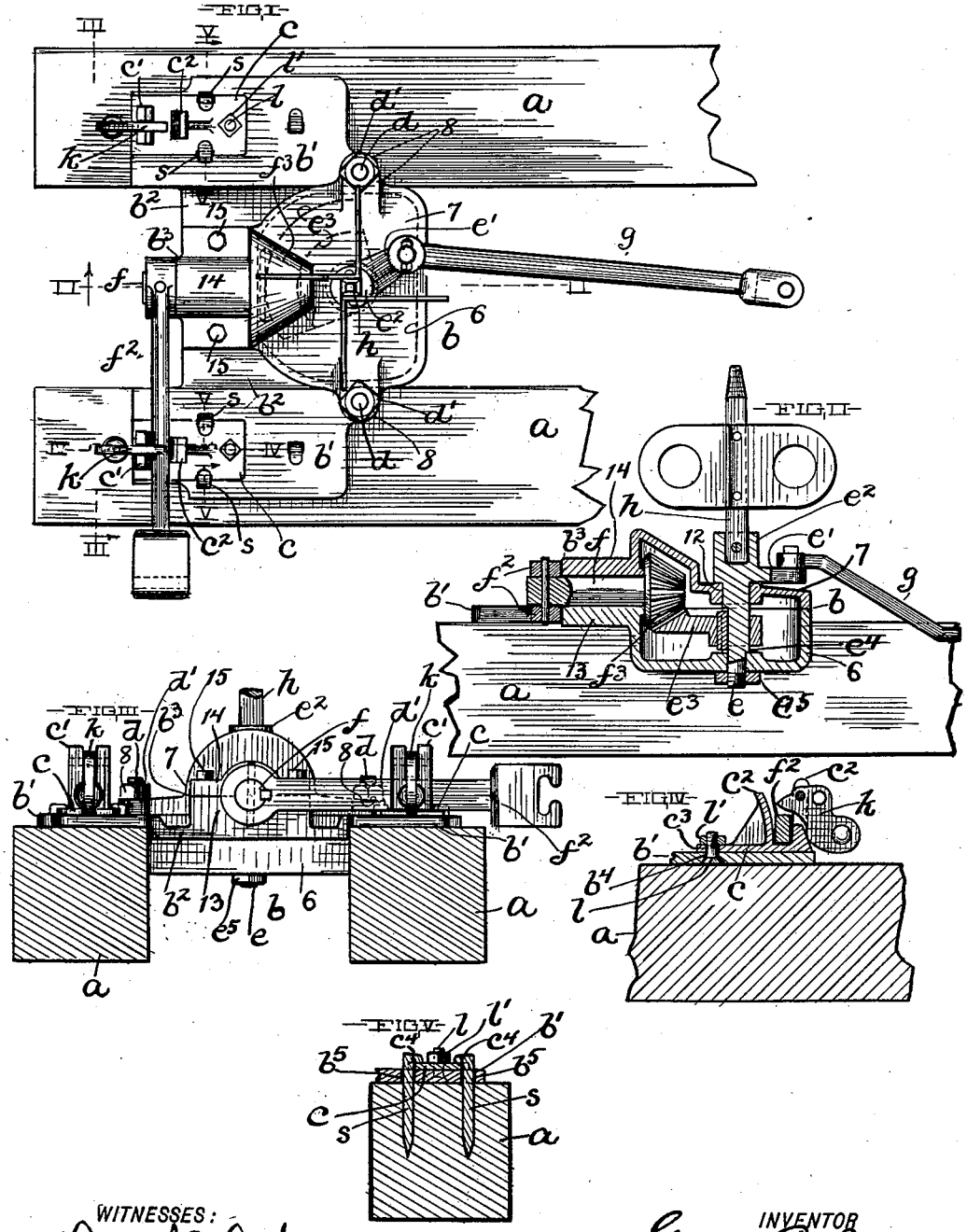
No. 676,508. Patented June 18, 1901.

G. C. LUCAS.

SWITCH STAND.

(Application filed Apr. 27, 1901.)

(No Model.)



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GEORGE C. LUCAS, OF CLEVELAND, OHIO.

SWITCH-STAND.

SPECIFICATION forming part of Letters Patent No. 676,508, dated June 18, 1901.

Application filed April 27, 1901. Serial No. 57,781. (No model.)

To all whom it may concern:

Be it known that I, GEORGE C. LUCAS, a resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Switch-Stands; 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 pertains to make and use the same.

My invention relates to improvements in switch-stands; and it pertains more especially to a switch-stand having the operating-lever intergeared with the vertically-arranged signal-carrying and switch-rod-operating crank-shaft inclosed within a case, with the crank of the last-mentioned shaft, which is attached to the switch-operating rod, arranged above and outside of the case, where it is readily accessible, more convenient in the assemblage of the parts, and always within view for inspection.

One object of this invention is to render the location of the crank of the switch-rod-operating shaft more advantageous than heretofore.

Another object of this invention is to provide the aforesaid case with flanges having the dimensions and arrangement required to render them capable of bearing the latches employed in automatically locking the switch-operating lever when the switch-rod is actuated in the one or the other direction, and thereby simplifying the application or instalment of the switch-stand.

With these objects in view and to the end of attaining other advantages hereinafter appearing the invention consists in certain features of construction and combinations of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure I is a top plan of a switch-stand embodying my invention and shows the switch-stand secured in position to a pair of railway-ties. Fig. II is a side elevation, largely in vertical section, on line II II, Fig. I, looking in the direction indicated by the arrow. Fig. III is a vertical section on line III III, Fig. I, looking in the direction indicated by the arrow, and the upper portion of the signal-bearing stem is broken away to reduce the size of the figure. Fig. IV is a vertical section on line IV IV, Fig. I, looking in the direction indicated by the arrow. Fig. V is a vertical section in detail on either one of lines V V, Fig. I, looking in the direction indicated by the arrow.

Referring to the drawings, *a* and *a* designate two railway-ties, to which a switch-stand embodying my invention is rigidly secured.

My improved switch-stand comprises a case *b*, which is arranged between the two ties *a* and *a* and extends a short distance above the said ties. The case *b* comprises a lower receptacle-forming section 6, which is adapted for interposition between the two ties *a* and *a* and is provided at its upper end and externally with two flanges *b'* and *b'*, which rest upon the top of and are rigidly secured to the different ties *a* and *a*, respectively, and extend lengthwise and widthwise of the said ties far enough to afford a suitable base for the latch-plates *c*, hereinafter described. The case *b* comprises also a cover-forming section 7, which rests upon and closes the upper end of the receptacle-forming section 6 of the said case. The cover 7 is provided with ears 8, which overlap the upper sides of the flanges *b'* and are removably secured to the said flanges by bolts *d* and nuts *d'*. The upper section or cover 7 is removably attached, therefore, to the receptacle-forming lower section 6 of the case *b*.

The switch-rod-operating shaft *e* is shown clearly in Fig. II and is arranged vertically centrally of the case *b* and extends through a corresponding hole 12, formed in the cover 7. The shaft *e* has its lower end reduced diametrically and has the said diametrically-reduced portion extending through the bottom of the case *b* and screw-threaded externally. The shaft *e* at the upper end of its lower diametrically-reduced portion has a shoulder e^4, which rests and has bearing upon the bottom of the chamber of the case *b*, and a nut e^5 is mounted upon the said shaft at the under side of the case *b*. The shoulder e^4 and the nut e^5 prevent vertical displacement of the shaft *e*. The shaft *e* is provided above the cover 7 of the said case with the switch-rod-operating crank *e'*, which is preferably integral with the shaft, and *g* designates the switch-operating rod, which is attached at

one end to the said crank in any approved manner and has its other end adapted to be attached to the switch. (Not shown.) Obviously the construction hereinbefore described necessitates the introduction of the shaft *e* into the case *b* through the hole 12 in the cover 7.

A socket e^2 is formed upon the upper end of the shaft *e* next above the crank for the reception of the signal-stem *h*, which is rigidly secured to the said socket in any approved manner.

A toothed sector e^3 is keyed or otherwise operatively mounted upon the shaft *e* below the cover 7 of the case *b* within the chamber of the receptacle-forming portion 6 of the said case and meshes with a pinion f^3, operatively mounted upon a shaft *f*, which is arranged horizontally centrally between and parallel with the ties *a* and *a*, and consequently at right angles to the shaft *e*. The shaft *f* has bearing in a box b^3, which is rigid with a web b^2, which connects together and is integral with the flanges *b'* and *b'* of the receptacle-forming portion of the case *b*. The said box is consequently rigid with the case *b* and has the lower half 13 thereof formed, preferably, integral with the web b^2, whereas the upper half 14 of the box is rigid with the cover 7 of the base, and the said cover is enlarged upwardly, as at 14, over the pinion f^3, between the shaft *e* and the aforesaid box b^3, for accommodating the location and operation of the said pinion, and the upper half 14 of the said box is formed integral with the said upwardly-enlarged portion of the cover and is secured to the lower half of the box by means of bolts or screws 15. The shaft *f* extends through the box b^3 and at the outer end of the said box is operatively provided with a manually-operated lever f^2, which extends from the shaft laterally in the one direction or the other, according as the switch-operating rod has upon the operation of the said lever been shifted endwise in the one direction or the other, and obviously the signal-stem *h* is turned in the one direction or the other and the switch-rod *g* is actuated in the one or the other direction, according as the lever f^2 is oscillated into the one or the other of its positions.

As already indicated, each flange *b'* of the case *b* forms a base for a latch-plate *c*, which is rigidly secured to the said flange in any approved manner and provided with two upwardly-projecting arms *c'* and c^2, arranged at opposite sides, respectively, of the sweep of the lever f^2, and one of the said arms is provided with an ordinary vertically-tiltable latch *k*, arranged to overhang the lever f^2 in the operative position of the latch when the said lever is in position between the said members *c'* and c^2 of the latch-plate *c*, as shown in Fig. IV. The said plate *c*, as shown in Fig. IV, has a vertical hole c^3, which registers with a hole b^4, formed in the plate-bearing flange *b'*, and a bolt *l* extends through the said holes b^4 and c^3 and has its head flush with the under side of the said flange *b'*, and a nut *l'* is mounted upon the shank of the bolt above the said plate *c*, and the said bolt and the said nut secure the said plate *c* to the said flange *b'*. The said plate *c* is secured, furthermore, to the plate-bearing flange *b'* by spikes *s*, instrumental in securing the said flange *b'*, and consequently the case *b*, to the tie *a*, upon which the said flange rests. The said spikes *s* engage recesses c^4, formed in edges of the said plate *c* and registering with holes b^5 in the aforesaid flange *b'*, and not only secure the said plate *c* to the said flange *b'*, but rigidly secure both of the said members *b'* and *c* to the aforesaid tie, as shown in Fig. V.

What I claim is—

1. A switch-stand comprising a closed case, an upright crank-shaft extending into the said case through the top of the case and having its switch-rod-operating crank arranged outside and above the said case, and means for operating the shaft.

2. A switch-stand comprising a closed case, an upright crank-shaft arranged centrally of and extending through the said case and having its switch-operating crank arranged outside and above the case and having its lower end reduced diametrically, with the said diametrically-reduced portion screw-threaded externally and extending through the bottom of the case, which shaft has a shoulder, at the upper or inner end of its lower diametrically-reduced portion, resting upon the bottom of the chamber of the case, and a nut mounted upon the aforesaid threaded end of the shaft at the under side of the case, and means for operating the shaft.

3. A switch-stand comprising a case *b* composed of a lower receptacle-forming section 6 provided, at its upper end and externally, with laterally-projecting flanges *b'* and *b'*, and an upper cover-forming section 7 resting upon and secured to the lower case-section; an upright shaft *e* extending into the said case through the cover-forming section of the case and having its upper end provided with a crank *e'* formed upon the shaft outside of and above the said case, which shaft has a socket e^2 formed upon the crank-forming end of the shaft; the switch-operating rod *g* operatively attached to the crank; the signal-bearing stem secured within the aforesaid socket, and means for operating the shaft.

4. A switch-stand comprising a case *b* composed of a lower receptacle-forming section and an upper cover-forming section resting upon and secured to the lower section; an upright crank-shaft extending into the said case through the cover-forming section of the case and having its switch-rod-operating crank arranged above the said case; a toothed sector operatively mounted upon the shaft within the case; another shaft extending into the aforesaid case and operatively provided, within the case, with a pinion meshing with

the sector, and the cover-forming section being enlarged upwardly above the pinion to accommodate the location and operation of the pinion, and means for operating the pinion-bearing shaft.

5. A switch-stand comprising a case *b* composed of a lower receptacle-forming section 6 and an upper and cover-forming section resting upon and secured to the lower section, with the lower section provided, at its upper end, with a laterally-projecting flange *b'*; a shaft *f* arranged in a horizontal plane and extending from within the case laterally outside of the case, and operatively provided, externally of the case, with a lever f^2; a latch-plate *c* secured upon the said flange *b'* and having two upright arms *c'* and c^2 arranged at opposite sides, respectively, of the sweep of the said lever; a latch borne by one of the said arms and arranged to lock the lever in position between the said arms; an upright shaft extending into the said case through the cover-forming section of the case and provided with a crank, and intergeared, within the said case, with the first-mentioned shaft, and the switch-operating rod operatively connected with the said crank.

Signed by me at Cleveland, Ohio, this 20th day of April, 1901.

GEORGE C. LUCAS.

Witnesses:
C. H. DORER,
A. H. PARRATT.