

No. 896,307.

W. L. LIGHTFORD. PATENTED AUG. 18, 1908.
MAIL DELIVERING DEVICE.
APPLICATION FILED JAN. 15, 1908.

3 SHEETS—SHEET 1.

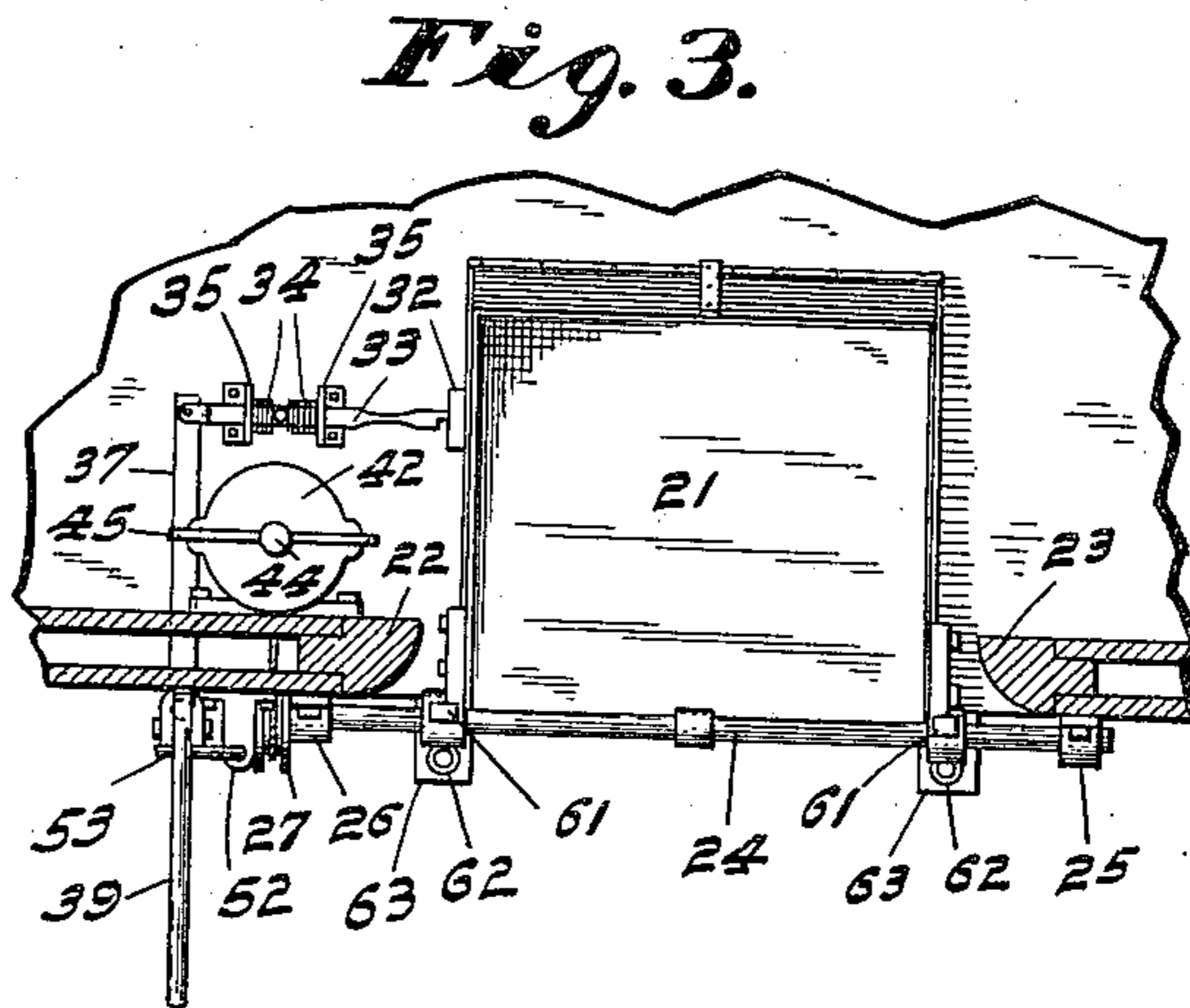
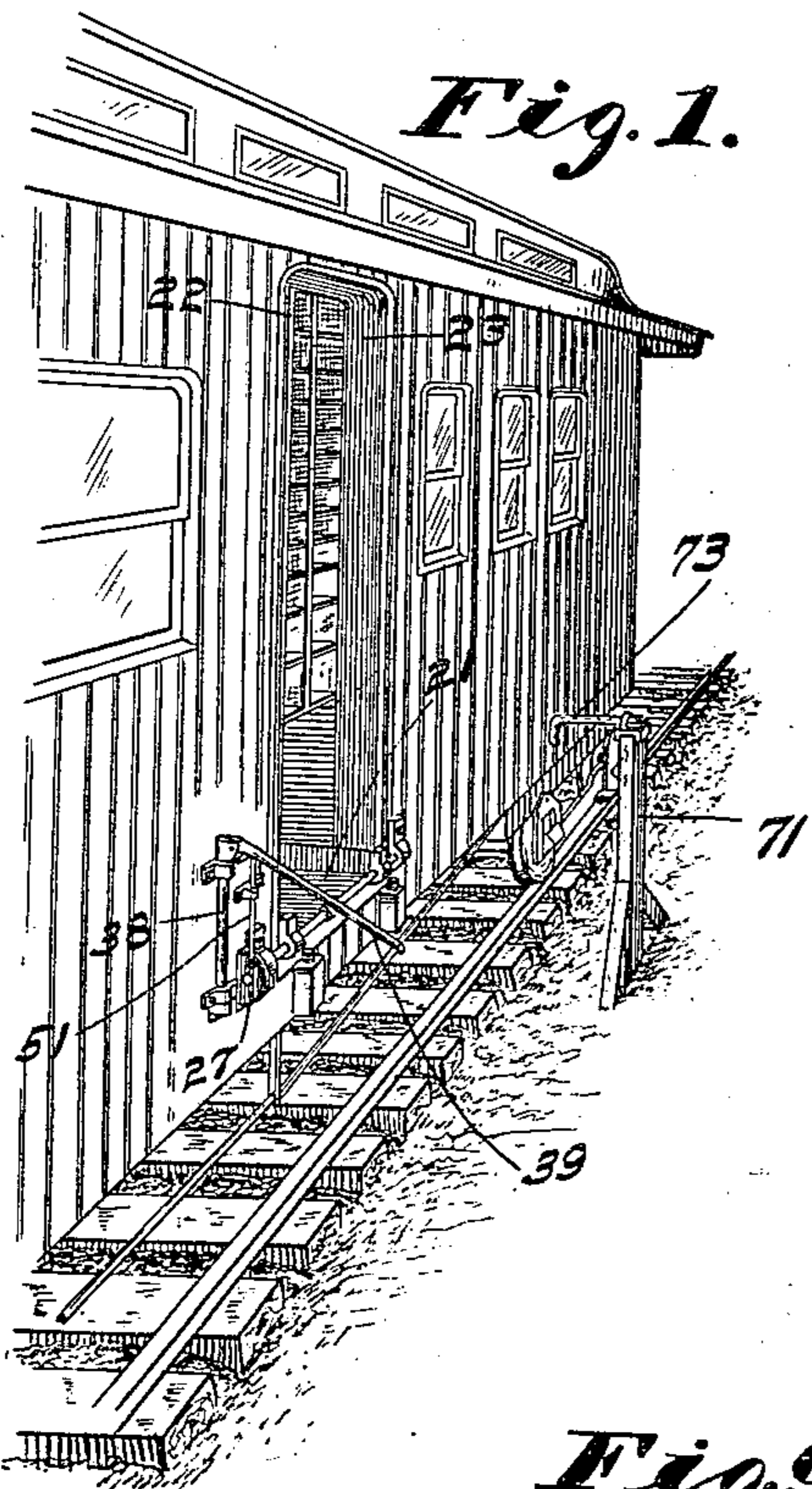
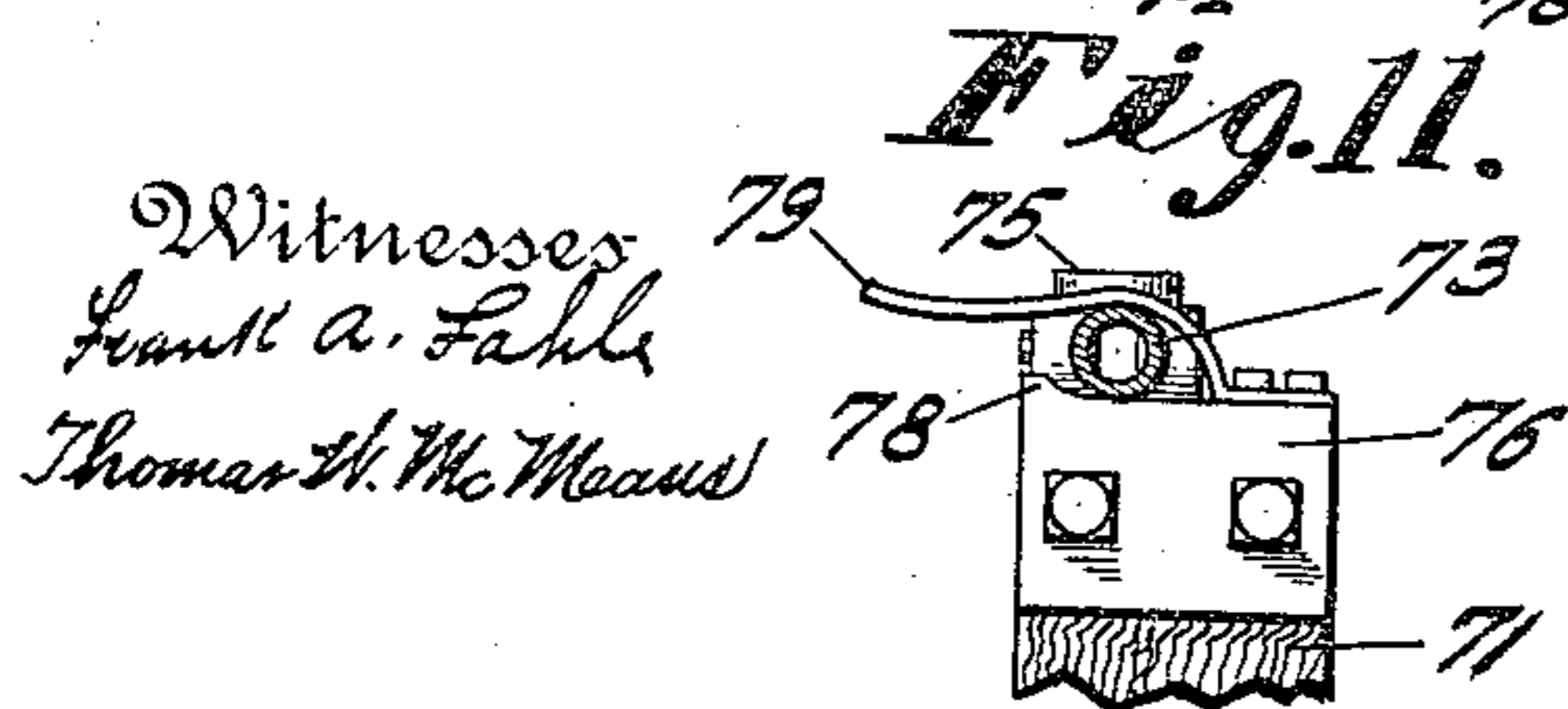
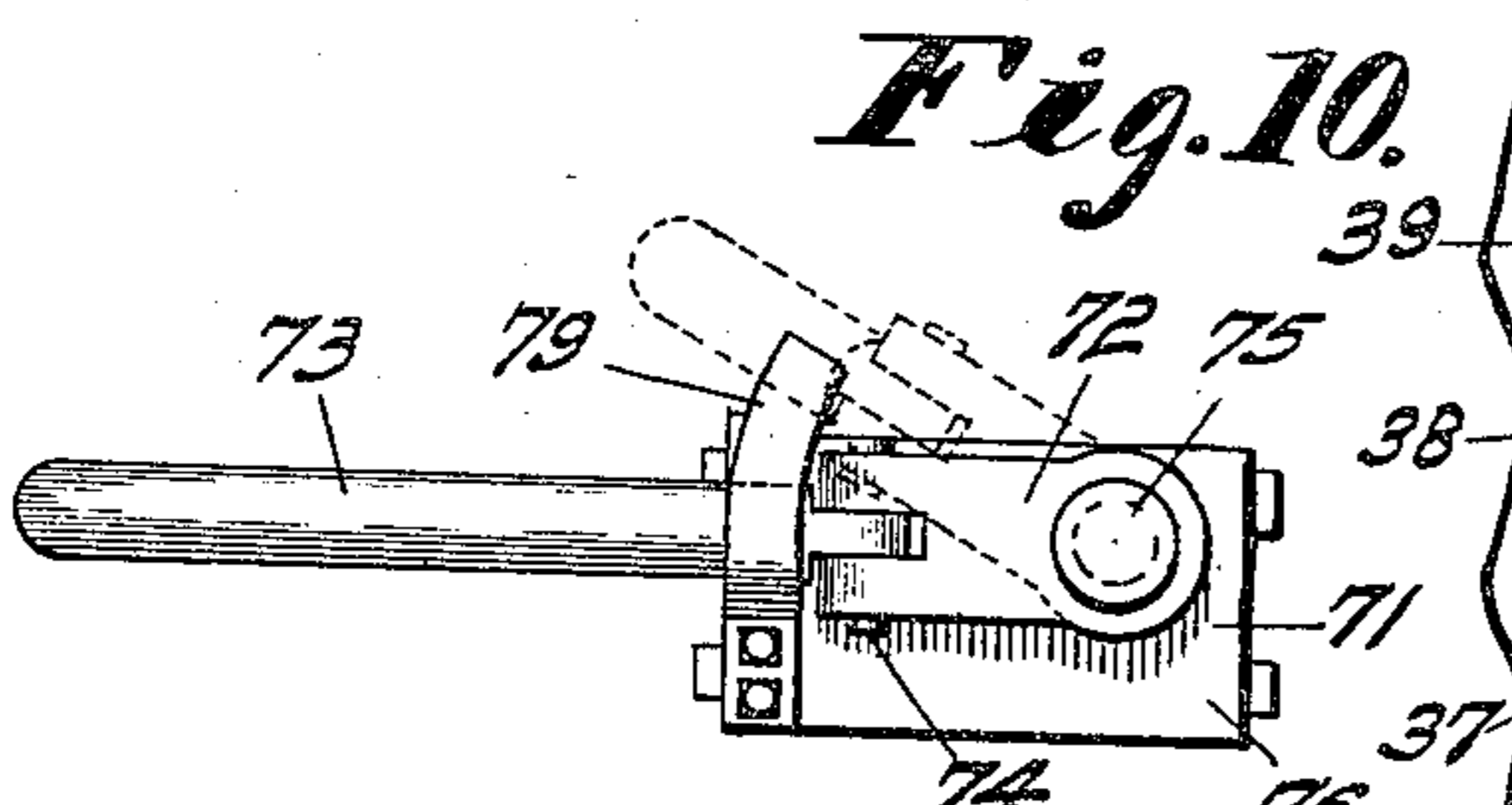
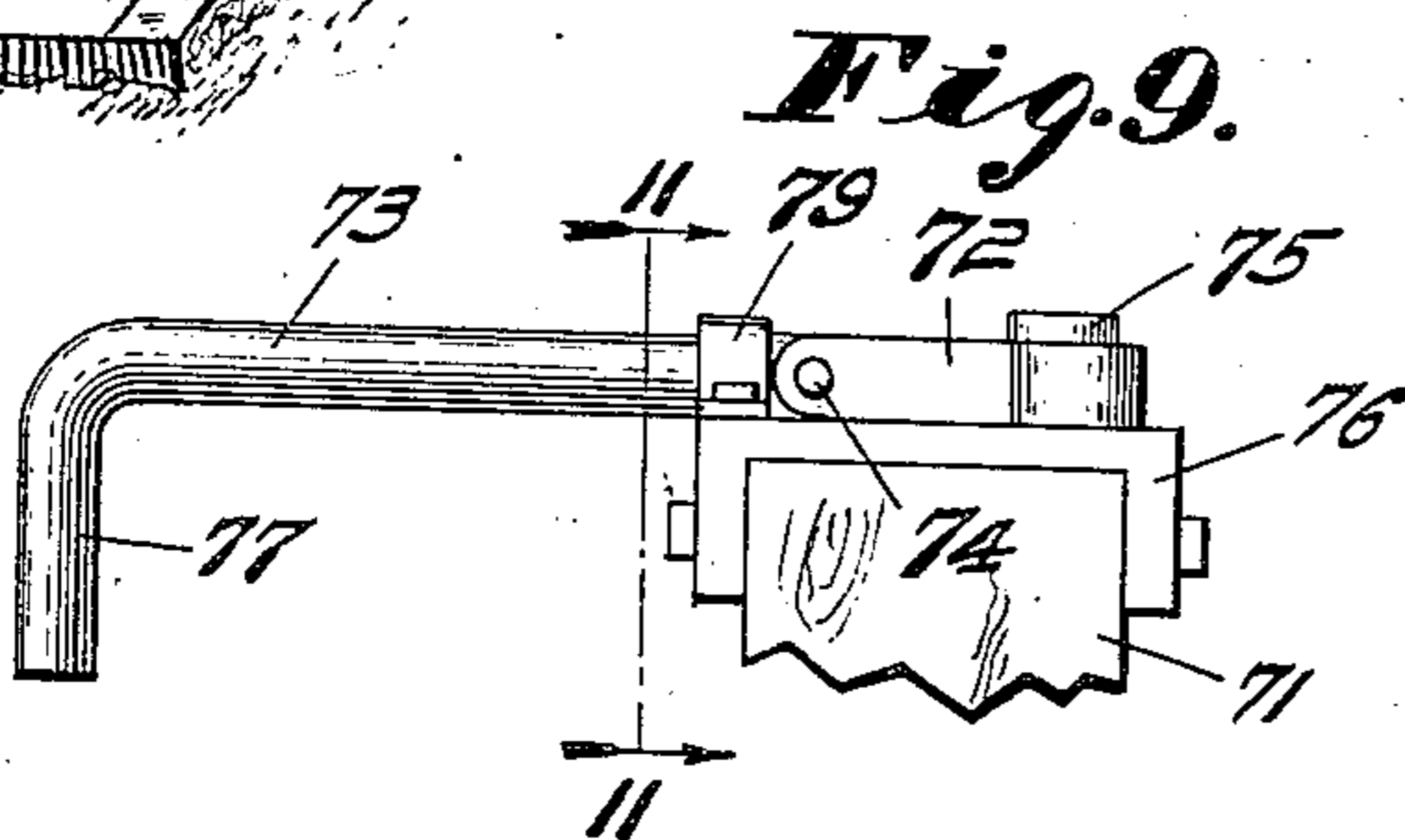
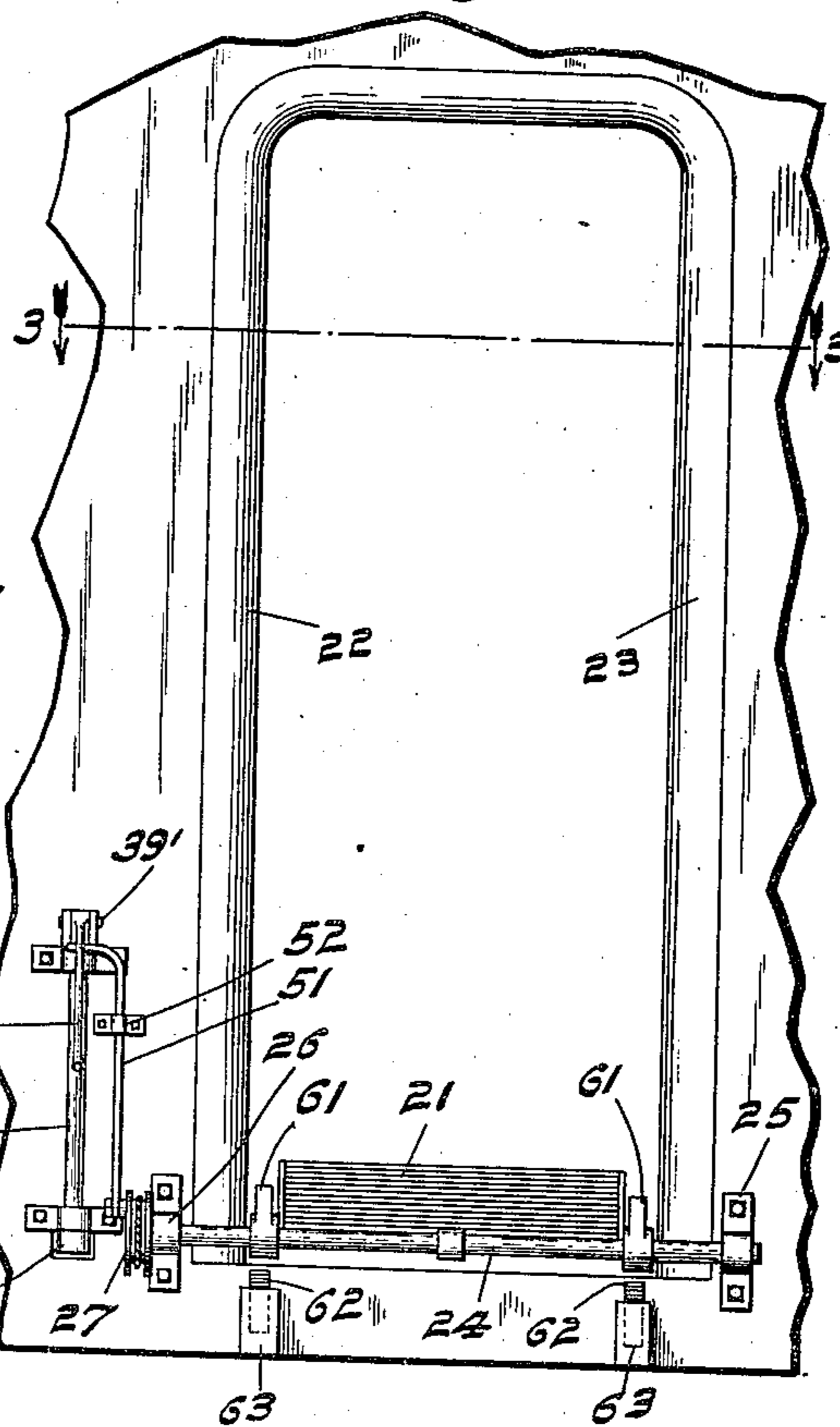


Fig. 2.



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3 SHEETS—SHEET 2.

Fig. 4.

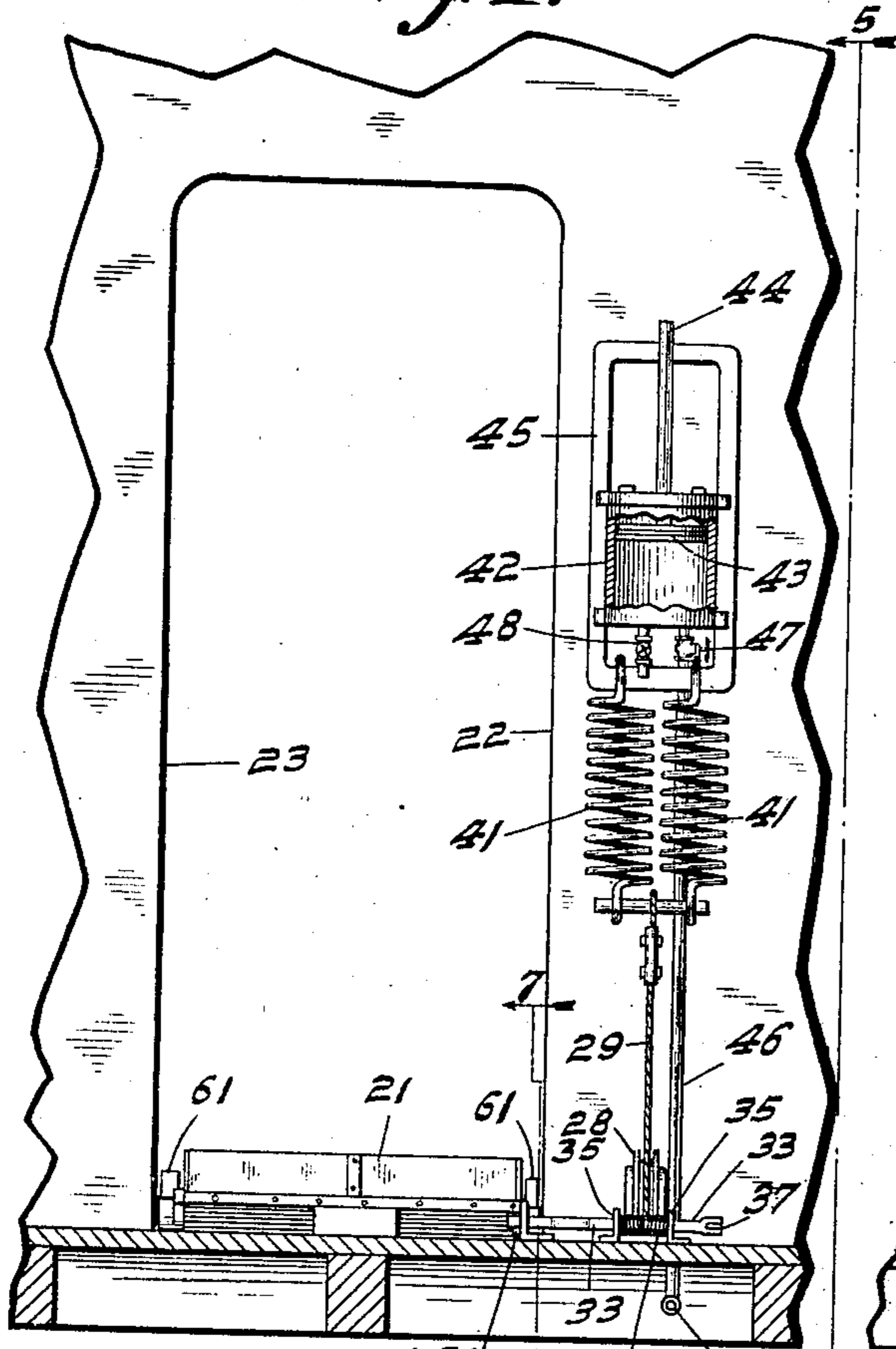


Fig. 5.

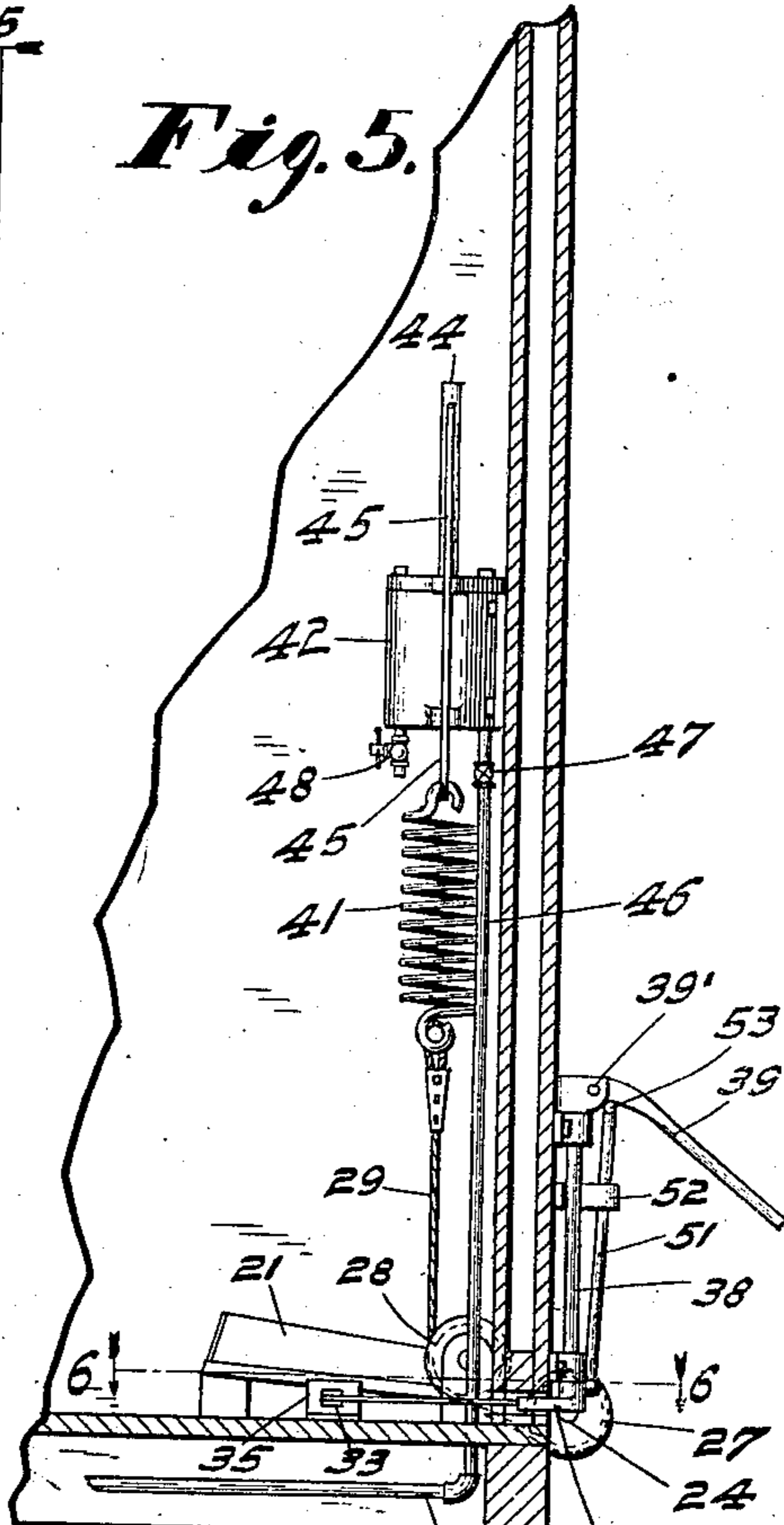


Fig. 7.

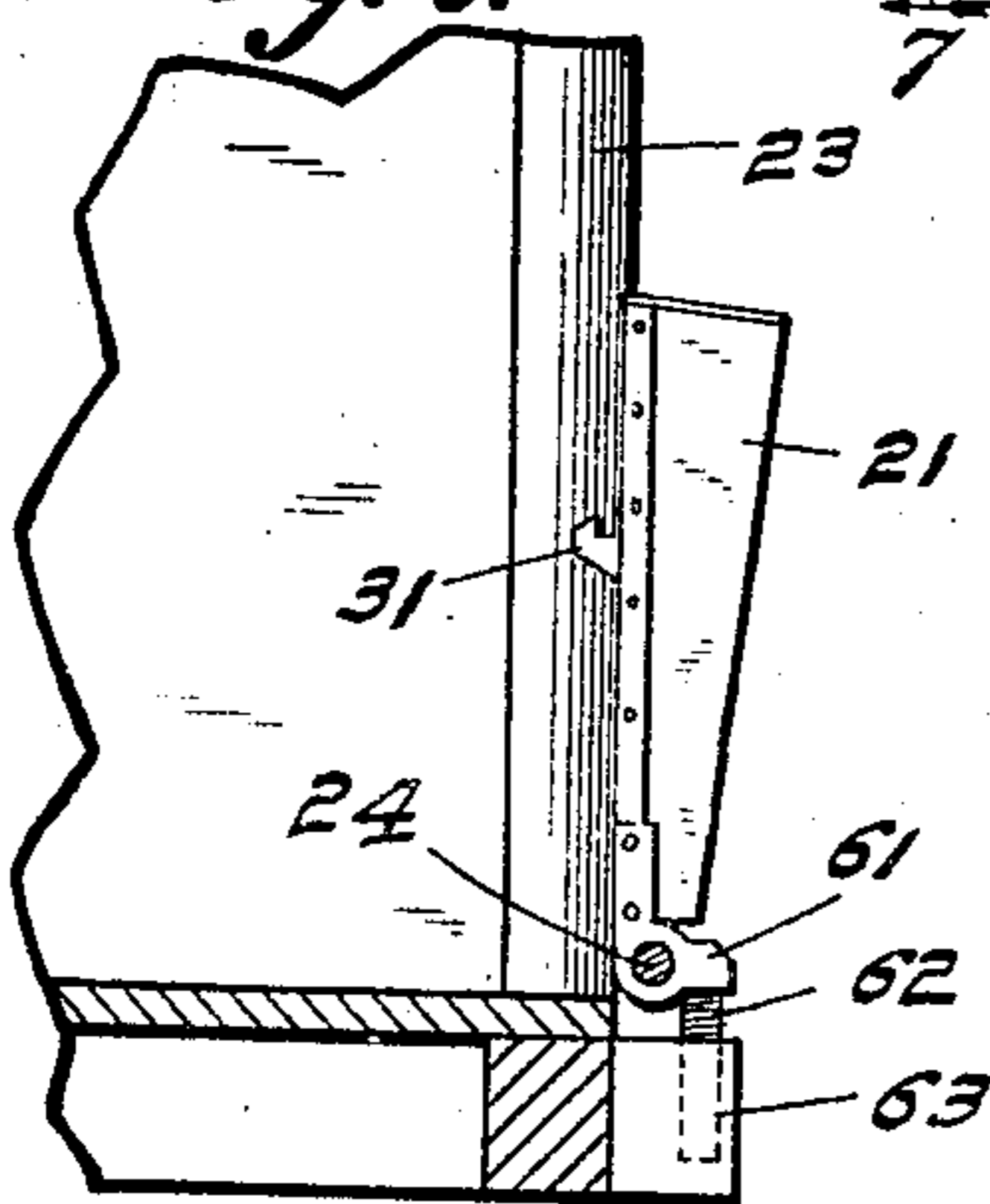


Fig. 6.

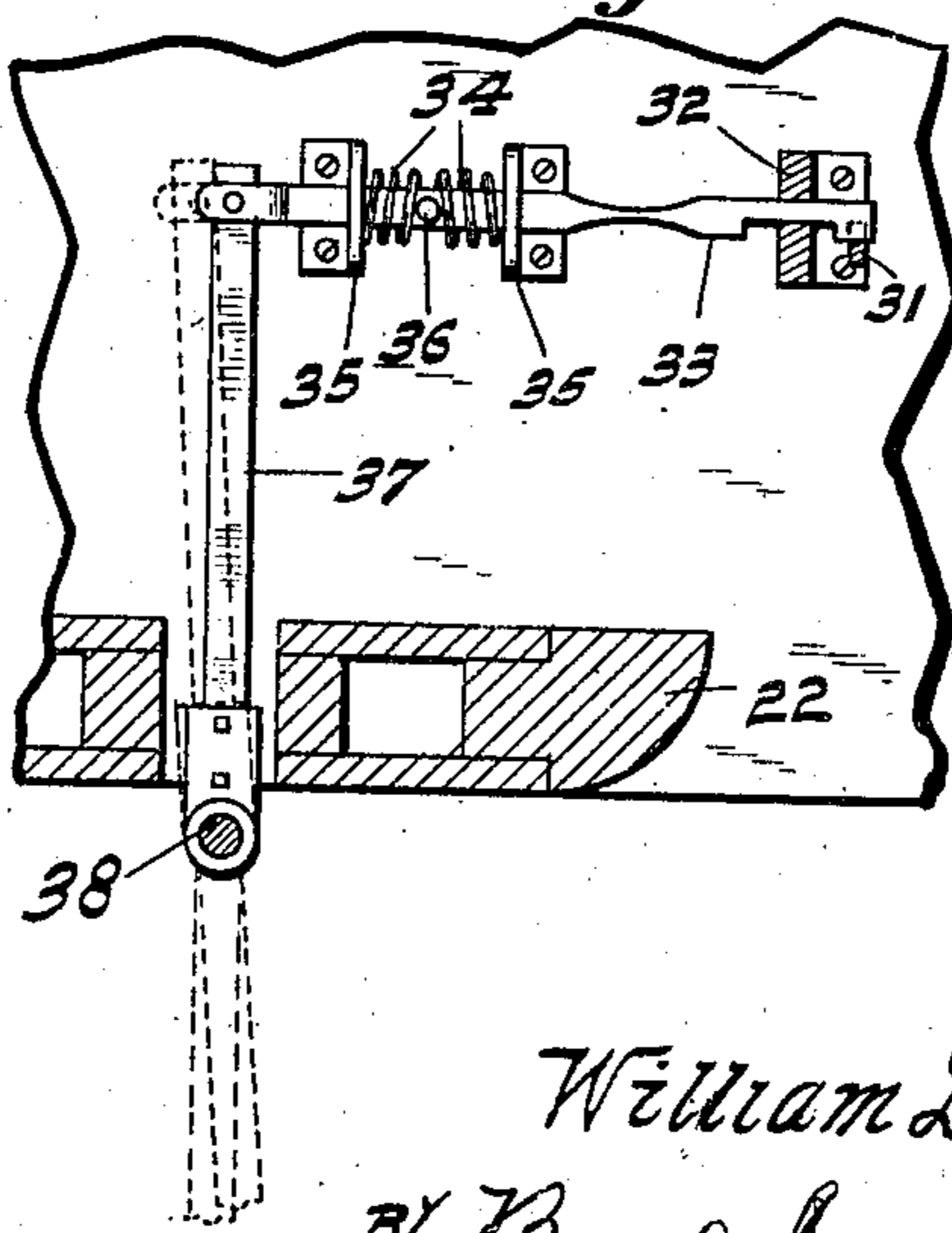
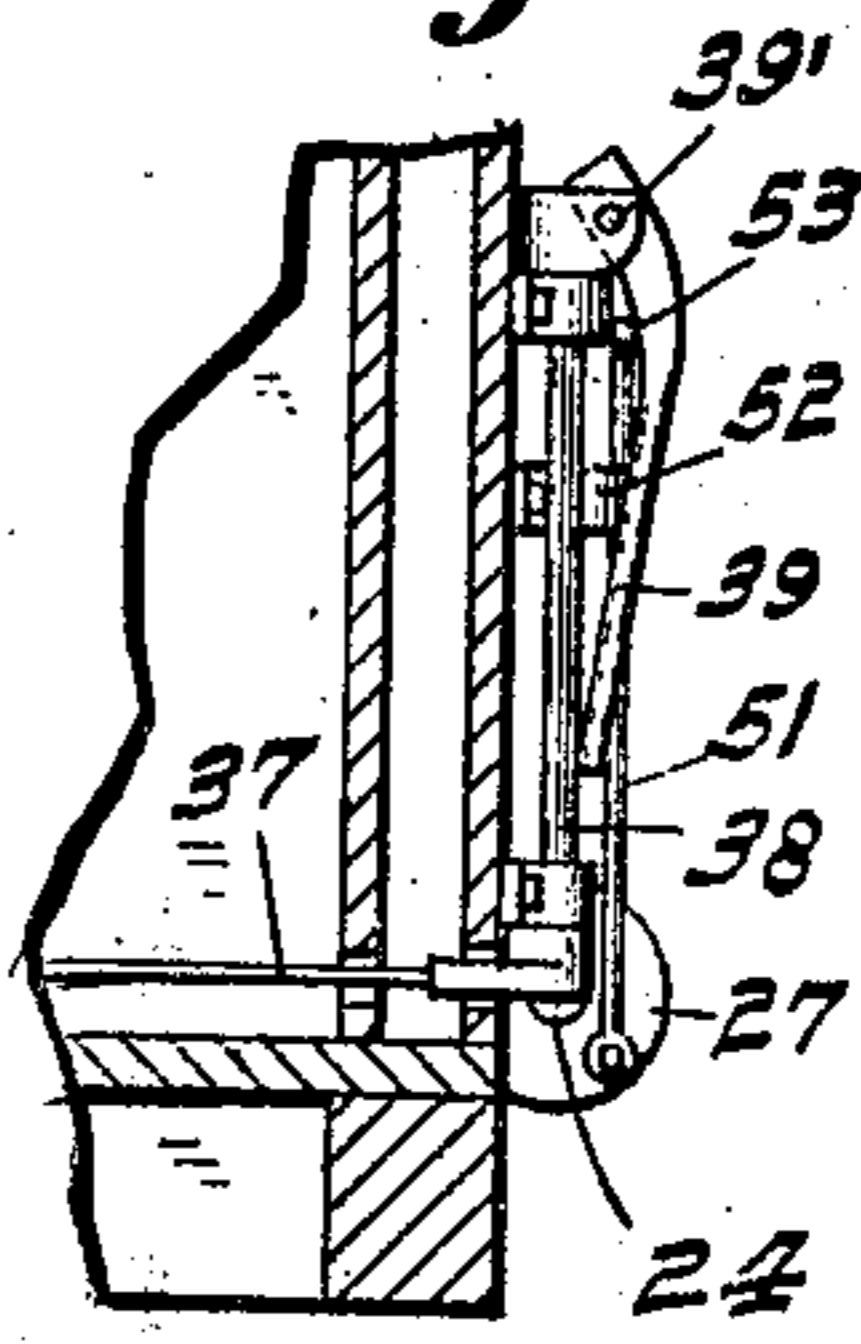


Fig. 8.



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3 SHEETS—SHEET 3.

Fig. 12.

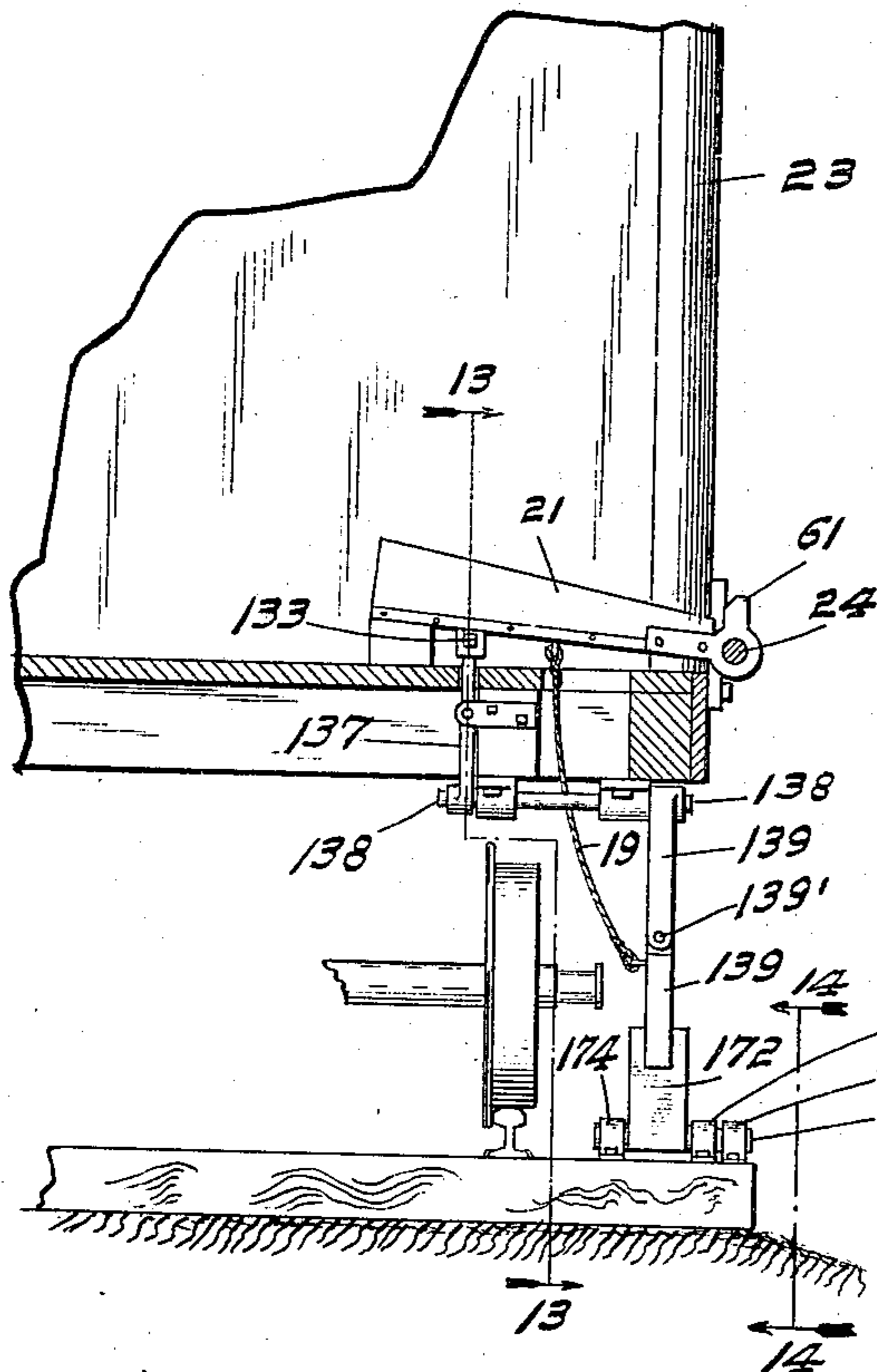


Fig. 13.

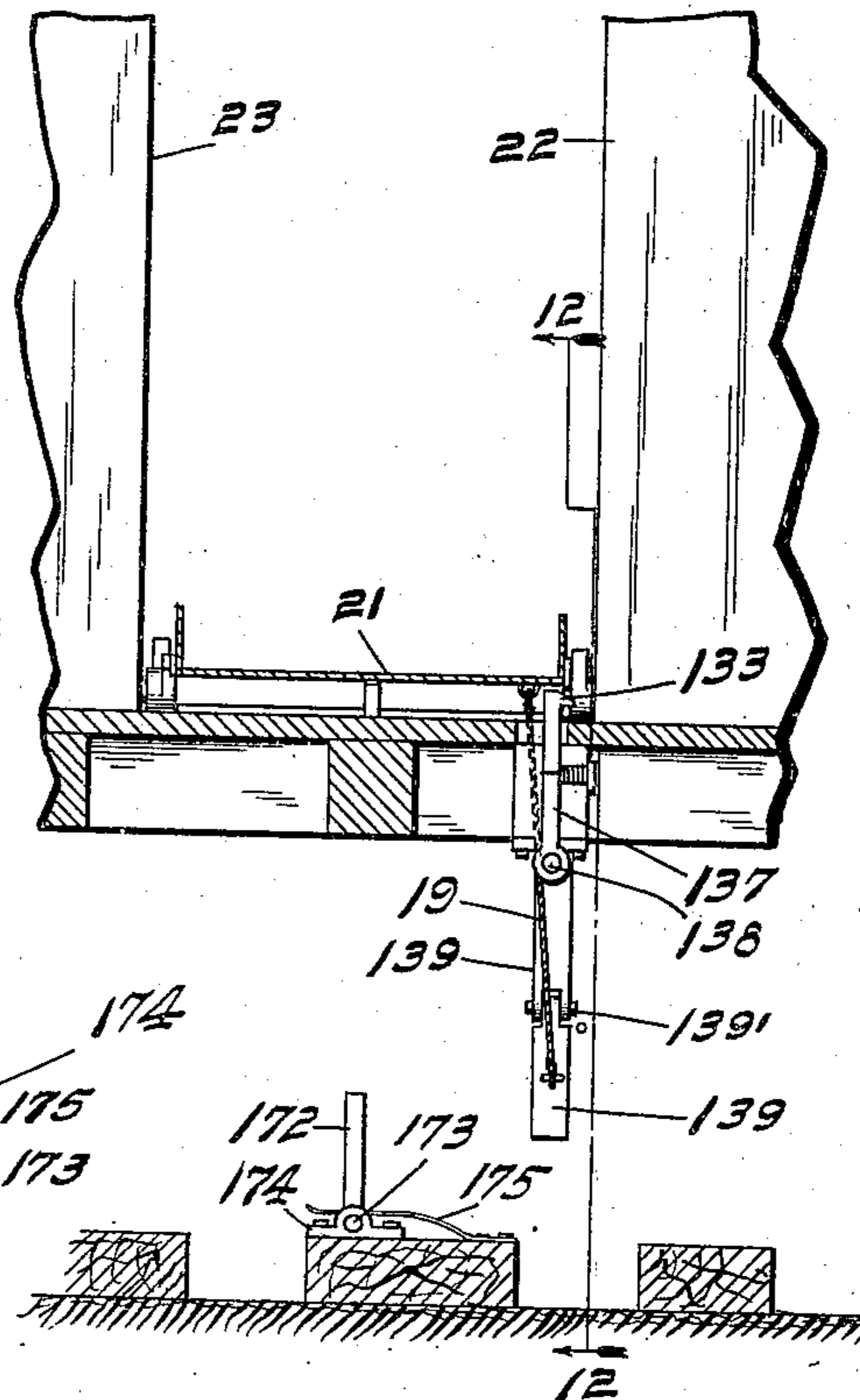


Fig. 14.

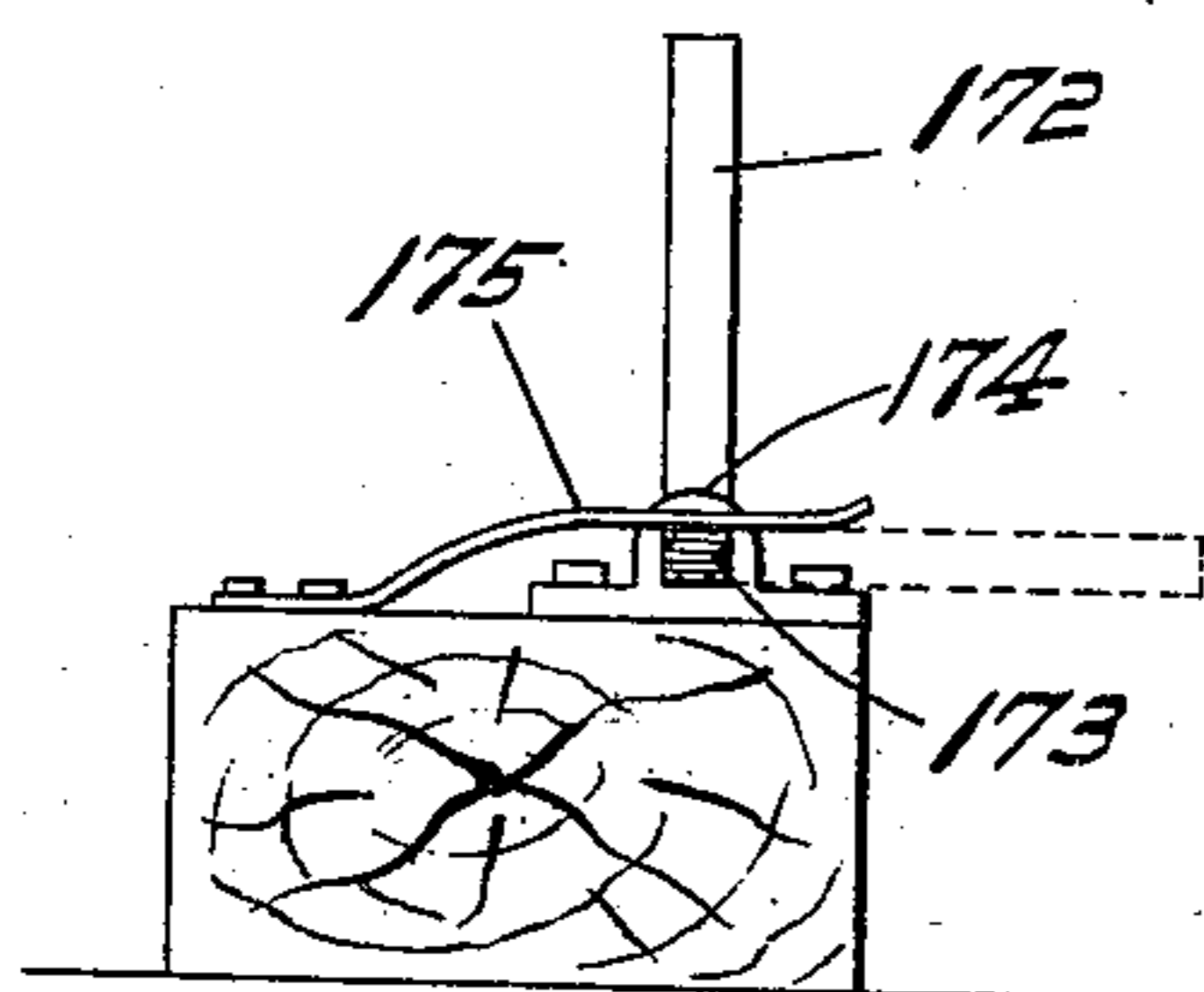
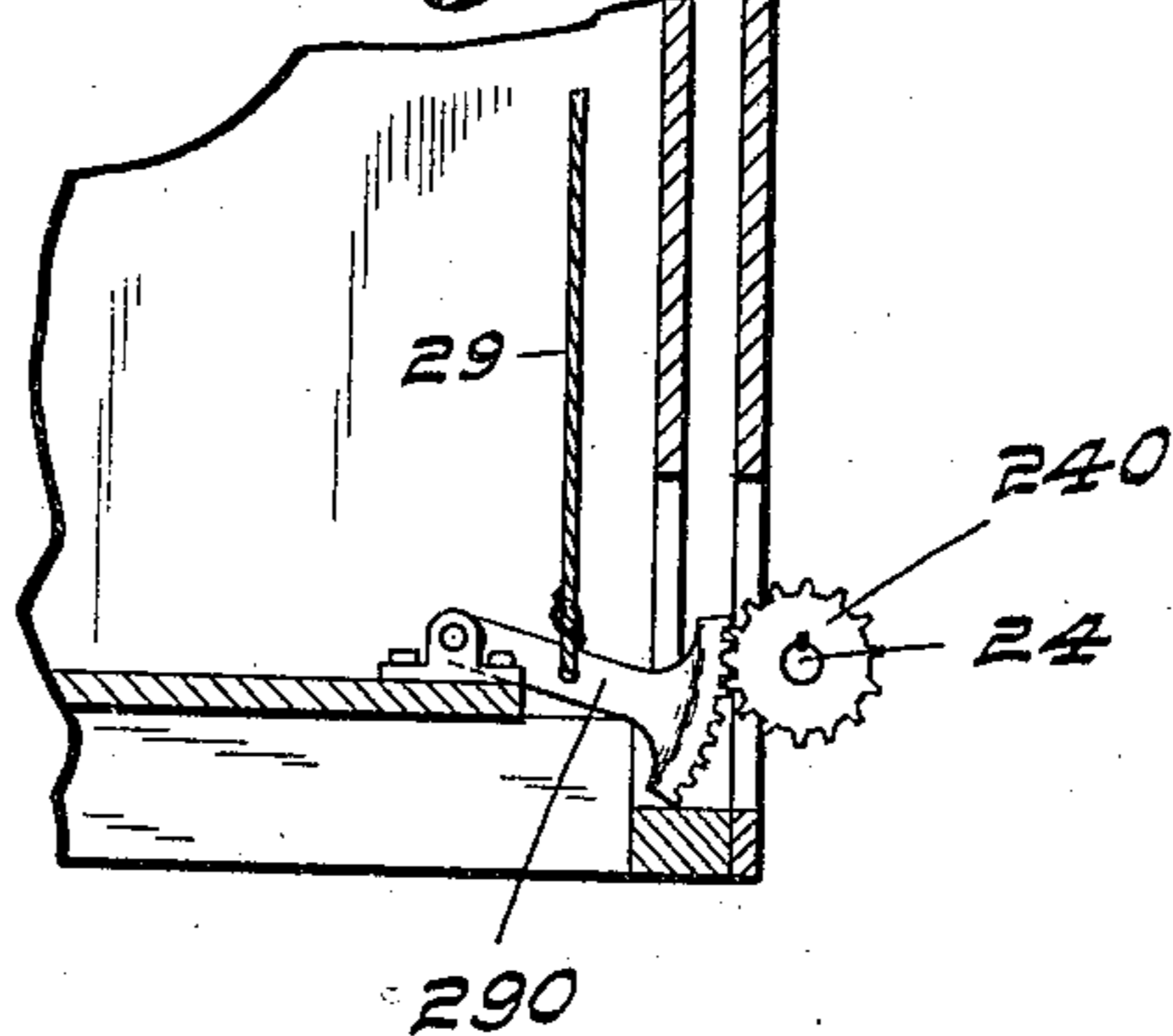


Fig. 15.



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UNITED STATES PATENT OFFICE.

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MAIL-DELIVERING DEVICE.

No. 896,307.

Specification of Letters Patent.

Patented Aug. 18, 1908.

Application filed January 15, 1908. Serial No. 410,884.

To all whom it may concern:

Be it known that I, WILLIAM L. LIGHTFORD, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Mail-Delivering Devices, of which the following is a specification.

The object of my present invention is to provide an efficient means for delivering mail sacks from railway postal cars at stations where it is desired to effect such delivery without stopping the train.

Referring to the accompanying drawings, which are made a part hereof, and on which similar reference characters indicate similar parts, Figure 1 is a perspective view of a fragment of a railway postal car equipped with my improved mail deliverer as it appears when approaching the station where the delivery is to be effected, the actuating device or "strike" being shown in position alongside the railway track; Fig. 2 an elevation of so much of the railway postal car as includes the doorway through which the delivery is effected, and the mechanism positioned adjacent to said doorway by which such delivery is effected; Fig. 3 a horizontal sectional view as seen when looking downwardly from the dotted line 3 3 in Fig. 2, showing the delivering mechanism in plan; Fig. 4 an inside elevation of the doorway and adjacent parts, some parts being shown in section; Fig. 5 a transverse vertical sectional view as seen when looking in the direction indicated by the arrows from the dotted line 5 5 in Fig. 4; Fig. 6 a detail horizontal sectional view as seen when looking downwardly from the dotted line 6 6 in Fig. 5, showing a portion of the operating mechanism in plan; Fig. 7 a detail sectional view of the plan indicated by the dotted line 7 7 in Fig. 4, showing the delivery platform in its raised position as it appears at the time the mail sack has just been delivered; Fig. 8 a view similar to a portion of Fig. 5 except that the parts are in the position after the delivery has been effected, as in Fig. 7; Fig. 9 a detail elevation of the strike and upper portion of the strike support; Fig. 10 a top or plan view of the same; Fig. 11 a detail sectional view as seen when looking in the direction indicated by the arrows from the dotted

line 11 11 in Fig. 9; Fig. 12 a view illustrating an alternative construction and arrangement of the strike and latch-actuating devices as seen when looking in the direction indicated by the arrows from the dotted line 12 12 in Fig. 13; Fig. 13 a sectional view as seen when looking in the direction indicated by the arrows from the dotted line 13 13 in Fig. 12; Fig. 14 a detail view of the strike shown in Figs. 12 and 13 as seen when looking in the direction indicated by the arrows from the dotted line 14 14 in Fig. 12, and Fig. 15 a detail view showing an alternative means of operatively connecting the actuating springs and mail delivering platform.

As already indicated my invention is designed for the purpose of delivering mail sacks from postal cars in the railway mail service. A suitable platform 21 having suitable side and rear walls, the latter of which is inclined inwardly as shown in Fig. 5, is arranged within the doorway of such a car, between the door jambs 22 and 23 thereof. Said platform is mounted on a suitable operating shaft 24 which in turn is mounted in bearings 25 and 26 attached to the wall or frame of the car. Upon said shaft 24 is a winding drum 27, and running from said drum (preferably over a guide pulley or sheave 28) is an operating cable or rope 29.

Secured to the back side of platform 21 is a catch 31. Mounted in a suitable bearing 32 on the floor under said platform is a latch 33 which is normally held into engagement with said catch by springs 34 mounted between keepers 35 also secured to the floor of the car and operating on said latch through a stud 36 thereon. This latch is adapted to be actuated in either direction by an arm 37 carried on a rock shaft 38, which rock shaft has an operating lever 39 adapted to project into the path of the actuating arm or strike positioned alongside the railway track, as will be presently described. This arm is preferably pivotally mounted on pivot 39', so that its position when the apparatus is set ready to be operated can be that best shown in Fig. 5; or the lever may be folded down out of the way, as is shown in Fig. 8. When the shaft 38 is rocked, it will move the latch 33, one way or the other, until its projecting part passes beyond the hook of catch 31, thus permitting said catch to escape, and the

platform 21 to be actuated from the position shown in Fig. 4 to the position shown in Fig. 7.

The movement last mentioned must be a sudden and powerful one. I therefore provide a strong and quickly-acting operating means. This operating means preferably consists of a plurality of powerful springs 41 (two are shown) to which the rope or cable 29 runs and is attached, and these springs serve to give the platform the movement desired. Said springs are too heavy to be given the proper tension by hand, and I therefore have provided an air cylinder 42 within which is a piston 43, and connect said springs to a piston rod 44 by means of a suitable yoke or link 45. The air cylinder is connected to the train line (not shown) by a pipe 46. When it is desired to put the springs in tension, the valve 47 in this pipe is opened, and the air pressure, acting on piston 43, distends the springs, as will be readily understood. When the piston has ascended the distance desired, valve 47 is closed, and the piston is held in its upper position by the confined air until it is desired to release it. It may here be stated that the placing of the mail sacks on the platform 21, and the applying of the air to put the springs into operative condition, is intended to be done only a few moments before the time when the delivery is to be made. After the delivering operation is performed, the air is permitted to escape by opening the release or escape valve 48, when the piston 43 will descend, and the apparatus is in condition to be newly set for a fresh operation.

As heretofore stated the arm 39 is pivotally mounted, and hangs down, idly, close alongside the car, except when it is put in position for operation. The platform 21 also remains in a vertical or out-of-use position during this period, as is shown in Fig. 7. When preparing for a delivery of mail, the platform is pulled down into the position shown in Figs. 4 and 5, so that the catch 31 engages with latch 33 as before explained. This revolves shaft 24 and drum 27 on said shaft, as is obvious. Pivotaly connected to the side of drum 27 is a rod 51 passing up through a guide 52 and having a transverse member 53 on its upper end (which may be formed by merely bending said rod 51 transversely) and this transverse member passes below arm 39. The proportions are such, that when the platform 21 is drawn down to the position shown in Fig. 5, rod 51 with its transverse member 53 will raise arm 39 from the position shown in Fig. 8 to the position shown in Fig. 5. When platform 21 moves to the position shown in Fig. 7, rod 51 descends, permitting arm 39 to swing down to the position shown in Fig. 8.

The movement of platform 21, as before stated, is a sudden and powerful one, under

the impulse of the strong, heavy springs 41. In order to deliver the mail sacks properly, the movement of platform 21 must be arrested at a certain point. It is also desirable that means should be provided to absorb the shock of this sudden arrest of movement, and I therefore form short arms 61 on the hubs by which platform 21 is secured to shaft 24, and arrange in the paths of these projections buffer springs 62, which are preferably coiled or rubber springs mounted in sockets 63 secured to the frame of the car, all as is best shown in Fig. 7. These buffer springs are so proportioned and arranged as to hold platform 21 in a substantially vertical position when projections 61 are resting thereon and the apparatus is in its at-rest or out-of-use position.

At each point along the railway track where it is desired to effect a delivery of mail, I provide a strike which, when the delivery apparatus on the car is set for operation projects into the path of the arm 39. The contact of arm 39 with this strike rocks the shaft 38 in its bearings, releasing latch 33 from its engagement with catch 31, and permitting platform 21 to escape and be operated by springs 41, as has already been fully described. In the arrangement illustrated in the principal figures of drawing I have shown this strike apparatus as consisting of a post or strike-support 71 erected alongside the railway track and having an arm or strike composed of two parts 72 and 73 hingedly connected by pivot 74, and secured as a whole to the top of post 71 by vertical pivot 75. The pivot 74 is at such a point relatively to the edge of the cap 76 on post 71 that when in the position shown by the full lines (see especially Fig. 10) the arm-portion 73 extends out horizontally, but, when forced to one side, it will drop down to the position shown by the dotted lines in Fig. 10. This arm-portion 73 has a substantially vertical arranged projecting portion 77 which is adapted to come into immediate contact with arm 39. The upper surface of cap 76 on which arm-portion 73 rests as a seat for said arm-portion, which may conveniently be provided by means of upwardly projecting lip 78 (see Fig. 11), and above this seat is a spring 79 which tends to hold these parts in contact, and prevent the arm from being swung around from the position shown in full lines in Fig. 10 to the position shown by the dotted lines therein. This resistance is enough to cause the arm 73 to actuate arm 39 and rock shaft 38 sufficiently to disengage the latch 33 from catch 31, but will permit arm 73 to be swung out of the way by arm 39 as soon as the unlatching operation has been effected. In other words, the resistance is sufficient to cause the desired operation, but is not sufficient to damage any of the parts.

In Figs. 12, 13 and 14 I have shown a somewhat different form of strike apparatus. In this case rock shaft 138 (corresponding to shaft 38 in the principal views) is placed horizontally below the car, and actuates lever 137 to operate latch 133 which engages with catch on platform 21 the same as before. The arm 139 which projects downwardly from shaft 138 is composed of two parts connected by pivot 139'. The lower portion of this arm is connected to platform 21 by means of a rope 19, so that when the platform is up in the position shown in Fig. 7, the lower end of this arm is held up out of the path of the strike. The strike itself, instead of being carried by the post in the ground alongside the track, consists of an arm 172 mounted on shaft 173, which shaft is shown as mounted in bearings 174 on a convenient railway tie. A portion of this shaft is squared (see especially Fig. 14) and a flat spring 175 rests upon the squared portion. This strike when in operative position extends up into the path of arm 139, as shown by the full lines in Figs. 12, 13 and 14, and when out of operative position is drawn down as shown by the dotted lines in Fig. 14.

Fig. 15 is merely to illustrate the interposition of a segment 290 and a gear wheel 240 between cable 29 and shaft 24, instead of passing said cable directly around a drum on said shaft and thence over a sheave as in the principal figures.

I claim as my invention:

1. The combination, in a mail deliverer for railway postal cars, of a horizontal shaft arranged adjacent to the doorway of such car, a platform mounted on said shaft adapted to hold the mail sacks during the delivering operation, a suitable latching mechanism by means of which the platform is held to its horizontal position, mechanism for operating said latching mechanism extending to outside the car, a suitable strike positioned adjacent to the railway track and adapted to extend into the path of a member of said operating mechanism, operating springs for the delivering platform, a connection between said springs and the shaft on which said platform is mounted, a piston also connected to said spring, a pipe connecting said springs with the train line, a valve in said pipe, and a release valve also attached to said cylinder.

2. The combination, in a mail deliverer

for railway mail cars, of a delivering apparatus, springs connected thereto by which the same may be actuated, a cylinder and piston for putting said springs in tension, and a suitable connection between said cylinder and the train line.

3. The combination, in a mail deliverer, of the delivering platform, means for actuating the same, latching mechanism whereby the platform is held against force of said actuating means until released, a strike positioned alongside the track, an arm extensible out into the path of said strike, intermediate connections between the platform and arm serving to extend the arm when the platform is in receiving position, and a connection between said arm and said latching mechanism whereby the latter will be released when the arm comes in contact with the strike.

4. The combination, in a mail deliverer for railway mail cars, of a shaft positioned adjacent to the doorway of such car, a platform to receive the mail sack mounted on said shaft, power devices for operating said shaft, a platform latching mechanism for holding the platform against the pull of said power devices until released, a strike arranged adjacent to the railway track, latch-operating mechanism extending to outside the car and terminating in a pivoted arm, a rod pivoted eccentrically to and carried by said shaft and adapted to be engaged by the strike when the platform is loaded but to permit said arm to fall out of the path of the strike when the platform has discharged its load.

5. The combination, in a mail deliverer for railway mail cars, of a shaft mounted adjacent to the doorway of the car, a mail sack carrying platform mounted on said shaft, power devices for operating said platform, means for holding said platform against action of said power devices until disengaged, means arranged alongside the railway track for actuating said power devices, and yielding stops for yieldingly limiting the movement of the mail sack carrying platform.

In witness whereof, I, have hereunto set my hand and seal at Indianapolis, Indiana, this thirteenth day of January, A. D. one thousand nine hundred and eight.

WILLIAM L. LIGHTFORD. [L. S.]

Witnesses:

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THOMAS W. McMEANS.