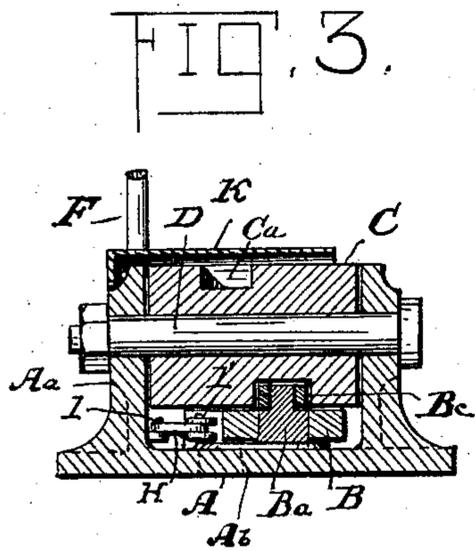
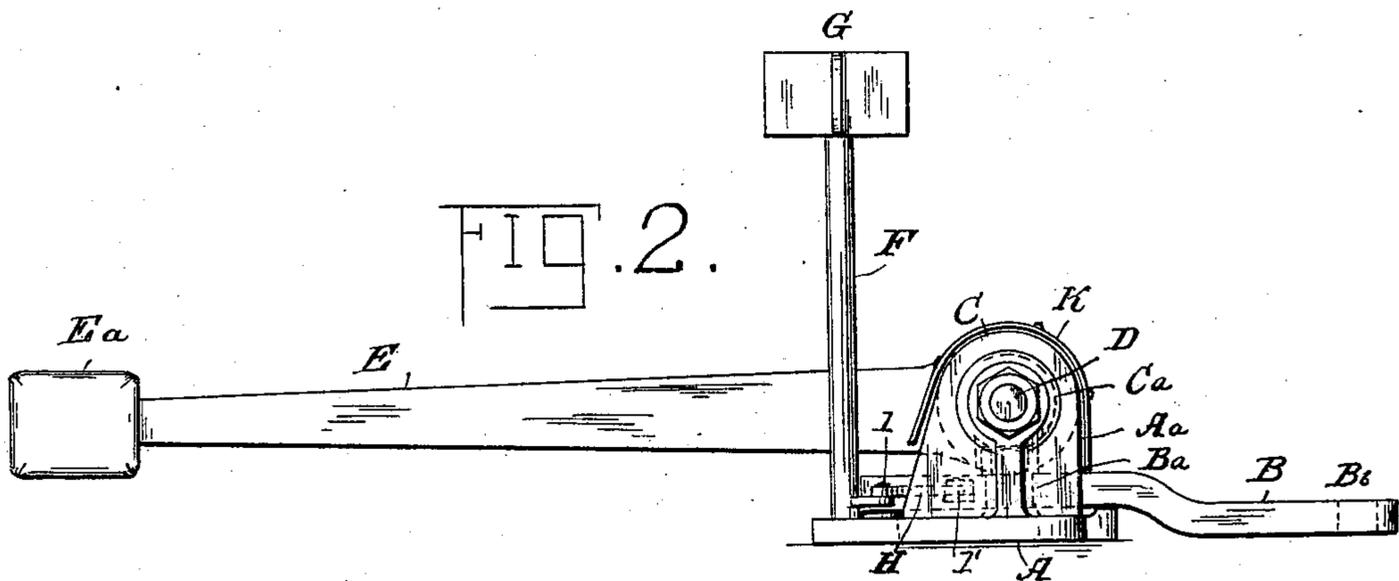
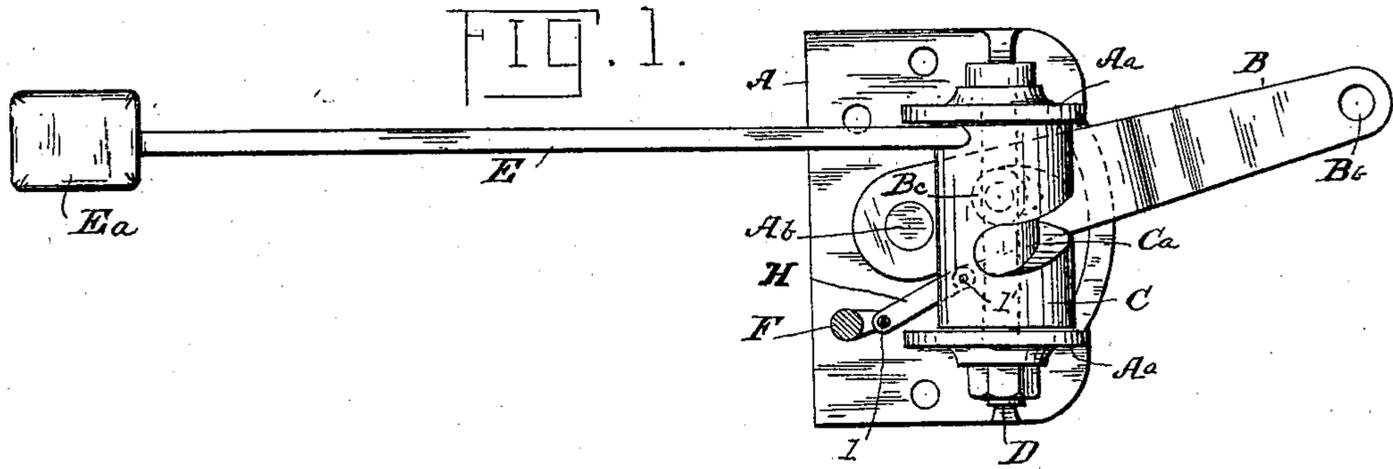


(No Model.)

M. F. MOORE & C. E. FINK.
GROUND LEVER SWITCH.

No. 589,187.

Patented Aug. 31, 1897.



WITNESSES
Saml. Turner
C. D. Keeler

INVENTORS,
Miles F. Moore,
Charles E. Fink,
by *John Wedderburn*
Attorney

UNITED STATES PATENT OFFICE.

MILES F. MOORE AND CHARLES E. FINK, OF HARRISBURG, PENNSYLVANIA.

GROUND-LEVER SWITCH.

SPECIFICATION forming part of Letters Patent No. 589,187, dated August 31, 1897.

Application filed December 5, 1896. Serial No. 614,647. (No model.)

To all whom it may concern:

Be it known that we, MILES F. MOORE and CHARLES E. FINK, citizens of the United States, residing at Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented certain new and useful Improvements in Ground-Lever Switches; and we 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.

This invention relates to improvements in switches, and has more particular relation to switch-stands for operating the same.

The invention consists in the combination, with a supporting-frame, of a cylinder journaled therein and formed with a spiral groove, a handle for turning said cylinder, and a switch-operating lever pivoted to the frame and provided with a projection adapted to enter the spiral groove.

The invention also consists of certain other novel constructions, combinations, and arrangements of parts, all of which will hereinafter be more fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 represents a top plan view of a switch-stand embodying our invention. Fig. 2 represents a side elevation of the same. Fig. 3 represents a central vertical transverse section through said stand.

A in the drawings represents the base or frame; B, the pivoted switch-operating lever; C, the rotatable cylinder mounted in said frame; D, the axle-bolt for said cylinder, and E the operating handle or lever. The base A is formed of any suitable material and is provided with vertical lugs or arms A^a , cast or otherwise secured thereto. The cylinder C, which is provided with the peripheral spiral groove C^a , is mounted between said lugs A^a by the axle-bolt D, which passes through said lugs and loosely through said cylinder. The switch-operating lever B is pivoted on said base A at A^b and extends forward under the cylinder C between the lugs A^a . This lever is provided with a vertically-extending stud B^a , upon which is loosely mounted an antifriction-sleeve B^c , the said sleeve being adapted to play in the spiral groove C^a . The outer end of said lever B is provided with an

aperture B^b for connecting said lever to the movable rails of the switch by any suitable rods.

The lever E is firmly secured to one end of the cylinder C, whereby said cylinder may be rotated about the axle D to cause the lever B to oscillate from side to side because of its connection with the spiral groove C^a . The outer end of said lever E is provided with a weight E^a , the office of which is to hold said lever E in any of its adjusted positions. A signal or semaphore G is mounted upon a rotatable vertical shaft F, which in turn is mounted upon the base A. This shaft F is adapted to be rotated by the movement of the lever B, so as to shift the semaphore G to indicate the position of the switch. This rotation of the shaft F is accomplished by means of the link H, which is pivotally connected, as at $l\ l'$, to a suitable lug formed on said shaft and said lever, respectively. The cylinder C is covered and protected by a cap K, attached to one of the lugs A^a , so as to project over said cylinder, but at the same time not interfere with the action of the lever E.

By the employment of our invention we secure a switch-stand of the type generally known as a "ground-lever" switch, in which the handle moves in a vertical plane parallel with the tracks and provides a rigid connection with the switch with all the working parts housed and protected from the weather. We also secure a stand which occupies very little space and is capable of being placed on an ordinary tie between the rails or to one or the other sides of the same. In operating our improved switch-stand, the operator is not compelled to approach sufficiently near the track at any time to be struck or injured by a passing train, as the operating-lever moves through a plane parallel with the track.

It will be observed that by the peculiar construction of our improved switch-stand the switch is positively operated by the movement of the operating-lever and without the use of springs or other yielding devices that are liable to become disarranged or inoperative.

It is sometimes desirable to work the stand automatically. When this action is desired, the lever B is forced to one side by the train

running through the switch, which action causes the sleeve B^c to press against the inclined sides of the spiral groove formed in the cylinder, and thus throw the operating-lever 5 E, with the weight E^a connected thereto, to the opposite side. The weight in this capacity acts to increase the leverage against the force acting at the point B^b.

Having thus described our invention, what 10 we claim as new, and desire to secure by Letters Patent, is—

1. The combination with a suitable supporting-frame, of a cylinder mounted thereon and formed with a spiral groove, a handle 15 for rotating said cylinder, and a switch-operating lever pivoted on said frame and provided with a projection adapted to enter the spiral groove whereby said lever is operated upon the movement of said cylinder.

2. In a switch-stand the combination with 20 a suitable supporting-frame, of a cylinder mounted thereon and provided with a spiral groove, a handle for rotating said cylinder, a switch-operating lever pivoted on said frame, a stud or projection mounted on said lever 25 and adapted to project into the spiral groove, and an antifriction-sleeve mounted on said stud.

3. In a switch-stand the combination with 30 a suitable supporting-frame having spaced lugs mounted thereon, of a cylinder rotatably mounted between said lugs and formed with a spiral groove, a handle for rotating said

cylinder, and a switch-operating lever pivoted on the frame and provided with a projection 35 adapted to enter said groove, whereby said lever is operated upon the rotation of said cylinder.

4. In a switch-stand the combination with a supporting-frame, a cylinder mounted upon 40 the same and formed with a spiral groove, a handle for operating said cylinder, a switch-operating lever pivoted on said frame and provided with a projection adapted to enter said groove, a semaphore also mounted on 45 said frame and means for connecting said semaphore to the switch-stand.

5. In a switch-stand the combination with a suitable supporting-frame, a cylinder rotatably mounted thereon and formed with a spiral 50 groove, a lever attached to said cylinder for rotating the same, a weight mounted on said lever for holding it in its adjusted position, a switch-operating lever pivoted upon the base and provided with a projection adapted to 55 enter the spiral groove, and a suitable housing over the working parts for protecting the same.

In testimony whereof we have signed this specification in the presence of two subscrib- 60 ing witnesses.

MILES F. MOORE.
CHARLES E. FINK.

Witnesses:

CLAUDE A. LANGDON,
CHARLES T. MOORE.