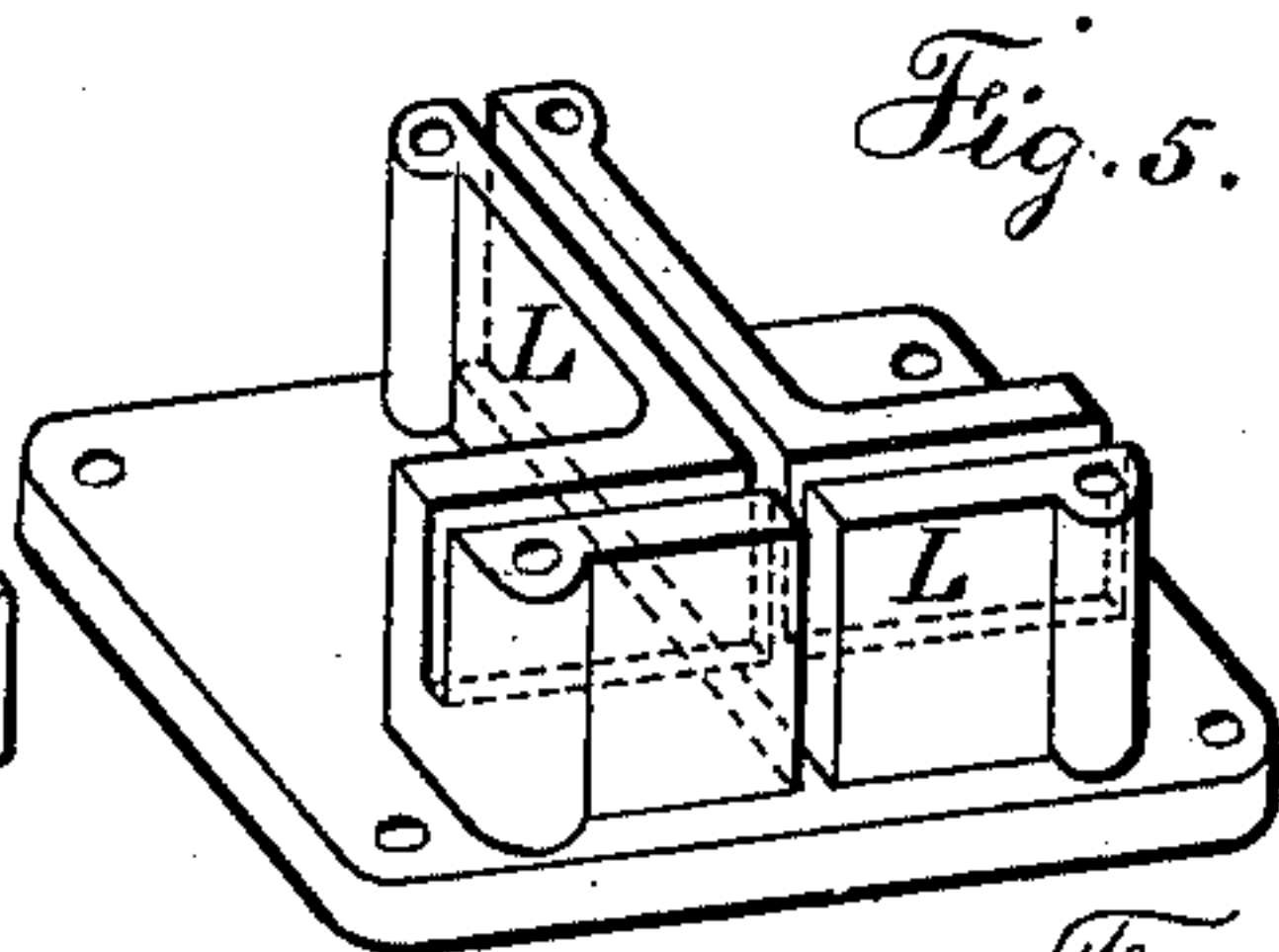
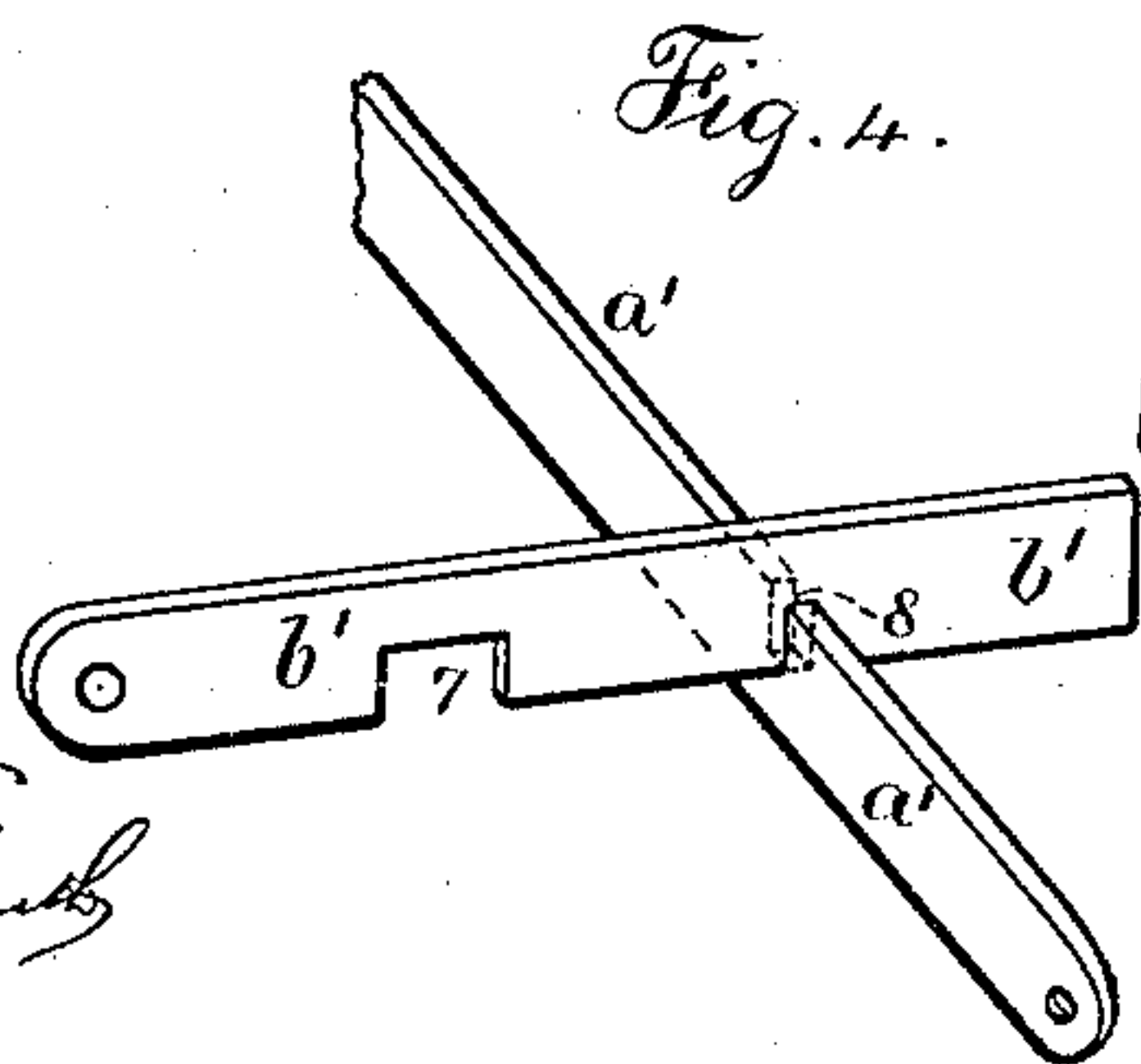
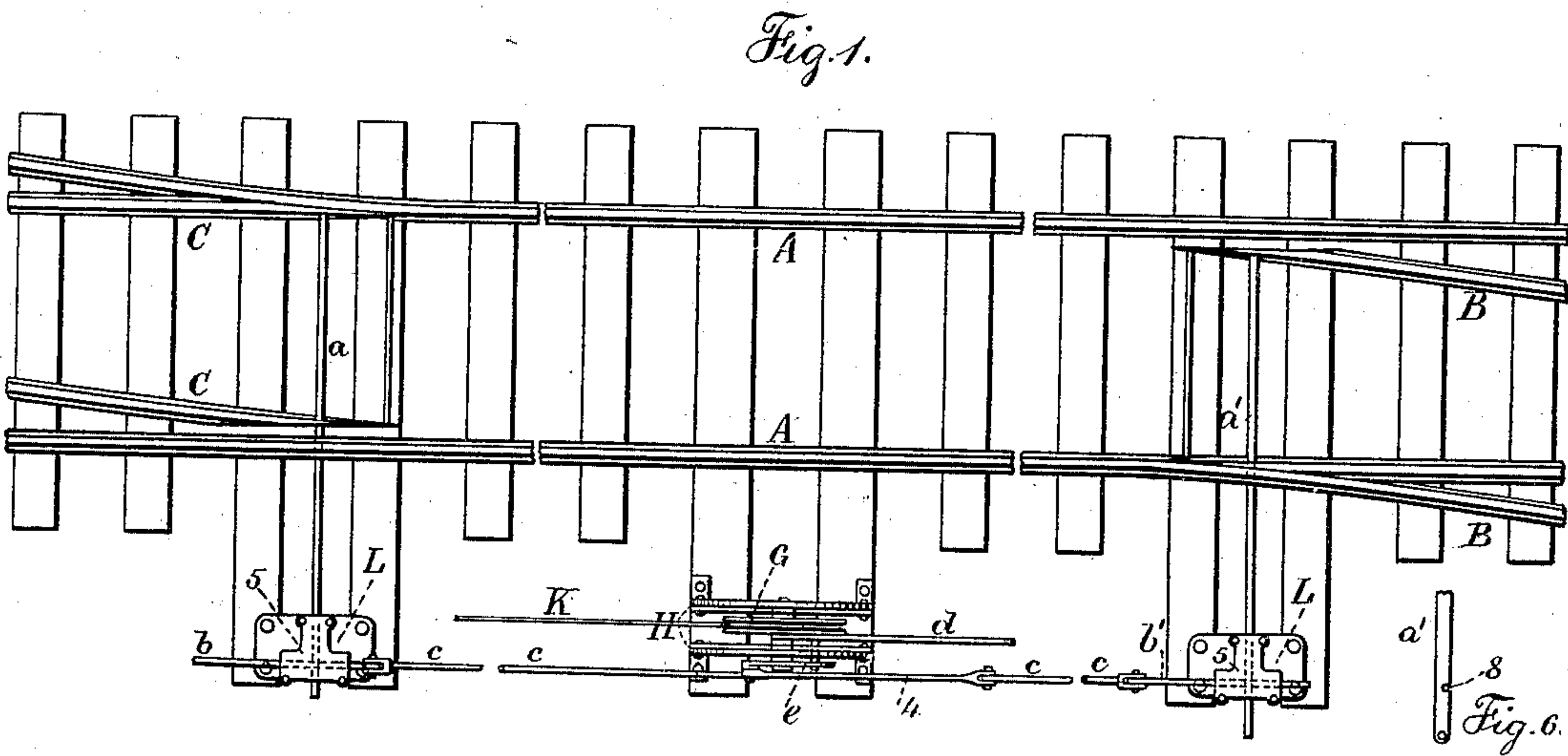
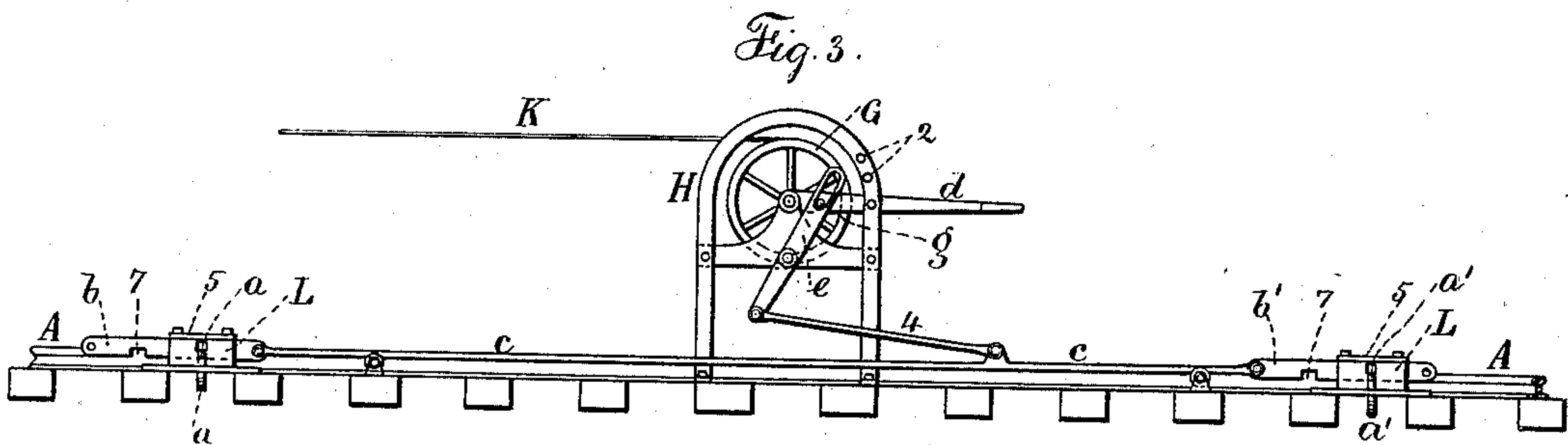
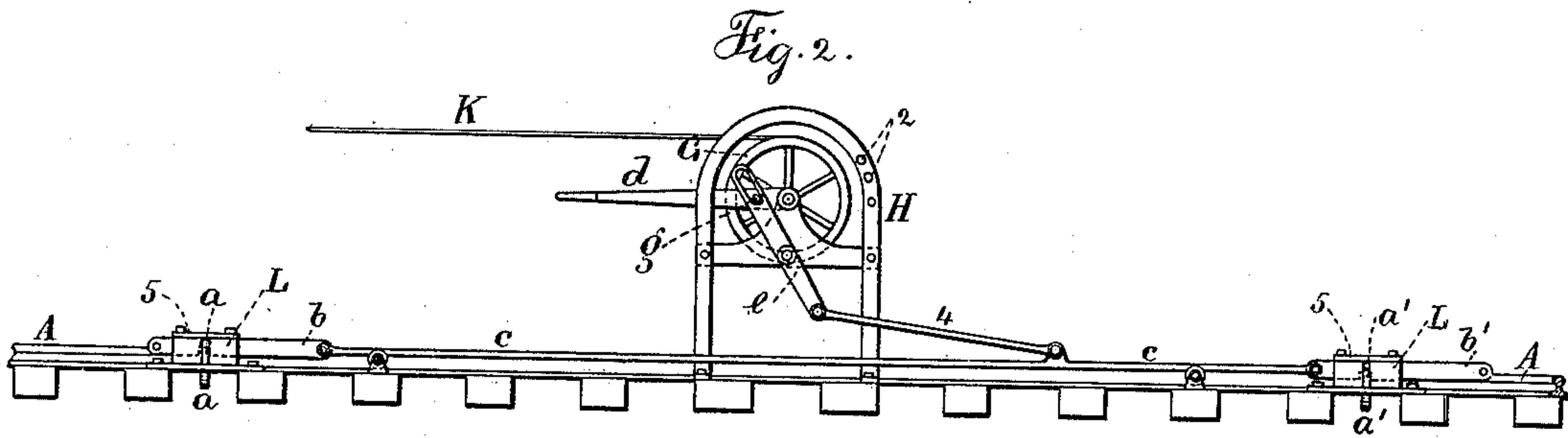


(No Model.)

F. H. TREACY.
INTERLOCKING SIGNAL APPARATUS FOR RAILWAY SWITCHES.
No. 401,666. Patented Apr. 16, 1889.



Witnesses:
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UNITED STATES PATENT OFFICE.

FRANK H. TREACY, OF POUGHKEEPSIE, NEW YORK, ASSIGNOR TO THE
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NEW JERSEY.

INTERLOCKING SIGNAL APPARATUS FOR RAILWAY-SWITCHES.

SPECIFICATION forming part of Letters Patent No. 401,666, dated April 16, 1889.

Application filed November 30, 1888. Serial No. 292,272. (No model.)

To all whom it may concern:

Be it known that I, FRANK H. TREACY, of Poughkeepsie, in the county of Dutchess and State of New York, have invented an Improvement in Signal Apparatus for Railway-Switches, of which the following is a specification.

Railway-switches are usually moved by connections from hand-levers, and visual signals have been operated also by hand, and in some instances bolts have been applied upon the moving bars or levers in such a manner that when the switch has been moved in one direction the signal cannot be changed until the switch has been returned to the main line. A device of this character may be seen in English Patent No. 31 of 1860.

My invention is for simplifying the apparatus and for locking a signal similar to that heretofore used by a connection from said signal to the switch, and the parts are constructed in such a manner that the switch cannot be turned to the side track until after the signal has been set at "danger," and the signal cannot be restored to indicate "safety" until the switch has been turned to position.

In the drawings, Figure 1 is a plan view illustrating the connection of the parts with two switches. Fig. 2 is an elevation of the apparatus made use of when in the position of "danger." Fig. 3 is a similar view of the parts when in the position of "safety." Fig. 4 is a perspective view of the locking-bars detached. Fig. 5 is a perspective view of the block in which the locking-bars slide, and Fig. 6 is a side view of one end of the bar connecting the switch-rails.

The main track A is provided with the switch-rails B to a siding or branch track, and there often is a second switch, C, to another siding or branch track. My improvements may be made use of with either or both of these switches.

a is a bar connected with the switch-rails C, and a' is a bar connected with the switch-rails B. These bars a and a' are to be acted upon by any ordinary lever or other mechanism for moving the switches and holding them in either position to which they may be moved,

and such devices for moving the switches are well known.

The lever d is connected with a wheel, G, that is supported in a frame, H, at one side of the track, and from the wheel G a wire or other connection, K, passes to a signal. This lever d is turned by hand, or otherwise, and when in the position shown in Fig. 2 the signal is set at "danger," and when in the position shown in Fig. 3 the signal is set at "safety." This lever d , wheel G, and wire or connection K, and the stand or frame H are well-known devices made use of in railroad-signals, and in the frame H are holes, as shown at 2 2, for the insertion of a pin, upon which the lever d can rest when in the position shown in Fig. 3. This allows for taking up the slack caused by the expansion of the wire or connection K in warm weather, and prevents the lever being turned too far in cold weather, the pin being changed in the holes from time to time, as necessary.

Upon the frame H, I pivot the lever e and provide a crank-pin, g , upon the lever d , which crank-pin g is in the slot in the lever e , so that by the swinging of the lever d in turning the signal the lever e is swung from the position shown in Fig. 2 to that shown in Fig. 3, and vice versa.

From the lower end of the lever e a link, 4, extends to the slide-bar c , at the ends of which are notched bars $b b'$, and these notched bars $b b'$ cross at right angles, or nearly so, to the notched switch-bars $a a'$, and the respective bars are one above the other. These cast blocks L have T-shaped flanges and slots of varying depths at right angles to each other between such flanges, and the blocks L are fastened upon the cross-ties and provided with removable caps 5, and the bars $a a'$ and $b b'$ where they cross are within the slots of the blocks L. The vertical slots in the blocks L are so made that the slots receiving the bars $a a'$ are lower down than the bottom of the slots through which the notched bars $b b'$ pass, and the bars $b b'$ are notched, as shown at 7, and the bars $a a'$ are notched, as shown at 8, and these notches are in such positions that when the switch B or C is in the po-

sition for the main track to be continuous, the slots 8 in the bars *a* are in line with and beneath the bars *b b'*; hence such bars *b b'* can be moved in either direction, but at this time the bars *b b'* are in the position shown in Fig. 3, such bars *b b'* forming bolts within the slots 8 to prevent the bars *a a'* being moved; but after the signal has been set to "danger," by turning the lever *d* from the position shown in Fig. 3 to that shown in Fig. 2, the slots 7 in the bars *b b'* are brought adjacent to the bars *a a'*, so that such bars *a a'* can be moved endwise, either one or both of such bars being moved according as the switch or switches may need to be set, and the endwise motion given to the bar *a* or *a'* causes the slot 8 to occupy a position more or less distant from the bars *b b'*, so that the bars *a a'* occupying the slot 7 in one or both the bars *b b'*, prevent such bars being moved endwise and prevent the signal being changed from the position of "danger," Fig. 2, to that of "safety," Fig. 3; but after the switch or switches have been changed to make the main track continuous, the notches 8 in the bars *a a'* being in line, the signal can be changed from "danger," Fig. 2, to "safety," Fig. 3, by the endwise movement of the bolts *b b'*, as they are acted upon by the bar *c*, link 4, lever *e*, and signal-lever *d*. By this means it is impossible to change the signal from "danger" to "safety" until after the switch or switches have been moved to make the main line of track continuous.

I have shown my improvement as connected with two switches or branch tracks; but it is evident that the same may be used with only one switch or branch track, or that it may be used with more than two switches or branch tracks, in which case the one danger-signal answers for two or more switches.

It will be apparant that this improvement is available with other signals than visual signals—such, for instance, as a torpedo signal similar to that shown in Letters Patent No. 310,717, in which the torpedo becomes the "danger" signal, either alone or in connection with the semaphore-signal.

I am aware that in signal apparatus notched switch-bars and notched signal-bars have crossed each other at right angles and were supported by a stationary frame.

I claim as my invention—

1. The combination, with the lever *d* and connection for a railway-signal, of the lever *e*, notched bars, and connection *c* and 4 from one notched bar to the lever *e*, substantially as set forth.

2. The combination, with the bars *a* and *b*, notched and crossing each other, of the cast block *L*, having T-shaped flanges and slots of varying depth at right angles to each other for receiving and supporting the bars *a b*, and a removable retaining-cover, substantially as set forth.

3. The combination, with the signal-lever *d*, wheel *G*, and connection from the same for a railway-signal, of the lever *e*, frame *H*, upon which the lever *e* is pivoted, the crank-pin *g* from the lever *d* and within the slot in the lever *e*, the notched switch-bar *a*, the notched bar *b*, and the connection from the bar *b* to the lever *e*, and the slotted block *L*, within which the respective bars *a* and *b* are received and cross each other at right angles, substantially as set forth.

Signed by me this 19th day of November, 1888.

FRANK H. TREACY.

Witnesses:

HAROLD SERRELL,
WILLIAM G. MOTT.