

No. 786,683.

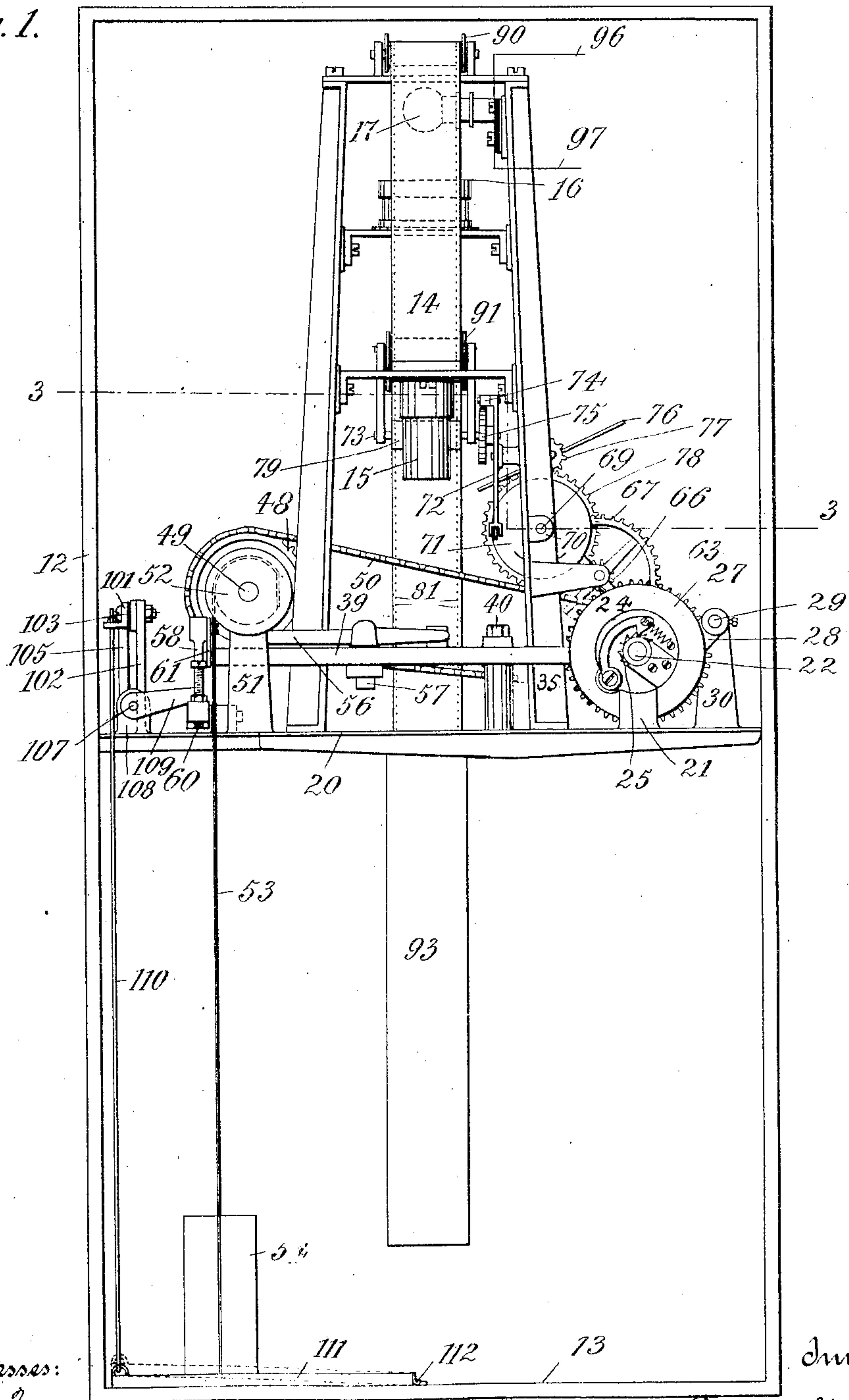
PATENTED APR. 4, 1905.

J. ROEVER & S. S. BALDWIN.  
MOVING PICTURE EXHIBITOR.

APPLICATION FILED APR. 27, 1904.

4 SHEETS—SHEET 1.

Fig. 1.



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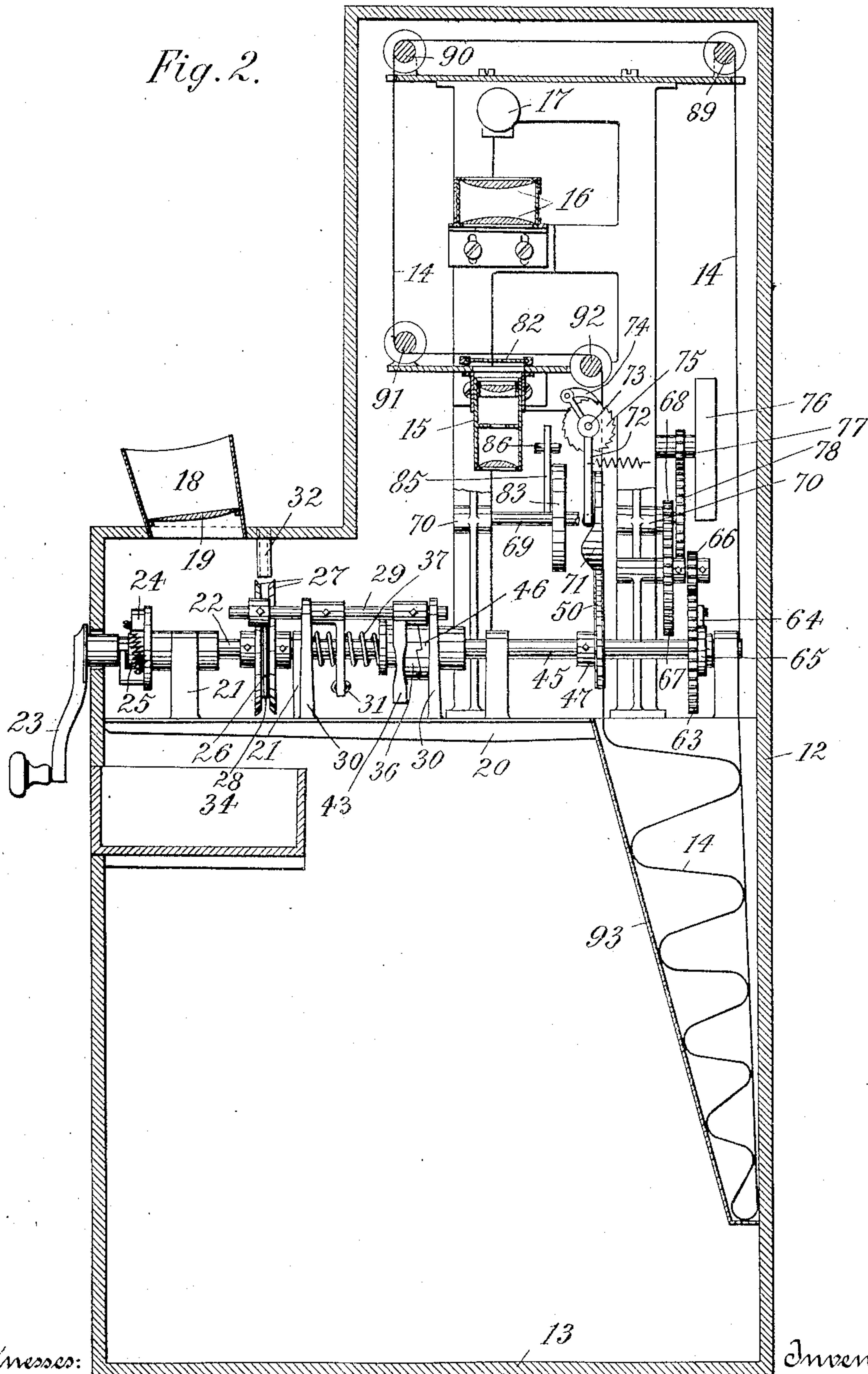
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4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

Fig. 3.

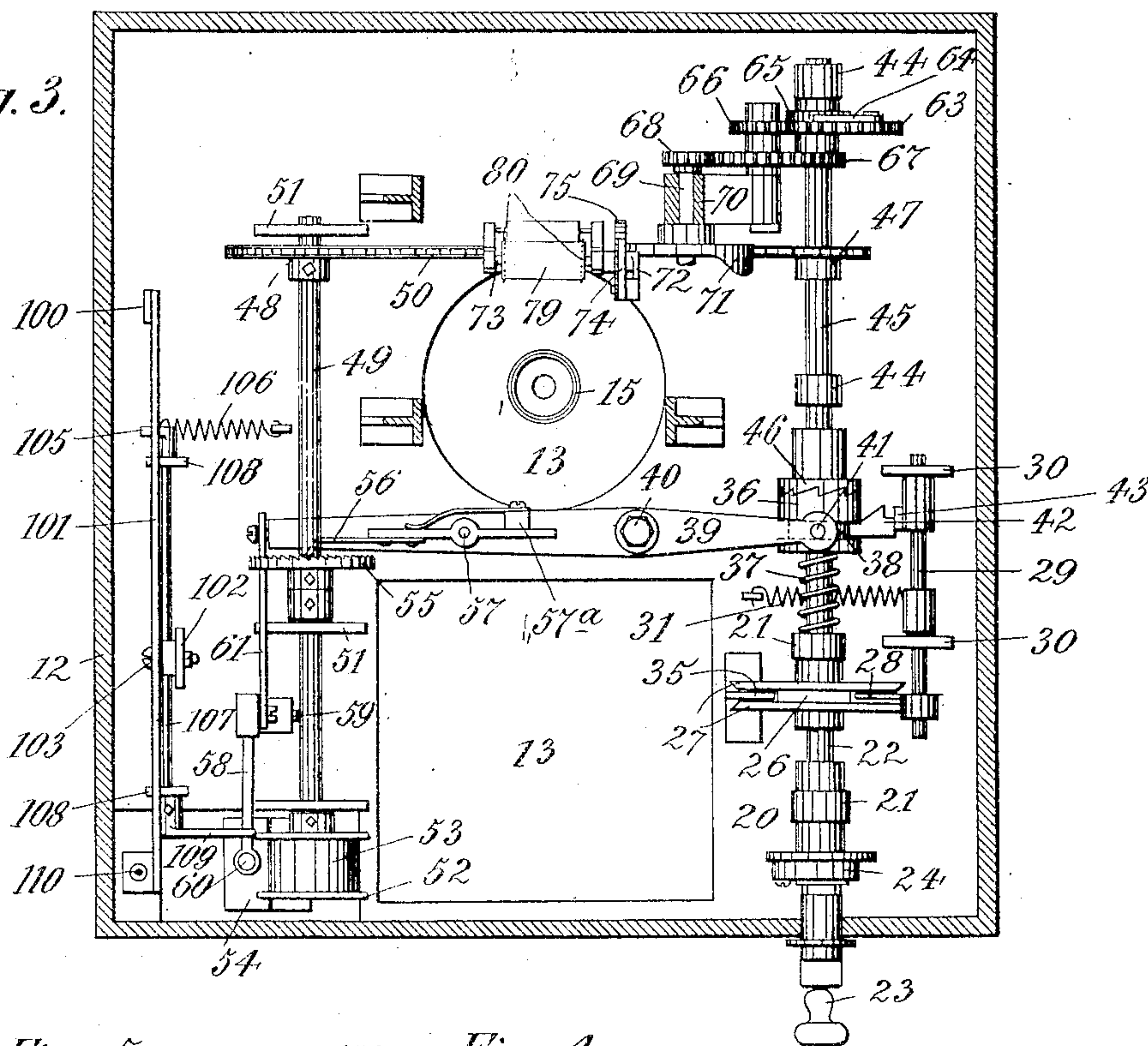


Fig. 5.

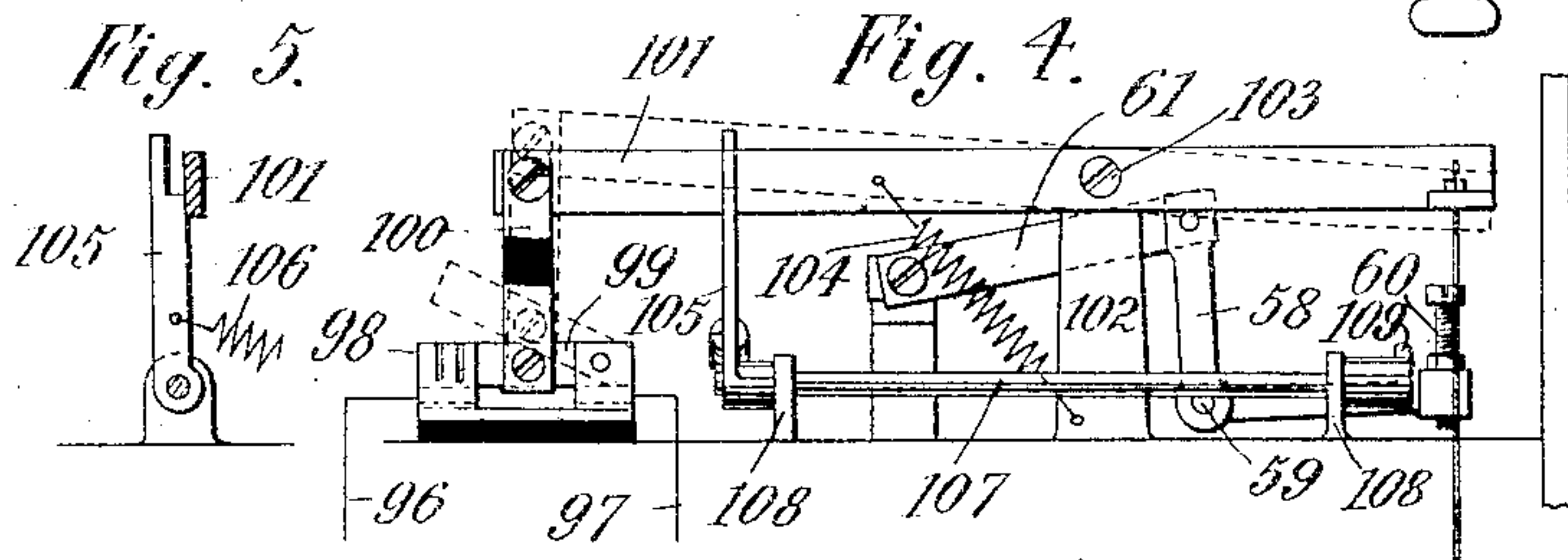
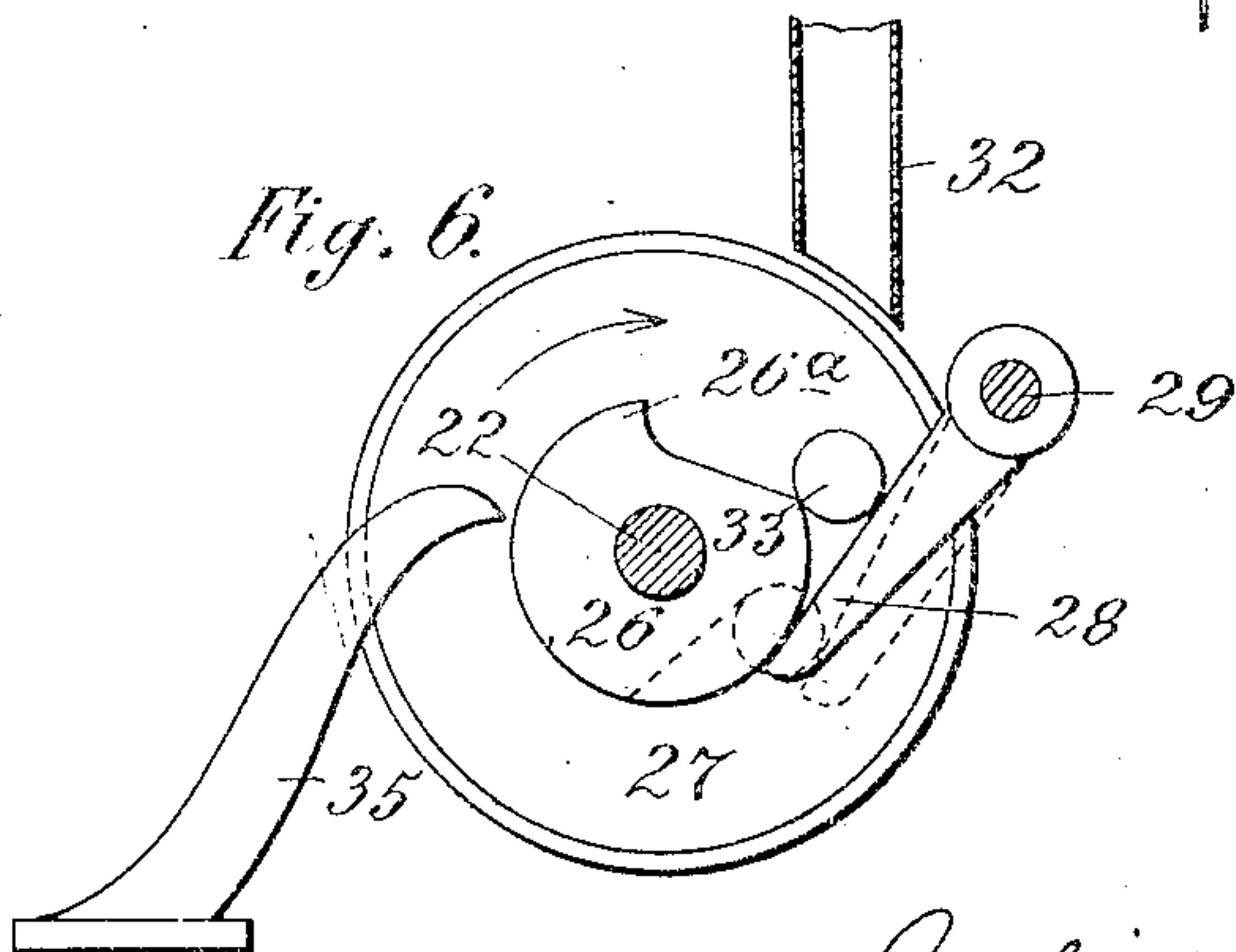


Fig. 4.

Fig. 6.



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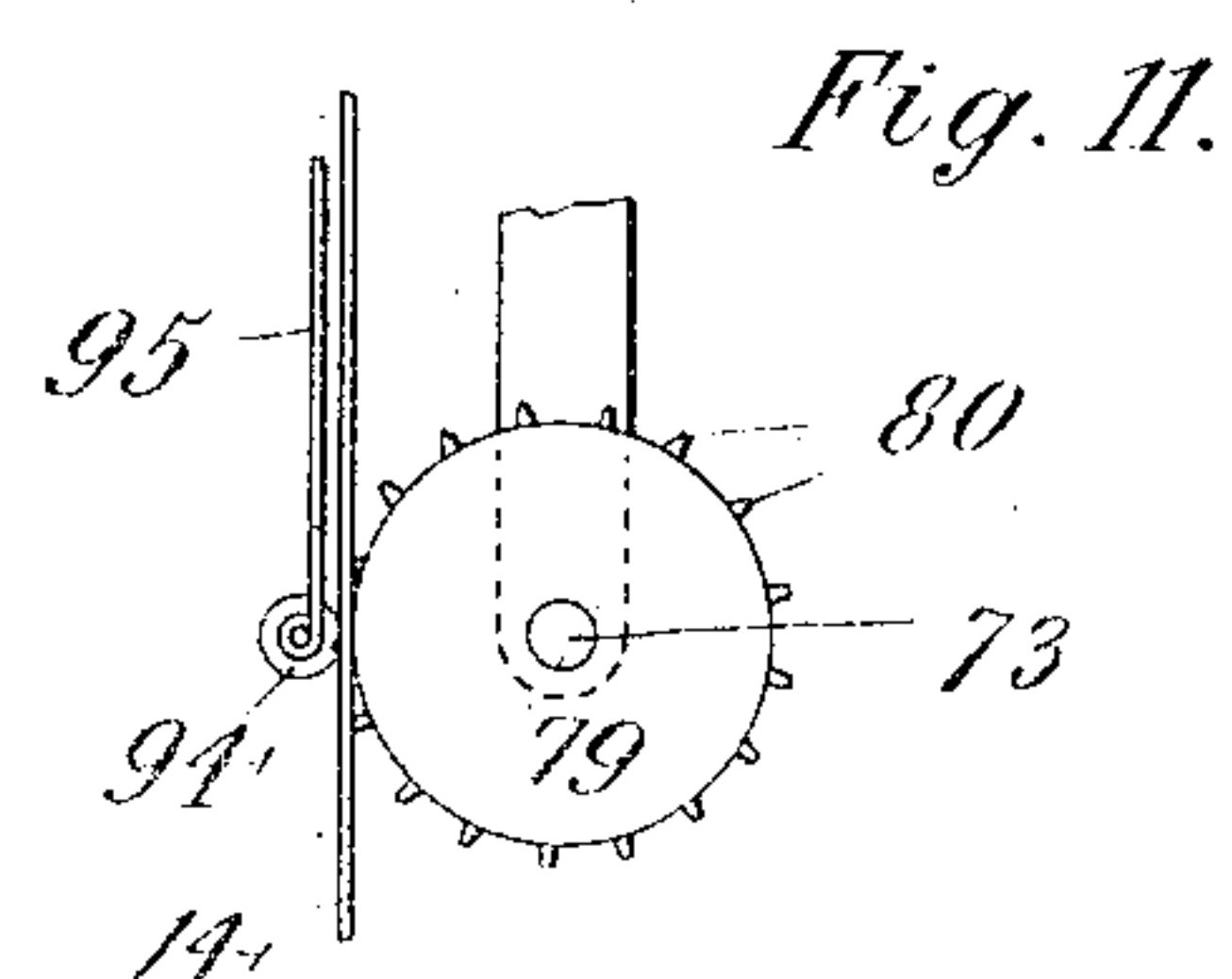
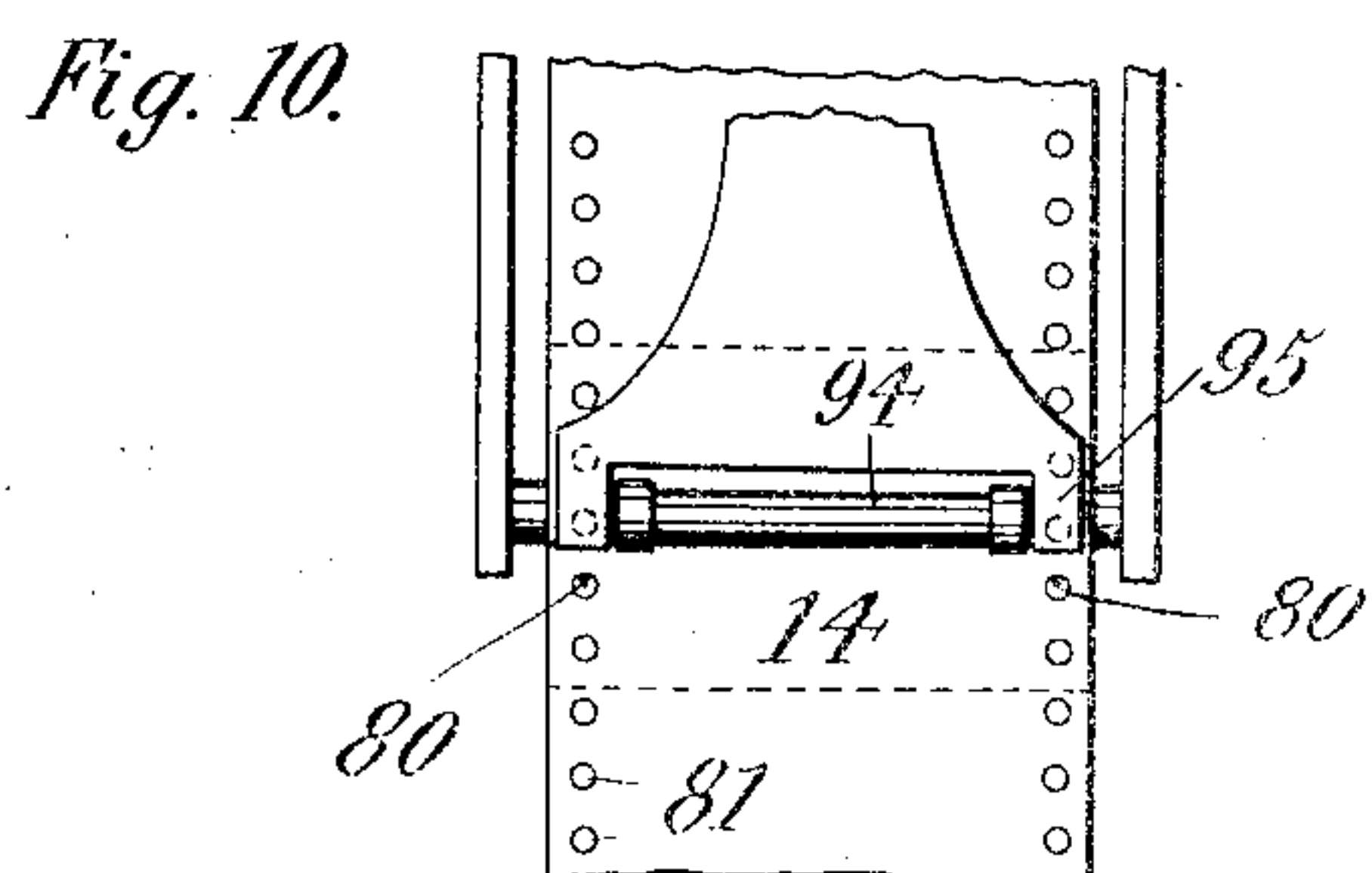
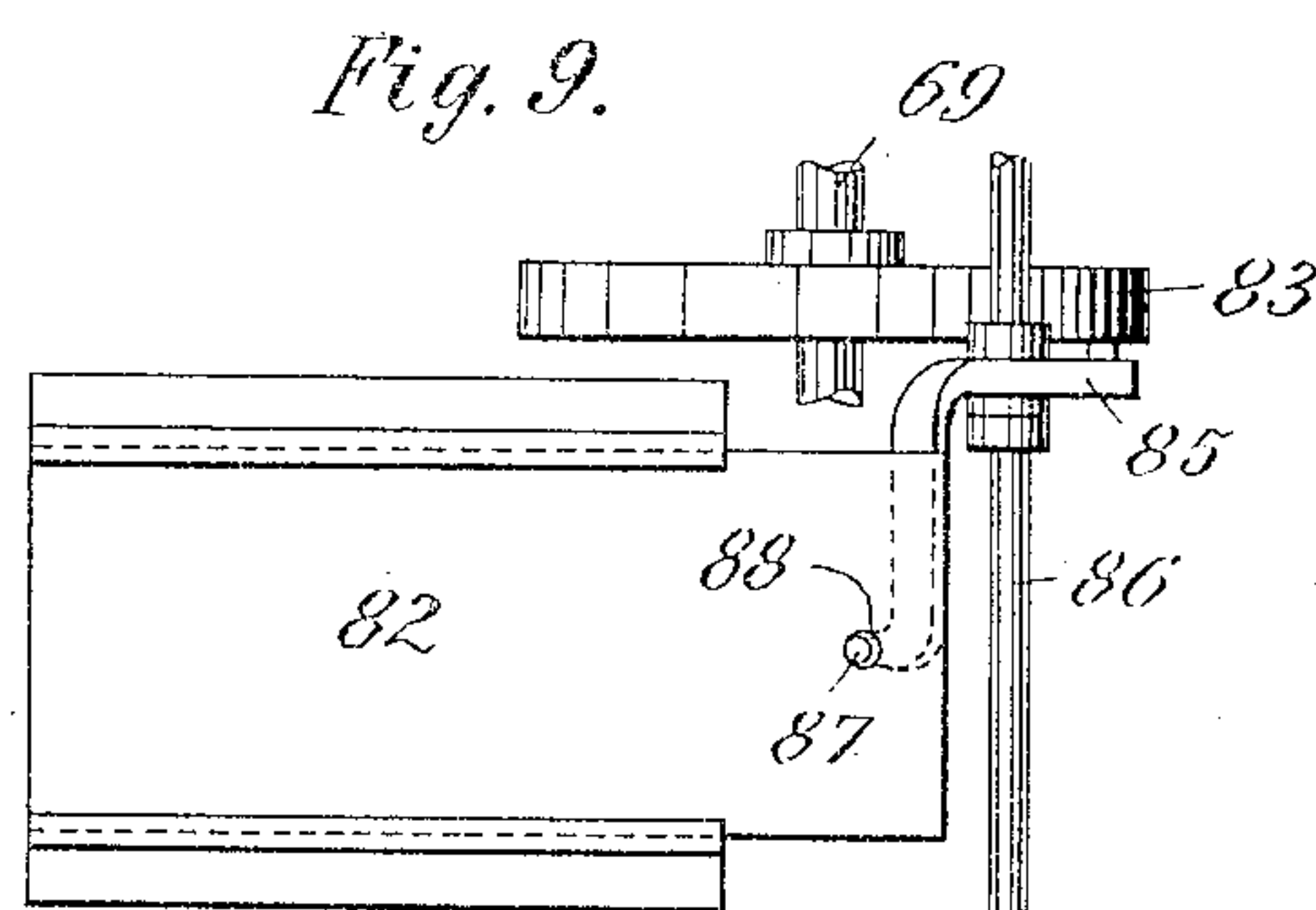
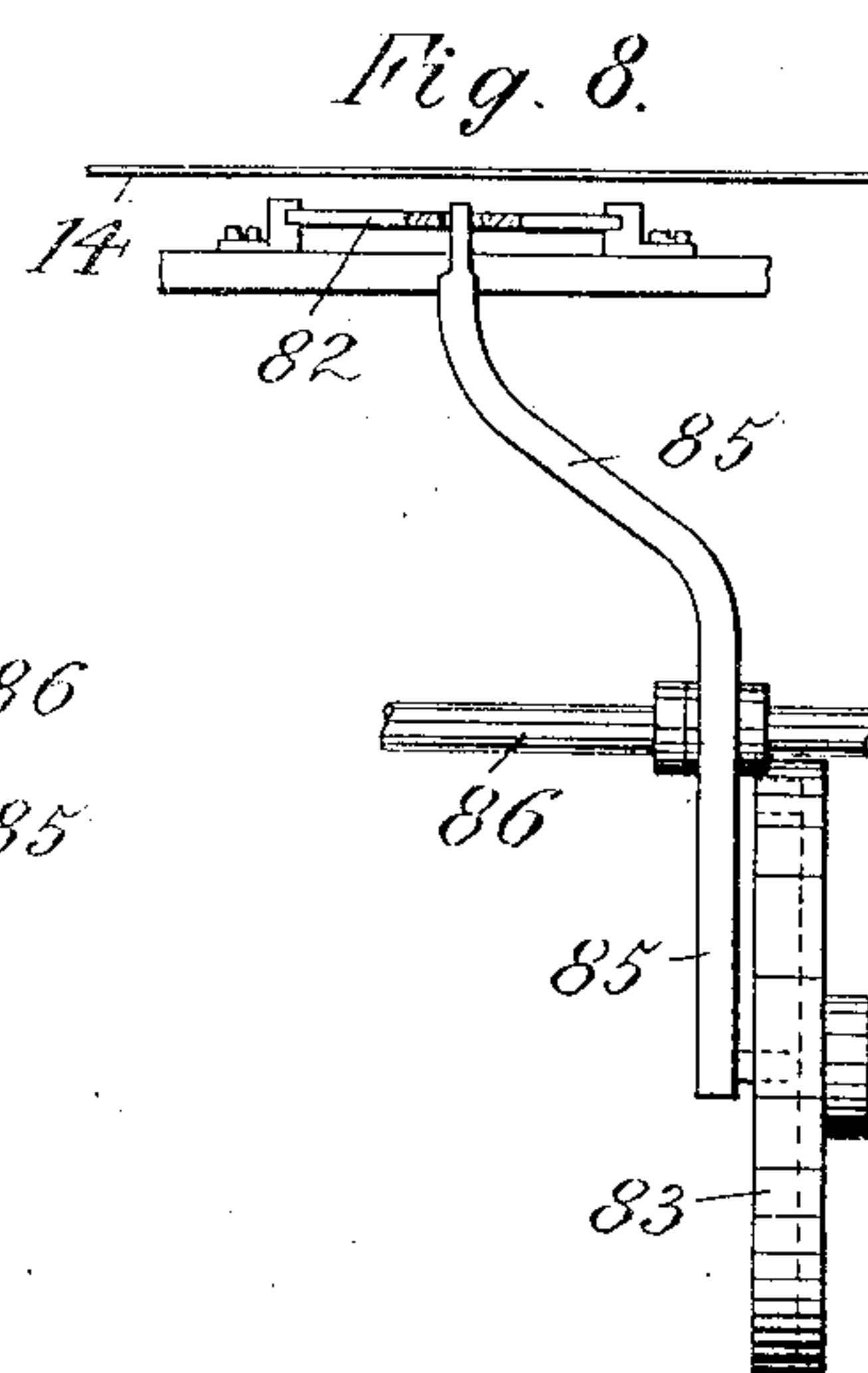
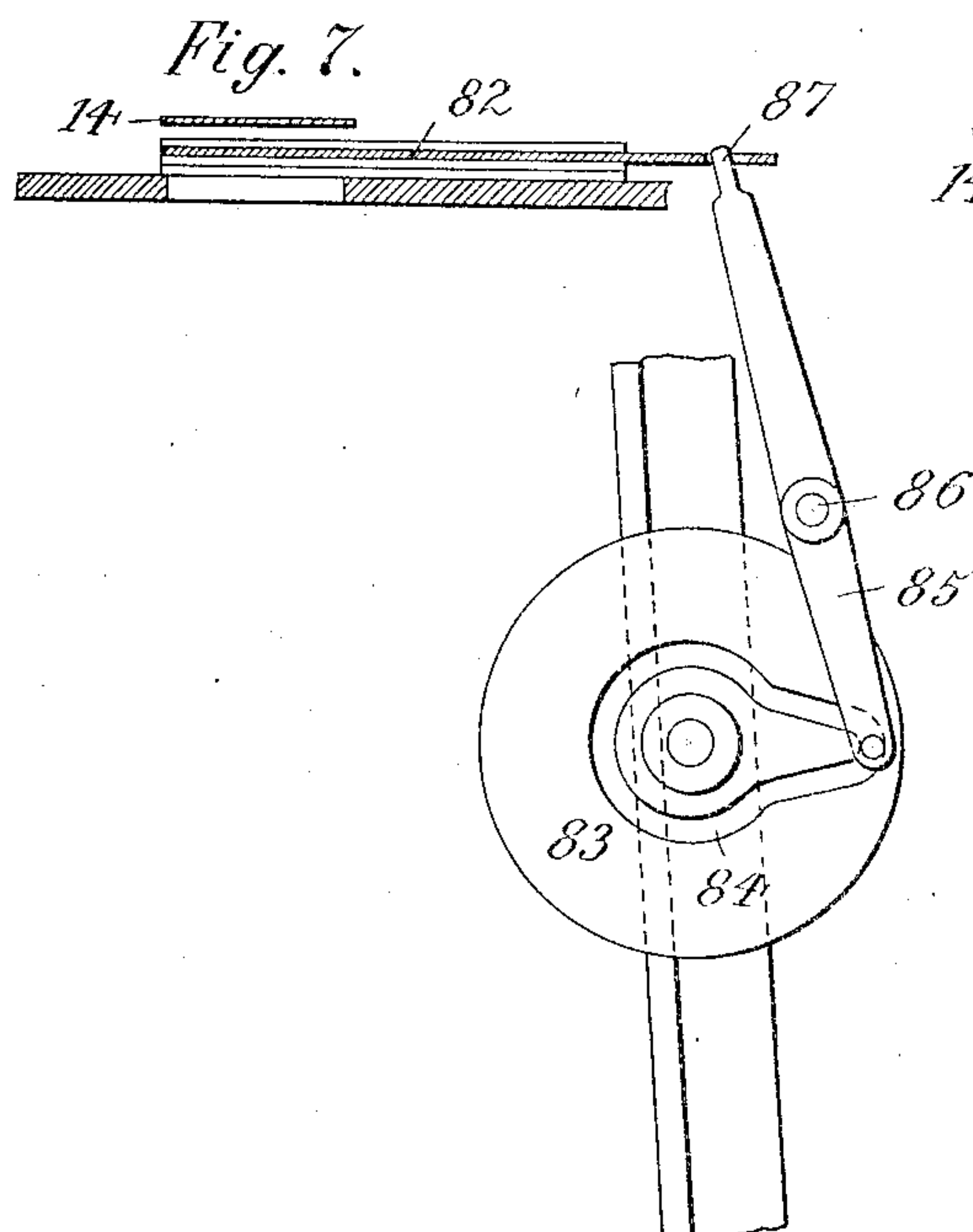
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4 SHEETS—SHEET 4.



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## UNITED STATES PATENT OFFICE.

JULIUS ROEVER AND SAMUEL S. BALDWIN, OF NEW YORK, N. Y.

## MOVING-PICTURE EXHIBITOR.

SPECIFICATION forming part of Letters Patent No. 786,683, dated April 4, 1905.

Application filed April 27, 1904. Serial No. 205,112.

*To all whom it may concern:*

Be it known that we, JULIUS ROEVER, a resident of Brooklyn, county of Kings, and SAMUEL S. BALDWIN, a resident of Manhattan, county of New York, city and State of New York, citizens of the United States, have invented new and useful Improvements in Moving-Picture Exhibitors, of which the following is a specification.

10 This invention relates to an improved moving-picture exhibitor of the class in which the image is thrown by a magic lantern upon a screen inclosed within the casing of the exhibitor and visible through a sight-hood.

15 The invention consists, more particularly, in improved means for setting the apparatus in motion by a weight suspended from a power-shaft. The power-shaft is intergeared with the work-shaft that operates the film-feed drum, and the work-shaft in turn may be coupled to the winding-arbor. When the winding-arbor is coupled to the work-shaft, the power-shaft may be rotated to wind up the weight. When the winding-arbor is uncoupled, the power-shaft rotates the work-shaft in the opposite direction, and the latter in turn rotates the film-feed drum.

20 In the accompanying drawings, Figure 1 is a front elevation of our improved moving-picture exhibitor with some of the parts omitted; Fig. 2, a sectional side elevation thereof with some of the parts omitted; Fig. 3, a horizontal section on line 3-3, Fig. 1; Fig. 4, a side view of the switch and operating mechanism; Fig. 5, a detail of part thereof; Fig. 6, a detail of the coin-receiving disk. Figs. 7, 8, and 9 are details of the shutter-operating mechanism, and Figs. 10 and 11 are details of the film-feeding mechanism.

30 The numeral 12 represents the casing of our improved moving-picture exhibitor, the bottom 13 of which constitutes the screen. Within the casing 12 is fitted a magic lantern to throw the images of an endless film 14 bearing the consecutive views upon the screen. The film passes between the objective tube 15 and refracting-lenses 16 of the magic lantern and is illuminated by an electric-light bulb 17. A sight-hood 18, having magnifying-lens 19,

permits the inspection of the image thrown upon the screen.

The means for operating the device are as follows: Within casing 12 is contained a false bottom 20, upon which are mounted the bearings 21 of a winding-arbor 22. This arbor may be turned in one direction only by a handle 23, which is loosely mounted upon the arbor and is operatively connected thereto by a spring-influenced pawl 24 and ratchet 25. Upon the arbor 22 is fixed a notched disk 26, flanked by a pair of cheeks 27. Between the cheeks 27 projects a first finger 28, mounted on a rock-shaft 29. This shaft is journaled in bearings 30 and is influenced by a spring 31. A coin-chute 32 is arranged vertically above the notched disk 26, so that the coin 33 will drop upon the disk and against the finger 28, Fig. 6. If now the winding-arbor 22 is turned, the notch 26<sup>a</sup> of disk 26 will grasp the coin and force it against finger 28, thus slightly turning shaft 29. The turning of shaft 29 will couple the winding-arbor 22 to the work-shaft in a manner hereinafter described. After the coin has performed its function it will clear the finger 28 and drop into the cash-box 34. Between the cheeks 27 projects a fixed ejector 35 for throwing out any obstructing bodies which may have been dropped into the chute.

Upon winding-arbor 22 is slidably mounted a movable clutch-jaw 36, influenced by a spring 37 and taken along by the arbor through a suitable feather-and-groove connection. The jaw 36 has a peripheral groove 38, straddled by the forked end of a two-arm shipping-lever 39, fulcrumed at 40. The upper prong of the fork has a pin 41, which engages groove 38, while the lower prong is provided with a notched extension or catch 42. This catch is engaged by a second finger 43 of rock-shaft 29. Opposite winding-arbor 22 is journaled in bearings 44 a work-shaft 45, having a fixed clutch-jaw 46, adapted to cooperate with movable jaw 36. When the shaft 29 is turned in the manner previously described, the finger 43 will be withdrawn from catch 42 to liberate lever 39 and consequently jaw 36. The latter will now be moved by spring 37 into



engagement with the fixed jaw 46, so as to couple winding-arbor 22 to shaft 45 and cause the rotation imparted to the former by handle 23 to be transmitted to the latter. At the same time the lever 39 will be turned on its fulcrum 40 for purposes hereinafter described.

The shaft 45 carries a chain-wheel 47, connected by chain 50 to a chain-wheel 48, fast on a power-shaft 49. The shaft 49 is journaled in bearings 51 and has a winding-drum 52, engaged by a tape or rope 53, carrying the machine-actuating weight 54.

Upon power-shaft 49 is mounted a ratchet-wheel 55, engaged by a spring-influenced pawl or detent 56, fulcrumed to lever 39 at 57 and adapted to engage a stop 57". When the clutch 36 46 is closed, Fig. 3, the pawl 56 engages ratchet-wheel 55, while when the clutch is open the pawl is retracted to become disengaged therefrom and to release power-shaft 49. The object of the pawl-and-ratchet mechanism is to prevent the machine from being worked continuously after the introduction of but one coin by alternately winding it up partly and releasing the handle for an indefinite number of times. In order to disengage the pawl from the ratchet-wheel and simultaneously open the clutch when the machine has been fully wound up, we pivot to false bottom 20 an elbow-lever 58 at 59, Fig. 4. The horizontal arm of this elbow-lever carries an adjusting-screw 60, which is struck by the weight 54 when the latter approaches its highest position. The upright arm of elbow-lever 58 is connected by a link 61 to the shipping-lever 39. Thus when the weight 54 has been fully raised the elbow-lever 58 will be tilted to so swing the shipping-lever 39 as to open the clutch and withdraw the pawl 56 from the ratchet-wheel 55. The shipping-lever will now be locked in position by the engagement of the projection 42 with the finger 43, such finger being thrown against the projection by spring 31, which rocks shaft 29 backward. It will thus be seen that it requires a full winding up of the weight 54 before the power-shaft 49, as well as the work-shaft 45, are released. After the shafts 49 45 have been released in the manner described they may be rotated backward by the descending weight 54.

In order to impart an intermittent movement to the film 14, we mount loosely upon shaft 45 a gear-wheel 63, which is taken along during the backward movement of the shaft by a pawl 64, pivoted to wheel 63 and engaging a ratchet-wheel 65, fast on shaft 45. The wheel 63 is intergeared by an accelerating train of wheels 66 67 68 with a spindle 69 journaled in bearing 70. Upon the spindle 69 is mounted a cam-disk 71, adapted to oscillate a spring-influenced cam-lever 72, turning on shaft 73 and carrying a pawl 74. This pawl engages a ratchet-wheel 75, fast on shaft

73, so that the rotary movement of spindle 69 will impart an intermittent rotary movement to shaft 73. The speed of the movement is regulated by a fly 76, intergeared by wheels 77 78 with spindle 69.

Upon shaft 73 is mounted a film-feed drum 79, Fig. 11, carrying at each end a series of equally-spaced peripheral pins 80, which are adapted to engage the usual perforations 81 of film 14, and which thus cause the film to be advanced intermittently.

82 is the shutter adapted to be interposed between the objective tube 15 and the film 14 while the latter is in motion. The shutter is reciprocated from spindle 69 by a cam 83, mounted upon the latter and having a groove 84, Fig. 7, engaged by a cam-lever 85, which is fulcrumed at 86 and has a reduced end 87, that engages a perforation 88 of shutter 82.

After the shafts 49 45 have been released by the ascended weight 54 in the manner previously described the shaft 49 will be rotated backward by the descending weight and will impart a corresponding motion to shaft 45 by chain 50. The shaft 45 will therefore by spindle 69 and cams 71 83 impart the desired intermittent movement to the film 14 and shutter 82. This movement will continue until the weight 54 has run down, when the exhibition will be closed. The machine is now in condition for the introduction of a new coin, by means of which the winding-arbor will be recoupled to the work-shaft 45 in the manner hereinabove described, while the shipping-lever will be simultaneously turned to relock power-shaft 49 by means of pawl 56 and ratchet 55.

The run of the film 14 is indicated in Fig. 2. It passes over idlers 89, 90, 91, and 92 and over the drum 79 into a tapering pocket 93. Within this pocket the film is gathered in the form of a series of superposed loose folds, the number of folds depending upon the length of the film. In this way the machine may operate with endless films of different lengths without requiring adjustment. The film is pressed against the feed-drum 79 by a roller 94, journaled in bearings 95.

The electric light 17 is automatically turned on when the machine is started and extinguished when the machine is stopped. The mechanism for effecting this result is as follows: The light 17 is connected by wires 96 97 (in circuit with a suitable source of electricity) to a switch 98, Fig. 4. The switch-knife 99 is suspended by insulated link 100 from a lever 101, fulcrumed to a post 102 at 103 and influenced by a spring 104. The lever 101 may be locked in its raised position by a notched catch 105, influenced by a spring 106 and secured to a rock-shaft 107, which turns in bearings 108. The rock-shaft 107 has a tappet 109, that rests upon the lower arm of elbow-lever 58. The lever 101 is connected



by rod 110 to a treadle 111, fulcrumed to base 13 at 112 and arranged vertically below the weight 54. When the weight is raised to tilt elbow-lever 58, the latter will by tappet 109 turn shaft 107 to withdraw catch 105 from underneath lever 101 against the action of spring 106. Thus the lever 101 will be drawn down by spring 104 to close the switch 98 and light the bulb 17. The light will continue to burn during the descent of the weight. When the weight approaches the end of its descent, it will bear upon the treadle 111 to raise lever 101 and open switch 98. When the lever is thus raised, the catch 105 will be drawn under it by spring 106, so that the lever 101 will become relocked in its raised position.

What we claim is—

1. In a moving-picture exhibitor, the combination of a winding-arbor with a work-shaft, an intervening clutch, a film-feed drum operatively connected to the work-shaft, a power-shaft intergeared with the work-shaft, a weight suspended from the power-shaft, and a shipping-lever engaging the clutch and adapted to be operated by the weight, substantially as specified.

2. In a moving-picture exhibitor, the combination of a winding-arbor with a work-shaft, an intervening clutch, a film-feed drum operatively connected to the work-shaft, a power-shaft intergeared with the work-shaft, a weight suspended from the power-shaft, an elbow-lever adapted to be engaged by the weight, and a shipping-lever connected to the elbow-lever and engaging the clutch, substantially as specified.

3. In a moving-picture exhibitor, the combination of a winding-arbor with a work-shaft, an intervening clutch, a film-feed drum operatively connected to the work-shaft, a power-shaft intergeared with the work-shaft, a ratchet-wheel mounted upon the power-shaft, a weight suspended from said shaft, a shipping-lever engaging the clutch and adapted to be operated by the weight, and a pawl pivoted to the shipping-lever and adapted to engage the ratchet-wheel, substantially as specified.

4. In a moving-picture exhibitor, the combination of a work-shaft with a spindle intergeared therewith, a cam on the spindle, a lever engaging the cam, a pawl pivoted to the lever, a ratchet-wheel engaged by the pawl, a film-feed drum connected to the ratchet-wheel, an endless film engaged by the drum, and a tapering pocket adapted to receive the film, substantially as specified.

5. In a moving-picture exhibitor, the combination of a power-shaft with a weight suspended therefrom, a lever, a treadle connected to the lever and adapted to be engaged by the weight, a switch-knife connected to the lever, a catch adapted to engage the lever, and means controlled by the weight for operating said catch, substantially as specified.

6. In a moving-picture exhibitor, the combination of a power-shaft with a weight suspended therefrom, a lever, a treadle connected to the lever and adapted to be engaged by the weight, a switch-knife connected to the lever, a catch adapted to engage the lever, a rock-shaft carrying the catch, a tappet on the rock-shaft, and an elbow-lever engaging the tappet and adapted to be engaged by the weight, substantially as specified.

7. In a moving-picture exhibitor, the combination of a casing having an inclosed screen and magic lantern, with an endless film, a feed-drum engaging the same, a work-shaft operatively connected to said drum, a power-shaft intergeared with the work-shaft, a weight suspended from the power-shaft, an elbow-lever adapted to be engaged by the weight, a shipping-lever operatively connected to the elbow-lever, a clutch engaged by the shipping-lever, and a winding-arbor adapted to be coupled by said clutch to the work-shaft, substantially as specified.

Signed by us at New York city, (Manhattan,) New York, this 26th day of April, 1904.

JULIUS ROEVER.

SAMUEL S. BALDWIN.

Witnesses:

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