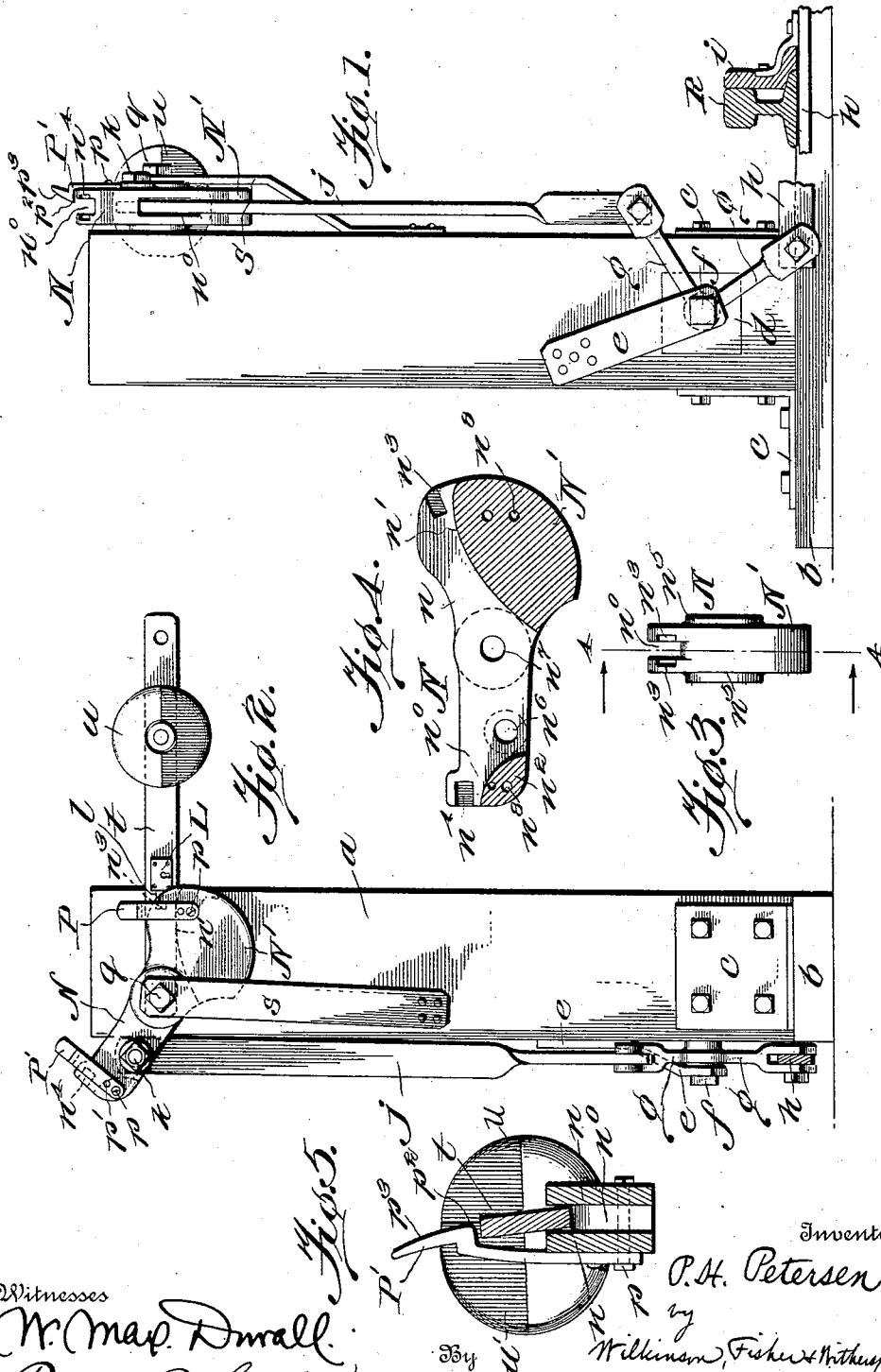


P. H. PETERSEN.
 SWITCH THROWING DEVICE.
 APPLICATION FILED AUG. 25, 1909.

969,653.

Patented Sept. 6, 1910.



Witnesses
 Mr. Map. Dmell.
 Byron B. Collings.

Inventor
 P. H. Petersen,
 by
 Wilkinson, Fisher & Witherspoon,
 Attorneys.

UNITED STATES PATENT OFFICE.

PETER HANSEN PETERSEN, OF LEAD, SOUTH DAKOTA.

SWITCH-THROWING DEVICE.

969,653.

Specification of Letters Patent.

Patented Sept. 6, 1910.

Application filed August 25, 1909. Serial No. 514,589.

To all whom it may concern:

Be it known that I, PETER HANSEN PETERSEN, a citizen of the United States, residing at Lead city, in the county of Lawrence and State of South Dakota, have invented certain new and useful Improvements in Switch-Throwing Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to improvements in switch-throwing devices, and the object of the invention is to provide a simple gravity operated switch-throw, which can be set by the motorman or engine-driver without leaving his cab, or which may be set and locked as a single throw switch operating device for either the main line or siding, if desired.

My invention is especially applicable to mine and mill tracks, where trains are hauled by motors, or where motor trains and hand trucks use the same tracks, but I do not intend to restrict it to such use.

My present invention is more especially intended to provide certain improvements upon the switch-throwing device shown in Letters-Patent No. 917,652, granted to me April 6, 1909.

Reference is had to the accompanying drawings, in which the same parts are indicated by the same letters throughout the several views.

Figure 1, is a side view of my improved switch-throwing device. Fig. 2, is a front view of the same as seen from the right of Fig. 1. Fig. 3, is a detail showing the pivoted head block detached from the device. Fig. 4, shows a section of the pivoted head block along the line 4-4 of Fig. 3, and looking in the direction of the arrows, and, Fig. 5, is a detail showing the operation of the catch.

a represents the stand, usually of wood, on which the operating parts are mounted. Said stand is secured to the base *b*, by means of angle plates *c*. Near the lower end of this stand *a* a plate *d* is mounted, provided with a brace *e*, in which plate is mounted the pivot *f*, carrying the bell crank lever *g*. The lower arm of this lever has pivotally attached to it the rod or bar *h* connected to the switch points *i*, one only of which is shown.

R represents one of the fixed rails.

The upper arm of the bell crank lever *g* has pivotally attached to it a bent bar *j*, which is pivoted by a bolt *k* to the hole *n*⁰ in the head block *N*. This head block *N* is pivoted on the bolt *q*, whose outer end is supported by the brace *s*. Pivoted on the same bolt is a flat bar or operating lever *t*, on which the weight *u* is adjustably mounted. This weight has its center of gravity preferably eccentric to, or at one side of the lever, for reasons hereinafter stated. The head block *N* is slotted, as at *n*⁰, and is pivoted as at *n*⁶ on the bolt *q*, and the gravity lever *t* projects into and has a slight lateral play in this slot *n*⁰, and has the same pivot as the head block *N*. The head block *N* is provided with a weighted heel *N'* to balance the parts supported by the opposite end of the head block, and a web *n*² spanning the sides of the slot *n*⁰, as shown in Fig. 4. The surface *n'* on the heel *N'* and this web *n*² serve as stops to limit the rocking of the lever relative to that of the head block, but the lever has a slight lateral play between the guiding surfaces of the head block above said stops. It will be noted that the upper end of the bar *j*, also projects into this slot *n*⁰. The head block is also provided with bosses *n*⁵ about its pivot center, as shown in Fig. 3. Equidistant from the pivot center of the head block are two sets of notches *n*³ and *n*⁴, which are adapted to receive the bolt *l* of the lock *L*, carried by the gravity lever *t*.

Two catches *P* and *P'* are secured to the head block, as by bolts *p*, passing through the holes *n*⁸ and by tap rivets *p'*. These catches have a guide face *p*³, and shoulders *p*² projecting over the stop surfaces *n'* and *n*², as shown in Figs. 1 and 5. The weight *u* is preferably eccentrically disposed on the lever, with the greater portion on one side of the lever *t*, as indicated at *u'* in Fig. 5, which tends to cause the bar to tilt over to one side with its top under the shoulder *p*², as indicated in Fig. 5.

A lock *L* is provided, having its bolt *l* adapted to project into one or the other pairs of notches *n*³ or *n*⁴ in the head block. This lock prevents the lever *t* from being thrown over to the reverse side of the stand, or through more than a small angle, and when the lever is let go, the weight will restore the parts to the initial position.

The weight *u* is preferably painted white on its upper half, and red on its lower half,

when in the position shown in Fig. 2, which is that assumed by the mechanism when the switch is set for the main track. When the lever t is thrown over in the other direction, it will be obvious that the red side of the weight will be uppermost, in which case the position of the lever t will indicate that the switch is set for the siding.

The operation is as follows:—Assuming the bolt l of the lock L to be withdrawn from engagement with the head block, and it be desired to throw the switch, the motorman or engine driver comes up to the switch, and, if necessary, throws the lever arm t up, swinging it over to the other side of the stand a , and causing it to engage the spring catch P' . The lever will be directed by this catch into the notch n^0 , and the eccentricity of the weight will cause the lever to tilt under the shoulder p^2 , as shown in Fig. 5. In this position, the lever will be held against accidental displacement, but when the motorman comes along in the opposite direction to throw the switch, he will grasp the lever and pushing it from him, the natural tendency will be to shove said lever clear of the shoulder p^2 , when it may be swung upward and restored to the initial position shown in Fig. 2.

It will be noted that the head block N will rock, according to the direction in which the lever is thrown, and the limit of this rocking movement will depend upon the switch points striking the stationary rail, when any further movement of the mechanism is arrested.

The operation as thus described is that of the device when used as a double throw switch mechanism. To make it single throw only, and automatic, it will only be necessary to insert the bolt l of the lock L into one of the pairs of notches n^3 or n^4 . Assuming, for instance, that the bolt l engages the notches n^3 , as shown in Fig. 2, it will be impossible to swing the lever t up through any great angle, owing to the fact that the switch points will strike the stationary rails, and will bring all of the mechanism to a full stop before it is possible to shift the lever over to the opposite side of the stand a . Assuming that this lever be lifted, as described, the switch will be thrown onto the siding; and the lever being released, the weight u will automatically restore the parts to the initial position, so that when the lock is engaged, the device can only be used as a single throw switch mechanism. It will be obvious that the operation of the lever in the other position on the opposite side of the stand would be similar to that already described on the right side of the stand, as shown in Fig. 2.

When trailing a switch, the points will

always, no matter for which track they are set, adjust themselves after the last car has passed over them. Thus no injury to the switch or derailment of the train can take place. The motorman or engine driver can throw the lever to set the switch for either track while the motor is passing over the points. This does away with the necessity for a switchman or extra trainman. When coming up to a facing switch, should the switch be placed wrong, the motor runs up to the throw, the motorman adjusts the switch to suit, and then backs off the points, whereupon the weighted lever automatically adjusts the switch to the new and desired position, whereupon the motor goes through the switch in the desired direction. Either a trailing or a facing switch can thus be operated by the motorman, without having to move from his seat. The chances of a misplaced switch are considerably reduced, as the switch points will always adjust themselves should a train or single car run through the switch.

Having thus described the invention, what I claim is:—

1. In a switch throwing device, the combination with a stand, a slotted head block, a pivot bolt connecting said head block to the stand, an operating lever pivoted to said bolt and projecting into the slot in said head block, stops at each end of said slot in the head block for engaging said lever, mechanism connected to said head block at a distance from its pivot for operating the switch points, and spring catches near each end of said head block having shoulders adapted to engage the upper side of the operating lever, substantially as described.

2. In a switch-throwing device, the combination with a stand, a slotted head block, a pivot bolt connecting said head block to the stand, an operating lever pivoted to said bolt and projecting into the slot in said head block, a weight connected to said lever and having its center of gravity to one side thereof, stops at each end of said slot in the head block for engaging said lever but providing lateral play therefor, mechanism connected to said head block for moving the switch points, and catches near each end of said head block having shoulders adapted to normally engage the upper side of the operating lever, when it is tilted laterally under the action of said weight, substantially as described.

In testimony whereof, I affix my signature, in presence of two witnesses.

PETER HANSEN PETERSEN.

Witnesses:

H. J. DEVEREAUX,
A. M. PETERSEN.