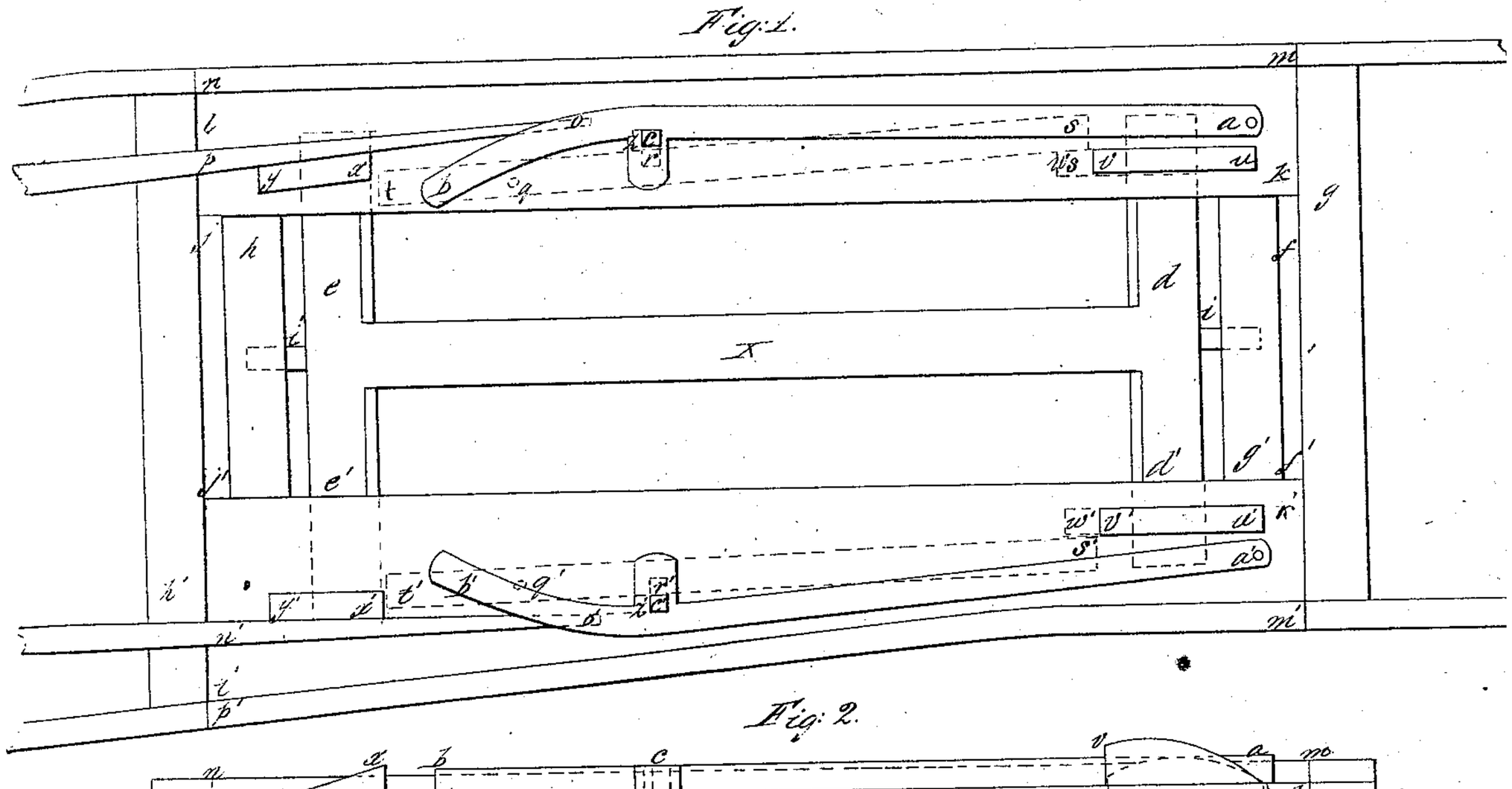


Fig: 2.

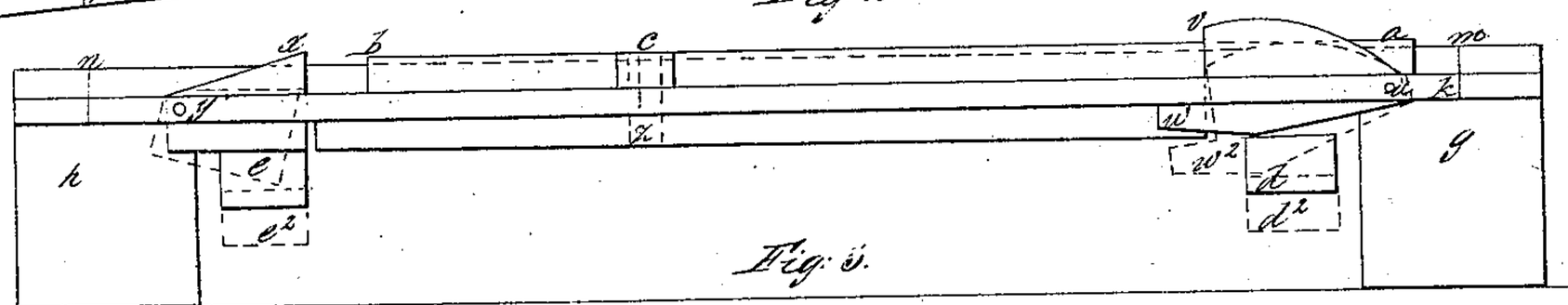


Fig: 3.

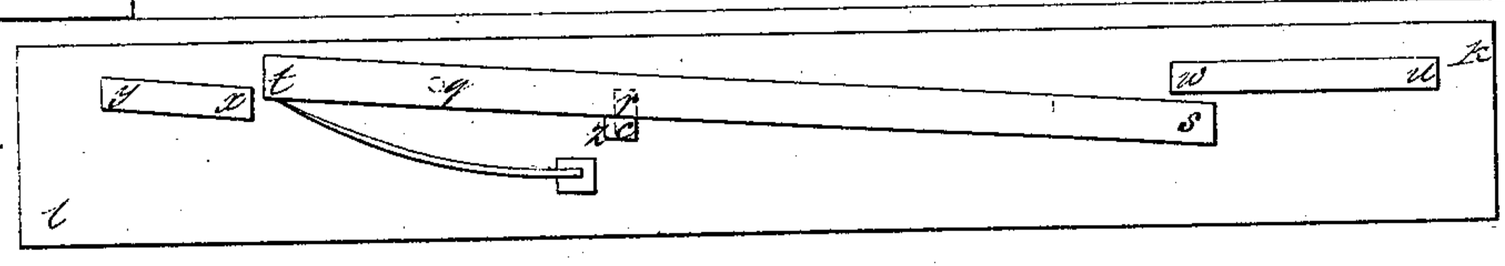


Fig: 4.

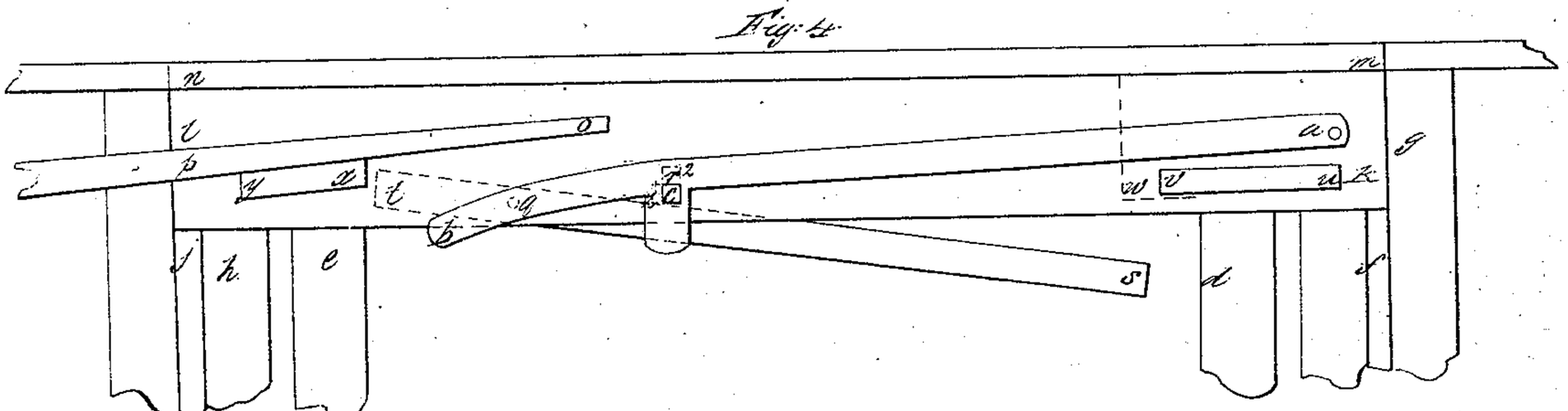
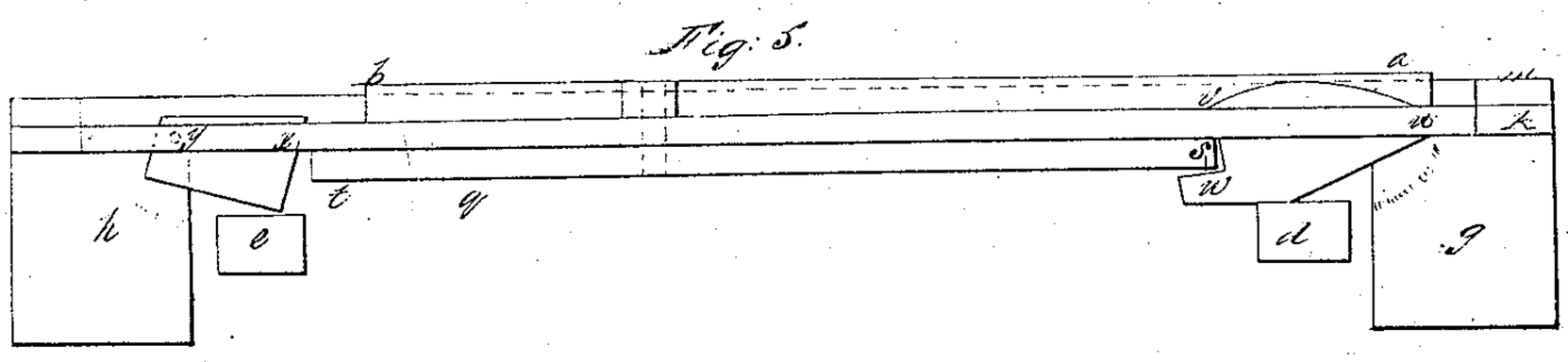


Fig: 5.



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UNITED STATES PATENT OFFICE.

EDWD. I. STEARNS, OF ELLICOTTS MILLS, MARYLAND.

SELF-ACTING RAILROAD-SWITCH.

Specification of Letters Patent No. 5,752, dated September 5, 1848.

To all whom it may concern:

Be it known that I, EDWARD I. STEARNS, of Ellicotts Mills, in the county of Anne Arundel and State of Maryland, have invented a new and Improved Self-Adjusting Switch for Railroads; and I do hereby declare that the following is a full and exact description of the same, reference being had to the annexed drawings, making a part of this specification.

The nature of my invention consists in so arranging one end of a self-adjusting railroad switch that the manager or engineer of a locomotive or any other railroad-car may direct the train from the main track to a branch track by moving a lever attached to the locomotive or car and in so arranging the other end of the switch that it may be operated by the flanges of the wheels when passing from the branch to the main track or otherwise.

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

The same letters are used at the same parts in the drawings throughout all the figures.

Figure 1 represents the switch complete—viewed from above; Fig. 2, a section of the flat plate, *k l*, Fig. 1, with its accompanying switch-rail, levers, &c.; Fig. 3, the same flat plate, &c., seen from below; Fig. 4, the same flat plate, &c., seen from above, with the switch-rail, &c., in the position they take when the engine or car passes to the branch track; Fig. 5, section of the flat plate, with its switch-rail, &c., in the same position as in Fig. 4.

Fig. 1, *m n*, *m′ n′*, rails of main track; *p*, *p′*, rails of branch track; *k l*, *k′ l′*, broad flat plates of iron fastened firmly to the sleepers, *g g′*, *h h′*,; *a b*, *a′ b′*, movable switch-rails turning horizontally on the perpendicular pivots, *a*, *a′*; *c*, *c′*, perpendicular studs, firmly fixed in the switch-rails, and passing down, through an oblong slit in the flat plates 2 or 3 inches below the under-surface of said plate; the lower end of the stud, *c*, is seen at *c r*, Fig. 3, where *z* is a projection of the lower end of the stud, beneath the flat plate, over the side of the oblong slit, to hold the end, *b*, Fig. 1, of the switch-rail, so that it cannot be lifted from the flat plate on which it rests; this projection is represented on Fig. 1, by the dotted line at *z;* in the same figure, also, (Fig. 1,) the part of the oblong slit not filled by the perpendicular stud is represented by the dotted line at *r*, *r*, on the other side, *r′*, *r²* Fig. 4, shows the other part of the slit *r;* *s*, *t*, Fig. 3, is a movable lever on the under side of the flat plate, turning horizontally on the pivot, *q*, and pressed by a stiff spring against the side of the lower part, *c r*, of the stud, *c;* the same lever, *s t*, as also its fellow *s′ t′*, is shown in Fig. 1, by dotted lines; *u v*, *u′ v′*, crowning levers turning vertically on the horizontal pivots, *u*, *u′*, and extending below the plate to *w*, *w′;* the shape of these levers and position of the pivot may be more clearly seen at Figs. 2 and 5; *x y*, *x′ y′*, Fig. 1, short levers turning vertically on horizontal pivots at *y*, *y′;* for a clear view of them see Figs. 2 and 5; X, Fig. 1, a horizontal shaft of wood, with cross-arms, also of wood, *d d′*, *e e′*, framed to it; the whole turning on the horizontal pivots *i*, *i′;* this shaft with its cross-arms I call, for want of a better term, the tilting frame; its cross-arms extend under the flat plates so far that *u v*, *x y*, *u′ v′*, *x′ y′*, may rest upon their extremities; this extension is shown in the figure by dotted lines; the parts of the cross-arms on which the vertical levers rest are shod with iron, or other metal; the boxes in which the pivots, *i*, *i′*, turn are let into the perpendicular side of the sleepers; *f f′*, *j j′*, flat bars of iron or wood, fastened to the top of the sleepers; the oblong space between these bars at the ends, and the flat plates at the sides, is covered with a trap-door (not represented in the figure) to prevent anything from getting under the tilting frame and obstructing its motion.

There is a lever attached to the under-side of the engine, so adjusted as to pass over the crowning lever, *u′ v′*, in going toward the turnout, depressing it, (if elevated,) as it passes; this lever is held in its place by a spring, but may be pulled one side by the engineer, so as to pass over *u v;* the moment he releases it, however, it flies back to its place. This lever in returning on either track, is of course over the other side, but must not be allowed to press on *u v;* this may be prevented by having *u′ v′* five or six inches nearer the center of the track than *u v*, or by having *u v* one or two inches lower than *u′ v′*, or by any other method that may be found most convenient in practice.

As, owing to the shape of the engine

wheels, the engine itself, and with it the engine-lever, is higher or lower, according as the flange of the wheel is nearer to, or farther from the rail at m', the engine-lever might not always press u' v' wholly down; to remedy this, a spring acting like a pen-knife-spring is attached to the tilting-frame, so that when either side of the frame is depressed, say three-fourths of the distance, it snaps down the remainder; this spring also serves to keep the tilting-frame steady, and prevent its being tilted by the jar of the cars; or any other accidental cause. The rails p, n', taper down to a width of half an inch at o, o', and the switch-rails, a b, a' b', which have their upper surface half an inch or more above the level of the top of the track-rails, have a notch or ledge cut in them on the under side, at the swell of the curve, an inch wide and the depth of the track-rail, so as to cover the ends, o, o', of the tapering rails, and lap over half an inch beyond them; the part of the rails thus covered is shown by dotted lines; the object of this arrangement will be explained by and by.

Such is a description of the different parts of the switch. Its manner of operation is as follows: The switch being in the position represented in Fig. 1, that is, the switch-rails being both closed (as they always are when at rest,) and the crowning lever, u' v', up, and its fellow, u v down, suppose the engine going toward the turnout, the engine lever passes over u' v' and depresses it, at the same time, through the operation of the tilting-frame, elevating u v; by the time it has passed over, the flanges of the forward wheels begin to press laterally, each on its own switch-rail, striking the rail at about one foot from its pivot; the switch-rail, a b, gives way and turns on its pivot till the swell of the curve is flush with the side of the tapering track-rail, o p, (the part above the notch just covering the end, o, of the rail, but not overlapping it,) when its motion is arrested by the end, s, of the lever, s t, striking against the prolongation, w, of the crowning lever u v; on the other hand, the crowning lever u' v', being down, and the switch-rail, a' b', therefore, held only by its spring, it gives way and turns on its pivot, the end, s', of the lever, s' t', coming out from beneath the flat plate, and the switch-rail opening at the swell of the curve so that the flange of the wheel can pass through between it and the tapering track-rail, o' n', when it closes up, to be opened, in like manner, by the wheel next behind, and so on, by each successive wheel, till all the cars have passed through; thus the whole train takes the main track simply by the action of the engine-lever, without any care of the engineer. Should another train pass along, the engine lever will pass over u' v', without depressing it, since it is already down, and the train will take the main track. Should the engineer, however, wish to take the branch track, he has only to pull the engine-lever one side, a little before reaching the switch, and hold it till it has passed over u v, when letting it go, it will fly back to its original position, ready to set the next switch right for the main-track; the engine and cars, meanwhile, will have taken the branch track, the switch-rail, a' b', having been held fast, and a b having opened, as shown in Fig. 4, to let the flanges of the right-hand wheels pass through. In returning on either track, the flange of the engine-wheel pressing on the flange-lever (x y, if on the branch track) (x' y', if on the main track) sets the switch right for itself. This arrangement is for a turnout to the left; should the turnout be to the right, the flange-levers x y, x' y', must be placed at l, l', and the crowning levers u v, u' v', so adjusted that, when depressed, they shall hold fast the switch-rail, and, when elevated, shall set it free; otherwise the engine-lever, when left to itself, would set the switch for the branch, instead of the main track.

The above is a full and accurate description of the switch.

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

1. The application and hanging of the switch-rail, a b, so as to turn horizontally on a pivot as described in the specification, in combination with the horizontal lever, s t, beneath the flat plate, k l, and the spring acting upon it, and through it, upon the switch-rail, and thus keeping the switch-rail pressed against the narrow end of the tapering rail when the cars are not passing through.

2. Also in combination with the tilting frame below, and the flange-levers resting upon it at the one end, and the crowning levers at the other, and the arranging of these latter levers so as to arrest the long arm of the one on the other of the horizontal levers, s t, s' t', and thus hold fast the one or the other of the switch-rails a b, a' b', according as the one or the other side of the titlting frame is depressed by a movable lever attached to the locomotive or car, pressing on the one or the other of the crowning levers, u' v', u v, in going toward the turnout, or by the flange of the engine or car wheel pressing on the one or other of the flange-levers, x' y', x y, at the other end of the frame, in coming back on the one or the other track, as described in the specification.

EDWARD I. STEARNS.

Witnesses:
STEPHEN W. WOOD,
J. M. THAYER.