

(No Model.)

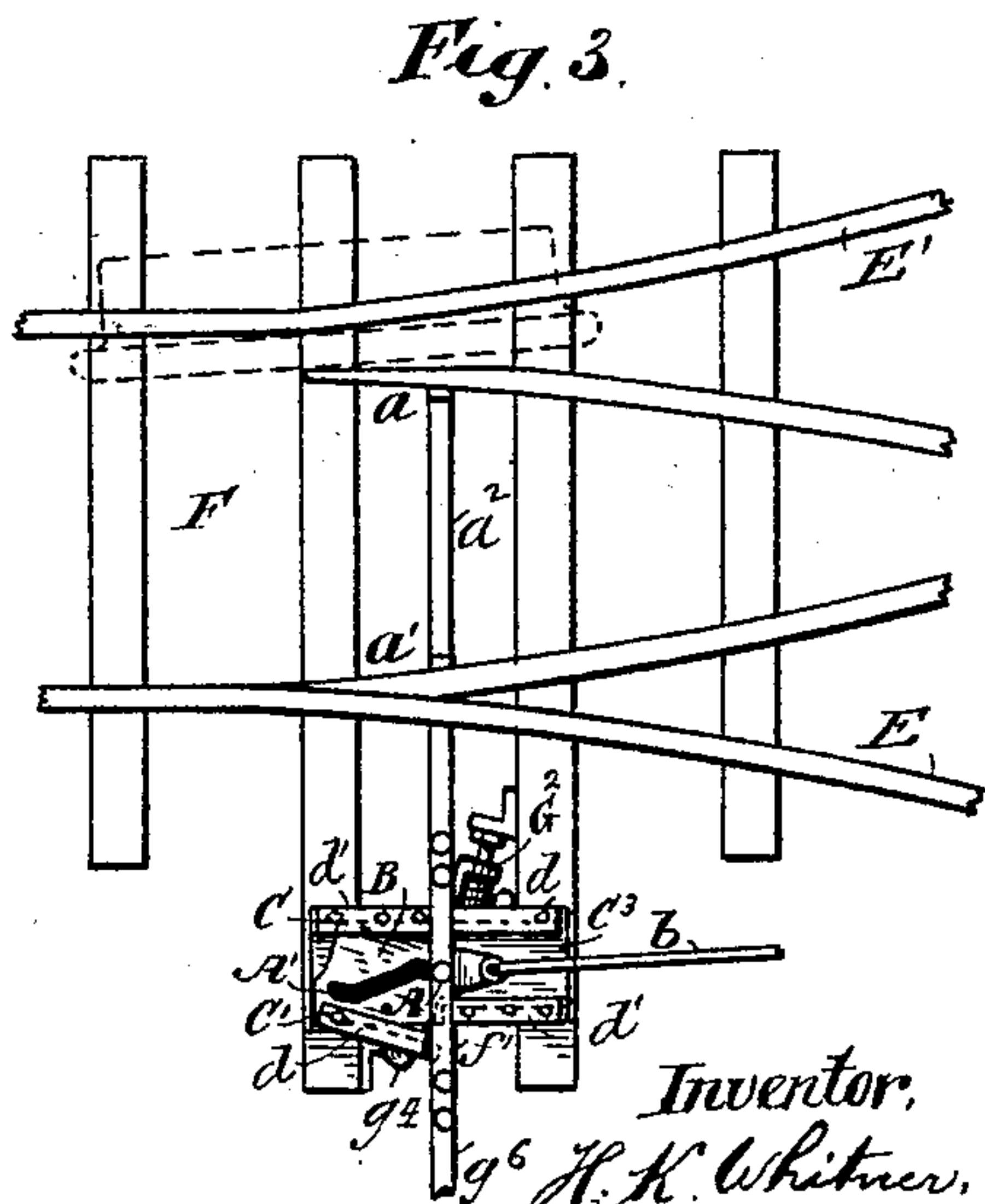
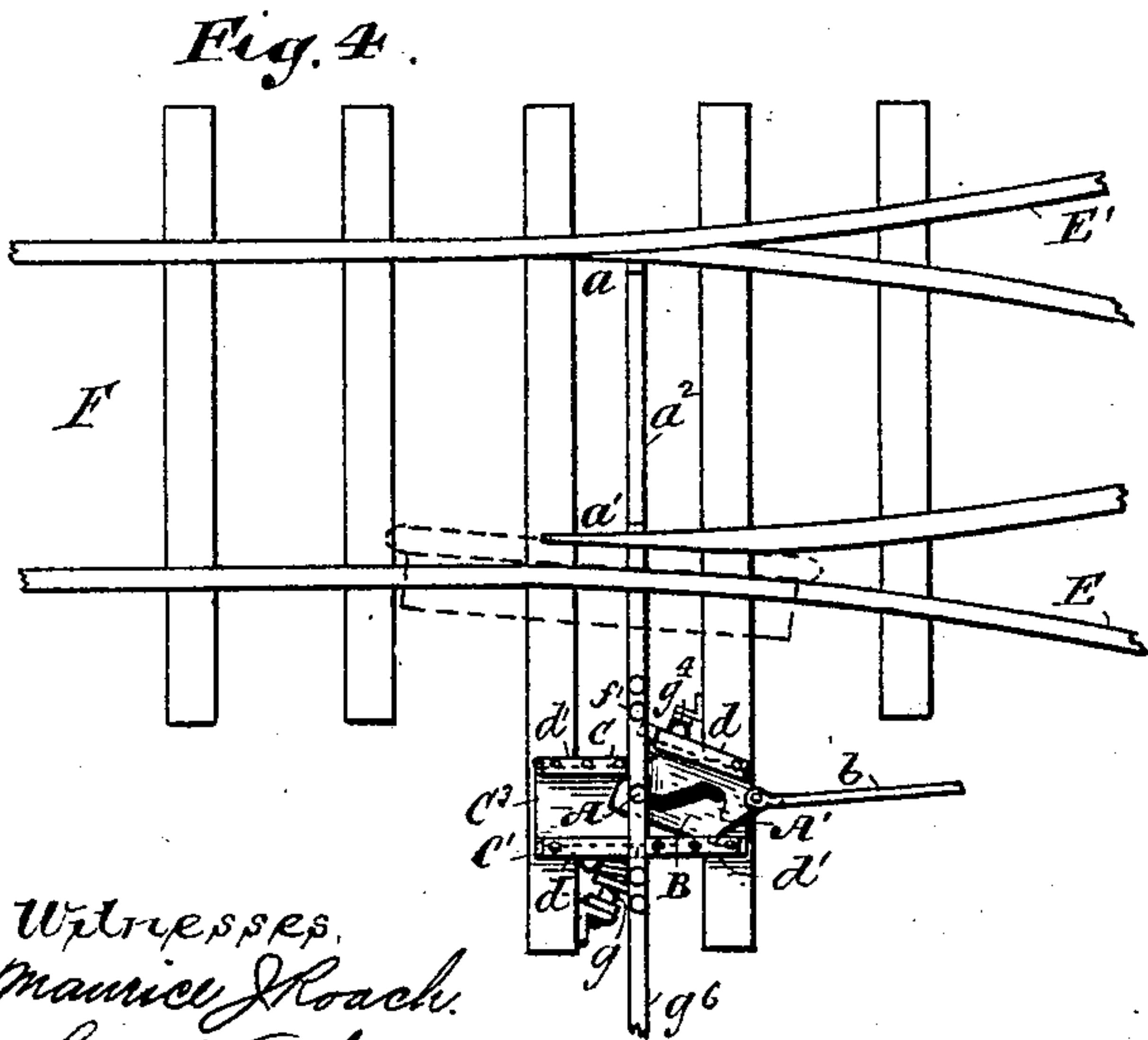
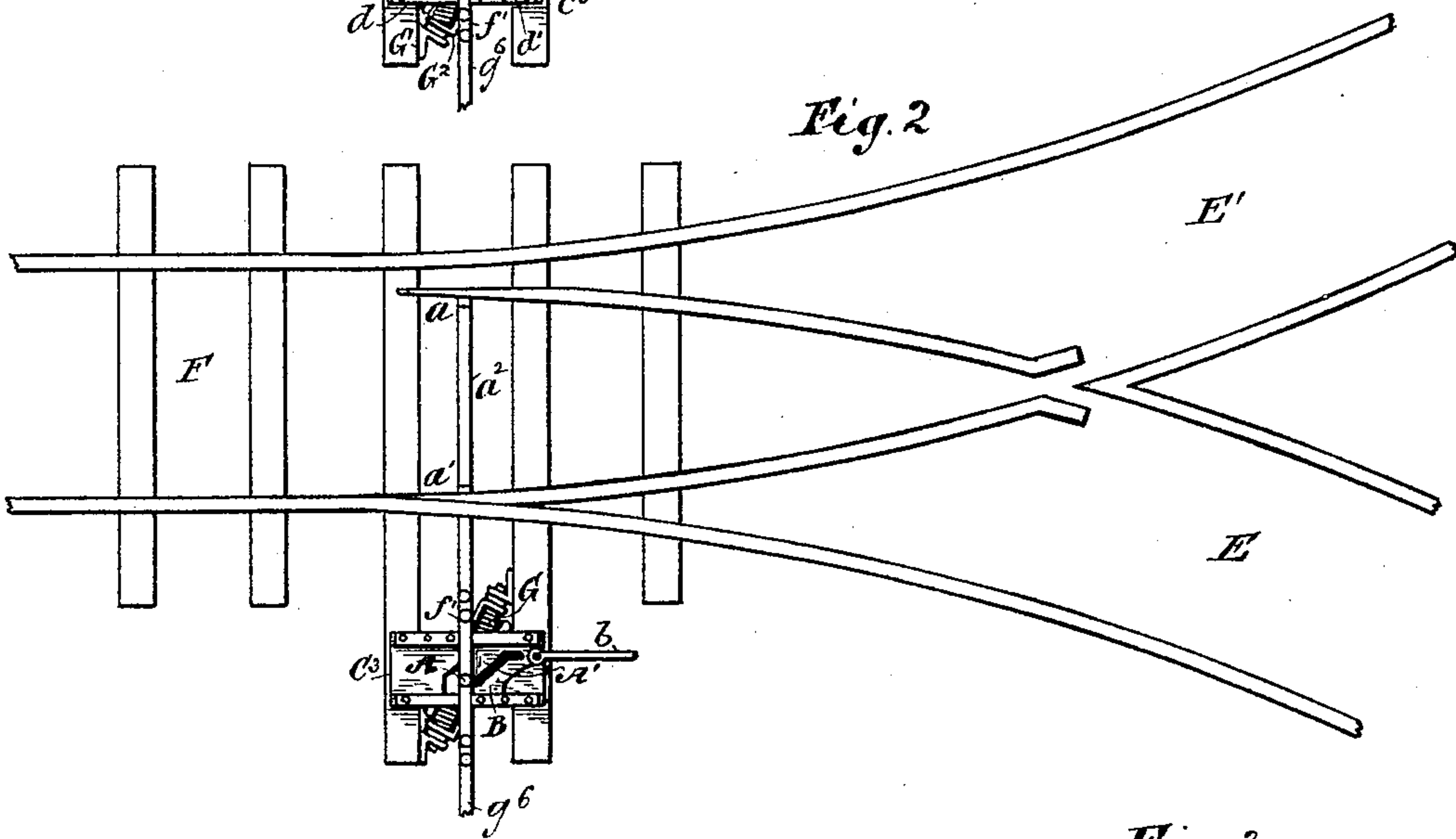
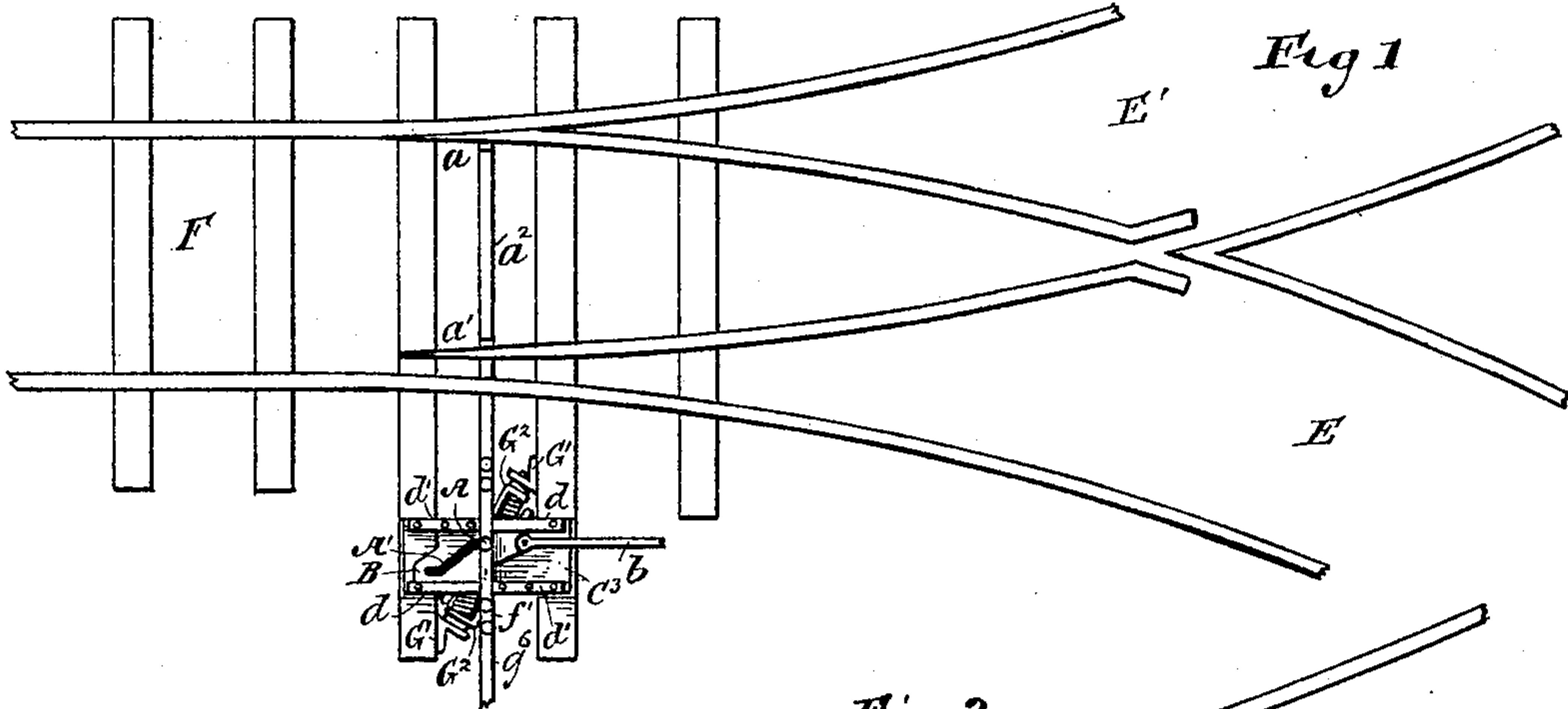
3 Sheets—Sheet 1.

H. K. WHITNER.

RAILWAY SWITCH.

No. 390,734.

Patented Oct. 9, 1888.



Witnesses,  
Maurice Roach.  
Geo. Wadman.

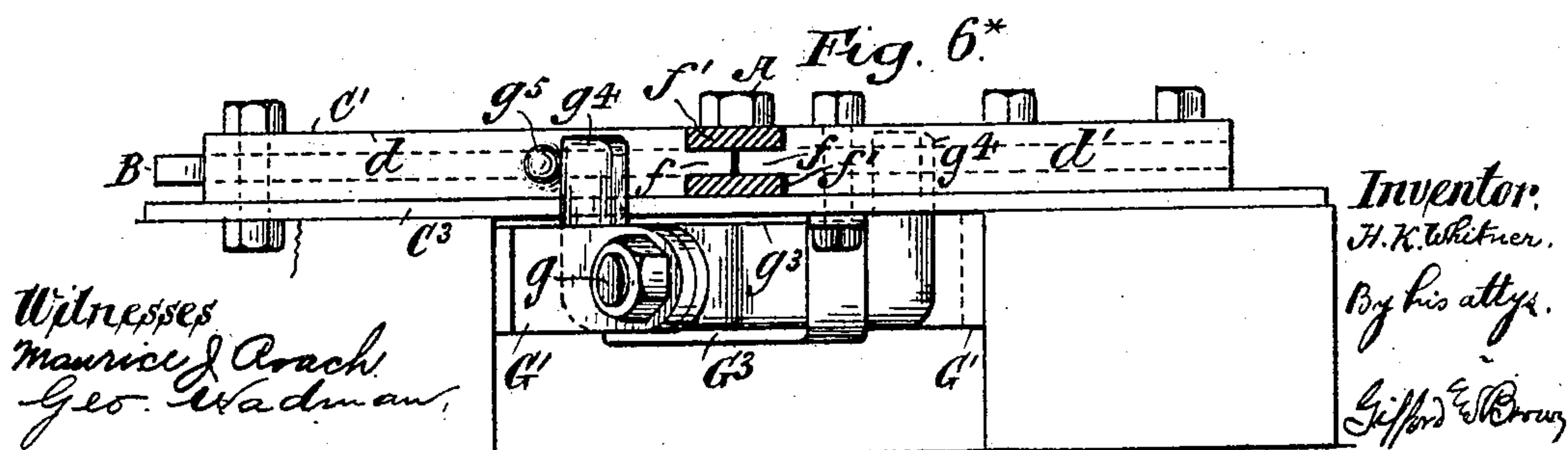
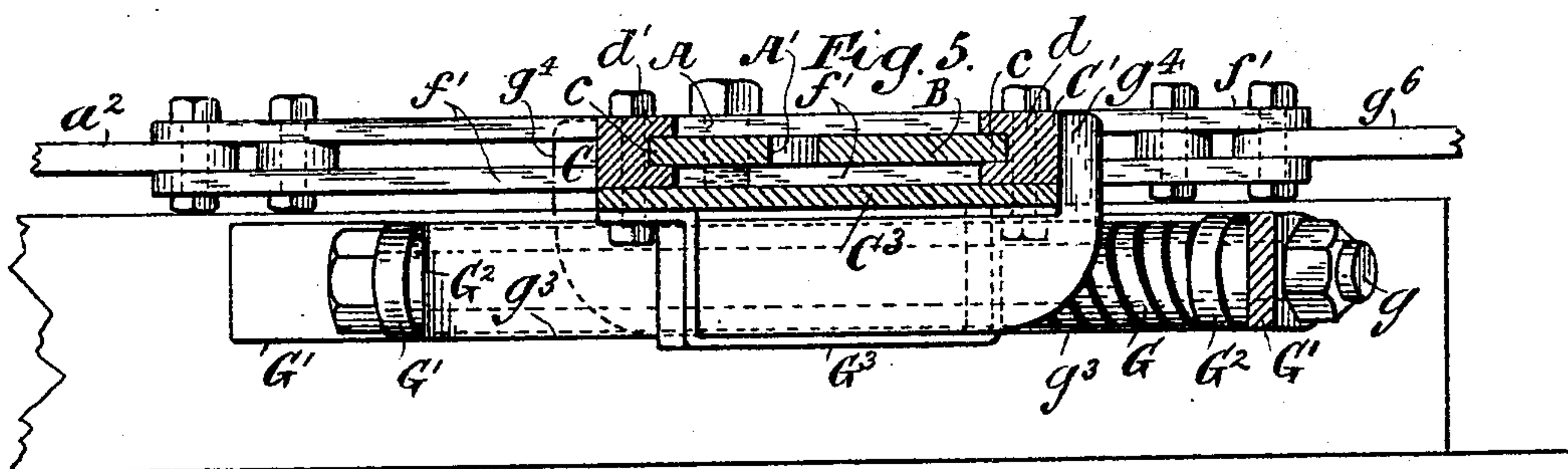
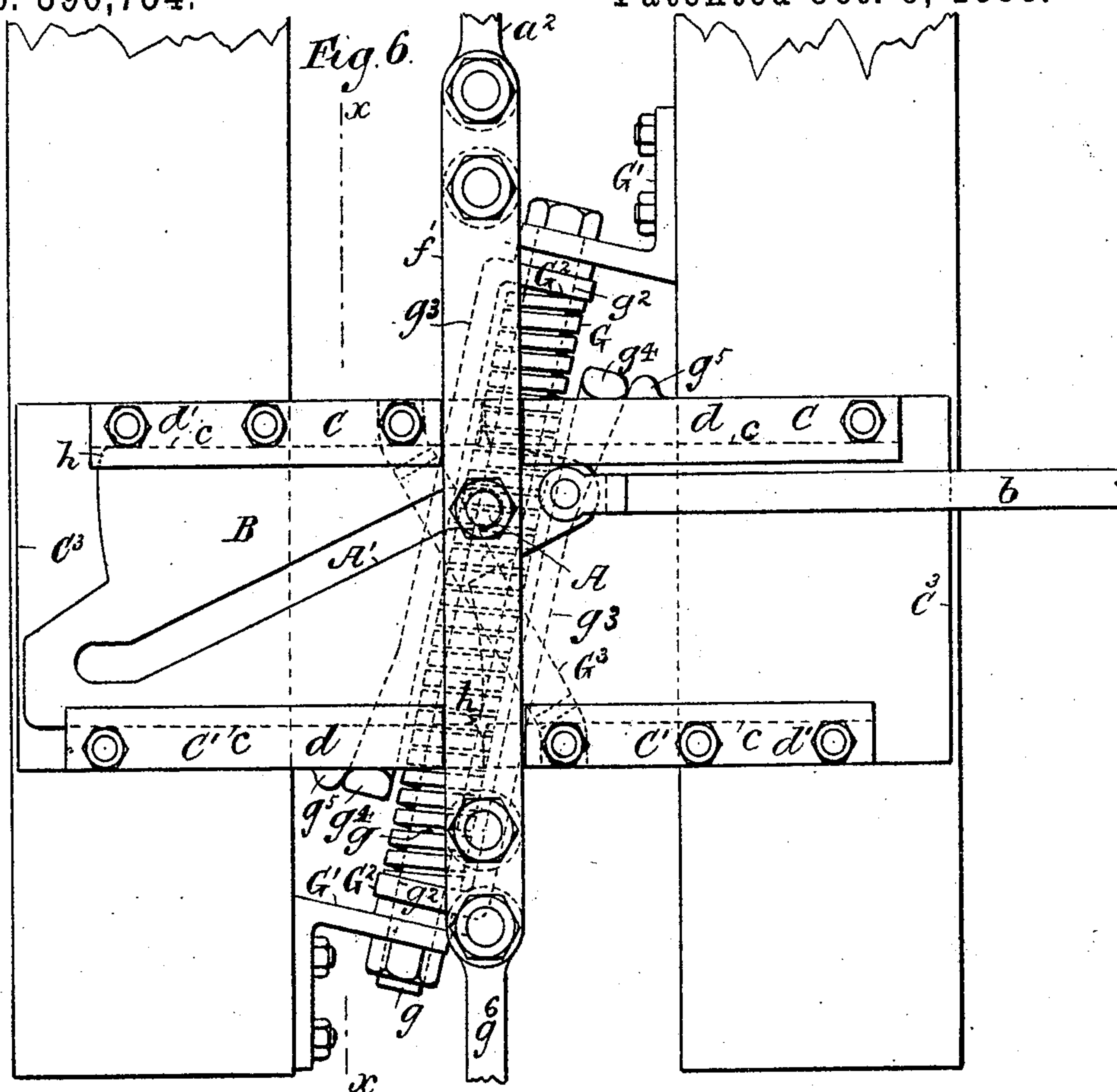
Inventor,  
H. K. Whitner,  
by his attorneys,  
Gifford & Browne.

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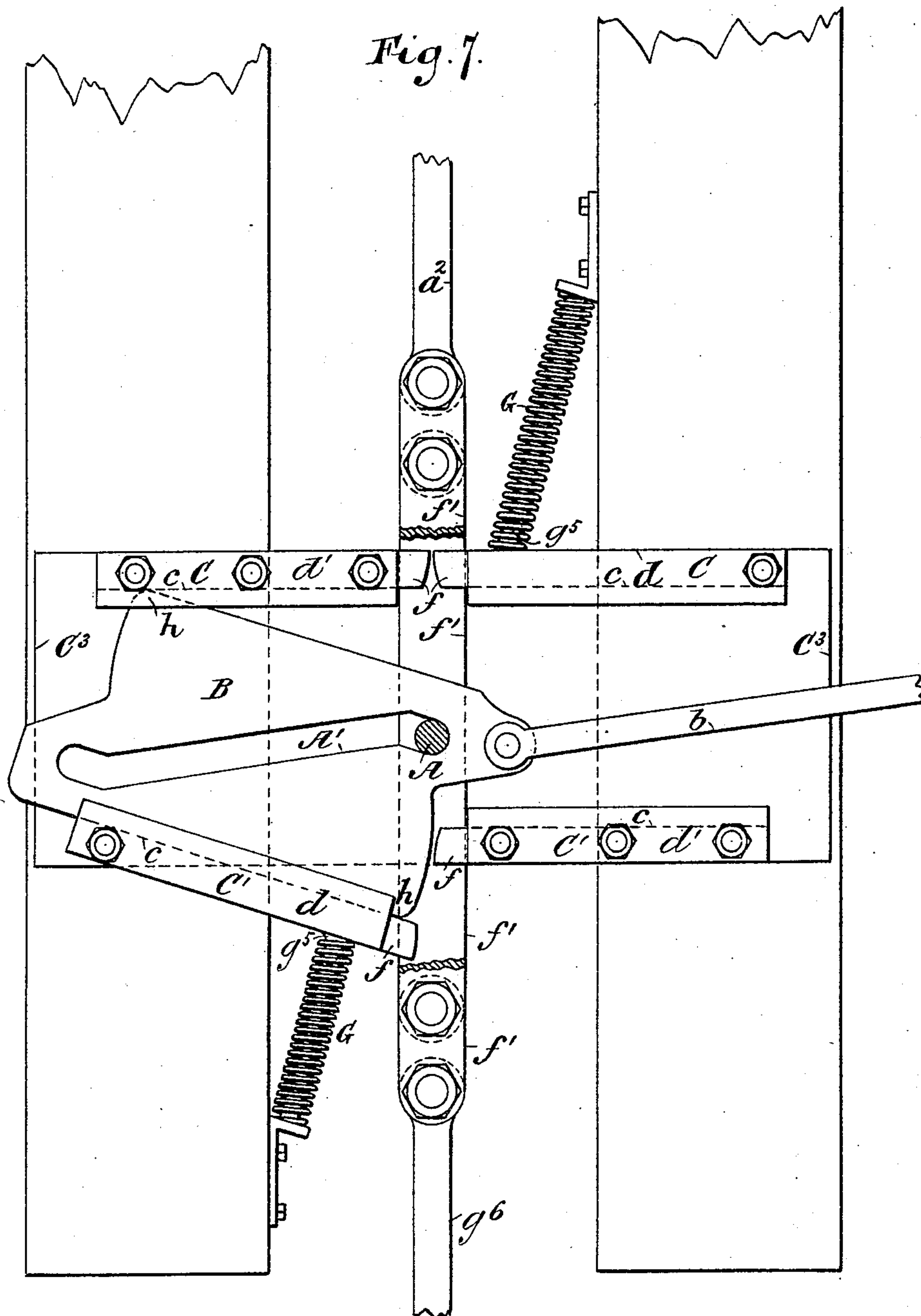
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3 Sheets—Sheet 3.

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RAILWAY SWITCH.

No. 390,734.

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Witnesses,  
Maurice Roach.  
Geo. Wadman.

Inventor,  
Hiram K. Whitner.  
By his attorney  
Gifford Geo Brown



# UNITED STATES PATENT OFFICE.

HIRAM K. WHITNER, OF NEW YORK, N. Y.

## RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 390,734, dated October 9, 1888.

Application filed April 16, 1888. Serial No. 270,737. (No model.)

*To all whom it may concern:*

Be it known that I, HIRAM K. WHITNER, of New York, in the county and State of New York, have invented a certain new and useful Improvement in Railway-Switches, of which the following is a specification.

I will describe the railway-switch embodying my improvement in detail, and then point out the novel features in the claims.

In the accompanying drawings, Figure 1 is a plan or top view of a railway-switch embodying my improvement and shown as applied to a railway. Fig. 2 is a similar view showing the parts in a different position from that shown in Fig. 1. Fig. 3 is a view similar to Fig. 1, showing the operation of the switch-operating device when the same is required to yield. Fig. 4 is a view similar to Fig. 2, showing the switch-operating device in a position when it is required to yield. Fig. 5 is a transverse section of certain parts of the switch-operating device, taken on the plane of the line *xx*, Fig. 6. Fig. 6 is a view, on an enlarged scale, of the switch-operating mechanism. Fig. 6\* is a side view of the same, partly in section. Fig. 7 is a plan or top view illustrating a modification of certain parts of my improvement. Figs. 5, 6, 6\*, and 7 are drawn to a larger scale than Figs. 1, 2, 3, and 4.

Similar letters of reference designate corresponding parts in all the figures.

I have illustrated my improvement as applied to a point-switch in connection with a railway of ordinary construction. The switch-points *a a'* are connected together by a switch-rod, *a<sup>2</sup>*. This switch rod extends for a distance beyond the side of the track. It is provided with a pin or projection, *A*, which pin or projection extends into a slot, *A'*, formed in a motion-plate, *B*. The slot *A'* has two straight end portions and an intermediate portion extending at an angle to the direction of the straight end portions. Extending from the motion-plate *B* and pivotally connected thereto is an operating-rod, *b*, which rod, when moved lengthwise, will cause a longitudinal movement to be imparted to the motion-plate *B*.

The mechanism thus far described does not broadly constitute part of my invention.

It is not an infrequent occurrence for trains

to trail through a closed switch in disregard of the switch-target. The switch-points being held rigidly in position, either the switch-operating mechanism or some part thereof is broken, or there is a derailment of the train. My improvement is for the purpose of obviating these difficulties.

The motion-plate *B* is adapted to be moved to and fro in guideways *c*, formed in guides *C C'*. These guides *C C'* in the example of my improvement shown have each a yielding section or gate, *d*, and a rigid section, *d'*. In the sections *d d'* are formed the guideways *c*, in which the motion-plate *B* is moved to and fro. The guides *C C'* are separated from each other, and are each secured to a plate, *C<sup>3</sup>*, which latter is secured to the railroad-ties. The yielding sections *d* are pivoted at their outer ends, so that they may be swung on their pivots.

In Fig. 1 I have shown the switch thrown to admit of a train coming in from a track, *E*, onto a main track, *F*, and in Fig. 2 I have shown the switch thrown to admit of a train coming in from a track, *E'*, onto the main track. If, when the switch occupied the position shown in Fig. 2, a train should attempt to come in from a track, *E*, onto the main track, and there was no provision for the yielding of the switch-point in contact with the rail, the flanges of the car-wheels, entering between the switch-point and the rail, would cause a rupture of the switch-operating mechanism or a possible derailment. If, on the other hand, the switch-points occupied the position shown in Fig. 1 and a train should attempt to enter from the track *E'*, a similar result would ensue. By my improvement, when a train enters from either of the tracks *E E'* in the manner described, the switch being then upon the wrong side, the switch-point in contact with the rail will yield to the flanges of the wheels, and the train may pass through safely without injury. This result is attained by making the sections *d* of the guide *C* yielding.

I have illustrated in Fig. 3 the result attained by my improvement. It will be seen that the yielding section *d* upon the portion *C'* of the guide has been swung outwardly upon its pivot, whereby a movement of the switch-rod is permitted, and consequently the switch-points are allowed to move into the



necessary position to admit of the safe passage of the train. In Fig. 4 I have similarly illustrated the section  $d$  upon the portion C of the guide as having been swung upon its pivot.

5 In order to return the yielding sections  $d$  to their normal position so soon as a train has passed, I provide in the example of my improvement shown in Figs. 1, 2, 3, 4, 5, 6, and 6\* a coil-spring, G. This coil-spring is arranged  
10 about a rod,  $g$ , which rod is secured near its ends in angle-plates G'. The spring G and its appurtenances extend at an angle between two of the railroad-ties, the angle-plates G' being secured one to each of said ties.

15 G<sup>2</sup> designates abutments for the spring G. These abutments are provided near one of their ends with eyes  $g^2$ , through which extend the rod  $g$ . The ends of the spring G abut against the eyes  $g^2$ . From the eyes  $g^2$  extend  
20 portions  $g^3$  at approximate right angles to the eyes  $g^2$  and approximately parallel with the spring G. The portions  $g^3$  extend upon opposite sides of the spring G and in reverse directions to each other, and rest on a support,  
25 G<sup>3</sup>. At the free ends of the portions  $g^3$  are upwardly-extending portions or projections  $g^4$ . These projecting portions  $g^4$  bear against the yielding sections  $d$  of the guides upon the  
30 outside of and near the inner ends of the latter.

It will be readily seen that when either of the yielding sections  $d$  is caused to be swung upon its pivot, when the cause which operated to thus swing it has been removed, the  
35 spring G will operate to return such yielding section to its normal position.

In the example of my improvement shown in Fig. 7, instead of employing the arrangement just described for causing the return of  
40 the yielding sections to their normal position, I employ two springs G. When arranged to act in conjunction with each of the yielding sections, the inner end of each of these springs is held in position against the yielding sec-  
45 tion by a nipple,  $g^5$ , upon the outside of each of the yielding sections, which nipple extends into the open end of the spring. The other end of the spring abuts against and is secured to a plate, which latter is in turn secured to the adjacent railroad-tie. In either event I  
50 prefer to employ the nipple  $g^5$ , as, in the example of my improvement first described, they afford a top for preventing lateral displacement of the projections  $g^4$  on the portions  $g^3$  of the abutments for the spring G.  
55

The inner and adjacent ends of the sections  $d$   $d'$  of the guide for the motion-plate are provided with tongues  $f$ . These tongues are at  
60 sufficient distances apart to admit of the swinging of the sections  $d'$  without said tongues being brought in contact. The tongues operate as guides for the switch-rod, the latter being, as here shown, divided, as shown more clearly  
65 in Fig. 5. The divided portion of the switch-rod comprises two rods,  $f'$ , which rods are secured to the switch-rod, one upon the upper side of the switch-rod and the other upon the

lower side thereof, whereby a space is formed between the rods  $f'$ , which results in producing a bifurcated end portion to the switch-rod.  
70 The bifurcations of the rod extend about the tongues  $f$  on the sections  $d$   $d'$ , and also about the motion-plate B. The pin A extends between the bifurcated portions  $f'$  of the switch-rod and through the slot A' in the motion-  
75 plate. When the motion-plate is moved longitudinally in this guide, the pin A is caused to follow the slot A', and thus to shift the switch-points while the tongues  $f$  on the sections  $d$   $d'$  operate to form guideways upon  
80 each side of said tongues, which prevents lateral displacements of the switch-rod.

The bifurcated portions of the switch-rod beyond or upon the outer side of the guide for the motion-plate are reunited to another rod,  
85  $g^6$ , which rod extends to and is caused to operate a target of ordinary construction, which is not shown in the drawings.

It will be seen that no yielding of the sections  $d$   $d'$  of the motion-plate guide can occur  
90 until the motion-plate has been moved far enough in either direction to bring it clear of the tongues  $f$ , for, so long as the motion-plate is in engagement with the guideways upon both of the sections  $d$   $d'$ , there is a lock which pre-  
95 vents any yielding of the yielding sections  $d$   $d'$ . It is therefore clear that there can be no yielding of such sections during the operation of shifting the switch-points. This is advantageous, because it provides a means for de-  
100 tecting any obstruction which may be located between the moving switch-points and the rails; for, as the motion-plate is held against sidewise movement while being operated to shift the switch-points, the operator of the  
105 motion-plate will find himself unable to effectively shift the switch-points, and will therefore know that an obstruction exists.

As shown more clearly in Figs. 3, 4, and 7, it will be seen that the heels  $h$  upon the diagonally-opposite ends of the motion-plate re-  
110 main within the guideways during the sidewise movement of the motion-plate. There can therefore be no disengagement of the motion-plate from its guideways, and the mo-  
115 tion-plate will always be returned properly to its normal position after having been moved out.

What I claim as my invention, and desire to secure by Letters Patent, is—  
120

1. In a switch-operating device, the combination, with a switch-rod, of a slotted motion-plate engaging the said switch-rod, a guide for the motion-plate having a rigid and a yielding  
125 section, and a device for returning said yielding section to its normal position after having been moved out of the same, substantially as specified.

2. In a switch-operating mechanism, the combination, with a switch-rod, of a slotted  
130 motion-plate engaging said switch-rod, a guide for the motion-plate having a rigid and a yielding section on each side thereof, a rigid section being opposite to a yielding section, said



yielding sections being provided with a device to return them to a normal position after having been moved from the same, substantially as specified.

5 3. In a switch-operating mechanism, the combination, with a switch-rod having a bifurcated portion, of a slotted motion-plate, about which said bifurcated portion of the switch-rod extends, a pin extending from the switch-rod and entering the slot in the motion-plate, a guide for the motion-plate having upon one side a yielding section, and a device for returning said yielding section to a normal position after it has been moved out of the same, substantially as specified.

15 4. In a switch-operating mechanism, the combination, with a switch-rod having a bi-

furcated portion, of a slotted motion-plate, about which said bifurcated portion of the switch-rod extends, a pin extending from the switch-rod and entering said slot in the motion-plate, a guide for the motion-plate comprising two fixed sections and two yielding sections, a tongue on the fixed sections and yielding sections of the guide, about which the bifurcated portion of the switch-rod extends, and a device for returning the yielding sections of the guide to a normal position after they have been moved out of the same, substantially as specified.

H. K. WHITNER.

Witnesses:

D. H. DRISCOLL,  
M. J. ROACH.

It is hereby certified that in Letters Patent No. 390,734, granted October 9, 1888, upon the application of Hiram K. Whitner, of New York, New York, for an improvement in "Railway-Switches," an error appears in the printed specification requiring the following correction: In line 53, page 2, the word "top" should be stricken out and the word *stop* inserted instead; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 16th day of October, A. D. 1888.

[SEAL.]

D. L. HAWKINS,  
*Assistant Secretary of the Interior.*

Countersigned:

BENTON J. HALL,  
*Commissioner of Patents.*