

(No Model.)

3 Sheets—Sheet 1.

J. PHELPS.

AUTOMATIC ATTACHMENT FOR SWITCHING CARS.

No. 542,655.

Patented July 16, 1895.

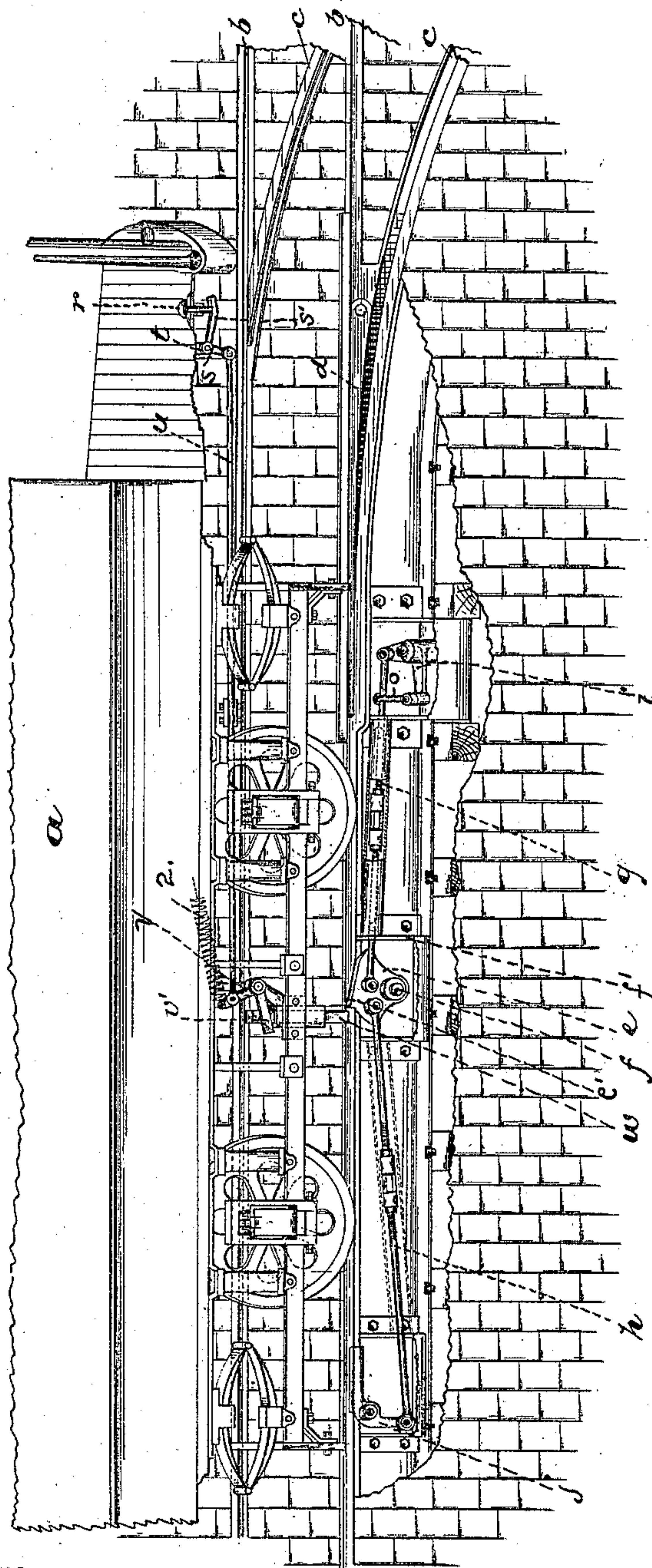


Fig. 1

WITNESSES:

William Baton.
John Sherman

INVENTOR

Joseph Phelps.

BY

Henry J. Miller

ATTORNEY.

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J. PHELPS.

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Fig. 2.

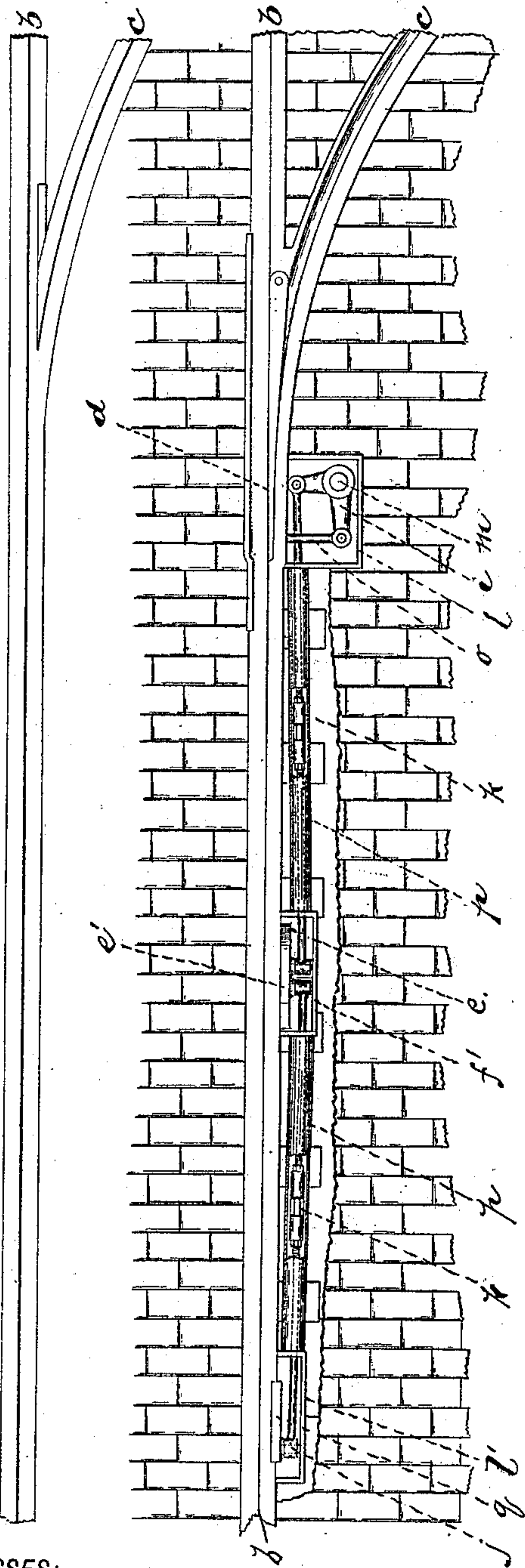
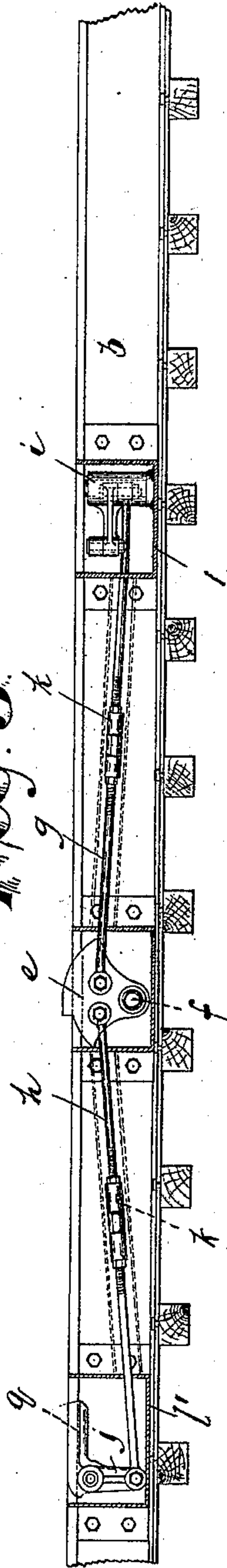


Fig. 3.



WITNESSES:

William Batson.
Jesse Sherman,

INVENTOR

Joseph Phelps,

BY

Henry J. Miller
ATTORNEY.

(No Model.)

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J. PHELPS.

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Fig. 4.

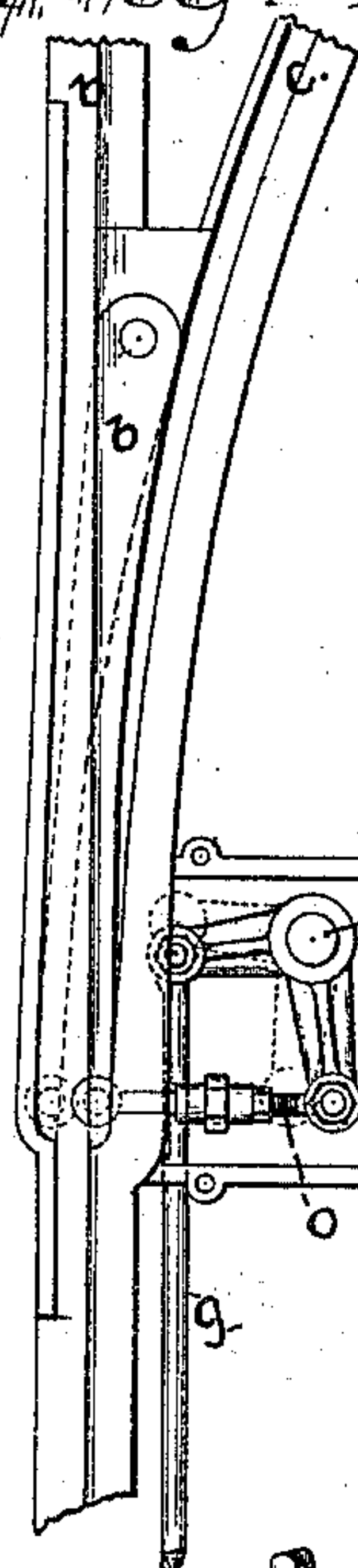


Fig. 5.

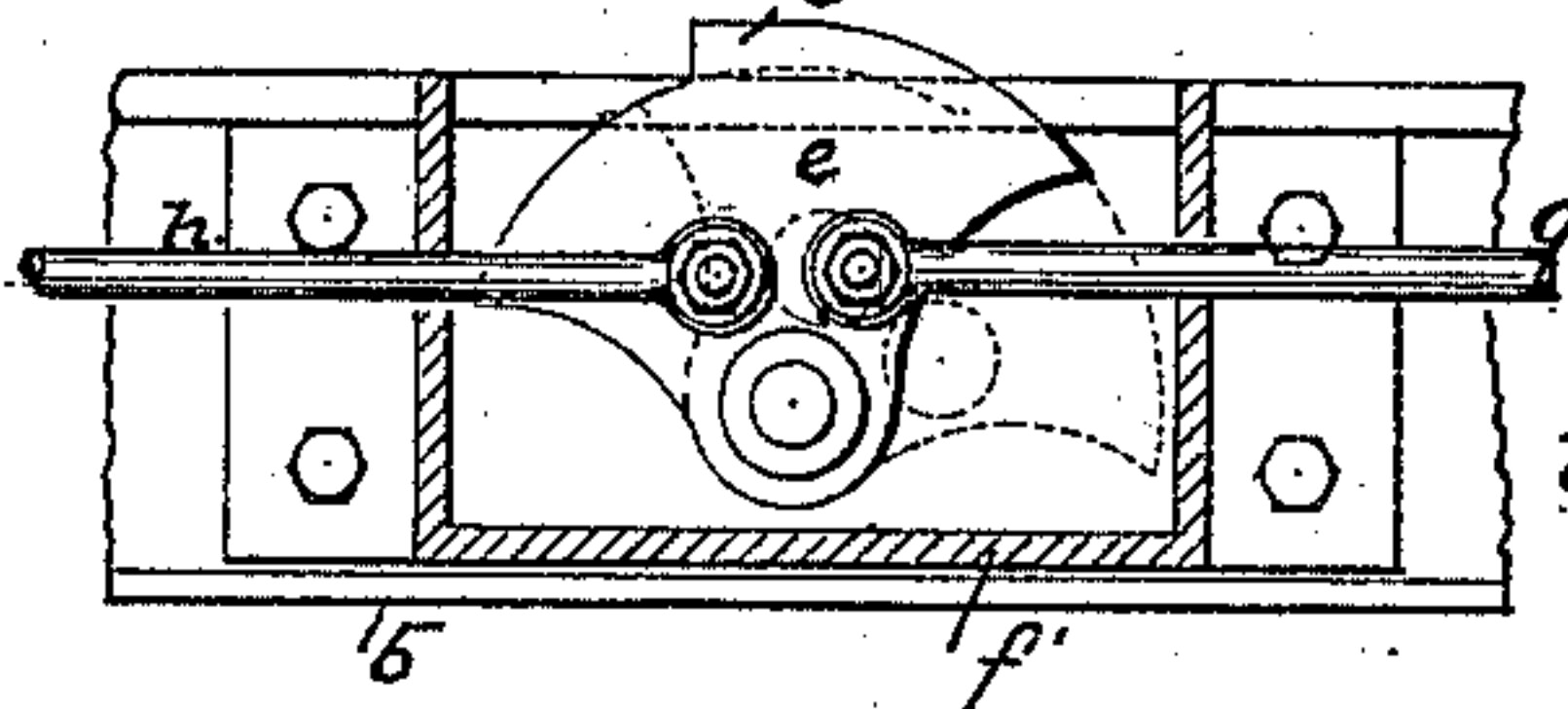


Fig. 6.

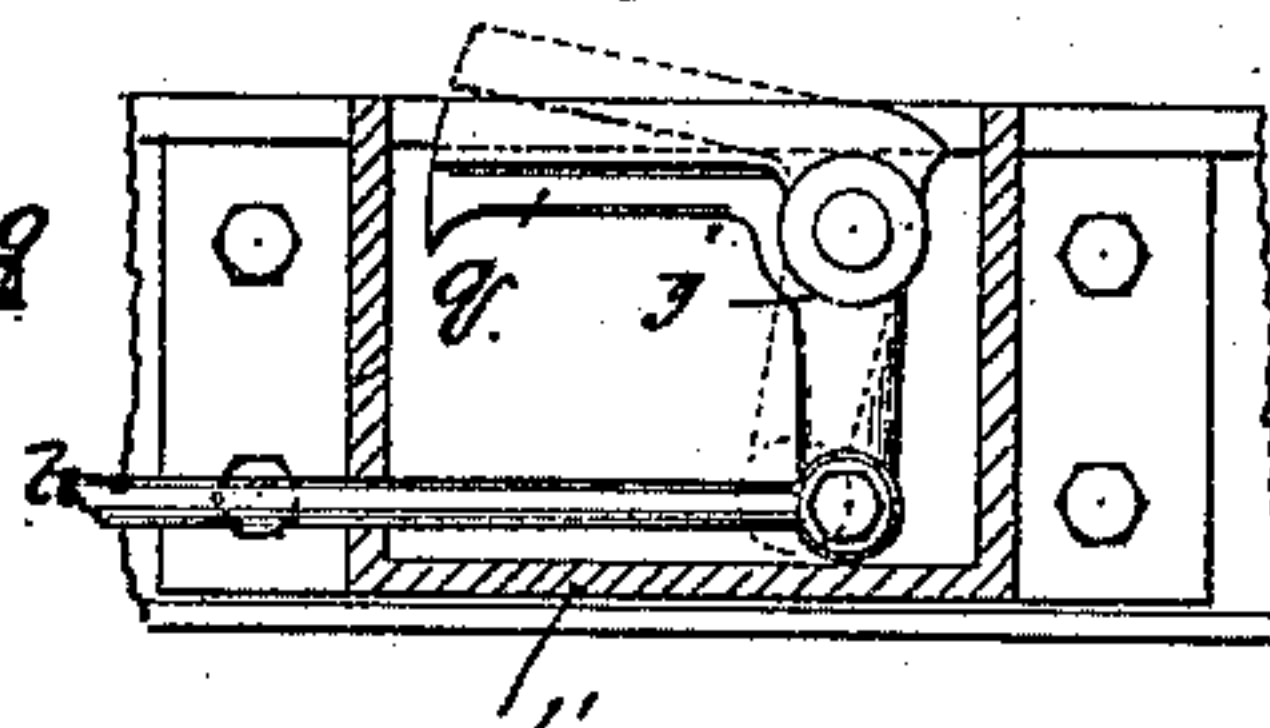


Fig. 7.

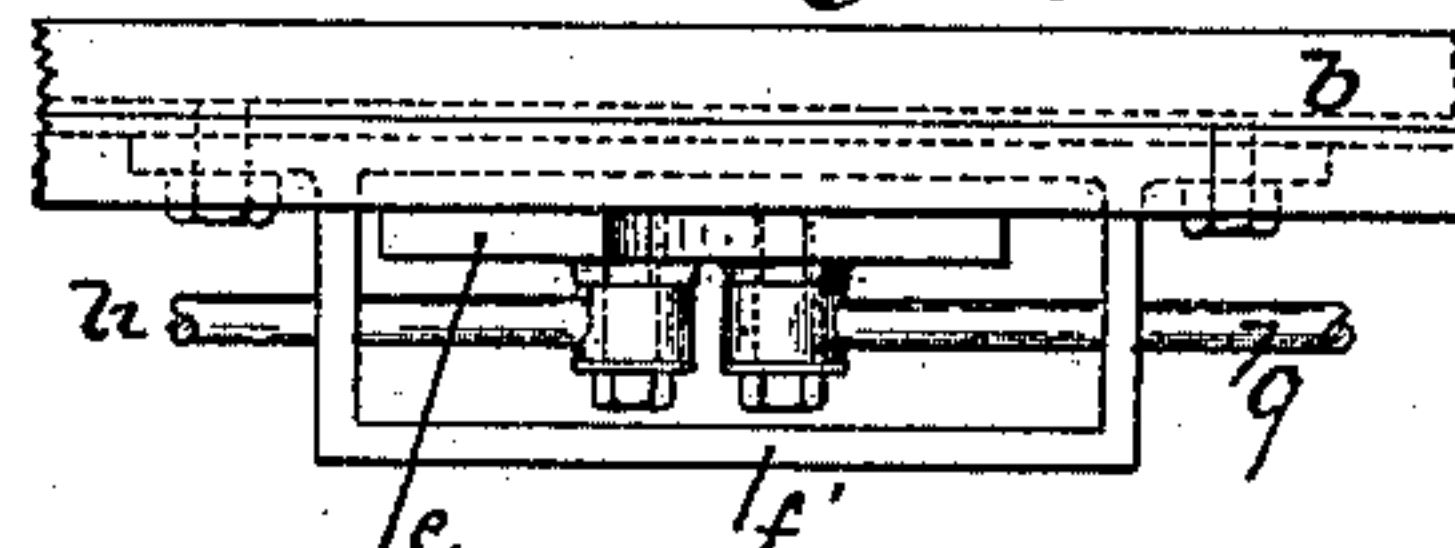


Fig. 8.

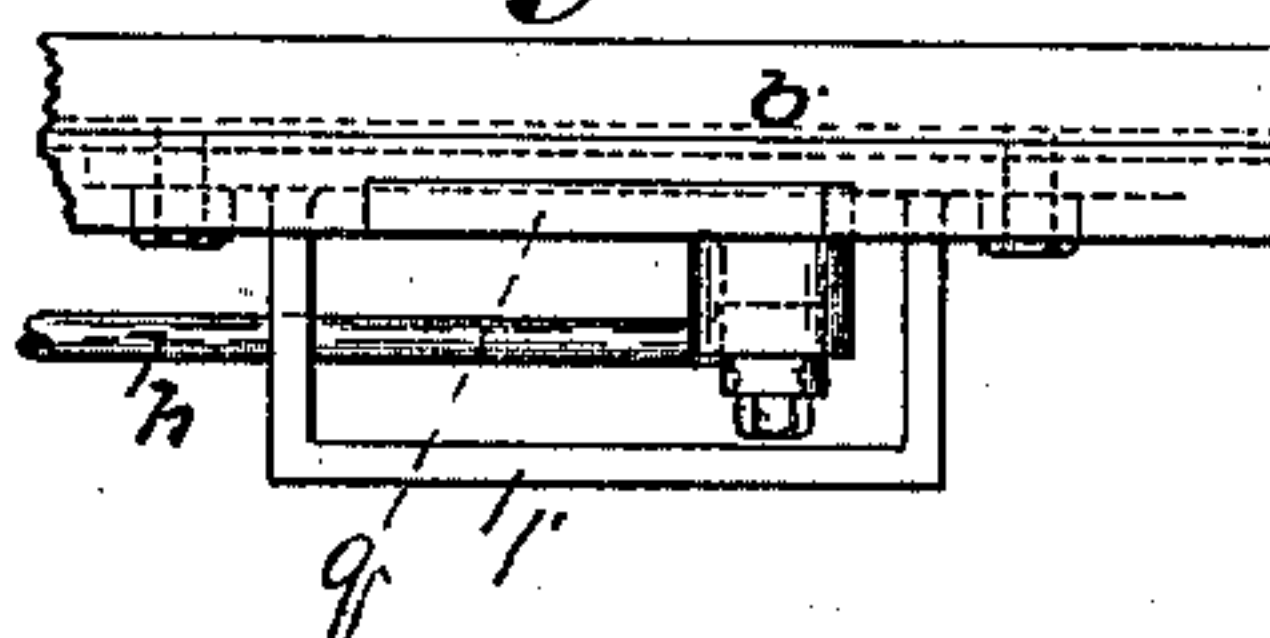


Fig. 9.

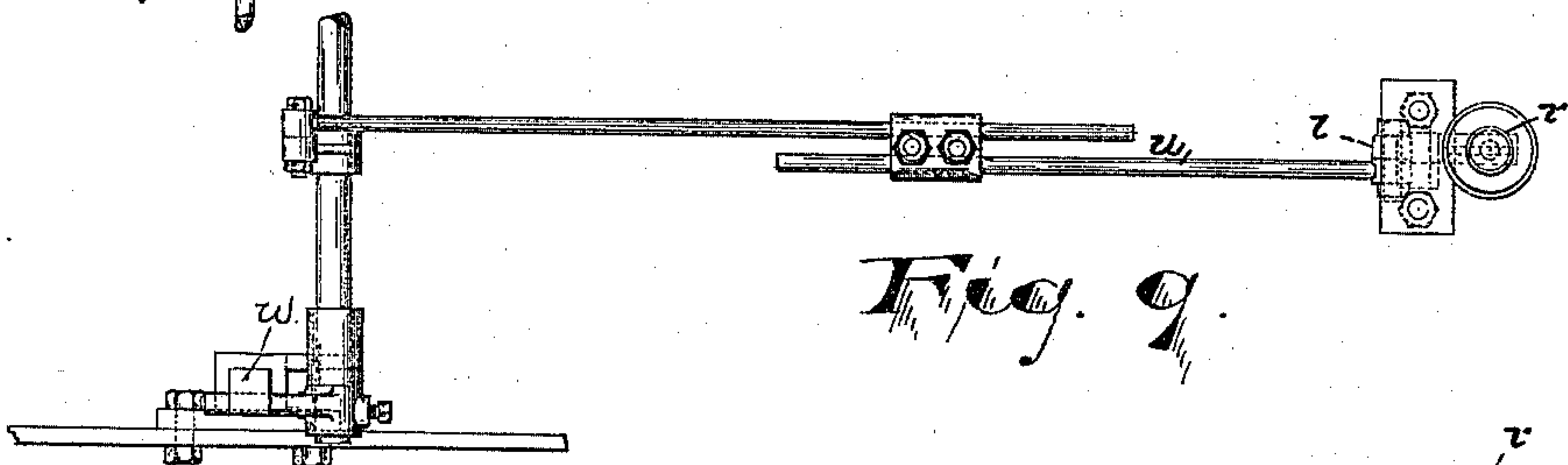
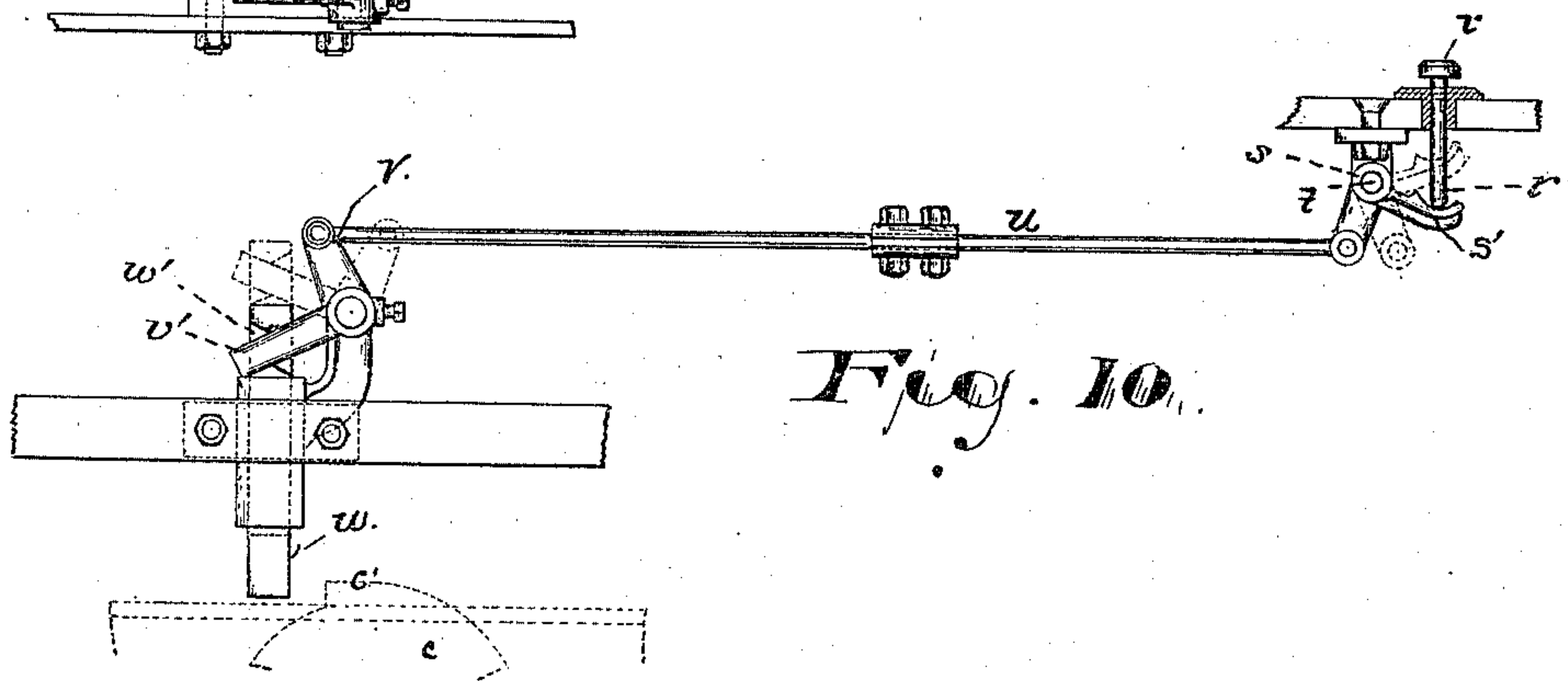


Fig. 10.



WITNESSES:

William Eaton
John Sherman

Joseph Phelps,

INVENTOR

BY

Henry J. Miller
ATTORNEY.

UNITED STATES PATENT OFFICE.

JOSEPH PHELPS, OF NEWARK, NEW JERSEY.

AUTOMATIC ATTACHMENT FOR SWITCHING CARS.

SPECIFICATION forming part of Letters Patent No. 542,655, dated July 16, 1895.

Application filed November 23, 1894. Serial No. 529,892. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH PHELPS, a citizen of the United States, residing at Newark, Essex county, New Jersey, have invented certain new and useful Improvements in Automatic Attachments for Switching Cars, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to that class of switch-operating devices wherein the depression of a suitable foot-piece upon the car-platform operates to project a vertically-sliding bar into the path of the shifting member of the device to throw the switch-tongue; and its object is to provide a simple and practical mechanism for such purpose.

The invention consists in the specific combination and arrangement of the several members herein shown and described.

In the annexed drawings, Figure 1 is a perspective view of one of the car-tracks provided with the switching device, showing also a portion of the car provided with mechanism for actuating the same. Fig. 2 is a plan, and Fig. 3 an elevation, of the same with the actuating mechanism omitted. Fig. 4 is a plan of the switch and its shifting-lever. Fig. 5 is an elevation, and Fig. 7 a plan, of the shifting member with its casing. Fig. 6 is an elevation, and Fig. 8 a plan, of the "trip-lever." Fig. 9 is a plan, and Fig. 10 an elevation, of the actuating mechanism upon the under side of the car-bottom. Figs. 4 to 10, inclusive, are upon a larger scale than the preceding figures.

a is the car, *b b* the main-line tracks, *c c* the siding or branch tracks, and *d* the switch-tongue, each being of the ordinary construction and arrangement.

A vertical sector *e*, having a peripheral tooth *e'* is mounted upon a fixed stud *f* a little in advance of the movable switch-tongue *d* and adjacent to the rail *b* leading thereto, the periphery of the sector being on a level with the rail, but its tooth being projected above the latter and inclined backwardly with relation to the switch-tongue, offering upon its front side an abrupt shoulder for the engagement of the sliding bar upon the car.

A horizontal bell-crank *i* is mounted, opposite the free end of the switch-tongue, upon the fixed stud *m*, with one arm substantially

parallel with the track, connected to the switch-tongue by a suitable link *o* and having its other arm at right angles thereto connected with the adjacent side of the toothed sector *e* by means of the adjustable rod or link *g*, formed of two separate rods with their adjacent ends adjustably secured together by the clamp *k*.

At a suitable distance in advance of the toothed sector is an angular trip-lever *j* mounted upon a stationary horizontal stud and provided with a lateral bearing-plate *q* sustained normally at the level of the track within a notch therein for the same, and with a depending arm connected to the nearer side of the toothed sector by an adjustable link *h*, similar in construction to the link *g*.

It is obvious that by the employment of the extensible links *g* and *h* the several pivoted members to which they are applied may be secured in position independently and the links subsequently applied and their lengths adjusted when the several operative members are thus set in their normal positions, and that compensation for the wear of the operative parts of the device may also be effected by such adjustment after the mechanism has been in operation.

The shifting mechanism, which is sustained upon the under side of the car-bottom, consists of a bell-crank *s* supported by a suitable bracket under the platform, having a lateral arm with a concave bearing-plate *s'* to engage the stem *r'* of the foot-piece *r* projecting through the platform from the upper side of the latter. The depending arm of the bell-crank *s* is connected to the upwardly-projecting arm of the bell-crank *v* in the rear of the same by an adjustable rod *u*, similar to the rods *g* and *h*. The bell-crank *v* is formed with a rearwardly-projecting arm *v'* and is sustained in its normal position by means of the spring 2, attached at one end to the upright right arm of the crank and at its other end to the car-bottom. A vertical sliding bar *w* is sustained in a suitable bearing mounted upon the car-frame and is provided at its upper end and above the said bearing with an eye *w'*, into which is projected the lateral arm of the crank *v*.

The operation of the mechanism is as follows: As the car moves along upon the main

track *b* toward the switch-tongue, the passage of its wheels over the bearing-plate *q* (should the same be raised by the previous turning of the switch) operates to depress the latter into its normal position, thereby, through the links *g* and *h*, setting the sector *e* with its tooth in an upright position for subsequent engagement and simultaneously actuating the bell-crank *i* to shift the switch-tongue for the passage of the car upon the main track, as indicated in Fig. 1. The depression of the foot-piece *r* upon the car-platform operates, through the connecting-rod *u* and crank *v*, to depress the sliding bar *w* into the path of the tooth *e'* of the sector *e*, its engagement with which member throws the sector forward and thereby shifts the switch-tongue to direct the car upon the branch track or siding, and simultaneously raises the bearing-plate *q* in readiness for returning the switch-tongue to its normal position by the passage of the succeeding car. It is obvious that the failure of the motorman to depress the foot-piece permits the car to pass the switch upon the main track.

I am aware that it is not new, broadly, to construct a switch-shifter of a series of bell-cranks connected together by means of links and operated from the passing cars, as shown in United States Patents Nos. 413,145 and 519,741, and that it is not new, broadly, to actuate such a device by means of mechanism upon the car, comprising bell-cranks having link connections and operated by a suitable foot-piece upon the car-platform, as in United States Patent No. 227,089; and I therefore disclaim the same; but

What I do claim herein as specifically new, and desire to secure by Letters Patent, is—

1. The switching device comprising the switch tongue *d*, the bell crank *i* pivoted adjacent thereto upon a fixed vertical stud *m*

and having one arm connected to the switch tongue by the link *o*, the vertical sector *e* pivoted upon the fixed pin *f* and provided with the peripheral tooth *e'* backwardly inclined relative to the switch-tongue, the angular trip lever *j* pivoted upon a fixed horizontal pin and formed with the lateral bearing plate *q* and with a depending arm, links *g* and *h* connecting, respectively, the vertical arms of the bell crank *i* and the trip lever *j* with the adjacent sides of the sector *e* and formed each of two separate rods having their adjacent ends secured together by the adjustable clamps *k*, the whole arranged and operated as herein set forth.

2. The combination, with a railway car, of a switch operating device comprising the foot piece *r* upon the car platform having the depending stem *r'* projected through the said platform, the bell crank *s* mounted in a suitable bracket upon the car bottom with a laterally projecting arm having the concave bearing plate *s'* to receive the end of the stem *r'* and a depending arm, the bell crank *v* sustained in a suitable bracket upon the car bottom in the rear of the bell crank *s* and having an upwardly projecting arm connected with the depending arm of the bell crank *s* by the adjustable rod *u* and formed with a laterally projecting arm, the spring 2 secured at one end to the upright arm of the bell crank *v* and at the other end to the car bottom, and the vertical sliding bar *w* mounted in a suitable bearing upon the car frame and provided at its upper end with the eye *w'* to receive and engage the lateral arm of the crank *v*, the whole arranged and operated as and for the purpose set forth.

JOSEPH PHELPS.

Witnesses:

S. PERIT RAWLE,
JAMES F. KENNARD.