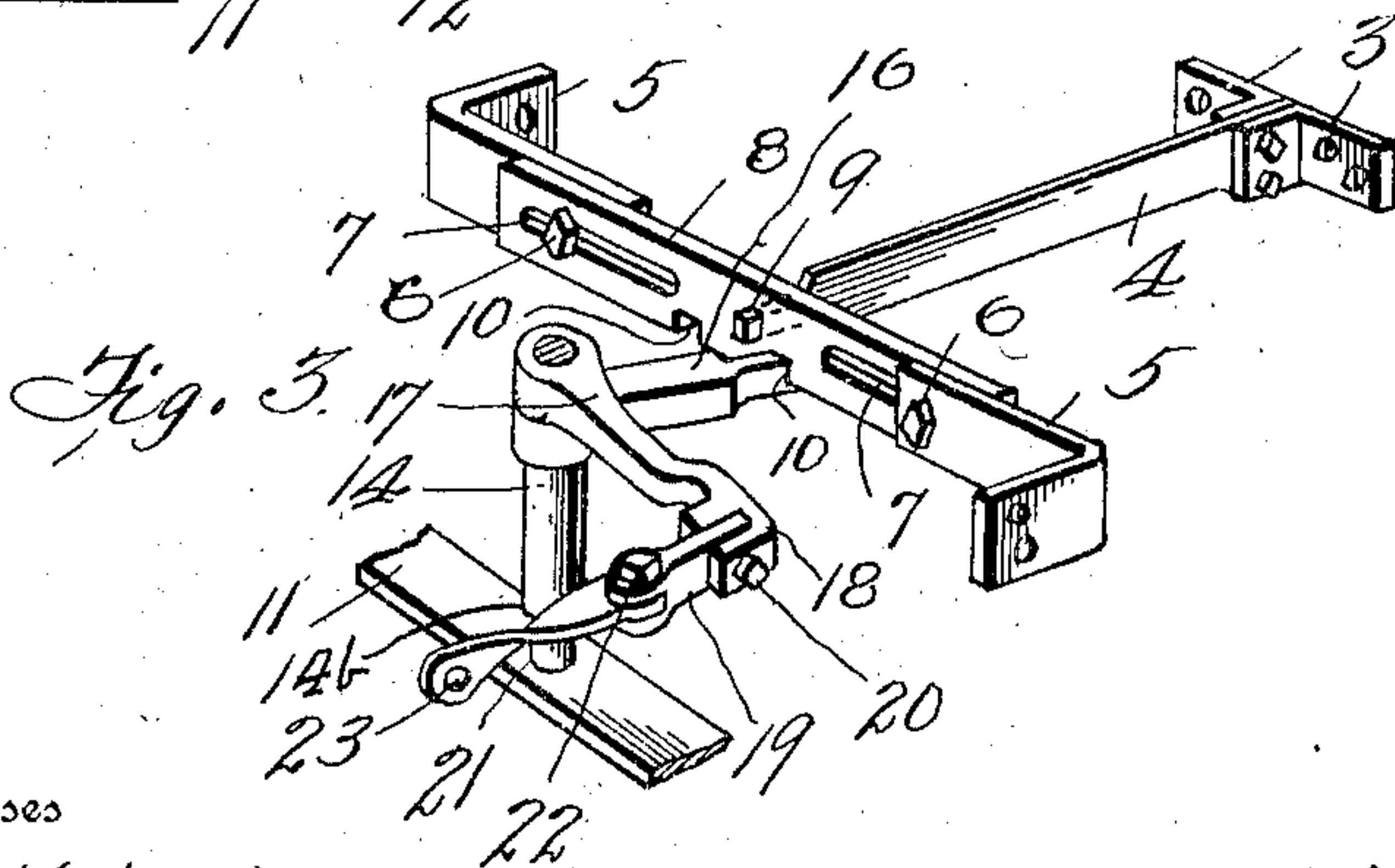
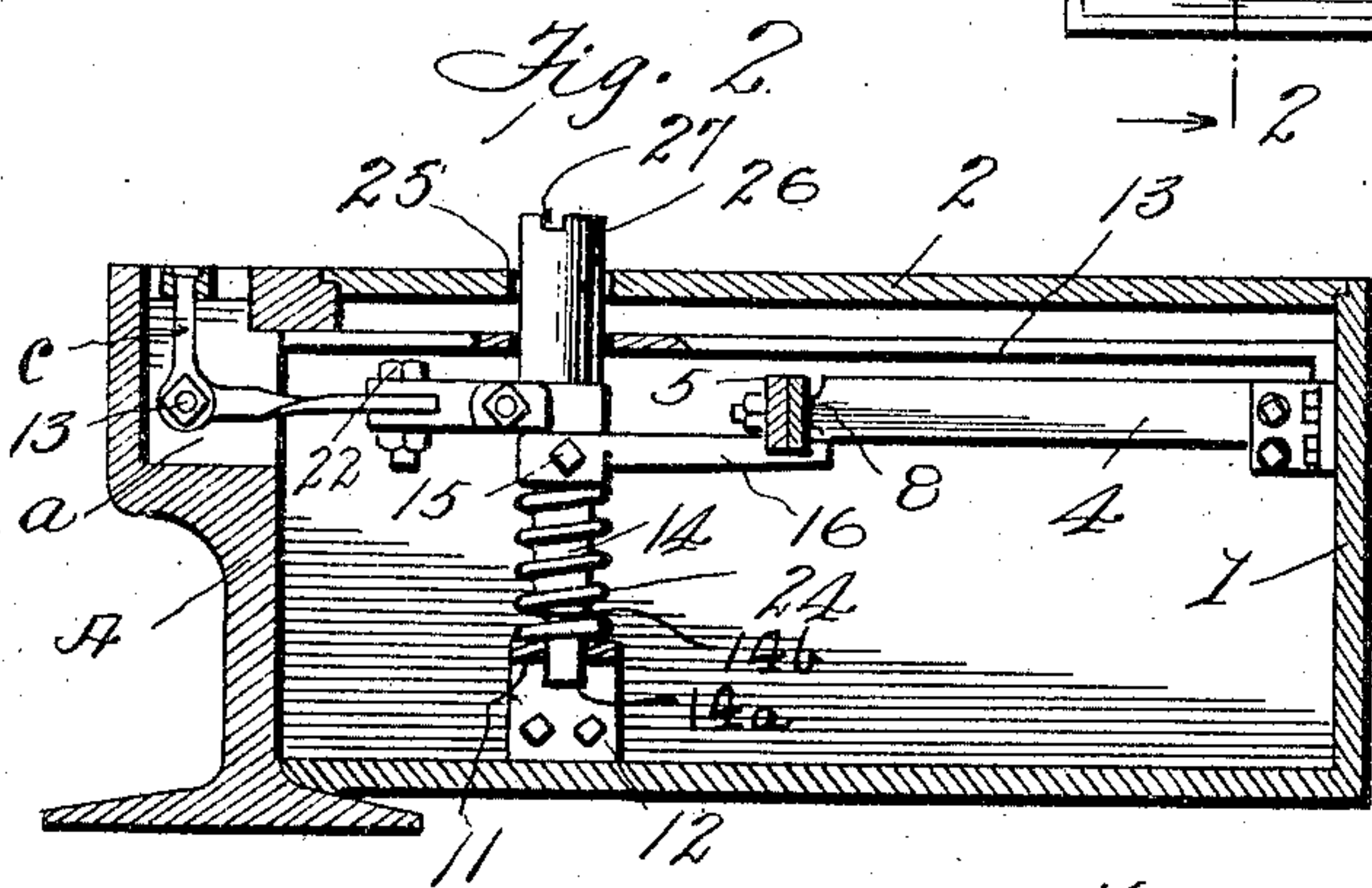
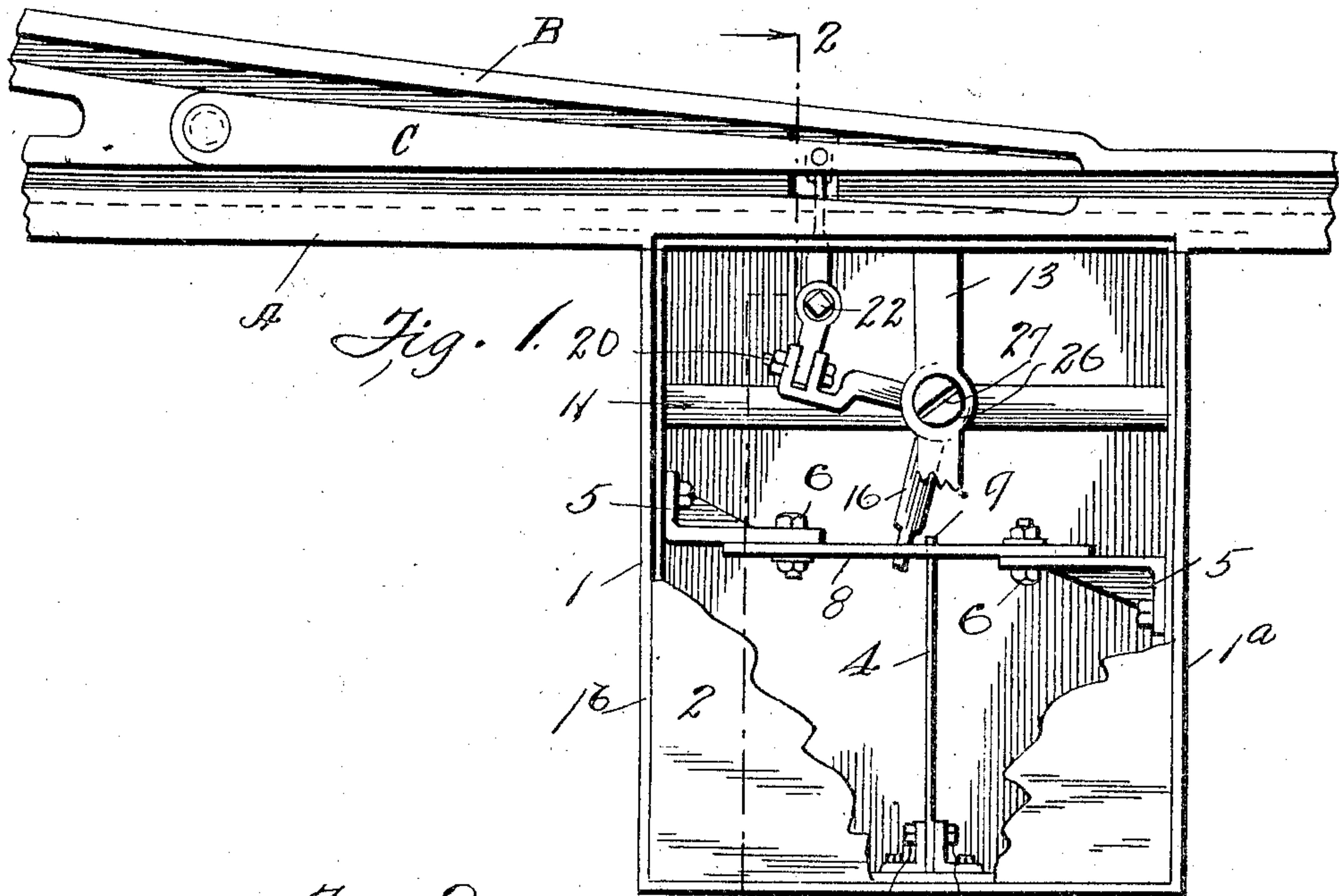


No. 850,294.

PATENTED APR. 16, 1907.

R. H. CARLISLE.
TRAMWAY SWITCH.
APPLICATION FILED JAN. 4, 1907.



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UNITED STATES PATENT OFFICE.

ROBERT H. CARLISLE, OF COVINGTON, KENTUCKY.

TRAMWAY-SWITCH.

No. 850,294.

Specification of Letters Patent.

Patented April 16, 1907.

Application filed January 4, 1907. Serial No. 350,832.

To all whom it may concern:

Be it known that I, ROBERT H. CARLISLE, a citizen of the United States, residing at Covington, in the county of Kenton and State of Kentucky, have invented certain new and useful Improvements in Tramway-Switches, of which the following is a specification.

This invention relates to new and useful improvements in tramway-switches; and it has particular reference to a switch including means for restoring the same to normal position after each operation or actuation thereof.

The invention aims as a primary object to provide a switch of the above type embodying adjustable connections whereby the normal position of said switch is determinate and can be at either side of the rails at their point of divergence.

The invention aims as a further object to provide a switch of the above type which shall be simple and inexpensive to manufacture and practical and efficient in use.

The detailed construction will appear in the course of the following description, in which reference is had to the accompanying drawings, forming a part of this specification, like characters of reference designating like parts throughout the several views; wherein—

Figure 1 is a top plan view of a switch and its operating connections, parts being broken away to more clearly set forth the details of construction. Fig. 2 is a vertical transverse section on the line 2-2 of Fig. 1; and Fig. 3 is a detailed perspective view of the switch-operating mechanism with its adjustable connections, to be hereinafter specifically referred to.

Referring specifically to the accompanying drawings, the letter A designates a straight track, the letter B a curved track diverging therefrom, and the letter C a pivoted switch interposed between said tracks at their point of divergence in the well-known manner. At one side of the track A there is a casing 1 of rectangular proportions and embedded in the road-bed. Said casing has a removable top 2, which is preferably flush with the road-bed. The switch C is set or operated manually or by automatic means controlled from the car, but, as previously stated, is returned to normal position after each actuation thereof. The novel means for effecting this last operation are mounted with the casing 1 and comprise, essentially, an actuating-spring, a movable element connected therewith, and

switch connections adapted to be engaged with said element on either side of the spring, the movement of said connections being dependent upon their position with relation to the spring and the switch being automatically moved after each actuation to the corresponding side of the track A or B.

To the inner side wall of the casing 1 there is rigidly secured by clips 3 one end of a leaf-spring 4, which is designed, through the connections to be described, to impart movement to the other movable elements of the invention. The end walls of the casing 1 are provided with horizontal brackets 5, which carry bolts 6, the latter being projected loosely through slots 7, formed in the ends of a slidable member 8 and serving as a guide for said member in the axial movement thereof. The spring 4 has a reduced outer end 9, which is preferably projected through the member 8 at a point central thereof, the connection of said spring and said member being practically fixed. The member 8 on its lower edge is provided on each side of its connection with the spring 4 with recesses or notches 10 for the purpose to be described.

Adjacent the inner side wall of the casing 1 a supporting-bar 11 is provided, which extends the entire distance between the end walls to which it is secured and has its ends downturned, as at 12, to rest upon the floor of the casing. Adjacent the upper portion of the casing there is provided between the side walls and in parallelism to the end walls a horizontal bar 13. It is to be noted that the rail A forms the outer side wall of the casing 1 and is recessed, as at *a*, the recess *a* communicating with the interior of said casing. A vertical rock-shaft 14 is projected through and journaled in the bars 11 and 13 at their points of intersection. The shaft 14 has a reduced lower end 14^a, projected through the bar 11, a shoulder 14^b being formed adjacent said reduced end and bearing against said bar to limit the downward movement of said shaft. The shaft 14 has fixed thereon by a set-screw 15 a horizontal arm 16, which at its end engages in either of the notches 10, formed in the member 8. Above the arm 16 and extending at a substantial right angle thereto there is fixed an arm 17, having at its end spaced angular ears 18. The switch C has a depending post *c*, which projects into the recess *a* of the rail A. Between the post *c* and the arm 17 there is a gimbal-joint constituted of a link 19, pivoted at 20 between

the ears 18, and a link 21, pivoted at 22 to the end of the link 19 and at 23 to the post *c*. It will of course be understood that the pivots 20 and 22 extend at angles to one another.

5 The shaft 14 in addition to a partial rotatory or rocking movement in the bars 11 and 13 has an axial sliding movement therein in order to permit of the disengagement of the arm 16 from the notches 10. Said arm is
10 normally forced into engagement with said notches by an expansive coil-spring 24, surrounding the shaft 14 and interposed between the bar 11 and the arm 16. The upper end of said shaft is projected through an
15 opening 25 in the top 2 of the casing 1, said projecting end being formed with a round head 26, having a transverse recess 27 in the upper face thereof.

As shown in Fig. 1, the switch is forced by
20 the spring 4 through the connections described to a position adjacent the track B. Each actuation of the switch will therefore tend to move the same toward the rail A, and as soon as the switch is released by its actuating means the spring 4 will restore it to its
25 position adjacent the rail B. This action takes place in the following manner: When the switch C is moved toward the rail A, the spring 4 is forced toward the side 1^a of the
30 casing, and the arm 16 being engaged with the notch 10 most distant from the side 1^a the spring 4 will of its own resiliency move toward the side 1^b when the switch is released and in such movement will correspondingly slide the member 8. The member 8 will transmit a sliding movement to the
35 arm 16, which in turn rocks the shaft 14, and the latter by means of the arm 17 and the gimbal-joint connection above described
40 moves the switch C toward the rail B. When it is desired that the switch C be normally held in propinquity to the rail A, the shaft 14 is depressed by a proper instrument engaging in the recess 27 of the head 26. Such depression of the shaft 14 disengages the arm
45 16 from the notch 10. Said shaft is then rocked until the arm 16 is forced into the notch 10 adjacent the end wall 1^a by the spring 24. When said arm has thus been
50 set, it will be seen that the relation of the parts is reversed to what has been described.

Each actuation of the switch C will now force the spring 4 toward the wall 1^b, so that in returning to its normal position said spring will move toward the wall 1^a and correspondingly actuate the parts in the manner described. 55

While the elements herein shown and described are well adapted to serve the functions set forth, it is obvious that various
60 minor changes may be made in the proportions, shape, and arrangement of the several parts without departing from the spirit and scope of the invention as defined in the appended claims. 65

Having fully described my invention, I claim—

1. A switch of the type set forth comprising a pivoted switch member, a leaf-spring, a
movable member connected with said spring, 70 and operative connections between said switch member and said movable member, one member of said connections being adapted for engagement with said movable member at selected points on either side of said
75 spring.

2. A switch of the type set forth comprising a pivoted switch member, a leaf-spring, a
slidable member connected therewith, operative connections between said slidable member and said switch member, one member of
80 said connections being adapted for engagement with said slidable member at points on either side of the line of force of said spring.

3. A switch of the type set forth comprising 85 a pivoted switch member, a leaf-spring, a slidable element connected therewith, a rock-shaft, angularly-extending arms fixed on said shaft and connections between one of said arms and said switch member, the other of
90 said arms being designed to be engaged with said slidable element at points on either side of its connection with said spring, said rock-shaft being slidable in its bearing and being spring-pressed to maintain said last-named
95 arm in engagement with said element.

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT H. CARLISLE.

Witnesses:

THOS. H. TOWERS,
MARGARET M. HELLEBUSH.