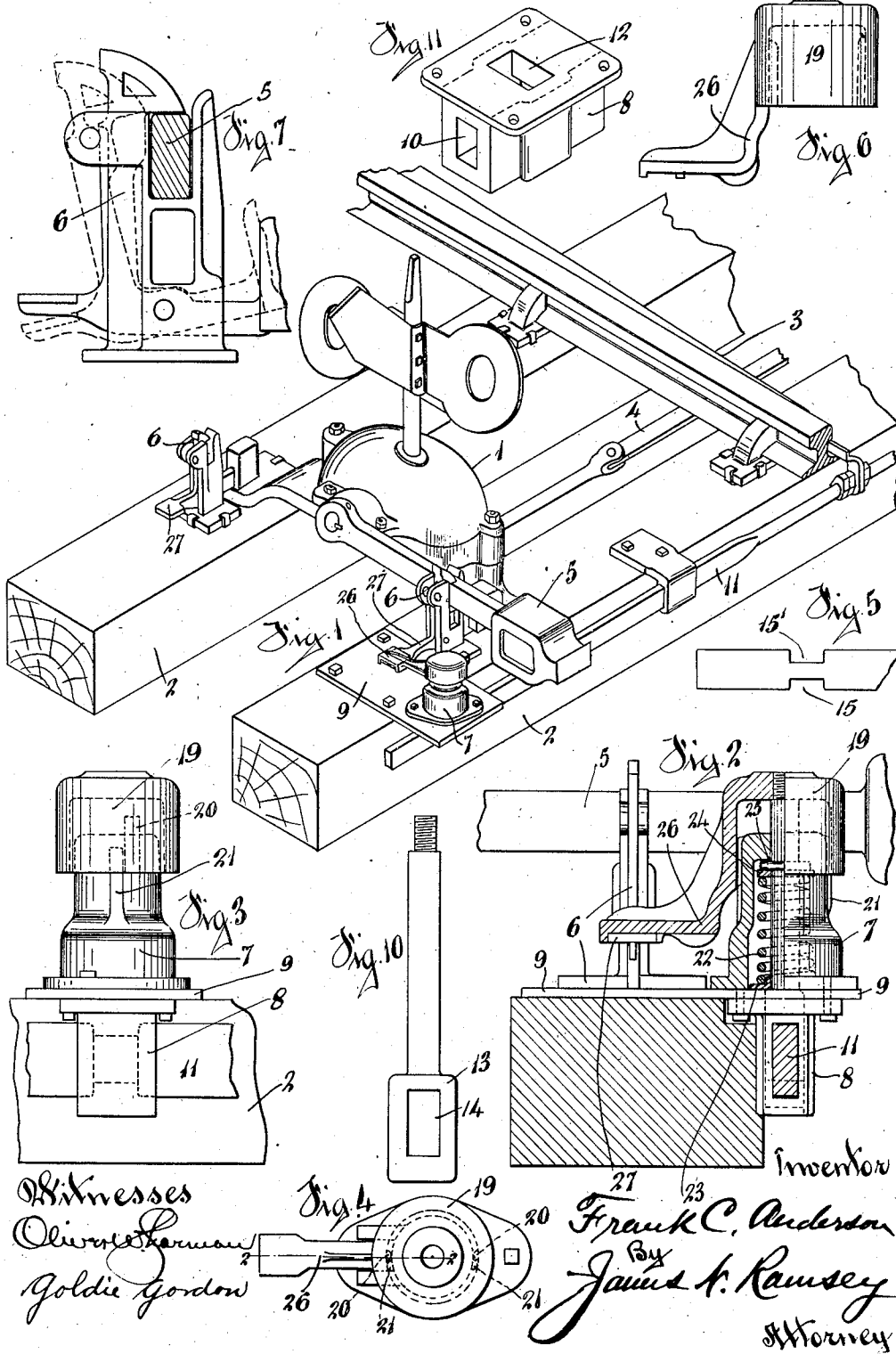


F. C. ANDERSON.
 AUTOMATIC SAFETY SWITCH LOCK.
 APPLICATION FILED JAN. 8, 1912.

1,048,122.

Patented Dec. 24, 1912.

2 SHEETS—SHEET 1.



Witnesses
 Oliver R. Raman
 Goldie Gordon

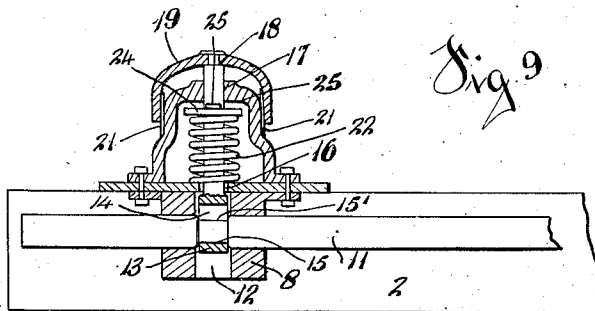
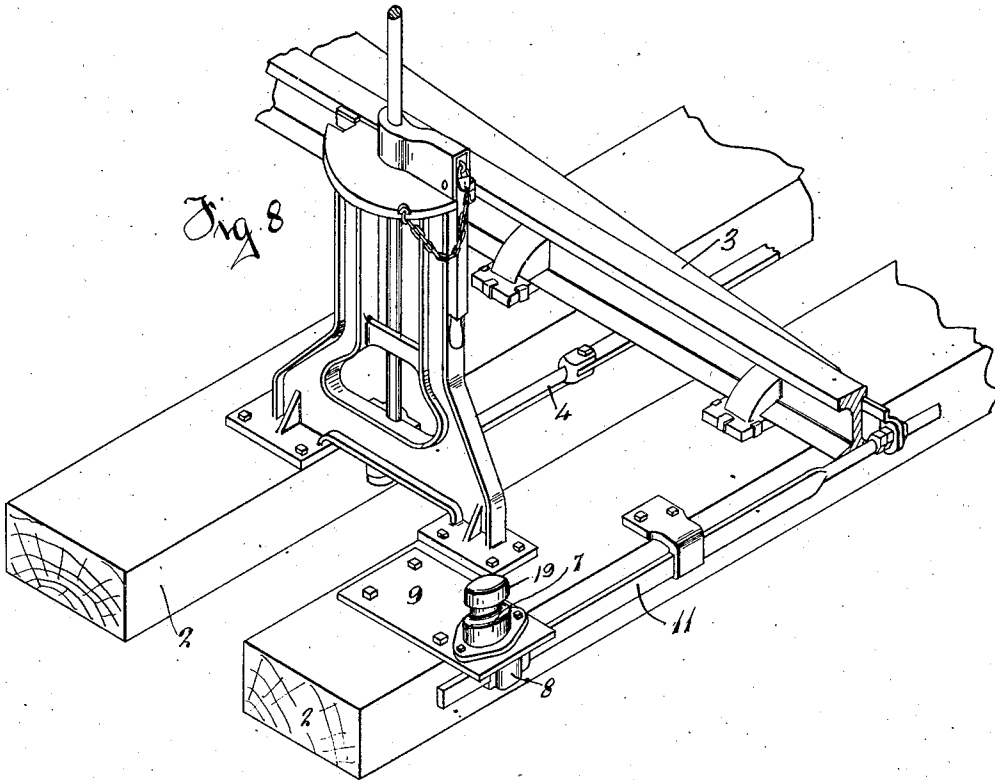
Inventor
 Frank C. Anderson
 By
 James H. Ramsey
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Witnesses
Olive Garrison
Goldie Gordon

Inventor
Frank C. Anderson
By
James A. Ramsey
Attorney

UNITED STATES PATENT OFFICE.

FRANK C. ANDERSON, OF CINCINNATI, OHIO, ASSIGNOR TO THE AMERICAN VALVE & METER COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

AUTOMATIC SAFETY SWITCH-LOCK.

1,048,122.

Specification of Letters Patent.

Patented Dec. 24, 1912.

Application filed January 8, 1912. Serial No. 669,936.

To all whom it may concern:

Be it known that I, FRANK C. ANDERSON, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Automatic Safety Switch-Locks, of which the following is a specification.

My invention relates to means to be used in connection with a switch stand for automatically locking the switch points of a railway independently of the switch stand.

The object of my invention is to provide simple, economical and convenient means for automatically locking railway switch points in closed position when operated by a switch stand of the weighted ground lever automatic type, and to prevent the locking of said switch stand unless the switch is properly closed, as well as to provide easy and convenient means to unlock the same to open the switch.

Another object of my invention is to provide a simple, economical and convenient device for automatically locking a railway switch when operated by switch stands of the high or skeleton type as well as easy and convenient means for releasing or unlocking the same when the switch is to be thrown to open position.

Another object of my invention is to provide a simple and economical device for automatically locking the switch which will hold the switch points in locked position in case the switch stand should become disengaged from the switch points or damaged or destroyed under traffic.

Another object of my invention is to provide means in connection with certain forms of switch stands to insure the proper closing of the switch points against the stock rails before the switch can be locked in closed position.

My invention comprises a recessed interlocking bar, a slotted dog adapted to engage said interlocking bar, a spring adapted to automatically actuate said dog to automatically lock said bar, a foot bearing trip by which said dog is operated to release the interlocking bar and a housing within which said members are mounted and protected.

My invention also comprises a foot bearing member having an arm adapted to engage the ordinary foot latch of the ground

weighted lever type of switch stand whereby said latch is operated simultaneously with the releasing or unlocking of my automatic safety switch lock and whereby the latch is held out of engagement with the operating lever of the switch stand while the switch is in open position, thus preventing the locking of the switch stand until the switch is properly closed and interlocked.

My invention also consists in the peculiar construction, combination and arrangement of the several parts as herein set forth and claimed.

In the accompanying drawings, which serve to illustrate the construction, application and use of my invention: Figure 1 is a perspective view of an ordinary ground weighted lever switch stand of the automatic type showing my invention applied thereto, the switch points being held locked in closed position by means of the switch stand connecting rod and the interlocking bar of my automatic safety switch lock; Fig. 2 is a transverse vertical section of my invention taken on a line corresponding to line 2—2 of Fig. 4; Fig. 3 is a side elevation of my device; Fig. 4 is a plan view of same; Fig. 5 shows the recessed end of the interlocking bar; Fig. 6 is a side elevation of the foot bearing member shown in Fig. 2; Fig. 7 is a side view of an ordinary switch stand latch as shown in Fig. 1 with the throwing lever in section; Fig. 8 is a perspective view of a switch stand of the skeleton type showing my invention applied in connection therewith; Fig. 9 is a view of my invention partly in vertical section and partly in side elevation; Fig. 10 is a side elevation of the dog; and Fig. 11 is a perspective view of the lower housing which is adapted to receive the slotted dog and recessed interlocking bar.

Constructed as illustrated, 1 represents a switch stand of the ground weighted lever type suitably mounted upon head blocks 2 and secured to the switch points 3 by means of a connecting rod 4. The operating lever 5 engages the latch 6 in the usual manner when the switch is in closed position. My automatic safety switch lock which is used in connection with the switch stand 1 is mounted in an upper housing 7 and lower housing 8 each secured to a steel plate 9 which is rigidly mounted upon a head block 2. The lower housing 8 is pro-

vided with a transverse slot 10 which receives the interlocking bar 11, said interlocking bar 11 being suitably connected to the switch point rail 3. The lower housing 5 8 is also provided with a vertical slot 12 which receives the dog 13 having a slot 14 therethrough near its lower end to receive the interlocking bar 11. The interlocking bar 11 is provided with a recess 15 on its 10 lower side and a recess 15' on its upper side adapted to engage the dog at either end of the slot 14 therein for locking said interlocking bar. The dog 13 extends upwardly through an opening 16 in the steel plate 9 15 and through an opening 17 in the upper housing 7. Its upper end is provided with a shoulder 18 upon which is mounted a cup-shaped cap or foot bearing trip 19 having vertical lugs 20 projecting inwardly and 20 adapted to engage lugs 21 projecting laterally from said upper housing 7 for the purpose of guiding said foot bearing trip and preventing it from turning and becoming disengaged from the dog 13. Said foot 25 bearing trip being cup-shaped and fitting over the top of said housing protects the interior mechanism of my device from being tampered with or becoming damaged or rendered inoperative by the weather.

30 A spiral spring 22 is mounted upon the stem of the dog 13 within the upper housing 7, its lower end resting upon an angular or flanged washer 23 which is supported by the steel plate 9 and its upper end bearing 35 against washer 24 which engages pin 25 extending transversely through the stem of the dog 13, forming a bearing to compress the spring and also to return the dog to its upper position after being depressed.

40 The operation of my device is as follows: Fig. 9 shows the interlocking bar held in locked position by means of the dog and spring. To operate my safety device for the 45 purpose of releasing the interlocking bar 11, to permit the switch to be thrown to open position by means of the switch stand all that is necessary is for the operator to place his foot upon the foot bearing trip 19 and 50 press downwardly until the lower end of the dog is out of recess 15. This will permit the interlocking bar 11 to move endwise when the switch stand is operated to throw the switch to open position. It is necessary 55 to keep the foot upon the foot bearing trip 19 until the switch points 3 have moved far enough to permit the non-recessed portion of the bar to enter slot 14 of the dog 13 when said bar will hold the dog in its lowermost position while the switch is in open position. 60 In closing the switch all that is necessary is to throw the switch in the usual manner and if the switch is properly closed the recess 15 of the interlocking bar 11 will be automatically engaged by the dog 13 which 65 will hold the bar in locked position. The re-

cess 15' is provided as an additional safeguard in case the spring should become broken or the switch stand and upper housing of my device should be damaged or destroyed accidentally under traffic. My object is under such circumstances to permit 70 the dog 13 to drop by gravity into engagement with said recess 15' thereby holding the switch in locked position. If the switch stand should be damaged or destroyed by 75 accident under traffic including the upper portion of the safety device not protected by the steel plate it is possible for the lower end of the dog to drop by gravity and secure the switch in locked position by the upper recess 15' in the interlocking bar. 80

My invention is capable of considerable modification without departure from its spirit or scope, and it is likewise adapted to be used in connection with various makes 85 and styles of switch stands of the ground lever and skeleton types. It may be used in exactly the same manner for both the skeleton and ground lever type but when being 90 used with the ground lever type I prefer to provide an arm 26 on the foot bearing trip 19 adapted to engage the foot trip 27 of the latch 6 such as is commonly used for locking ground lever switch stands. This permits the releasing of the interlocking bar 11 95 and the opening of the latch 6 for throwing the operating lever 5 simultaneously and at a single operation. This also insures greater safety in the operation of switch stands of this type for the reason that said arm will 100 retain the latch in open position and out of engagement with the operating lever until the switch is properly closed and interlocked by means of the dog 13 engaging the recess 15 of the interlocking bar 11. 105

It will be clearly seen that my device is extremely simple and economical to construct and also provides ample interlocking means for switch stands not already provided with some form of interlocking mechanism. Thus it is seen when switch stands 110 are already installed without any interlocking means my device can be installed therewith at comparatively small expense and without the necessity of providing an entirely new switch stand including interlocking mechanism which has been specially designed for use in connection therewith. 115

I claim:

1. An automatic safety switch lock comprising an interlocking bar connected to the 120 point rails of a switch, a slotted dog vertically mounted and adapted to automatically engage a recess in the lower edge of said interlocking bar and lock the same from 125 endwise movement, a latch mounted independently of the switch stand and adapted to engage a switch stand throwing lever, and to secure the same in locked position, a foot bearing trip mounted on the stem of said 130

dog and having an extension thereon adapted to engage and operate said latch whereby said dog and said switch stand latch will be operated simultaneously only.

5 2. An automatic safety switch lock comprising a lower housing having transverse and vertical slots therethrough, a recessed interlocking bar connected to the point rails of a switch and extending through said
10 transverse slot, an upper housing, a dog extending into said vertical slot and receiving said interlocking bar, an abutment upon the stem of said dog and a spiral spring upon said stem interposed between the abutment
15 and steel plate and a foot bearing trip mounted upon the upper end of said stem, substantially as set forth and for the purposes specified.

3. In an automatic safety switch lock, a
20 steel plate secured to the head block, a lower housing secured to said steel plate and having transverse and vertical slots there-through, a recessed interlocking bar connected to the point rails of a switch and
25 extending through said transverse slot, an upper housing secured to the upper side of said steel plate and having an opening through its top, a slotted dog extending into said vertical slot and receiving said interlocking bar, an abutment upon the stem of
30 said dog, a spring against said abutment and against said plate and a foot bearing trip mounted upon said stem and projecting over said upper housing, substantially as set
35 forth and for the purposes specified.

4. In an automatic safety switch lock, a housing, an interlocking bar connected to the point rails of a switch, and engaging said housing, a dog mounted in said housing and engaging said interlocking bar, a spring
40 adapted to automatically engage said dog with said interlocking bar to lock said interlocking bar, a foot bearing trip adapted to release said interlocking bar, a switch stand connected to the point rails of a switch, a
45 latch for holding the operating lever of said switch stand in closed position, and an arm on said foot bearing trip engaging said latch whereby said interlocking bar and said switch throwing lever may be released or
50 unlocked simultaneously by a single operation, substantially as set forth and for the purposes specified.

5. In an automatic safety switch lock, a housing, an interlocking bar connected to
55 the point rails of a switch and engaging said housing, a dog mounted in said housing and engaging said interlocking bar, outwardly extending lugs on said housing, a foot bearing trip having inwardly extending lugs
60 adapted to engage said outwardly extending lugs, and a spring within said housing adapted to automatically throw said dog into locked engagement with said interlocking bar, substantially as set forth and for
65 the purposes specified.

FRANK C. ANDERSON.

Witnesses:

JAMES N. RAMSEY,
GOLDIE GORDON.