

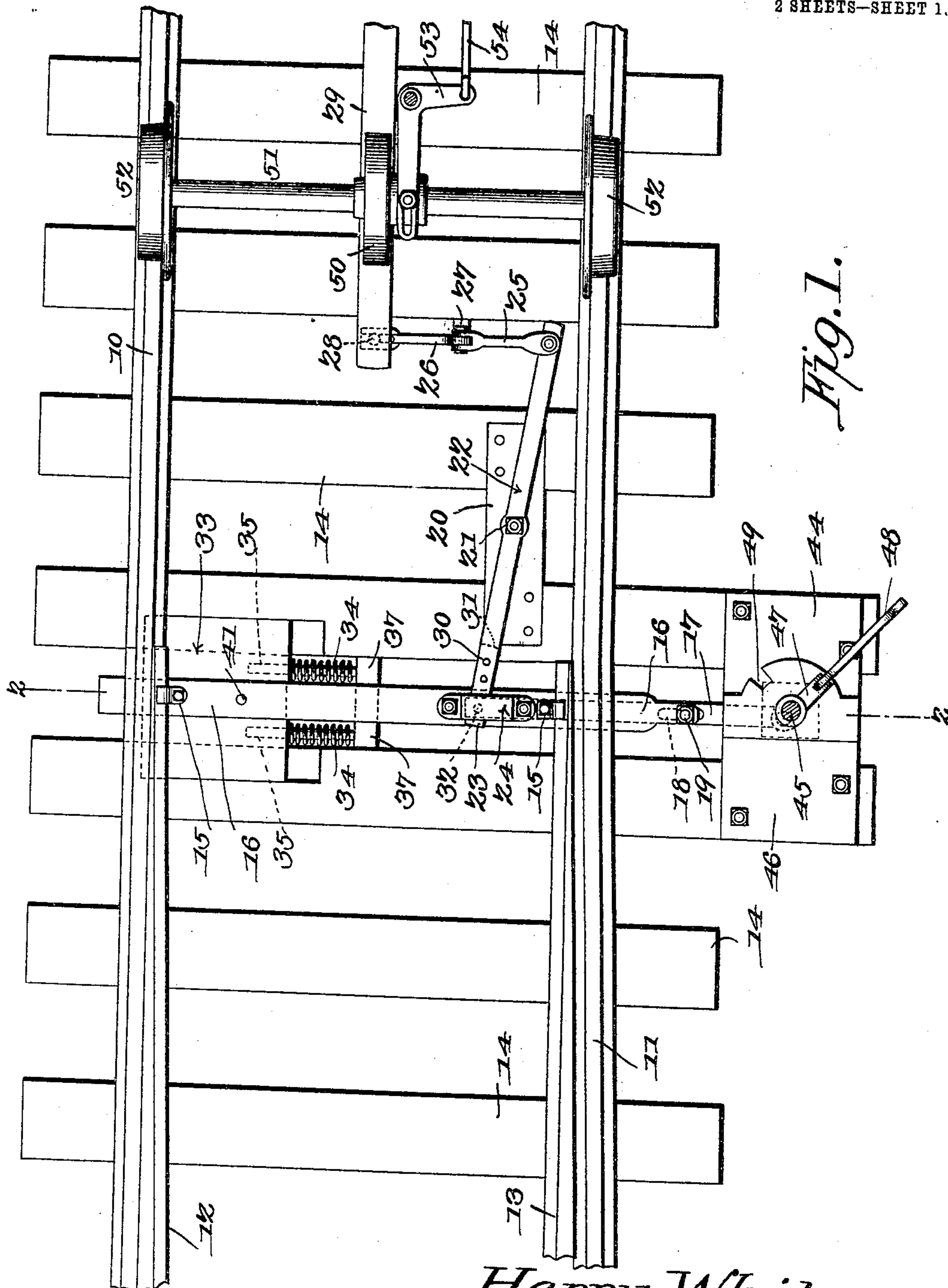
No. 801,286.

PATENTED OCT. 10, 1905.

H. WHITE.
RAILWAY SWITCH OPERATING DEVICE.

APPLICATION FILED MAR. 14, 1905.

2 SHEETS—SHEET 1.



Witnesses

E. G. Stewart

C. H. Woodward

Harry White,
Inventor.

by

Chenoweth

Attorneys

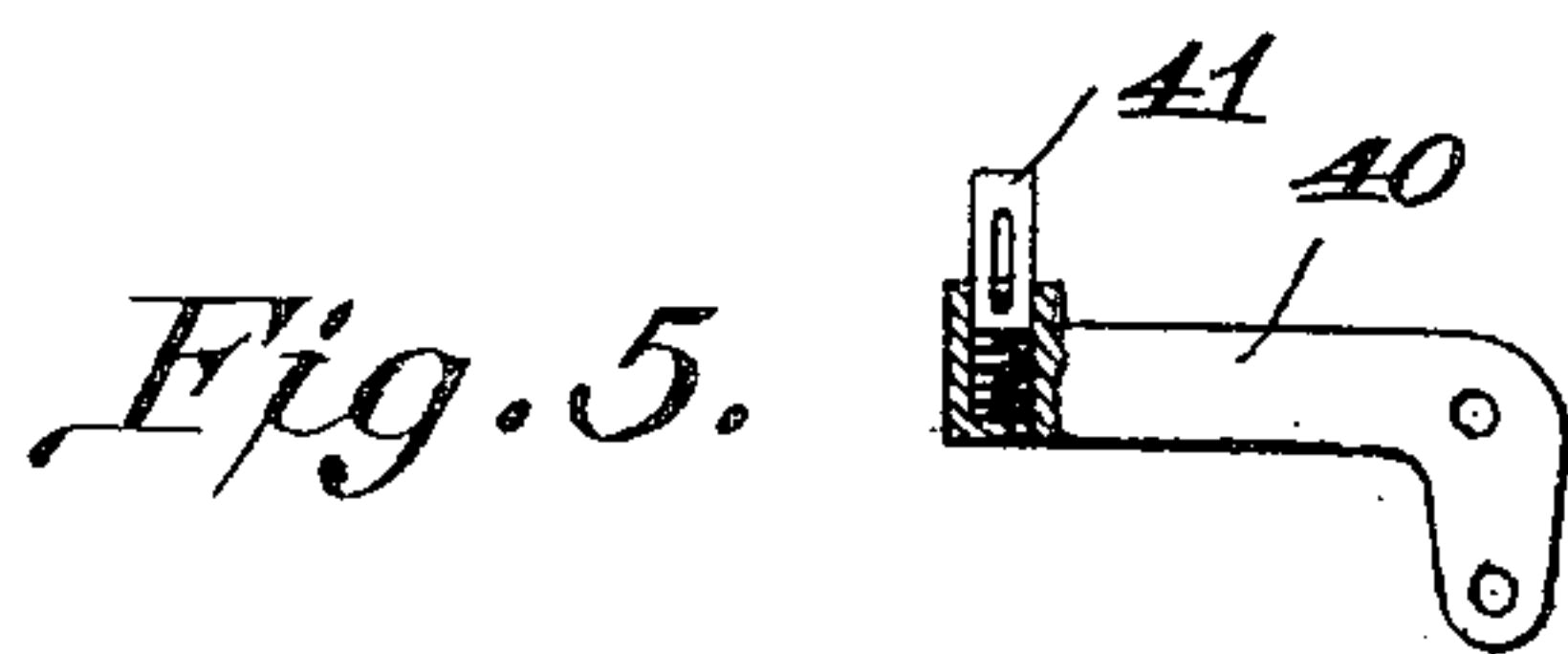
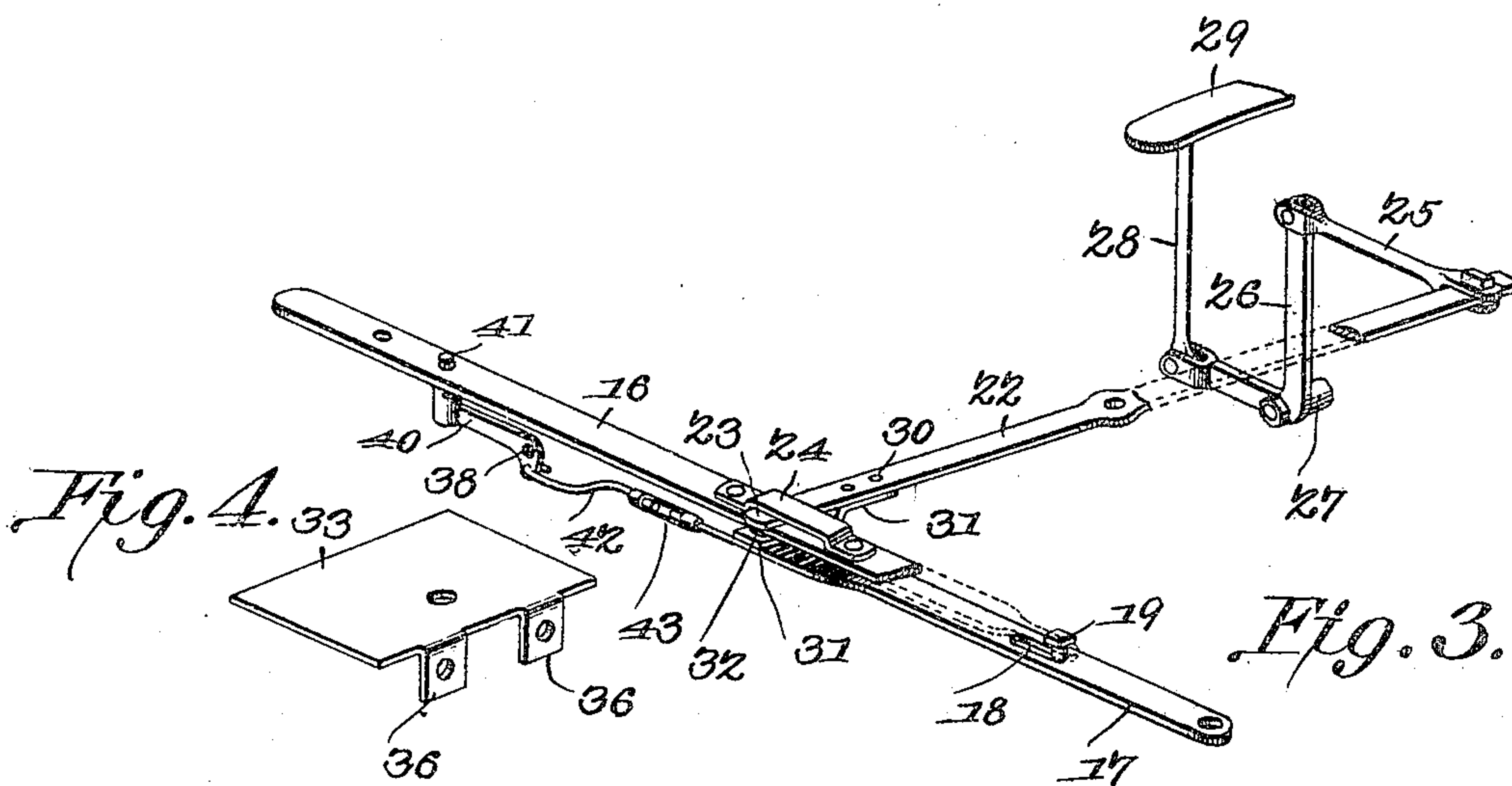
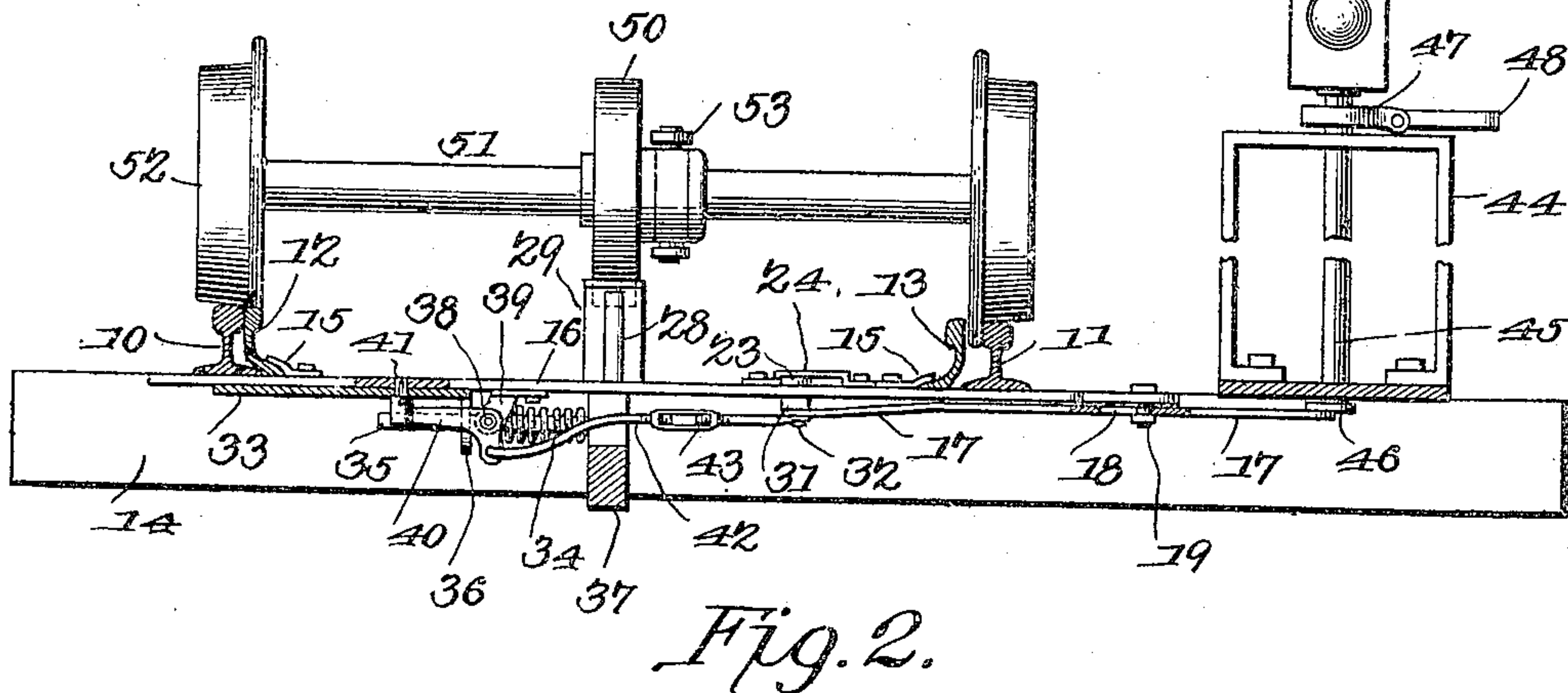
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Harry White, Inventor,
by *C. A. Snow & Co.,* Attorneys

UNITED STATES PATENT OFFICE.

HARRY WHITE, OF PITTSBURG, KANSAS.

RAILWAY-SWITCH-OPERATING DEVICE.

No. 801,286.

Specification of Letters Patent.

Patented Oct. 10, 1905.

Application filed March 14, 1905. Serial No. 250,098.

To all whom it may concern:

Be it known that I, HARRY WHITE, a citizen of the United States, residing at Pittsburg, in the county of Crawford and State of Kansas, have invented a new and useful Railway-Switch-Operating Device, of which the following is a specification.

This invention relates to safety-switches for railways, and has for its object to provide a device of this character of improved construction and increased efficiency and adapted for operation from an approaching train to close a switch which may have been left open by accident or design, and thus obviating liability to accidents.

With these and other objects in view, which will appear as the nature of the invention is better understood, the same consists in certain novel features of construction, as hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which corresponding parts are denoted by like designating characters, is illustrated the preferred form of embodiment of the invention capable of carrying the same into practical operation, it being understood that the invention is not necessarily limited thereto, as various changes in the shape, proportions, and general assemblage of the parts may be resorted to without departing from the principle of the invention or sacrificing any of its advantages.

In the drawings thus employed, Figure 1 is a plan view of a portion of a railway-track with the improved devices applied. Fig. 2 is a transverse section on the line 2 2 of Fig. 1. Fig. 3 is a perspective view of portions of the operating parts detached. Fig. 4 is a detached perspective view of the yieldable base-plate. Fig. 5 is an enlarged sectional detail of the trip member detached.

In the drawings the line-rails 10 11 and switch-rails 12 13 are of the usual construction and mounted upon the cross-ties 14.

Connected to the "points" of the switch-rails, as by clamps 15, is a bridle-bar 16, and slidably disposed beneath this bar near one end and extending beyond said end is a coupling-bar 17. The bar 17 is provided with a slot 18, through which a clamp-bolt 19 passes from the bar 16, so that the two bars are movable longitudinally to an extent equal to the length of the slot. Connected across a pair of the ties 14 is a plate 20, and pivoted at 21 upon this plate is a lever 22, with one end at 23 ex-

tending beneath a keeper 24 on the bridle-bar 16 and the other end connected by a link 25 to one end of a bell-crank 26, pivoted at its elbow by a pin 27 to one of the ties 14 and having a pin 28 extending upwardly from the other end of the bell-crank. Connected in any suitable manner to one or more of the ties 14 is a trip-plate 29, which bears upon the pin 28 and serves to depress the latter when engaged by a projection upon the approaching train, as hereinafter explained. Attached to the lever 22, adjacent to the bars 16 17, as by rivets 30, is a bracket 31, the free end of which extends beneath the bridle-bar 16 and is pivoted, as at 32, to the inner end of the lower coupling-bar 17.

Mounted for lateral movement on the ties 14 and disposed beneath the bar 16 is a plate 33, held yieldably in its outward position by springs 34, mounted upon guide-rods 35, slidable through ears 36 on the plate, said springs being interposed between the ears and a stop member 37, connected between the ties, as shown. Pivoted at 38 in a bracket 39, depending from the bridle-bar 16, is a trip member 40, having one end 41 spring-supported and extended through aligned apertures in the plate 33 and the bar 16 and its opposite end connected by a rod 42 to the free end of the bracket 31, the rod 42 being preferably provided with a turnbuckle 43 or other means for adjusting the same.

The apertures in the bar 16 and plate 33 are so disposed that they come in aligned position when the point of the switch-rail 12 is in engagement with the rail 10, or with the switch "open" for the siding. Consequently the switch will be "locked" in its open position for the siding by the trip member 40. With the switch in this position, or open for the siding, the same will be automatically opened for the main line by the flanges of the wheels of a train approaching on the main line from the direction of the arrow in Fig. 1 if from any cause the switch should be left open for the siding and without damage to the parts, as hereinafter more fully described.

Disposed adjacent to the railway-track is a switch-stand 44, having a vertical shaft 45, provided at its lower end with a crank-arm 46, pivoted to the free end of the bar 17, and likewise provided with an operating-lever 47, provided with a drop-handle 48. The upper face of the stand 44 is provided with a recess 49, into which the drop-handle 48 rests when

the switch-rails are moved into their closed position, or for guiding the trains upon the main line.

Means will be provided upon the locomotive of the approaching train for depressing the plate 29, and an approved device of this character is shown in Figs. 1 and 2, consisting of a wheel 50, adjustably mounted upon the forward axle of the pilot-wheels of the locomotive, the axle and pilot-wheels being represented, respectively, at 51 52. The wheel 50 is mounted for longitudinal movement on the axle by a lever 53, from which an operating-rod 54 leads to the cab of the locomotive for operation by the engineer; but as this part of the device forms no part of the invention herein described it is not further illustrated. By this means the wheel 50 may be adjusted into position to engage the plate 29 when required or moved to one side when not required.

With a device constructed as herein described the operation is as follows: If the switch is in the required position and set either for the side track or main line, the engineer of the approaching train pays no attention to the mechanism controlling the wheel 50, and the train proceeds past the switch. If, however, the engineer perceives that the switch is open into the side track, he simply sets the wheel 50 into position to engage the plate 29, which depresses said plate, and thereby moves the lever 22 laterally through the action of the coupling members 25, 26, and 28. The lever 22 is first moved a distance equal to the length of the slot 18 before it picks up the bar 16 and begins to move the switch-rails, this "lost motion" enabling the trip member 40 to be detached from the plate 33 and bar 16 before movement of the switch-rails occurs. It will be noted that there is but one notch or recess 49 in the switch-stand, so that the drop-handle 48 will not prevent the return movement of the operating-handle 47 when the switch is thrown by the action of the lever 22 and the shaft 45 rotated by its connection to the bar 17. When, however, the shaft 45 is thus rotated, with the closing action of the switch-rails the drop-handle will enter the recess 49 and lock the switch in closed position. If, as before stated, a train approaches from the opposite direction, or as indicated by the arrow in Fig. 1, with the switch open the flanges of the pilot-wheel will throw the switch-rails over and by the coupling between the bars 16 17, formed by the plate 33, trip-lock member 40, and rod 42, the shaft 45 will be rotated to cause the drop-handle 48 to engage the recess 49, and thus lock the switch in its open position.

The device is simple in construction, certain and accurate in operation, and may be inexpensively manufactured and installed upon the railway-lines without change in the structure of the same.

Having thus described the invention, what is claimed is—

1. In a safety-switch, movable rails, a bridle-bar connecting the switch-rails, a pivoted locking member adapted to engage the bridle-bar to lock the switch in open position, a lever having one end thereof operatively connected with the bridle-bar, a trip-plate carried by the opposite end of the lever and operable by the approaching train for releasing the locking member and moving the switch to closed position, and means for automatically locking said switch in closed position.

2. In a safety-switch, movable switch-rails, a bridle-bar connecting the switch-rails, a coupling-bar movably connected to said bridle-bar, a plate yieldably supported beneath said bridle-bar, locking means disposed between said plate and bridle-bar, connecting means between said locking means and coupling-bar, and means operative by the approaching train for releasing said locking means and closing said switch.

3. In a safety-switch, movable switch-rails, a bridle-bar connecting the switch-rails, a pivoted locking member adapted to engage the bridle-bar for locking the switch in open position, and a lever pivotally connected to the locking member and operable by the approaching train for releasing said locking member and moving the switch to closed position.

4. In a safety-switch, movable switch-rails, a bridle-bar connecting the switch-rails and provided with a transverse aperture, a coupling-bar movably connected to said bridle-bar, a plate yieldably supported beneath said bridle-bar and provided with an aperture for registration with the aperture in said bridle-bar when the switch is in open position, a locking member pivoted to said bridle-bar and having an extended end for entering said apertures when the same are in aligned relation, connecting means between said lever member and said coupling-bar, and means operative by the approaching train for releasing said locking member and closing the switch.

5. In a safety-switch, movable switch-rails, a bridle-bar connecting the switch-rails and provided with an elongated keeper, a coupling-bar movably connected to said bridle-bar, a locking means disposed between coupling-plate and bridle-bar to hold the switch in open position, a lever pivoted adjacent to said bridle-bar and extending beneath the keeper and connected to said coupling-bar, and means operative by the approaching train for actuating said lever and first releasing said locking means and then moving said bridle-bar to effect the closing of the switch.

6. In a safety-switch, movable switch-rails, a bridle-bar connecting the switch-rails and provided with an elongated keeper and a transverse aperture, a coupling-bar movably connected to said bridle-bar, a locking-lever pivotally connected to said bridle-bar and extend-

ing by one end through said bridle-bar aperture to hold the switch in open position, coupling means between said coupling-bar and locking-lever, a lever mounted for movement adjacent to said bridle-bar and having one end thereof extended beneath the keeper and pivoted to said coupling-bar, and means operative by the approaching train for consecutively actuating said coupling and bridle bars, for releasing the locking means and closing the switch.

7. In a safety-switch, movable switch-rails, a bridle-bar connecting the switch-rails and provided with an elongated keeper and a transverse aperture, a coupling-bar movably connected to said bridle-bar, a plate yieldably supported beneath the bridle-bar and provided with an aperture for registration with the aperture in said bridle-bar when the switch is in open position, a locking member pivoted to said bridle-bar and entering said apertures by one end when the same are in alined position, connecting means between said locking member and said coupling-bar, a lever mounted for movement adjacent to said bridle-bar and having one end thereof extended beneath

the keeper and pivoted to said coupling-bar, and means operative by the approaching train for consecutively actuating said coupling and bridle bars and effecting the closing of the switch.

8. In a safety-switch, movable switch-rails, a bridle-bar connecting the switch-rails, a coupling-bar movably connected to said bridle-bar, locking means disposed beneath the bridle-bar for locking the switch in open position, a trip member movably connected in advance of the switch-rails, a bearing-wheel movable laterally upon the forward axle of the approaching train for engaging said trip member and depressing the same, and coupling means between the trip member and said bridle and coupling bars whereby the switch-rails may be closed in advance of the approaching train.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HARRY WHITE.

Witnesses:

J. B. MANTONYA,
WM. LINDSAY.