

(No Model.)

F. S. GUERBER.

COMBINED SWITCH STAND AND SEMAPHORE SIGNAL.

No. 346,848.

Patented Aug. 3, 1886.

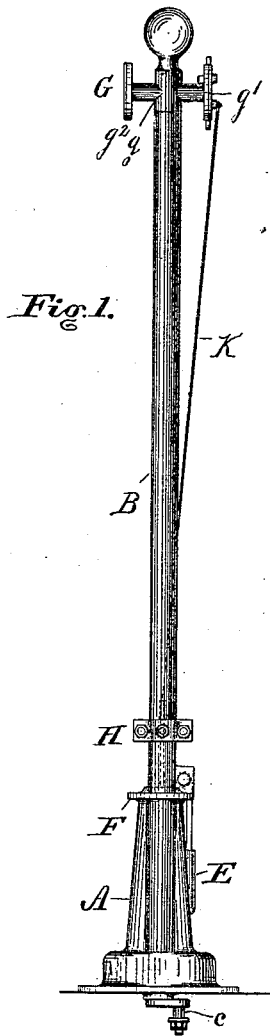


Fig. 1.

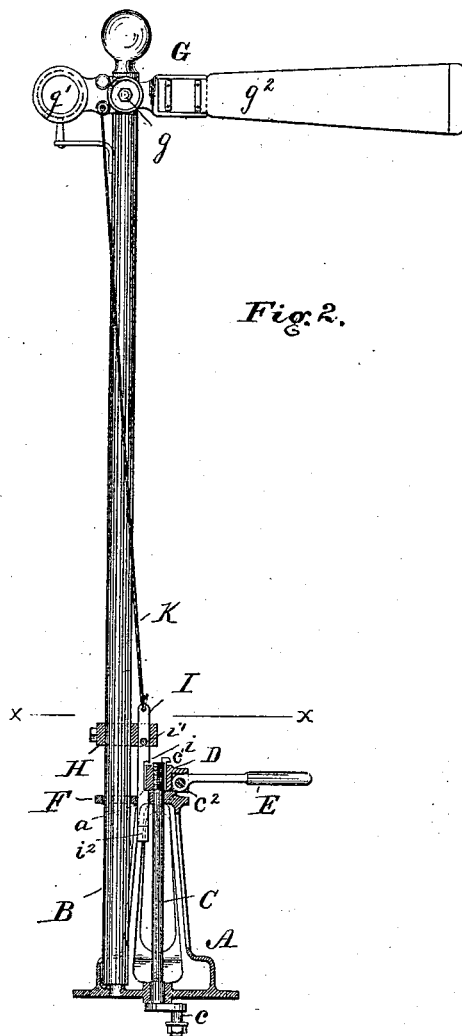


Fig. 2.

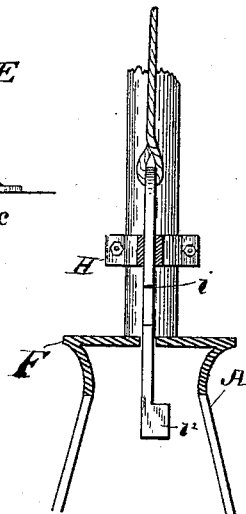


Fig. 4.

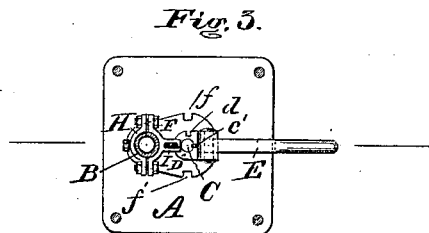


Fig. 3.

WITNESSES:

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# UNITED STATES PATENT OFFICE.

FREDERICK S. GUERBER, OF ALLENTOWN, PENNSYLVANIA.

## COMBINED SWITCH-STAND AND SEMAPHORE-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 346,848, dated August 3, 1896.

Application filed April 30, 1886. Serial No. 200,717. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK S. GUERBER, a citizen of the United States, residing at Allentown, in the county of Lehigh and State of Pennsylvania, have invented certain new and useful Improvements in Combined Switch-Stands and Semaphore-Signals; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is an end elevation of combined switch-operating device and semaphore-signal. Fig. 2 is a vertical section, partly in elevation, of the same parts as are shown in Fig. 1. Fig. 3 is a horizontal section taken on line *xx* of Fig. 2. Fig. 4 is a detail elevation of sliding bar.

My invention has for its object to provide a switch-stand with a semaphore-signal mounted thereon, the parts being so constructed and combined that the signal must be set to "danger" before the lever can be moved, and cannot be set to "safety" until said lever has completed its movement.

My improvements consist in the peculiar construction and combinations of parts hereinafter fully described, and specifically claimed.

Referring to the accompanying drawings, A indicates a frame or support sustaining a signal post or pole, B, and affording bearings for a vertical shaft, C. The lower end of this shaft has a crank, *c*, designed to be attached to a connection, whereby a railroad-switch is moved when said shaft is rotated.

Secured to the upper end of shaft C by a key, *c'*, or other fastening, is a hub-plate, D, which partakes of the movement or axial rotation of said shaft. On a depending flange, *c''*, of this plate is pivoted a lever, E, which may be moved laterally to rotate plate D and shaft C when said lever is in a horizontal plane, as in Figs. 2 and 3 of the drawings, and may assume a vertical or pendent position, as shown in Fig. 1, when it is aligned with either of the notches *f f'* on the head F of the support A, said notches being diametrically opposite to each other. The plate D has a notch or opening, *d*, the purpose of which will be hereinafter explained.

G represents the signal, pivoted at *g* on the post B, and having two arms, *g'* and *g''*. Stops—

one on the post and the other on the signal—are provided to limit the movement of the latter past a horizontal position.

H is a collar securely fastened to post B, and forming a guide for a bar, I, which is connected to the signal G by a rope or other connection, K. The bar I has a notch, *i*, whose vertical depth is slightly greater than the thickness of plate or head D. When the signal G is horizontal, as shown in Fig. 2, the bar I is at such elevation that its notch *i* is in alignment with the plate or head D, and the latter and lever E may then be moved in a horizontal plane, effecting a partial rotation of shaft C, and imparting motion to the switch connected with said shaft. When the signal is in the horizontal position, it signifies "danger," and as the bar I is then locked by reason of the edge of the plate or head D being in notch *i*, while said lever is in any position between its limits of movement, it will continue this indication until the movement of the lever and of the switch controlled thereby are completed; but when the switch-lever reaches such limit it is in alignment with the notch *f* in head F, and at the same time notch *d* is in alignment with the bar I, so that the lever can drop down into said notch *f*, and the bar I can slide up through notch *d*, as it will, the arm *g''* of signal dropping by gravity to "safety" position and effecting an upward movement of bar I through connection K.

To prevent the bar I from ascending too far, it may be formed with a side shoulder, *i'*, which meets the head of support A when the signal attains the position of "safety," which is usually at an angle of about sixty degrees to the plane of the horizon, said bar when moved sliding in an opening, *a*, in said head. The stop *i'* limits the descent of the semaphore-signal any further than the angle of "safety," and it can only descend or drop further by breakage. In the event of such breakage, signal would drop to a vertical position, which would be a notification to engineers or other road operatives that the signal is out of order, amounting to a notice of "danger."

It will be noted that while there are two notches, *f f'*, in the head F there is only one notch, *d*, in the hub-plate D; hence, while the lever E may be dropped into a vertical and locked position at either limit of its move-

ment, the bar I can be raised and the signal dropped to "safety" only when the notch *d* is in alignment with the said bar, which occurs only when the switch with which the signal connects is in the position where "safety" is the proper indication for the signal. The notches *ff'* are not essential, and may be dispensed with, as the lever E may be rigid and not pivoted, the notch *d* being essential and so located that it comes into alignment with the bar I only at such times as it is proper to display a safety-signal. The bar I has an opening, *i*, for the passage of the hasp or loop of a padlock for locking the switch.

15 I am aware that interlocking apparatus has heretofore been provided of such a character that the switch can be moved only when the signal is set to "danger," and that when the signal is set to "safety" the switch is unlocked; hence I do not broadly claim the same, but restrict my claims to the specific construction herein set forth, whereby in one stand I provide means for effecting the proper movements and interlocking of the switch and signal, such stand comprising the signal-post and support therefor.

What I claim as my invention is—

1. A combined switch-stand and semaphore-signal comprising a base or support, A, a signal-post, B, a signal, G, on said post, and having its movements in a vertical plane or up and down, a rotating plate or head having means for connection with a switch, a switch-moving lever attached to said plate, and a sliding bar, I, connected to the signal and movable in or on said support, said sliding bar and plate operating to interlock the switch and signal, substantially as shown and described.

2. In a combined semaphore-signal and switch-operating device, the combination, with a pivoted semaphore-blade adapted to swing in a vertical plane, and a vertically-movable bar notched, as described, and connected to said blade, of a notched plate or head having means for connection with a switch and provided with an operating-handle, said blade

being weighted so as to automatically assume a new position when the notched bar is released by the revolution of said disk, substantially as described.

3. The combination, with the support A, having opening *a*, of the sliding bar I, having shoulder *i*<sup>2</sup>, which forms a stop to limit the upward movement of said bar and the descent of the signal, substantially as shown and described.

4. The combination, in a combined switch-lever and semaphore-signal, both supported on the same stand, of a rotating plate, D, having a notch, *d*, and a sliding bar, I, having connection with a signal, said bar being capable of movement only when the notch in the plate is in alignment with said bar, substantially as shown and described.

5. The combination of support A, post B, crank-shaft C, plate D, having notch *d*, lever E, signal G, sliding bar I, having notch *i*, and connection K between said bar and signal, said several parts being constructed and combined for operation substantially as shown and described.

6. The combination, with a stand or support for a signal-post, of a vertically-moving signal-blade, a switch-connection having a rotary movement and intermediate interlocking mechanism controlling the movement of the signal and the switch-connection, said mechanism comprising a vertically-sliding bar and a rotating head, whereby to move the switch the signal must first be set to "danger," and the signal can only be moved to "safety" when the switch is in such position that "safety" is the proper indication, the movements of the signal and switch being separate or successive, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 23d day of March, 1886.

FREDERICK S. GUERBER.

Witnesses:

M. D. CONNOLLY,

R. DALE SPARHAWK.