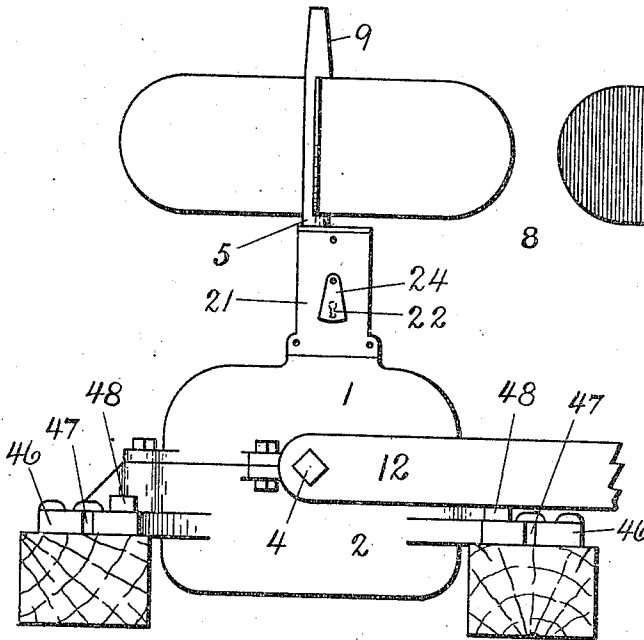


J. W. TORPEY.
 SWITCH STAND AND LOCK.
 APPLICATION FILED OCT. 6, 1909.

949,098.

Patented Feb. 15, 1910.

2 SHEETS—SHEET 1.



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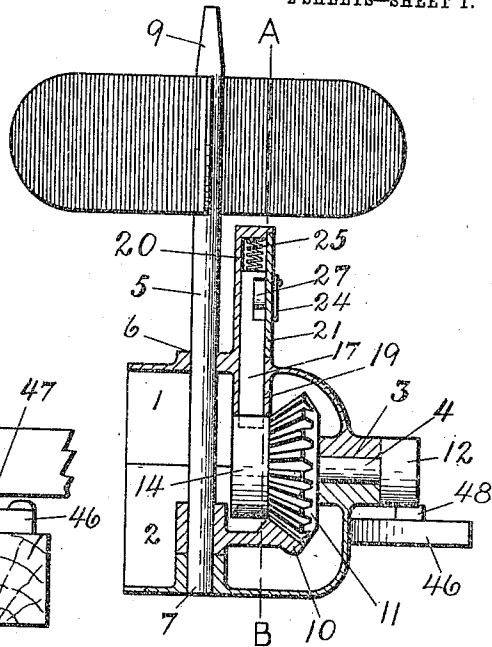


Fig. 2.

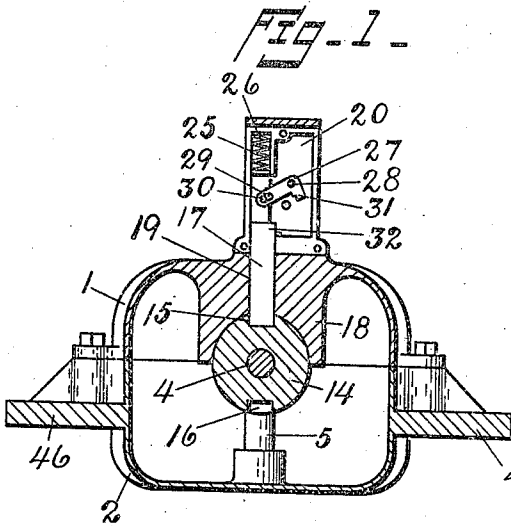


Fig. 3.

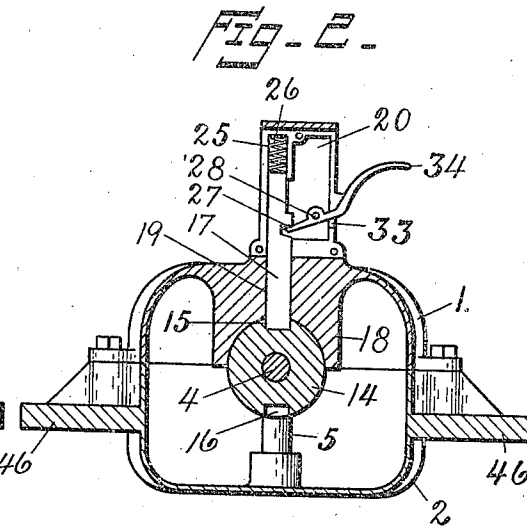


Fig. 4.

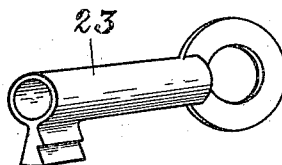


Fig. 5.

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2 SHEETS—SHEET 2.

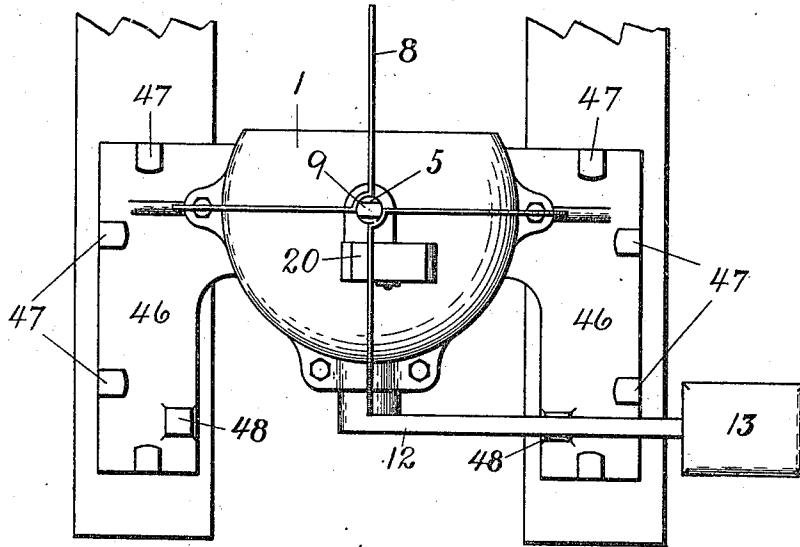


Fig. 6.

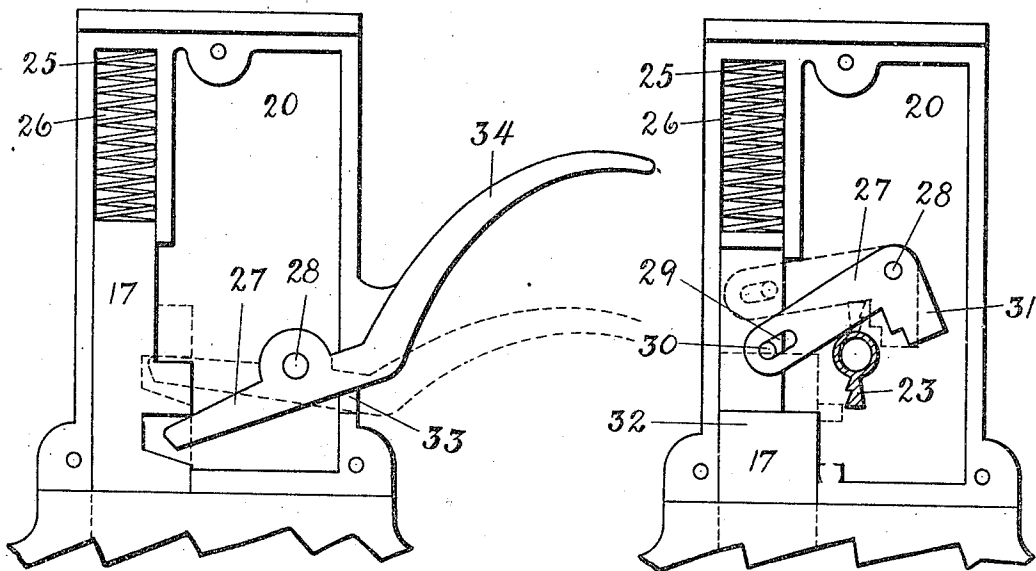


Fig. 7.

Fig. 8.

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SWITCH STAND AND LOCK.

949,098.

Specification of Letters Patent.

Patented Feb. 15, 1910.

Application filed October 6, 1909. Serial No. 521,222.

To all whom it may concern:

Be it known that I, JOSEPH W. TORPEY, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented a new and useful Improvement in Switch Stands and Locks, of which the following is a specification.

This invention relates to railroad switch-stands and locks, and is an improvement on the switch-stand and lock for which I obtained Patent No. 900,131, Oct. 6, 1908.

There are several difficulties and sources of expense incident to the practice of the art to which this invention pertains which I have endeavored to overcome and obviate.

In the present practice detachable locks are used on switch-stands. These locks may not be in service twenty-four hours, before they are either carried away or otherwise disposed of. The locks are usually made of brass and are required to be of good quality, and therefore their cost is considerable. When a great deal of switching is to be done at one point, rather than open and close the lock each time the switch is thrown, the switchman sometimes simply removes the lock, relegates it to some completely sequestered location, and reports the lock lost; a new one then has to be supplied, and this may be similarly lost in a short time. During the absence of the lock, the main line is liable to be left open and serious results may follow, and the responsibility cannot be located.

An object of my invention is to avoid this feature and obviate the expense of supplying additional locks by forming the lock integral with the stand, so that it cannot be removed.

In present practice, also, with the low switch-stand, a latch is required on each side of the stand, into which the lever is thrown and to which the detachable lock is applied. These two latches are dispensed with in my invention, as well as the six spikes required to secure them. I have saved the expense of these latches and spikes in the first cost of the instalment. It should further be considered that in spiking down these latches the spikes come quite close together and cut the fiber of the ties, giving access to water and causing rapid destruction of the ties. This is obviated by my invention. Again, with the switch-stands in common practice, the wings provided for securing the stand upon the ties are of comparatively small

area, and each wing is provided with receptacles for three spikes. These come quite close together and therefore are inadequate to thoroughly resist the force applied to the stand both when the switch is thrown and when the switch is inadvertently or otherwise run through; the consequence is that the spikes are frequently loosened, rain water seeps into the spike holes, follows the fibers of the tie which have been severed by the spikes and so thoroughly disintegrates the wood of the tie that the stand can no longer be held in place without renewing the ties; this entails an additional expense for ties and lack of security in the switches.

An object of my improvement is to avoid this difficulty by extending the wings, so as to widely separate the spikes and more firmly secure the stand on the ties.

In present practice, again, the horizontal shaft has a single bearing, thus entailing great leverage on the inner end which carries the bevel pinion. On this account it often occurs that when a switch is run through or some unusual force is applied thereto, which may be due to ice or snow or extraneous objects falling into the switch, the shaft and bearing of the stand are so badly wrenched that the entire stand has to be scrapped. I have obviated this difficulty by providing a yoke to support the inner end of the horizontal shaft.

Other objects of my improvement are, to provide a rail road switch-stand from which the key cannot be removed except when the switch is fully locked, thus preventing switches from being unlocked and left to be shifted by persons without authority to do so; to facilitate placing the responsibility for irregularity in the position of switches; to provide a combined switch-stand and lock which may be comparatively cheaply manufactured; strength, durability, and security in a device of the class named, and facility of operation.

These objects I attain by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is an elevation; Fig. 2, a central vertical sectional view; Fig. 3, a vertical sectional view, transverse of and on the line A—B of Fig. 2; Fig. 4, a transverse vertical sectional view showing a modification of the lock; Fig. 5, a perspective view of the key; Fig. 6, a top plan view; Fig. 7, an enlarged

elevation of a modification of the lock; and, Fig. 8 is an enlarged detail elevation of the lock with the cover removed.

Similar reference numerals refer to similar parts throughout the several views of the drawings.

The casing of the switch-stand comprises an upper section, 1, and a lower section, 2. The general form of the casing is of the conventional type. In the rear side of the casing is journaled, in a box, 3, a horizontal shaft, 4. The usual vertical staff, 5, is journaled in the top and bottom of the casing at 6 and 7. The staff 5 is provided with the usual target, 8, and squared top, 9, for receiving the signal lantern. Near its lower end, staff 5 is provided with the usual bevel gear, 10, which meshes with a bevel pinion, 11, secured on the inner end of shaft 4. The usual weight-lever, 12, is secured on the outer end of shaft 4 and is provided at its free end with a weight, 13. The inner end of shaft 4 is provided with a drum, 14, in the periphery of which are formed diametrically located sockets or keepers, 15 and 16, adapted to receive a lock-bolt, 17. The upper section 1 of the casing is provided with an integral pendent bearing-lug, 18, adapted to receive drum 14. The inner end of shaft 4 is by this means supported against upward thrust due to pinion 11 meshing with gear 10 and against side thrusts due to transmission of force applied to the weight-lever. It is estimated that this construction results in making the life of this stand 50 per cent. longer than the life of the stand in common use. The lug 18 is provided with a vertical aperture, 19, adapted to receive lock-bolt 17 and located in alinement with keepers 15 and 16, so that bolt 17 will drop into keepers 15 or 16 as each comes into alinement therewith. Upon the top of section 1, immediately over aperture 19, is provided an integral pillar, 20, in the form of a box, adapted to receive lock mechanism. The box 20 is provided with a cover, 21, which is preferably riveted on, and is in turn provided with a keyhole, 22, for receiving a key, 23. The keyhole 22 is preferably covered by a key-drop, 24. Bolt 17 extends upward from aperture 19 into box 20, and is normally pressed downward by a spring, 25, placed in a receptacle, 26, provided therefor in the upper part of the box. A lever, 27, is pivoted at 28, in proximity to bolt 17 and is provided at its outer or free end with a slot, 29, adapted to receive a pin, 30, secured in the bolt. The lever 27 is relatively so arranged that when key 23 is inserted in keyhole 22 and turned to the right, the bit of the key engages the under surface of the lever and swings the lever upward, so that bolt 17 is raised. A right-angular extension, 31, is provided on lever 27, so that the right-hand movement of the bit of key 23 is

limited thereby when bolt 17 is at the upward limit of its movement. Bolt 17 is provided with a shoulder, 32, at a suitable point below lever 27 so that when bolt 17 has been raised by the bit of the key and is prevented from dropping, any effort to turn the key backward to bring the bit into alinement with the keyhole is resisted by the bit impinging on the shoulder. Thus the key cannot be removed from the lock until bolt 17 is allowed to descend by seating itself in one of the keepers 15 or 16. It will thus be understood that the switchman's key cannot be removed from the lock unless the switch is locked either in the open or closed position. The keys are numbered, and the number of each key is entered against the name of the switchman who received it, so that if the switch is left unlocked and the key left in the lock the offending switchman may be identified.

It will be appreciated that the box 20, being cast integral with section 1 of the stand, may be formed with a thick, strong wall, so that the lock cannot easily be injured or deranged and cannot be removed. It ought therefore to last as long as the stand itself, and thus the expense of renewing the locks is obviated.

The modification shown in Fig. 7 is not provided with a key, and is intended for use where, in present practice, the simple latch-stand is used, that is, entirely off the main line. In this modification lever 27 is extended through an opening, 33, in the side of box 20 and is provided on the outside of the box with a handle, 34. When it is required to throw the switch, the switchman presses upon the handle 34 and thereby raises bolt 17 out of keeper 15 or 16, and when the switch has been fully thrown the bolt is pushed into the corresponding keeper automatically by spring 25.

The conventional switch-stand is provided with wings, 46, for fastening the stand to the ties, but in the common form these wings are of relatively small area and the notches or spike-receptacles, 47, in the edges of the wings, are quite close together, so that the fiber of the tie is cut in several places within a small compass when the spikes are driven in, and therefore the spikes cannot hold as firmly as if they were widely separated. The force, also, which is applied to the stand in throwing the switch and by the car wheels comes upon a relatively small portion of the tie, and the leverage incident to the force which has a tendency to tilt the stand is more effective to withdraw the spikes from the tie or loosen them therein. When the spikes then become somewhat loose, rain water seeps in along them and along the severed fibers of the wood between the shanks of the spikes and soon disintegrates the wood, so that the stand can no longer be

securely fastened unless the ties are renewed.

In my improvement (Fig. 6) I have extended the wings 46 and provided additional spike-receptacles 47 and separated the receptacles widely. This construction serves the useful purpose of enabling the spikes to effectively resist the leverage of the stand and to provide an additional place for a spike if one should become loose. When the stand is first installed, not all of the receptacles 47 are used, so that no more spikes are used in this stand than in the one now in ordinary use.

It will be understood that since I have dispensed with the latches for receiving the weight-lever 12, the lever would be forced to drop across the ties when the switch is thrown. This would soon bruise the ties so that they would be splintered and rotted by the weather where the lever struck. The weight 13 would also in this case descend lower and lower as the ties become worn, so that lever 12 would not rest in proper relation for bolt 17 to enter freely into its keepers 15 and 16. The extension of wings 46 provides for a lug, 48, being placed thereon in proper position to receive lever 12 and keep the lever always in proper alinement and protect the ties.

The construction just described makes a

great saving in ties, and provides considerable additional safety in the stand.

Having thus described my invention, so that any one skilled in the art pertaining thereto may make it and understand its use, I claim—

1. A lock for railroad switches, comprising a casing provided with a socket for a bolt, a bolt mounted in said socket and formed with a shoulder, an integral lock-box, a lever fulcrumed in said lock-box, said lever being adapted to be engaged by the bit of a key, a key, a keyhole in said lock-box, the parts of the lock being so arranged that when the bolt is released from a keeper the bit of the key impinges on a portion of said lever or on the shoulder of said bolt, so that the key cannot be turned in either direction and cannot be removed till said bolt again fully engages a keeper in said hub.

2. In a switch-stand, a box formed integral with a part of the stand and provided with a socket for a lock-bolt, a bolt slidably mounted in said socket, and a lever mounted in said box and operatively connected with said lock-box so as to lift said lock-bolt for unlocking the lock.

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Witnesses:

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