

(No Model.)

F. S. GUERBER.

RAILWAY SWITCH AND SIGNAL APPARATUS.

No. 362,580.

Patented May 10, 1887.

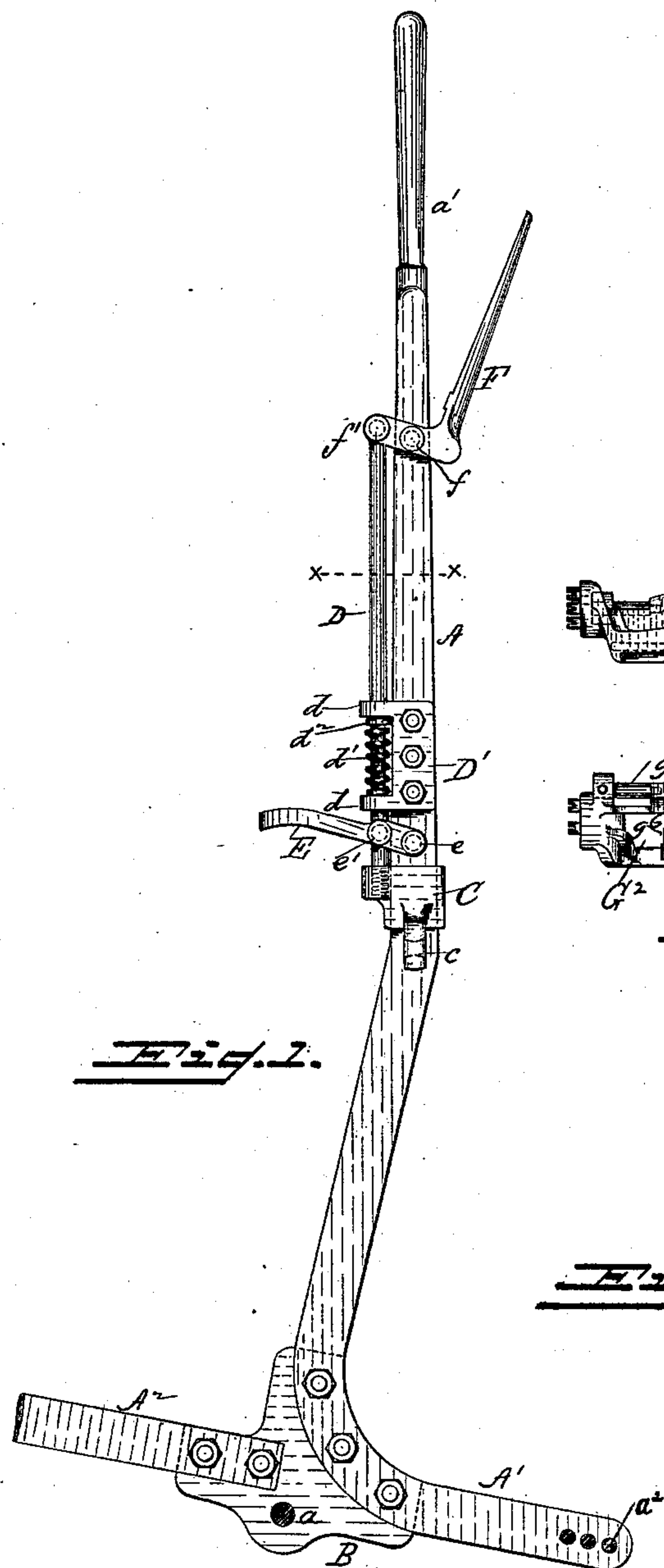


Fig. 1.

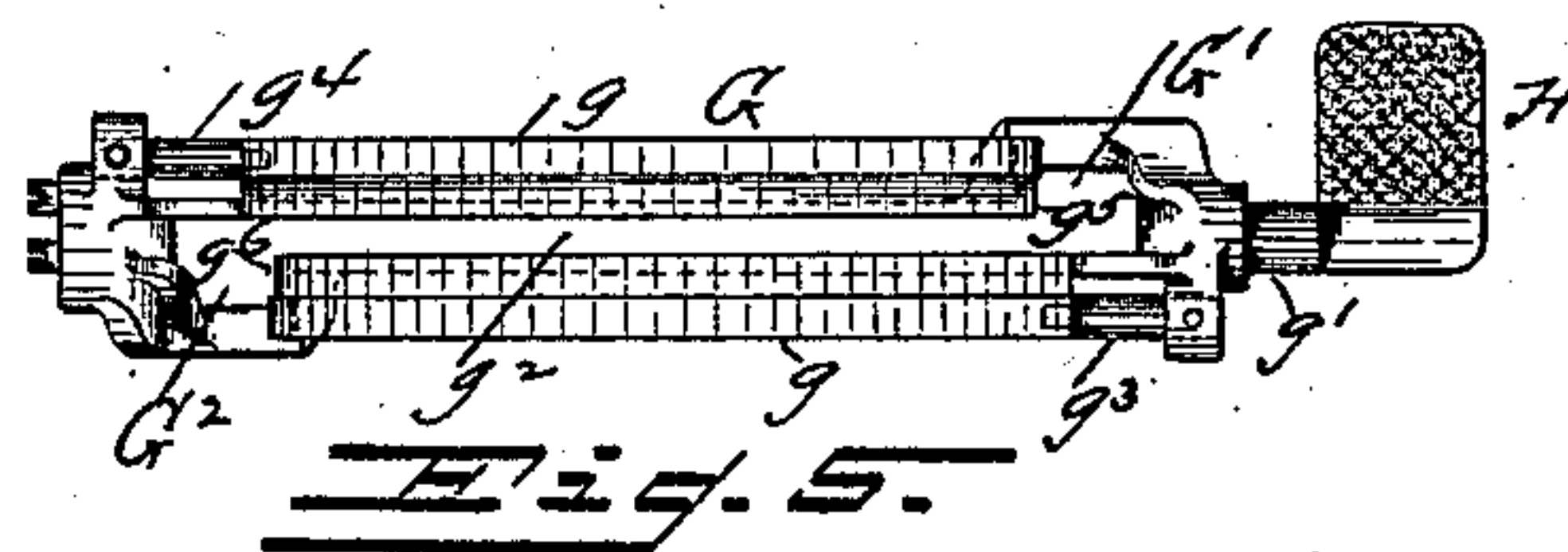
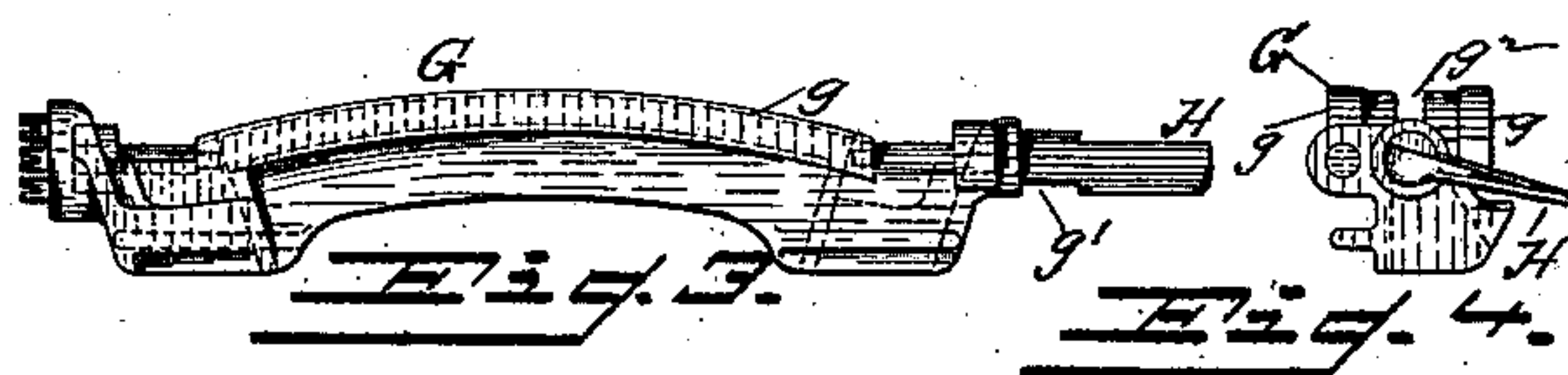


Fig. 5.

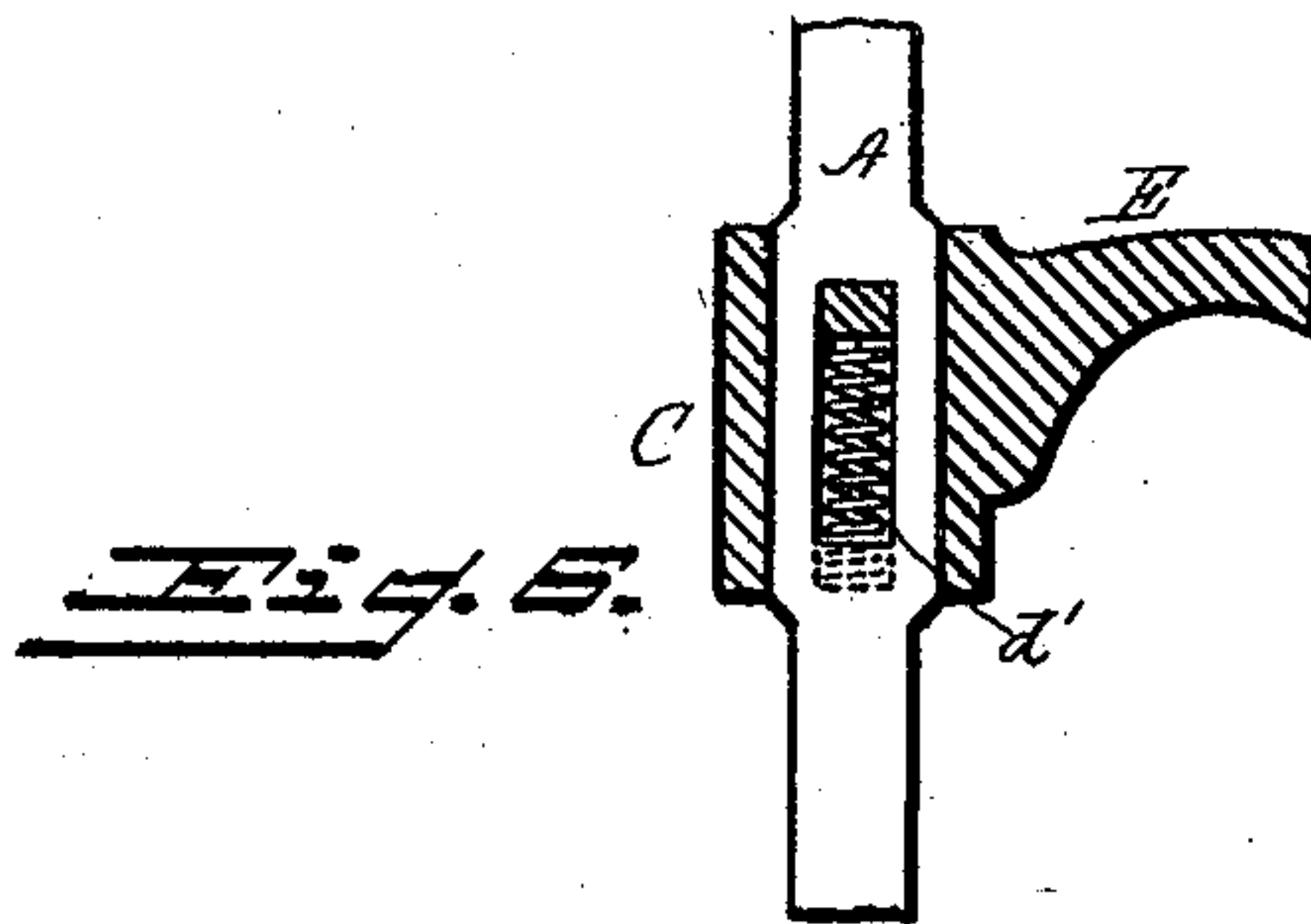
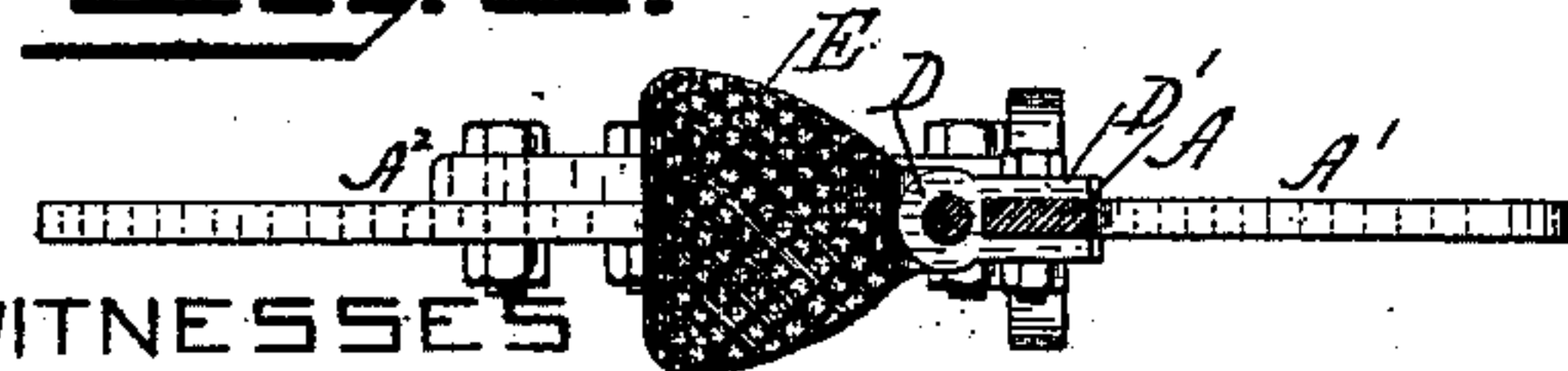


Fig. 6.

Fig. 2.



WITNESSES
Will de Powell.
J. B. McGinnis.

INVENTOR

Frederick S. Guerber
By Connolly Bros,
Attorneys.

UNITED STATES PATENT OFFICE.

FREDERICK S. GUERBER, OF ALLENTOWN, PENNSYLVANIA.

RAILWAY SWITCH AND SIGNAL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 362,580, dated May 10, 1887.

Application filed May 18, 1886. Serial No. 202,557. (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 Railway Switch and Signal Apparatus; 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 a side elevation of lever and parts connected therewith. Fig. 2 is a horizontal section taken on line *x x*, Fig. 1. Fig. 3 is a side elevation, Fig. 4 an end view, and Fig. 5 a plan, of rocker with step. Fig. 6 is a vertical section, partly in elevation, of a modification of lever, collar, and step.

My invention has relation to interlocking switch and signal apparatus; and my improvements consist in certain constructions and combinations of parts, hereinafter fully described.

In an application for Letters Patent filed by me on the 30th day of April, A. D. 1886, Serial No. 200,715, I have shown an interlocking switch and signal apparatus in which are employed a lever and a rocker, the lever being constructed and adapted to produce an oscillation of the rocker when end-thrust is imparted to said lever and when it reacts from such end-thrust or when the lever is moved longitudinally in either direction.

My present improvements have for their object to provide a construction in which the lever shall have no end-thrust or longitudinal motion, but shall be provided with a vertically-movable collar for imparting the necessary oscillation to the rocker, said collar being moved by a rod or step, either or both.

A further object of my invention is to provide means whereby the oscillation of the rocker may be effected and assisted by the provision of a step-plate secured directly to or formed integral with the rocker.

A still further object of my invention is to provide means whereby the oscillation of the rocker may be secured by hand and foot action, either or both, of the operator.

Referring to the accompanying drawings, A represents a lever, consisting of a bar designed

and adapted to be fulcrumed at its lower end at *a*, so that said lever may be vibrated in the usual manner in a vertical plane. The lever A at its upper end has a handle, *a'*, and its lower end is deflected or bent, at or about right angles to its main portion, which bent end is adapted and designed to be attached to a switch or signal connection at *a''*.

The lever A is bolted to a block, B, and to this block is fastened an arm, *A'*, for the reception of a counter-weight, if the same should be desired or necessary. On the lever A is a collar, C, which has depending arms or hooks *c*, one on either side, adapted and designed to engage with the flanges *g g* of a rocker, G, as hereinafter described. Said collar may be moved vertically on the lever A, and has such vertical motion imparted to it by means of a rod, D, fitted in the bearings *d d* of a bracket, D', which is bolted to the side of the lever A. A spiral spring, *d'*, which rests on the lower bearing, *d*, and presses against a collar, *d''*, on the rod D, imparts the upward longitudinal movement to said rod, its opposite movement being effected by means of a grip-lever, F, pivoted at *f* on the lever A, and connected to the upper end of the rod D by a pivot, *f'*. The lower end of the rod D is screwed into or otherwise securely fastened to the collar C, so that the latter partakes of the vertical movement of the rod D.

E represents a step-plate, pivoted at *e* to the lever A, and having a pivotal connection at *e'* with the rod D, so that by imposing foot-pressure on the said step-plate the rod D and collar C may be moved downwardly.

The rocker G is of the same general construction as that described in my aforesaid application, and has in addition thereto a step-plate, H, at one end, which plate is fastened to or made integral with the journal *g'* of the rocker, and to one side of said journal, so that it projects radially therefrom, in order that when pressure is imposed on the said step-plate the rocker will be oscillated on its longitudinal axis, or rocked in one direction on such axis. The lever A travels in the slot *g''* in the rocker G, and the fingers *c* of the collar C engage with or hook over the said flanges *g g* of said rocker. When the lever A is at one end of the rocker G, it is in the enlarged

space or chamber G' , and one of the fingers c is then in engagement with the rocker wrist-pin g^3 , so that by depression of said collar through the medium of the rod D the rocker will be oscillated on its longitudinal axis. When the lever A is at the other end of said rocker, it is in the enlarged chamber G^2 , and the finger c over the wrist-pin g^1 will then be in engagement with said wrist-pin, so that a downward movement of the collar C will effect an oscillation of said rocker in the opposite direction. When the lever is in the forward position, which is when it is at the end of the rocker adjacent to the step-plate H , the step E will be over said step H , so that pressure imposed upon said step E will oscillate the rocker in such direction as to tilt the plate H upwardly. When the lever is at the opposite limit of its movement, or reversed, the plate H will be exposed or uncovered. In such reverse or backward position it might with a long rocker be inconvenient for the operator under some circumstances to step upon the plate E , and under such circumstances he may obtain the same effect if he will apply pressure to the step H by treading on the latter.

In operation the rocker will normally stand with the walls of its slot inclined and the edge of the lever A against a shoulder, g^5 , at one end, or a shoulder, g^6 , at the opposite end, of the slot g^2 . To oscillate the rocker so as to bring the walls of its slot g^2 into vertical position, so that the lever A may traverse such slot, the rocker should be partially oscillated in one direction, either by a pull on the grip-lever F or by stepping on either the step-plate E or step-plate H , or, if desired, by both hand and foot action on said grip-lever and step-plate. The lever A is now vibrated on its fulcrum a , passing through the slot g^2 , and when it reaches the extremity of the slot and enters one of the chambers G' or G^2 the reaction of the spring d' draws up the collar C and completes the oscillation of the rocker, such oscillation effecting the movement of the locking-cylinder connected with the rocker, as described in my aforesaid application.

As a modification of my invention, the construction shown in Fig. 6 may be adopted, the lever being made with an enlarged or widened portion at or about its middle, and having a vertical slot formed therein to receive a spiral or other spring, the collar, which surrounds the lever at its widened portion and is adapted and designed to slide thereon, being formed

with an internal projection which rests upon the spring. The step may be rigidly connected to or formed integral with the collar, so that when pressure is imposed on said step it will move the collar downwardly, compressing the spring and oscillating the rocker, as already described, the reverse movement of the rocker being due to the upward movement of the collar under the influence or reaction of the spring.

What I claim as my invention is—

1. In a switch and signal apparatus, the combination, with a vibrating lever having a sliding collar, C , with hooks or fingers c , and a lifting spring, d' , of an oscillating rocker, G , having a wrist-pin and a lateral recess or chamber at each end on opposite sides, respectively, whereby, by a sliding movement of said collar, said rocker may be oscillated when said lever is at either end of its throw, said rocker being held against oscillation when said lever is in any position between the ends of its throw, and said rocker locking said lever at each end of its throw, substantially as shown and described.

2. The combination, with the lever A and a rocker, G , of a sliding spring-rod, D , and a step-plate or step-lever, E , secured to said spring-rod D , substantially as shown and described.

3. The combination, with the oscillating rocker G , of a step-plate, H , made integral with or rigidly secured to said rocker, substantially as shown and described.

4. The combination, with the lever A and the rocker G , of the spring-rod D , step-plate E , and grip-lever F , whereby said spring-rod and rocker may be moved by either hand or foot action, or both, substantially as shown and described.

5. The combination, with the lever A , of a sliding collar, C , spring d' , and step E , connected with or attached to said collar, substantially as shown and described, and for the purpose set forth.

6. The combination, with an oscillating rocker, G , of a lever, A , sliding collar C , spring d' , and step E , connected with or attached to said collar, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 10th day of May, 1886.

FREDERICK S. GUERBER.

Witnesses:

M. D. CONNOLLY,
R. DALE SPARHAWK.