

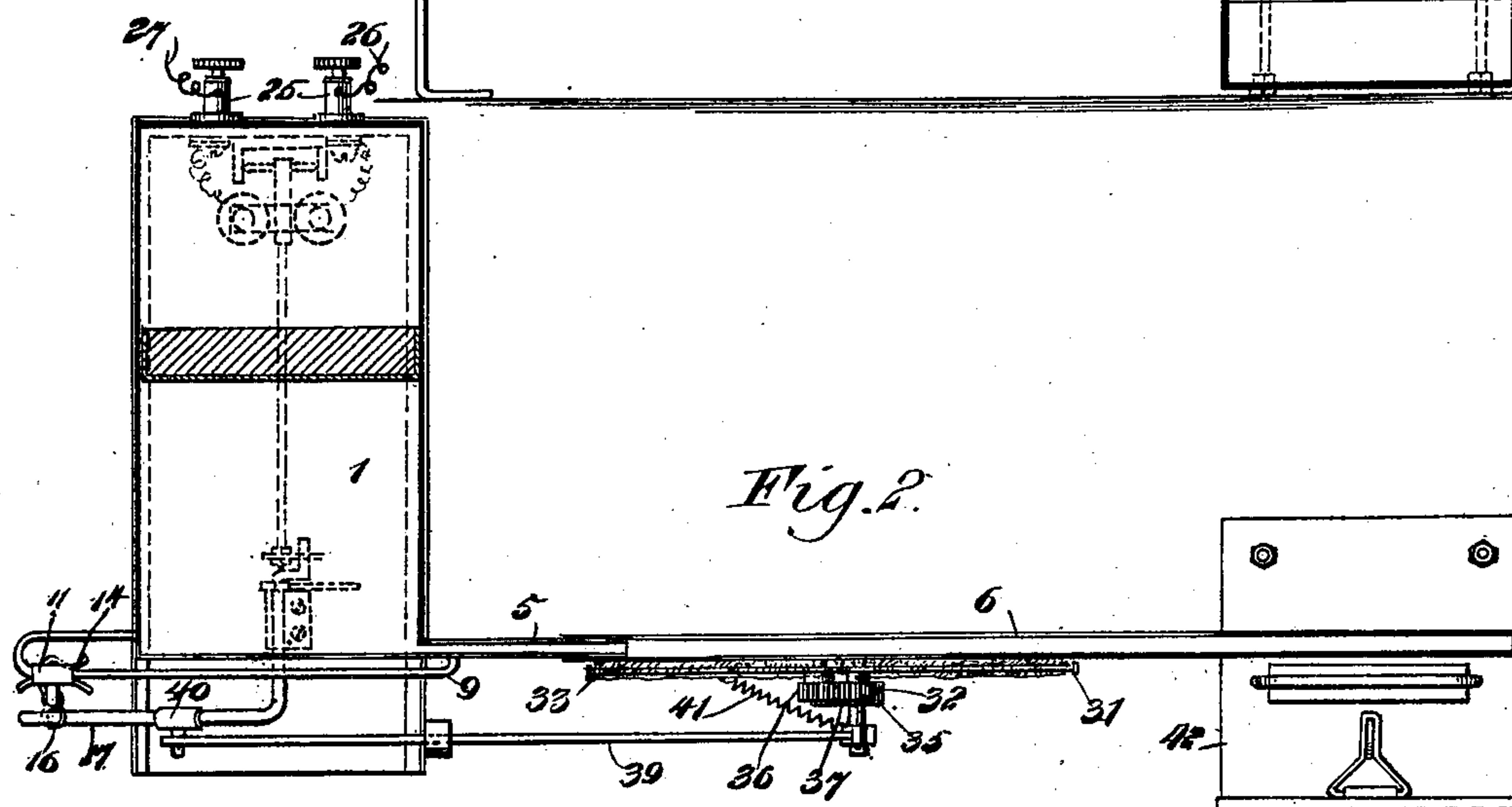
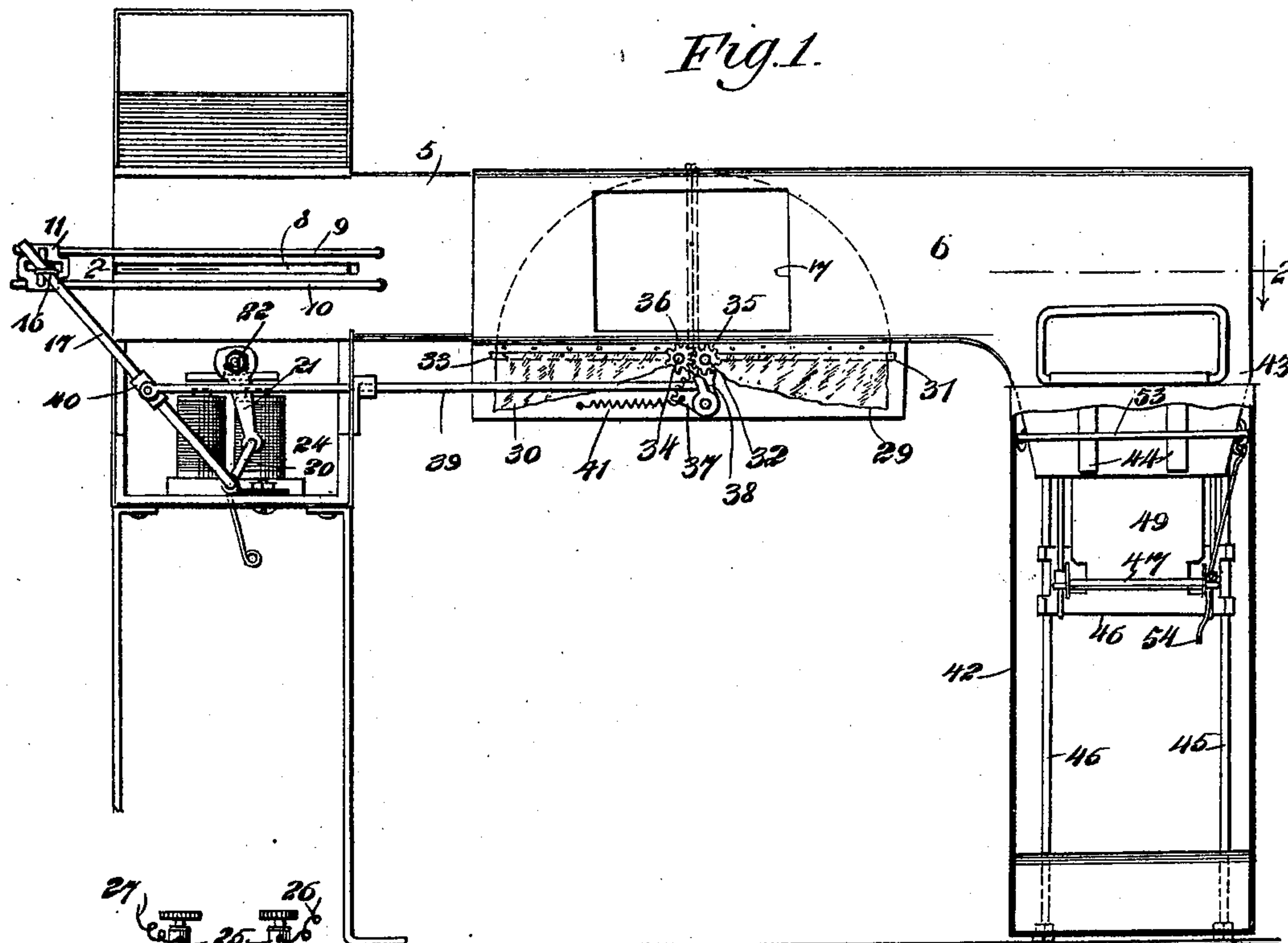
(No Model.)

3 Sheets—Sheet 1.

H. NEWMAN.
LANTERN SLIDE MOVING DEVICE:

No. 590,903.

Patented Sept. 28, 1897.



WITNESSES:
Paul J. ...
C. A. Ferguson

INVENTOR
H. Newman
BY *Munn & Co.*
ATTORNEYS.

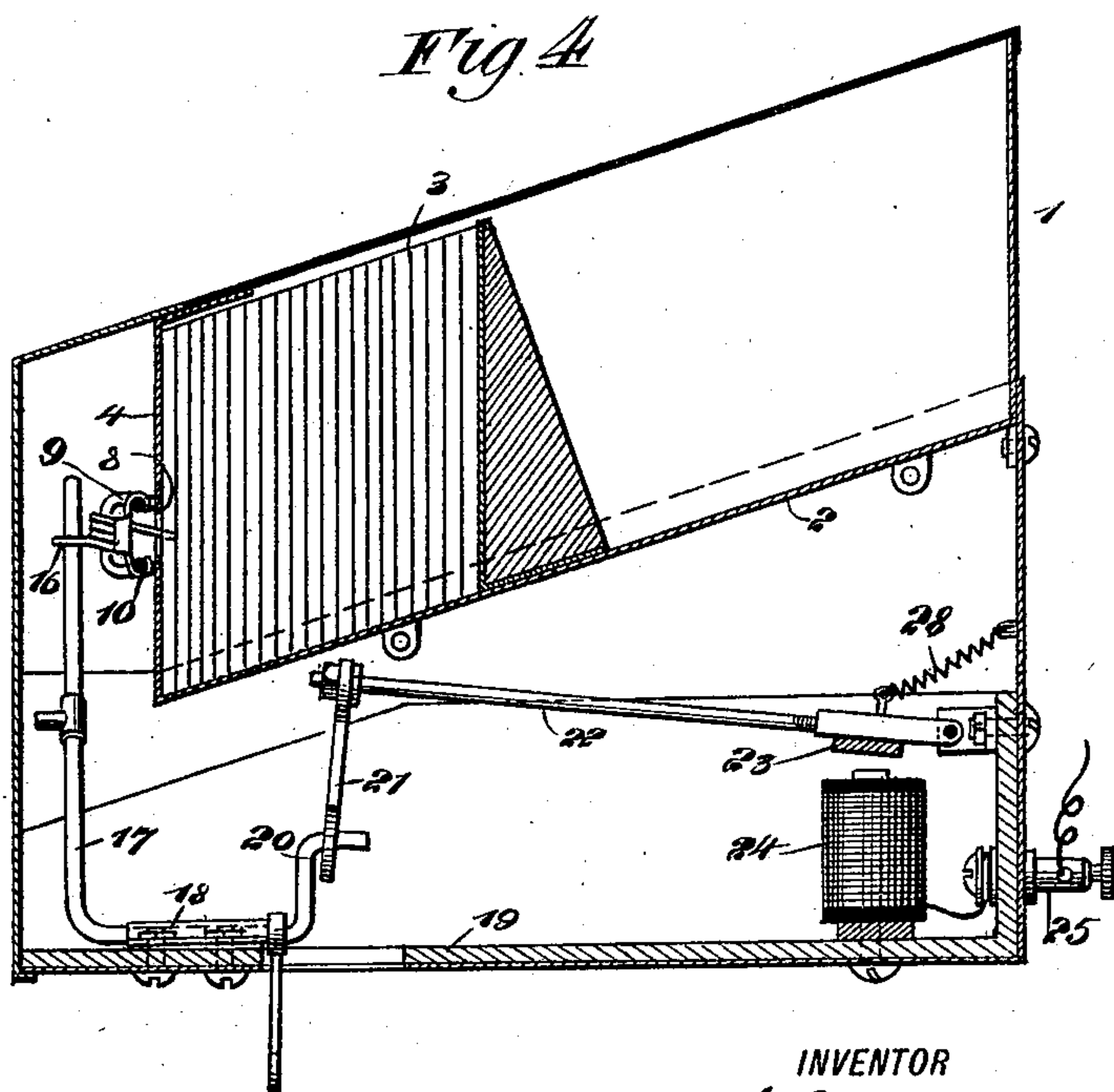
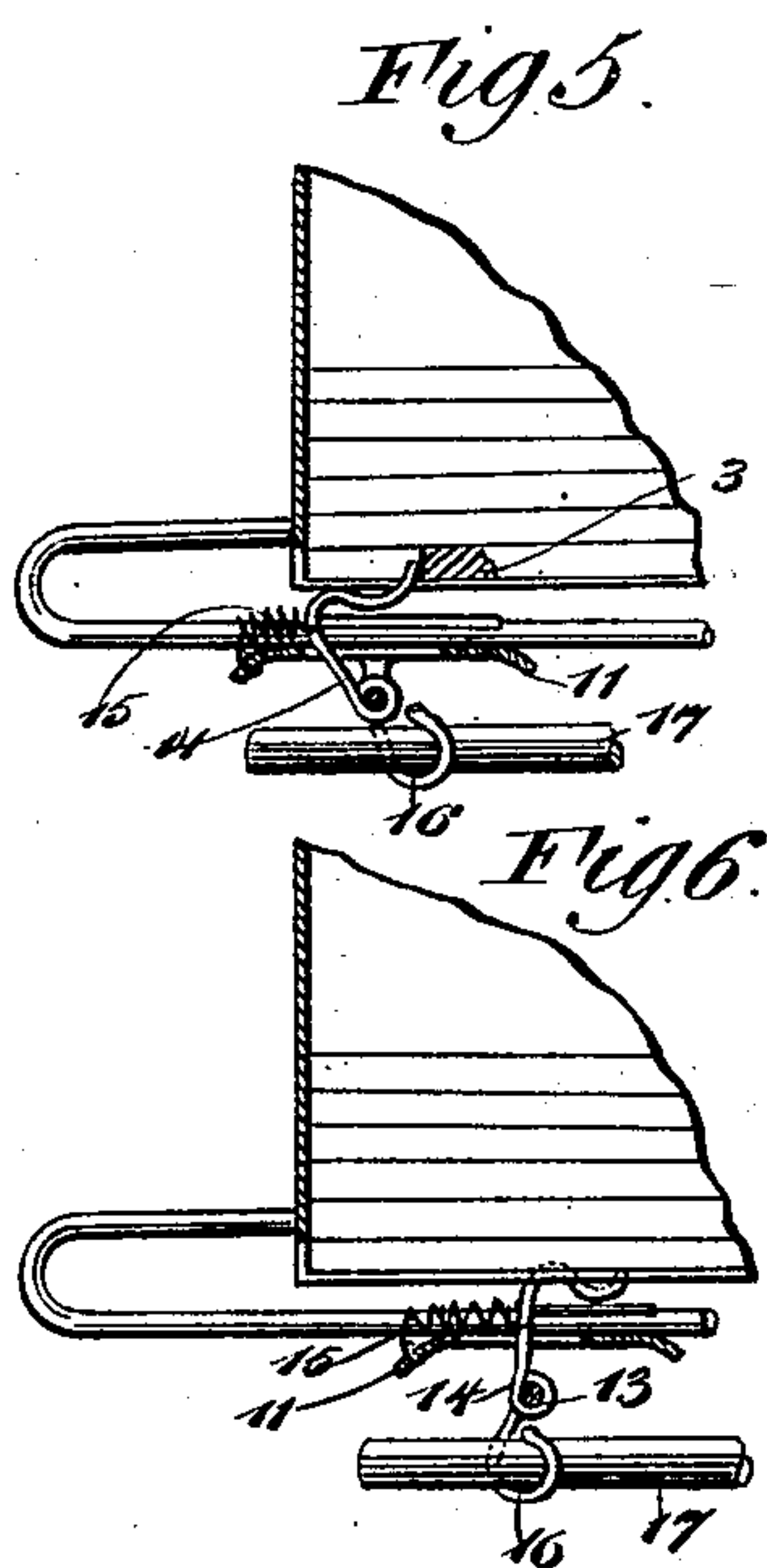
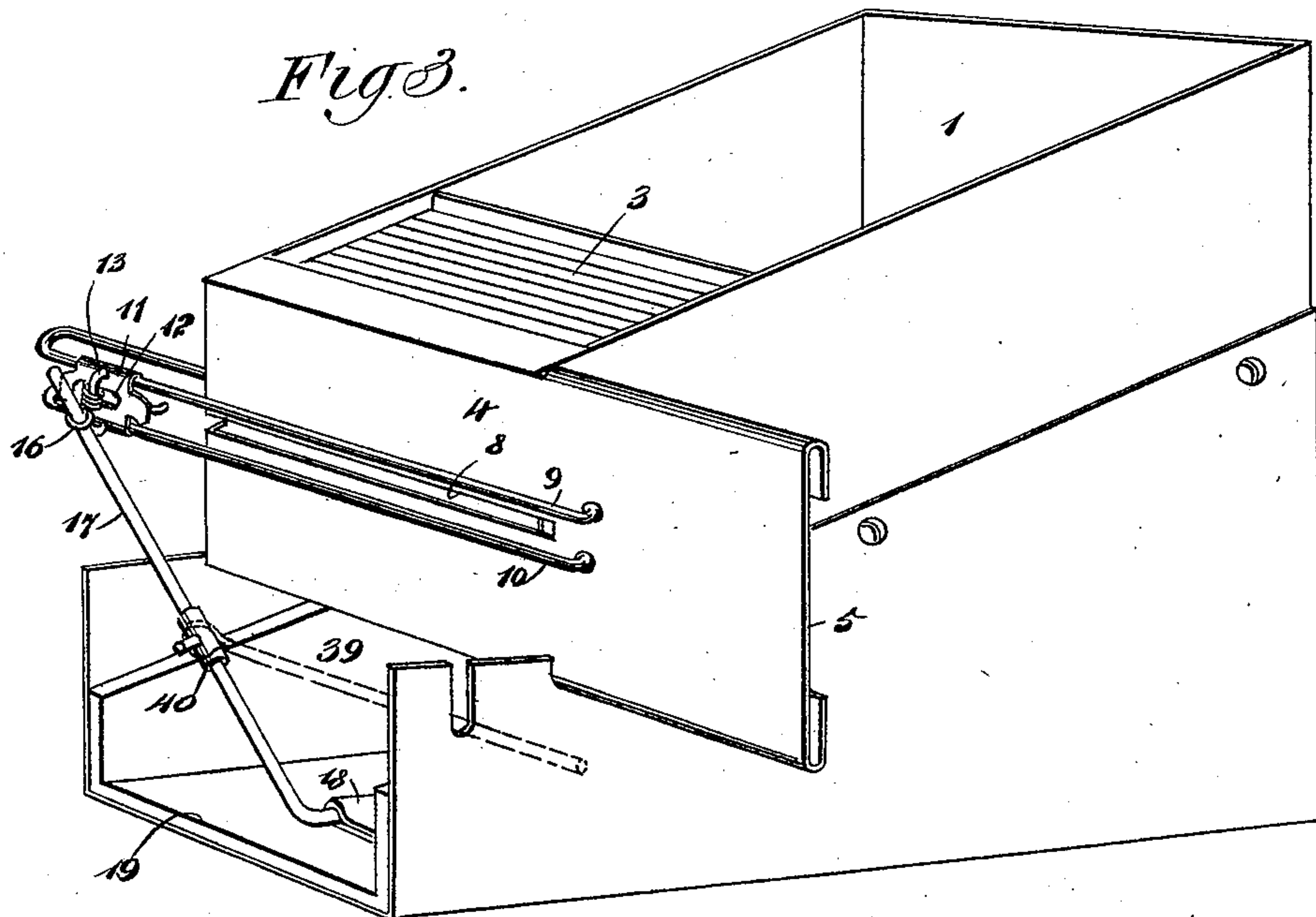
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WITNESSES:
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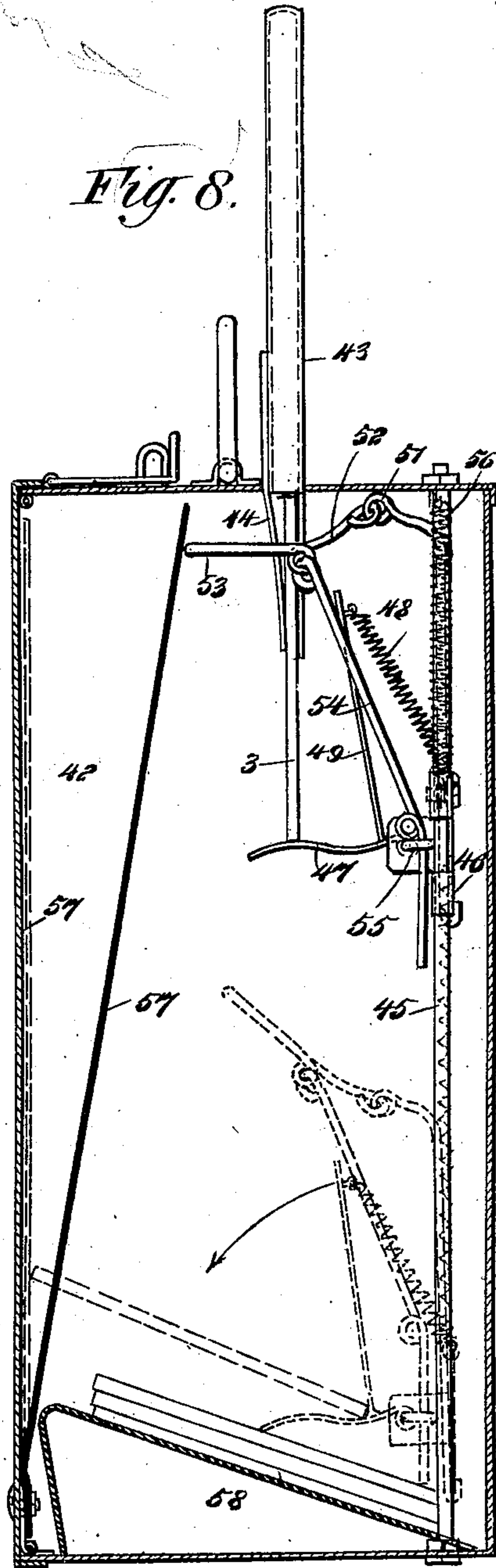
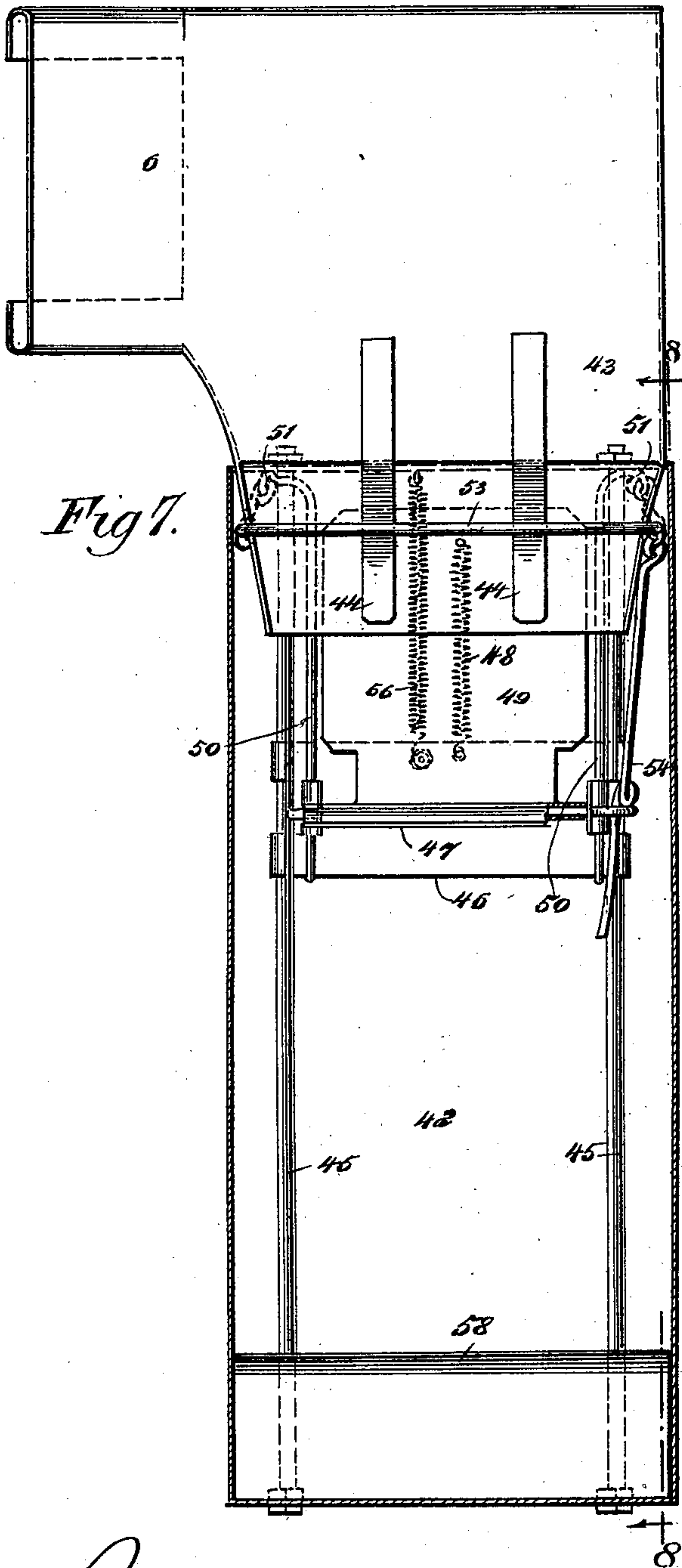
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3 Sheets—Sheet 3.

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LANTERN SLIDE MOVING DEVICE.

No. 590,903.

Patented Sept. 28, 1897.



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UNITED STATES PATENT OFFICE.

HUGO NEWMAN, OF NEW YORK, N. Y.

LANTERN-SLIDE-MOVING DEVICE.

SPECIFICATION forming part of Letters Patent No. 590,903, dated September 28, 1897.

Application filed September 22, 1896. Serial No. 606,674. (No model.)

To all whom it may concern:

Be it known that I, HUGO NEWMAN, of New York, (Fordham Heights,) in the county and State of New York, have invented a new and
5 Improved Lantern-Slide-Moving Device, of which the following is a full, clear, and exact description.

This invention relates to devices for moving slides to and from a projecting or magic
10 lantern; and the object is to provide a device whereby a lecturer or other party at a distance from the lantern may cause a series of slides to be moved consecutively in front of the lens of the lantern, thus placing the move-
15 ment of the slides directly under the control of the lecturer and dispensing with the usual attendant.

I will describe a lantern-slide-moving device embodying my invention, and then point
20 out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

25 Figure 1 is a front elevation of a device embodying my invention, a portion of the same being broken away to more clearly show other parts. Fig. 2 is a section on the line 2-2 of Fig. 1. Fig. 3 is a perspective view of a
30 magazine for slides. Fig. 4 is a vertical section thereof. Fig. 5 is a detail showing a device for engaging with a slide for moving it. Fig. 6 is a similar view, but showing the engaging device in another position. Fig. 7 is
35 a vertical section of a slide-receiver embodied in the invention, and Fig. 8 is a section on the line 8-8 of Fig. 7.

The invention comprises a box or magazine
40 1, having extended longitudinally of it a downwardly and forwardly inclined floor 2, upon which the lower edges of the slides 3 rest. At the forward end a vertical wall 4 extends upward from the inclined floor 2. The space below the floor 2 is designed to receive a motor for moving the plates, as will
45 hereinafter be described.

The forward portion of the slide-magazine 1 communicates with a lateral guideway 5, which, as here shown, communicates with a
50 guideway 6, provided with an opening 7, through which the illustrations are projected. The section 5 of the guideway is shown as

telescoping into the section 6. Therefore it is obvious that the length of the guideway may be adjusted as desired. The front wall
55 4 of the magazine 1 is provided with a horizontal slot-opening 8. Arranged above this slot-opening 8 is a guide-rod 9, and below said slot-opening is another guide-rod 10. These guide-rods 9 and 10 are secured at one end to
60 the front wall or to the front of the guideway-section 5 and extend a short distance beyond the side of the magazine and are then returned to a connection with said side of the magazine. Mounted to slide on these guide-
65 rods 9 and 10 is a plate 11, having an opening 12 through it and having secured to its front side a bar 13. Pivoted on this bar 13 is a shifting finger 14. This shifting finger 14 extends through the opening 12 and at its
70 inner end is curved forward and rearward, so that it may be extended through the slot-opening 8 in the front wall 4 of the magazine 1. A spring 15, attached at one end to the
75 shifting finger 14 and at the other end to the plate 11, serves to normally hold said finger with its inner end within the slot 8 and against the edge of the lantern-slide.

The outer portion of the shifting-finger 14 is provided with a ring 16, which engages
80 loosely around a lever 17, extended downward and mounted to rock in a bearing 18, secured to the bottom 19 of the magazine 1. This lever 17 terminates in a crank-arm 20, and from this crank-arm 20 a link 21 extends to a connec-
85 tion with a rod 22, extended from an armature 23, coacting with electromagnets 24. The electromagnets are in connection with binding-posts 25, from which line-wires 26 and 27 may extend to any desired point where a con-
90 trolling-switch may be placed. It is obvious that when the electromagnets 24 are energized the armature 23 will be drawn downward, and by turning the crank-arm 20 the lever 17 will
95 be turned, and the movement of this lever 17 will cause the plate 11 to move longitudinally of the guide-rods 9 and 10, and the inner end of the shifting finger 14, engaging with a slide-plate, will move the same into the guideway. Upon the return movement of said lever the
100 shifting finger 14 will be turned on its pivot, with the inner end engaging against the surface of a slide-plate in the magazine, and of course after the shifting finger shall have

passed the said plate in the magazine the spring 15 will move the finger so that its inner end will engage with the front slide in the magazine, and when this second plate is moved forward it will engage against the first plate and move said first plate in line with the opening 7, behind which the lens of the lantern is placed. When the electromagnets 24 are deenergized, the armature 23 may be raised by means of a spring 28, and this upward movement of the armature 23 will shift the lever 17 to its normal position.

It is desirable before the slides are moved across the opening 7 that a closure shall be moved across said opening. This closure consists of two strips 29 and 30 of flexible material. One edge of the strip 29 is secured to the lower portion of the guideway 6 and the other edge is secured to a rod 31, extended from a shaft 32. One edge of the strip 30 is similarly attached to the guideway 6 and at the other end to a rod 33, extended from a shaft 34. On the shaft 32 is a pinion 35, meshing with a pinion 36 on the shaft 34. Meshing with the pinion 35 is a segment-gear 37, and on the shaft of this segment-gear 37 is a finger 38, designed to be engaged by a push-rod 39, extended through a suitable guide and having a slide connection 40 with the lever 17. The object in extending the guide-rods 9 and 10 beyond the side of the magazine 1 is to provide for a sufficient initial movement of the lever 17 to close the closures or curtains 29 and 30 before the shifting finger 14 engages with a slide in the magazine. Therefore it will be seen that upon the initial movement of said lever the push-rod 39, engaging with the finger 38, will rock the segment-gear 37, and this segment-gear 37 will rotate the pinion 35, and the pinion 35 will rotate the pinion 36 in the opposite direction, so that the closures or curtains will be moved into the position indicated in dotted lines in Fig. 1. Upon the return movement of the lever 17 a spring 41, engaging at one end with the segment 37 and at the other end with a fixed portion of the guideway, will cause the segment 37 to move to its normal position to open the closures or curtains.

The several plates are consecutively discharged from the guideway 6 into a receiver 42, consisting of a suitable box. The guideway 6 has a downwardly-extended portion 43, which extends through an opening in the top wall of the receiver and communicates with the interior of said receiver. Spring-fingers 44 may be attached to the lower end of the downwardly-extended portion 43 and adjusted to bear more or less upon a slide 3, as may be desired, so as to prevent its falling too rapidly.

Movable on vertical guide-rods 45, within the receiver 42, is a carriage 46. Mounted to swing on a rod supported by the carriage or plate 46 is a tilting table 47. This tilting table 47 extends transversely of the receiver and is designed to support the slides 3 while

the same are being carried downward. The table 47 is held yieldingly in its normal or substantially horizontal position by means of a spring 48, engaging at one end with the plate 46 and at the opposite end with a back plate 49, extended upward from the tilting table 47. Rods 50 extend upward from the plate 46, and at their upper ends these rods 50 are turned forward and provided with eyes 51, with which are loosely engaged the side members 52 of the yoke 53.

From one of the side members 52 of the yoke 53 a tripping-rod 54 extends downward through a guide-eye 55 on the plate 46, and the lower end of this trip-rod projects below the lower edge of said plate 46. From the plate 46 a spring 56 extends upward to a connection with the top of the receiver 42. This spring 56 must be sufficiently flexible to allow the plate 46 and the parts carried thereby to move downward when aided by the weight of the slide engaging on the table 47.

In operation when a slide 3 strikes the tilting table 47 the carriage comprising the plate 46 and table 47 will move downward, and when the slide shall have been released from the spring-fingers 44 it will tip forward, so that its upper edge will engage with the yoke 53, and on the continued downward movement of the carriage the end of the tripping-rod 54 will engage with the lower wall of the receiver 42 or with the top slide that may have been previously deposited therein, and then as the carriage continues, the trip-rod 54 remaining stationary, the yoke 53 will be swung upward out of engagement with the slide, so that said slide may fall downward and be deposited in the receiver.

To relieve the falling slide from shock that would be liable to break it, I preferably employ a spring-yielding plate 57, secured at its lower end to the front wall of the receiver, which in this instance is a hinged door, the said plate being inclined upward and inward. As the carriage moves upward under the influence of the spring 56 the table 47 will tilt sufficiently to disengage itself from the edge of the slide, and after such disengagement the spring 48 will return it to its normal position. If desired, the bottom of the receiver 42 may be provided with an inclined platform 58.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A lantern-slide-moving device, comprising a magazine, a longitudinally-adjustable guideway provided with an opening and communicating with said magazine, and means for moving a lantern-slide from said magazine into the guideway, substantially as specified.

2. A lantern-slide-moving device, comprising a magazine, a longitudinally-adjustable guideway communicating therewith and having an opening through which lantern-slides are disclosed, a closure for said opening,

means for moving the slides from the magazine into said guideway, and means for operating said closure, substantially as specified.

3. A lantern-slide-moving device, comprising a magazine, a lateral guideway communicating with the forward portion of said magazine and formed in sections, whereby it is longitudinally adjustable, one of said sections being provided with an opening for the disclosure of lantern-slides, and means for moving a lantern-slide from said magazine into the guideway, substantially as specified.

4. A lantern-slide-moving device, comprising a magazine, a guideway communicating therewith and having an opening through which lantern-slides are disclosed, a closure for said opening, a spring-pressed shifting finger adapted to extend through a slot-opening in the wall of said magazine, means for moving the said shifting finger to carry the slides from the magazine into said guideway, and means for operating said closure, substantially as specified.

5. A lantern-slide-moving device comprising a magazine having a slot-opening in its front wall, a guideway communicating with said magazine and provided with an opening for the disclosure of slides, the said guideway being formed in telescopic sections, whereby the length of the guideway may be adjusted, a spring-pressed shifting finger adapted to extend through the slot-opening in the wall of the magazine and engage a lantern-slide, and means for moving said shifting finger to carry a lantern-slide from said magazine into the guideway, substantially as specified.

6. A lantern-slide-moving device, comprising a magazine, a guideway for lantern-slides communicating therewith and having an opening through which the slides may be disclosed, a pivoted and spring-pressed shifting finger adapted to extend through a slot-opening in the front wall of the magazine, a lever for moving said shifting finger, and means for operating the lever, substantially as specified.

7. A lantern-slide-moving device, comprising a magazine having a slot-opening in its front wall, a guideway communicating with said magazine and having an opening for the disclosure of slides, a plate movable across the front wall of the magazine, a shifting finger pivotally connected to said plate and adapted to engage its inner end with the edge of a slide, a lever loosely engaging with the outer end of said finger, and an electric motor for operating said lever, substantially as specified.

8. A lantern-slide-moving device, comprising a magazine for lantern-slides, a guideway communicating with said magazine and having an opening for the disclosure of lantern-slides, guides arranged on the front wall of the magazine, a plate movable on said guides, a shifting finger pivotally connected with said plate and adapted to pass through a slot-opening in the front wall of the magazine to

engage with the slide, a lever loosely engaging with the outer end of said finger, a crank connecting with said lever, an electromagnet, an armature coacting therewith, a connection between said armature and the crank of the lever, and electric connections whereby the electromagnet may be controlled from a distance, substantially as specified.

9. A lantern-slide-moving device, comprising a magazine having a slot-opening in its front wall, a guideway communicating with said magazine and having an opening for the disclosure of slides, guides arranged on the front wall of the magazine and extending beyond the side thereof, a shifting device movable on said guides and adapted to pass through the slot-opening in the front wall of the magazine, a lever for operating the said shifting device, the said lever normally holding the shifting device on the extended portion of the said guides at the side of the magazine, means for operating said lever, a closure for the opening in the guideway, and means for operating said closure on the initial movement of the said lever and before the engagement of the shifting device with a slide in the magazine, substantially as specified.

10. A lantern-slide-moving device, comprising a magazine for lantern-slides, a guideway communicating with said magazine and having an opening for the disclosure of a slide, a closure for the said opening in the guideway, a push-rod for operating said closure, a swinging lever with which said push-rod has a sliding connection, and means carried by said lever to shift a slide from the magazine into said guideway, substantially as specified.

11. A lantern-slide-moving device, comprising a magazine having a slot-opening in its front wall, a guideway for lantern-slides communicating with said magazine and having an opening for the disclosure of a slide, intermeshing pinions below said opening, rods extended from the shafts of said pinions, a flexible material connected at one edge to said rods and at the other edge to the guideway, a segment-gear meshing with one of the pinions, a finger on the shaft of said segment-gear, a push-rod engaging with said finger, a swinging lever with which said push-rod has a sliding connection, and means carried by said swinging lever to shift a slide from the magazine into the guideway, substantially as specified.

12. A lantern-slide-moving device, comprising a magazine, a guideway for slides communicating therewith, means for shifting a slide from the magazine into the guideway, a receiver for slides and with which an open end of said guideway communicates and lowering mechanism in the receiver operated by the weight of a slide, substantially as specified.

13. In a lantern-slide-moving device, the combination with a magazine for slides, a guideway leading therefrom, and means for

shifting slides from the magazine to the guideway, of a receiver with which an open end of said guideway communicates, a vertically-movable carriage in said receiver adapted to
5 be moved downward by the weight of a slide, and means for moving said carriage upward after discharging a slide, substantially as specified.

14. In a lantern-slide-moving device, the
10 combination with a magazine, a guideway and a shifting device, of a receiver, with the interior of which the guideway communicates, guide-rods extended vertically in said receiver, a plate movable on said guide-rods,
15 a table pivotally connected to the plate, a spring for supporting said table in a substantially horizontal position, a swinging yoke carried by the plate, and a trip-rod for swinging said yoke upward to disengage it
20 from a slide, substantially as specified.

15. In a lantern-slide-moving device, the

combination with a magazine, a guideway and a shifting device, of a receiver, with the interior of which the guideway communicates, guide-rods extended vertically in said
25 receiver, a plate movable on said guide-rods, a spring extended from said plate to a connection with the upper wall of the receiver, a tilting table carried by said plate, a spring
30 extended from the plate to a plate extended upward from the tilting table, rods extended upward from the plate on the guide-rods, a yoke having a swinging connection with said
rods, and a rod having pivotal connection
35 with said yoke and extended through a guide to a point below the lower edge of the plate on the guide-rod, substantially as specified.

HUGO NEWMAN.

Witnesses:

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A. A. HOPKINS.