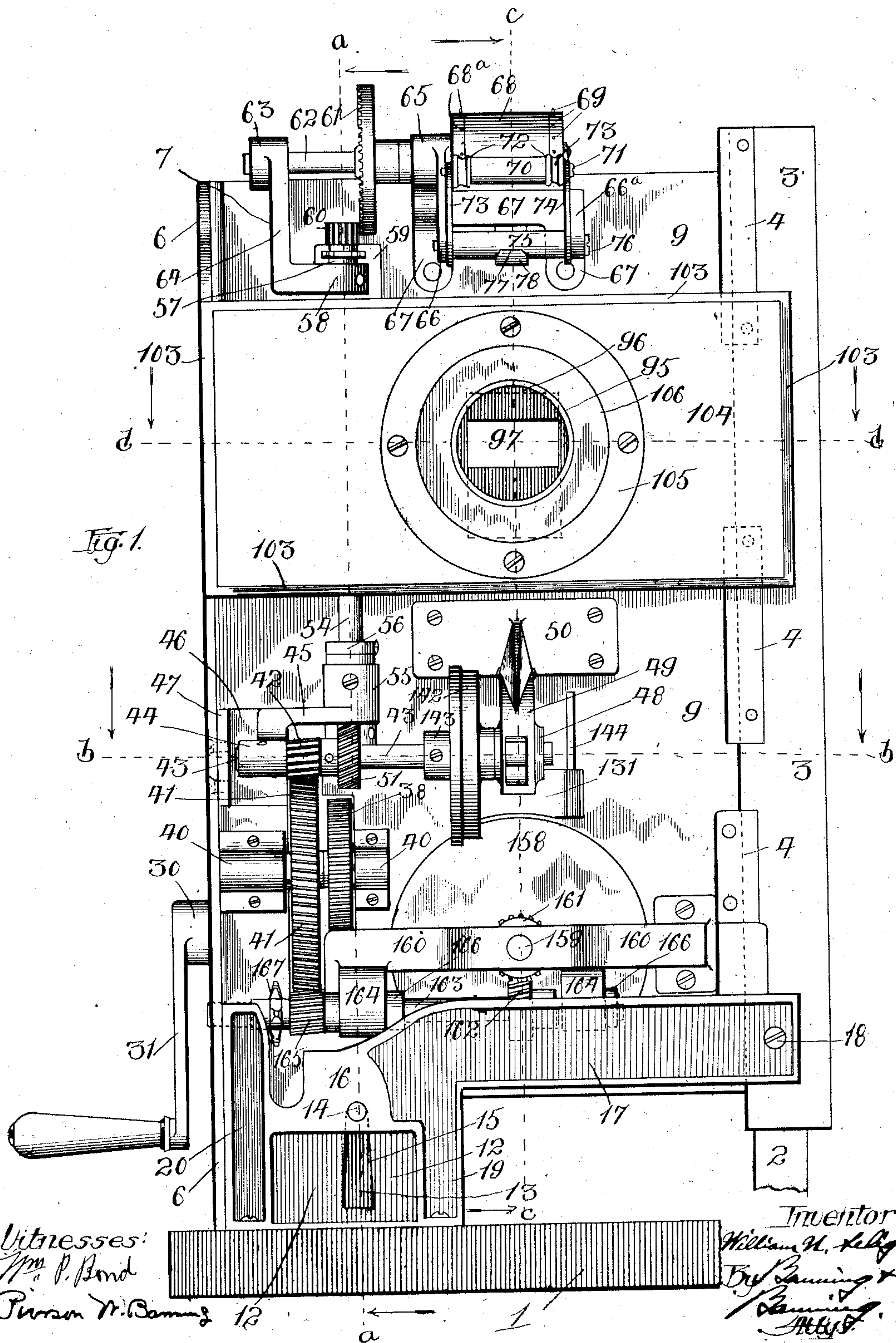


W. N. SELIG.

MACHINE FOR MAKING AND DISPLAYING PICTURES.

APPLICATION FILED MAR. 2, 1907.

6 SHEETS—SHEET 1.

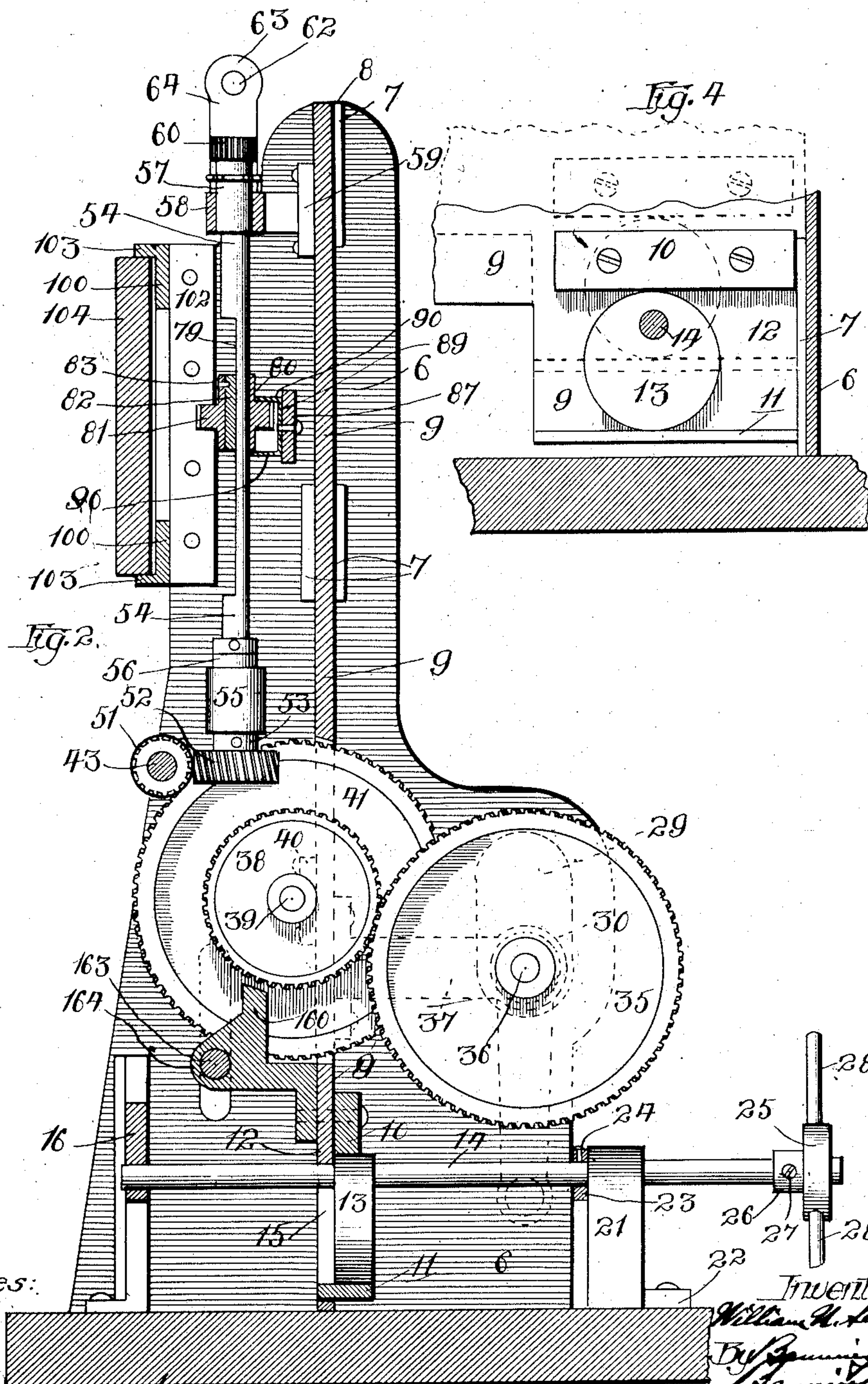


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MACHINE FOR MAKING AND DISPLAYING PICTURES.

APPLICATION FILED MAR. 2, 1907.

6 SHEETS—SHEET 2.



Witnesses:

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Pearson W. Bond

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No. 886,654.

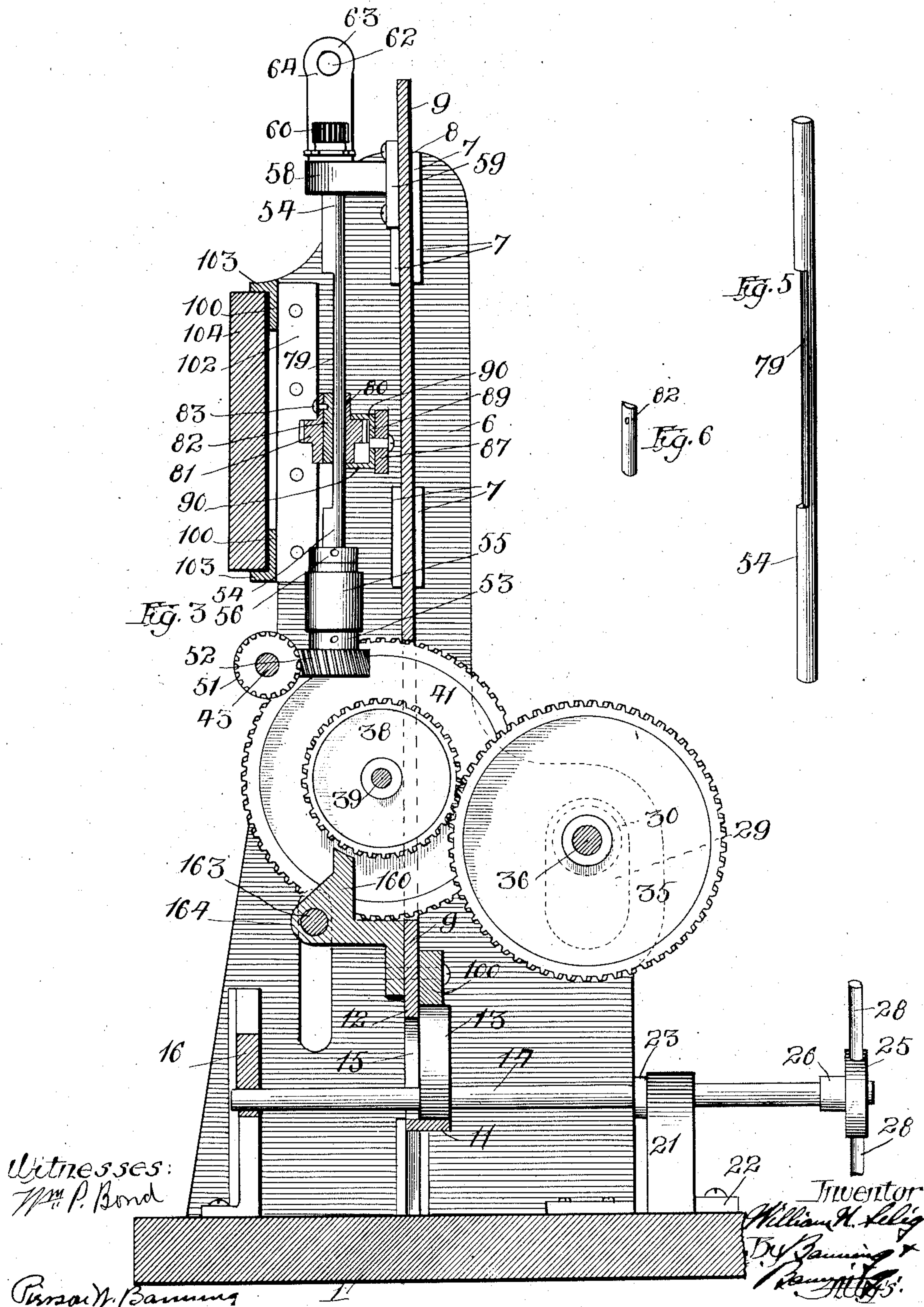
PATENTED MAY 5, 1908.

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APPLICATION FILED MAR. 2, 1907.

6 SHEETS—SHEET 3.



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6 SHEETS—SHEET 4.

Fig. 9.

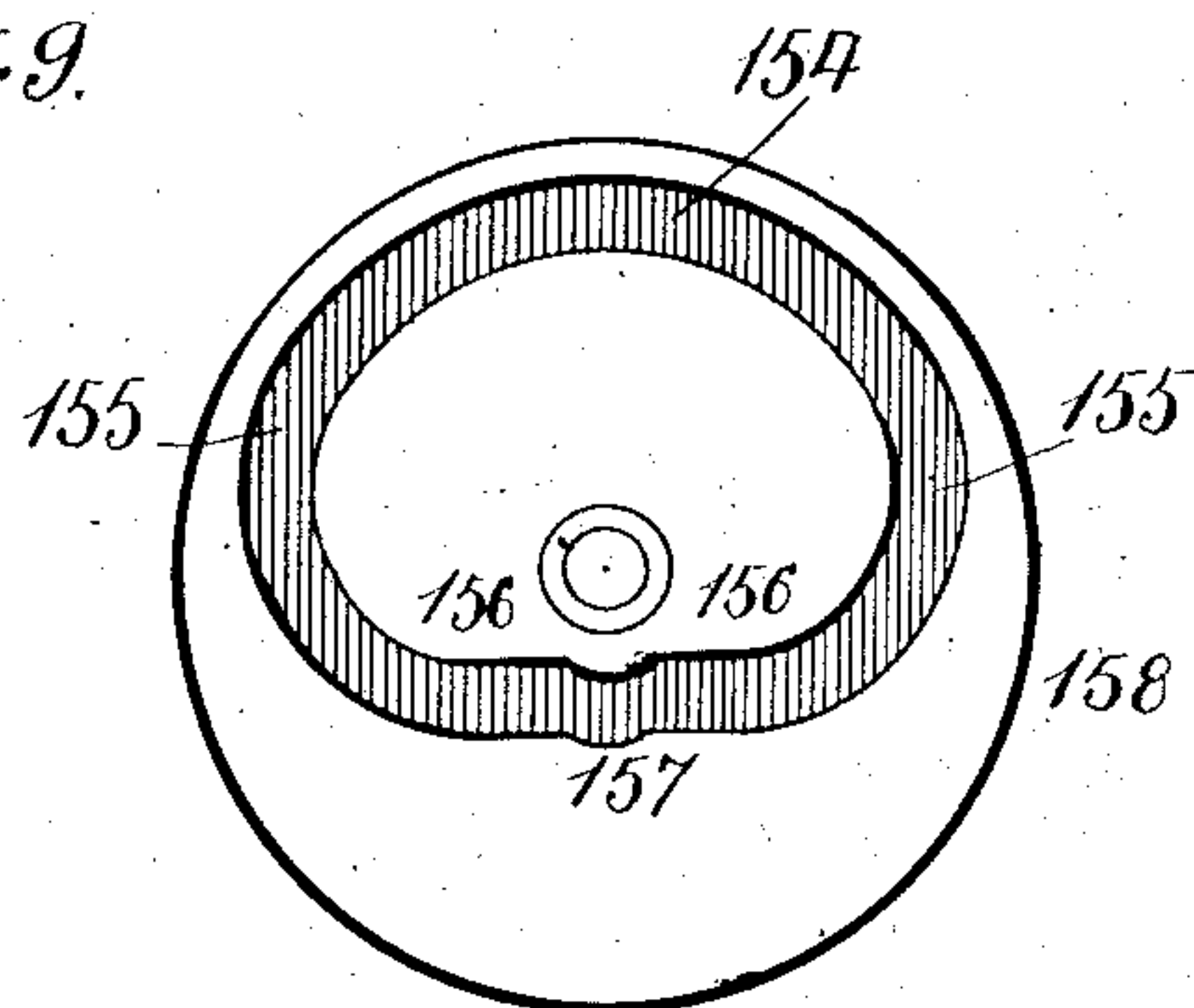


Fig. 8.

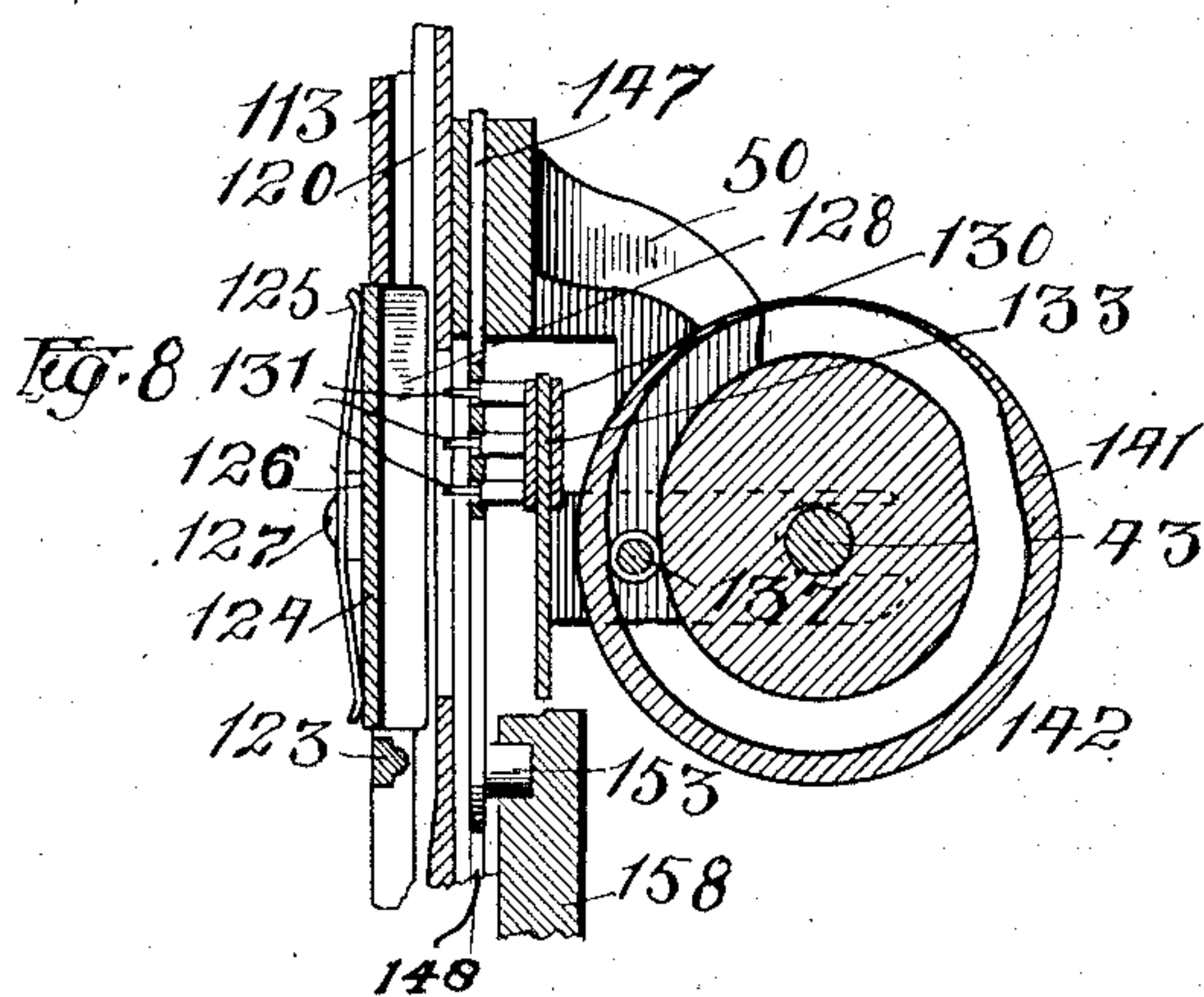
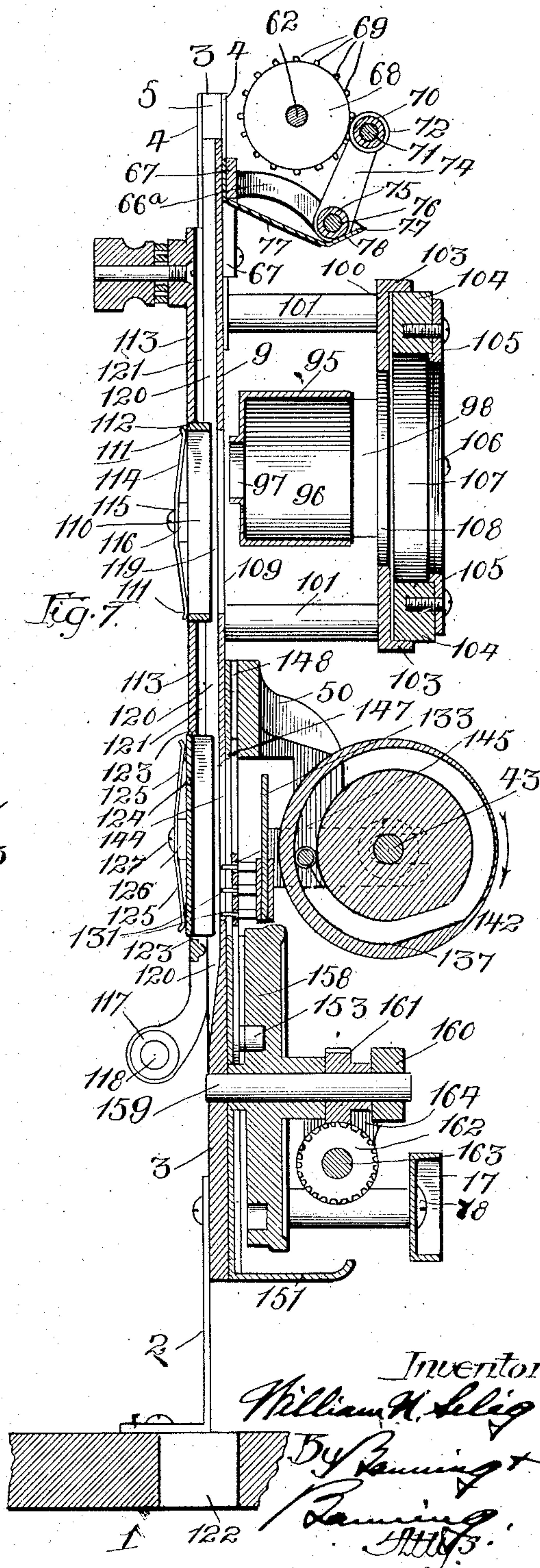


Fig. 7.



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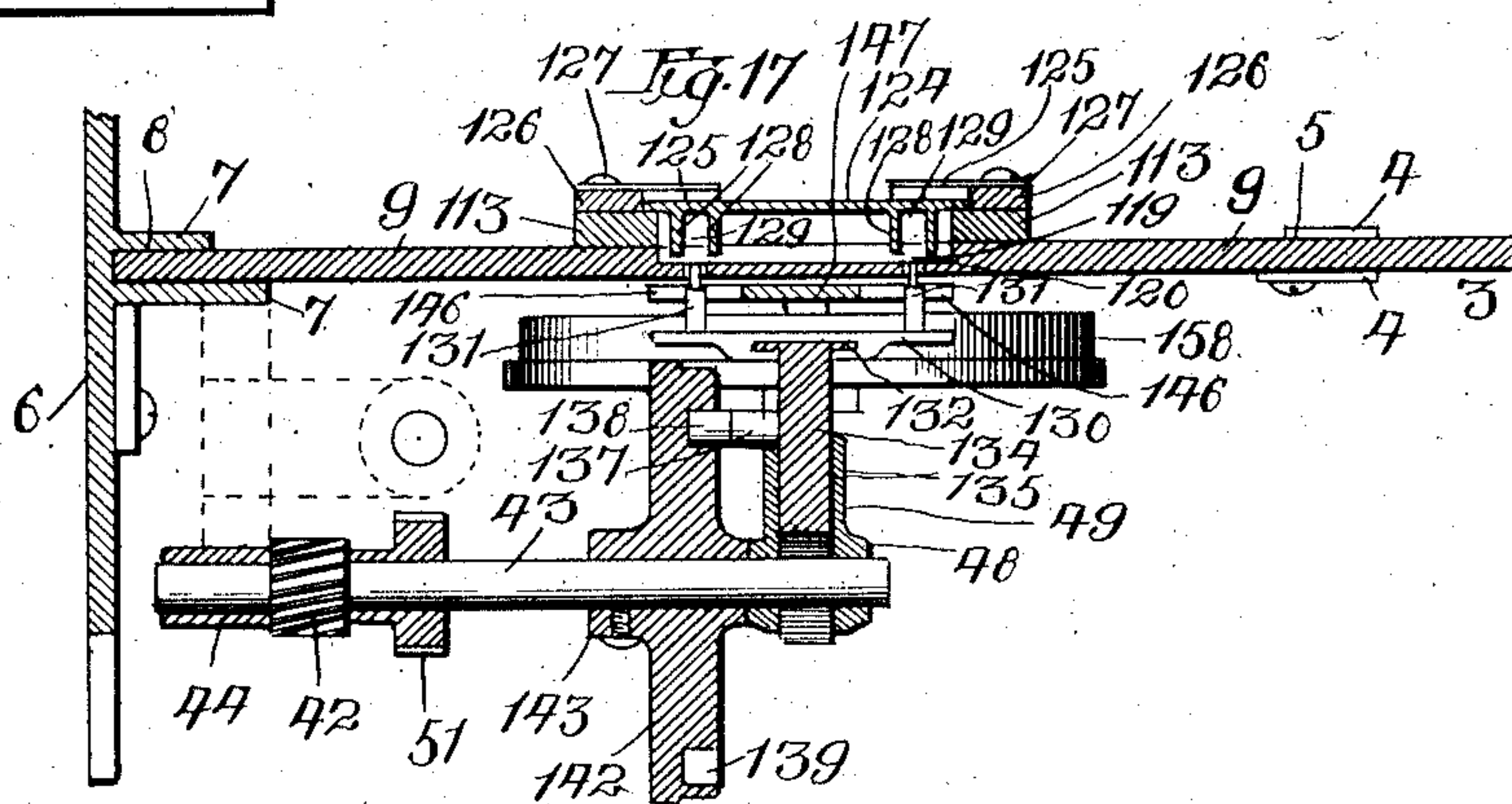
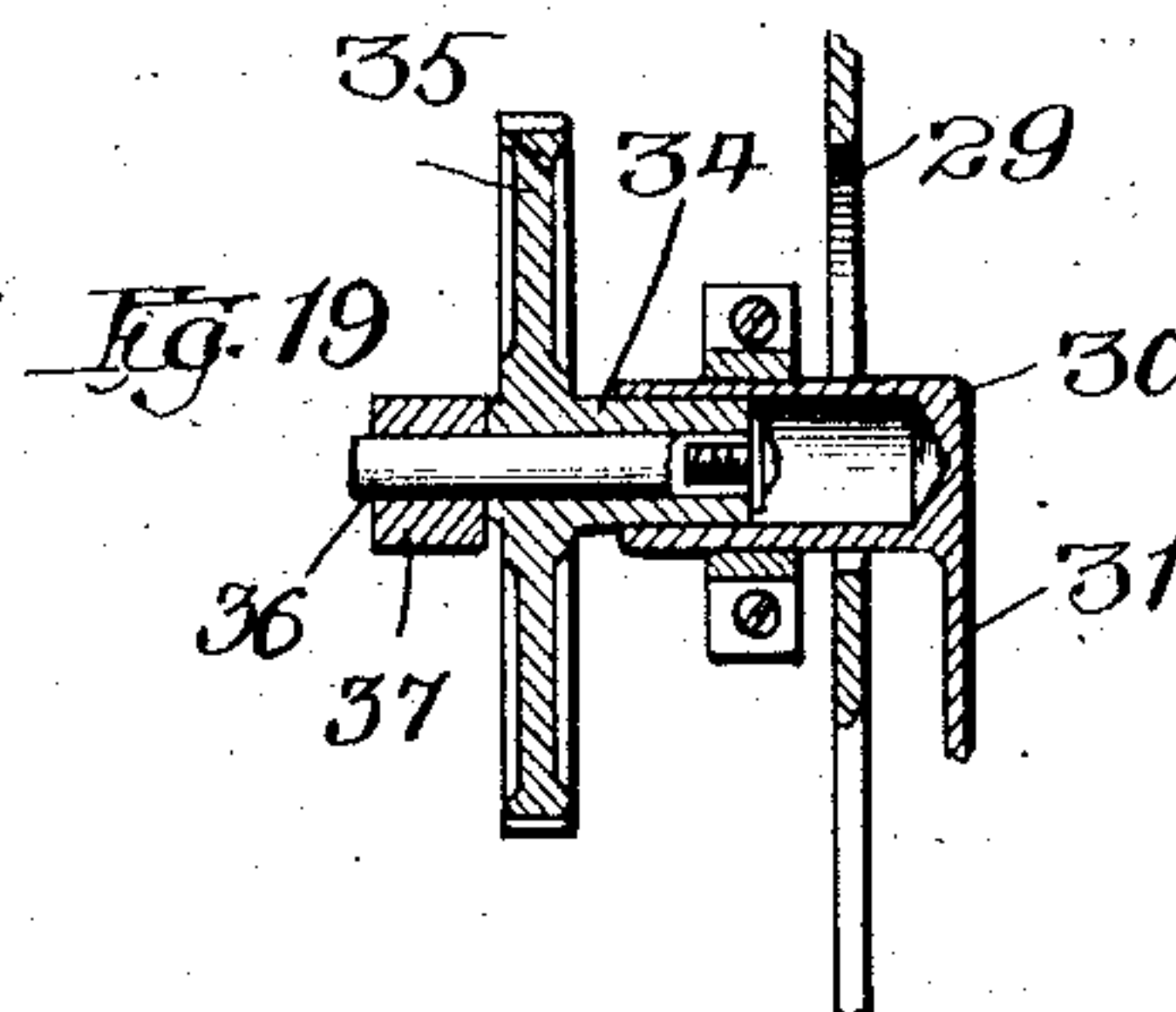
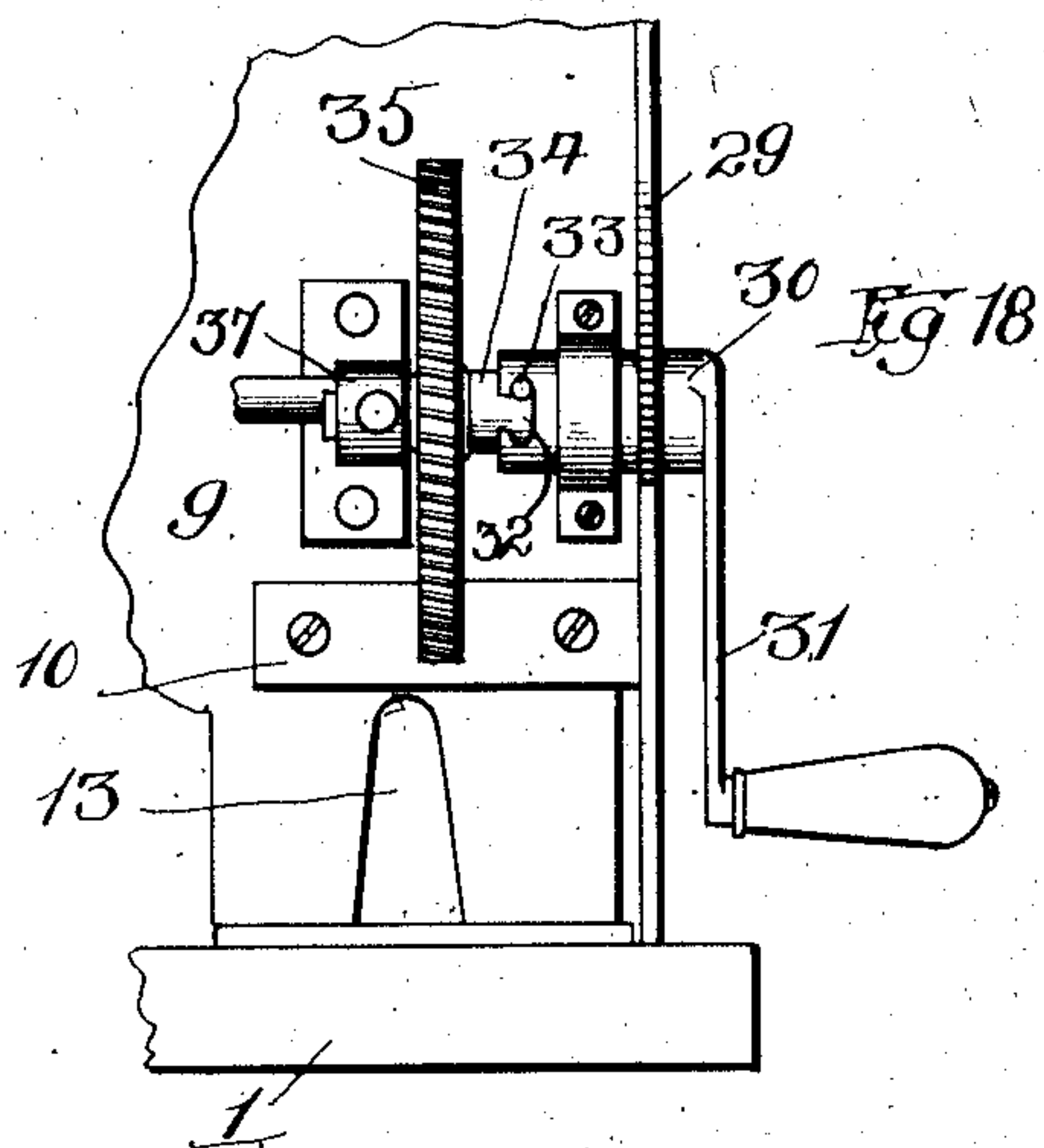
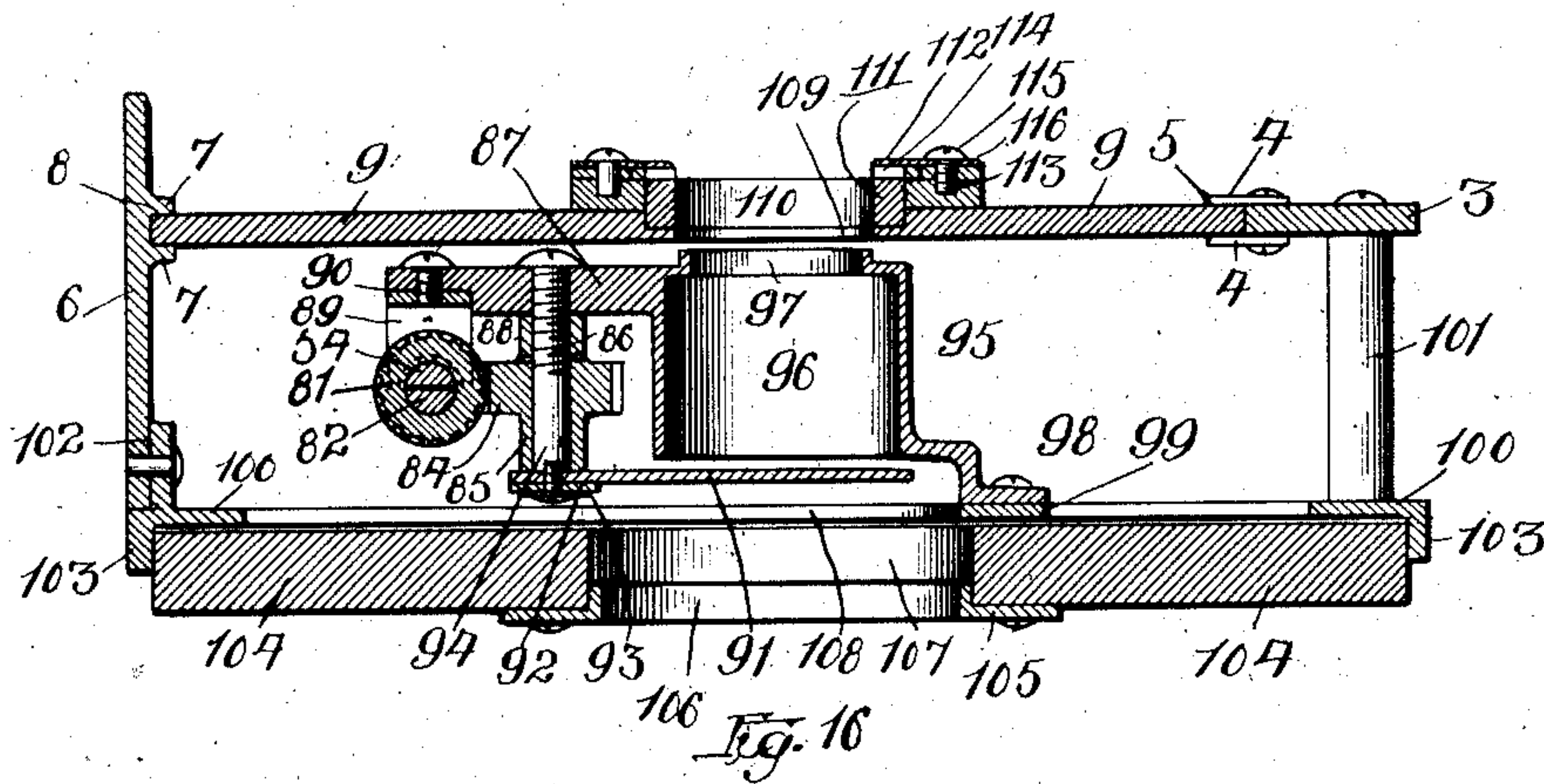
Attys.

W. N. SELIG.

MACHINE FOR MAKING AND DISPLAYING PICTURES.

APPLICATION FILED MAR. 2, 1907.

6 SHEETS—SHEET 6.



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UNITED STATES PATENT OFFICE.

WILLIAM N. SELIG, OF CHICAGO, ILLINOIS.

MACHINE FOR MAKING AND DISPLAYING PICTURES.

No. 886,654.

Specification of Letters Patent.

Patented May 5, 1908.

Application filed March 2, 1907. Serial No. 360,278.

To all whom it may concern:

Be it known that I, WILLIAM N. SELIG, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Machines for Making and Displaying Pictures, of which the following is a specification.

This invention relates to machines of that type in which a film or ribbon is employed for the purpose of making pictures thereon, and after such making displaying the pictures much magnified on a screen.

The objects of the invention are to simplify and improve the feed by which the picture film or ribbon is given an intermittent advance for making the pictures and for displaying the pictures after being made; to furnish a positive and reliable feed for the picture film or ribbon by which such film or ribbon will be given the required movement for making and displaying the pictures; to enable the position of the actuating parts of the machine to be adjusted as may be required for properly focusing the position of the picture film or ribbon, both in making the pictures and in displaying the same; to construct a feed for the picture film or ribbon consisting of a claw or finger bar for engaging the film or ribbon and intermittently feeding the same, and actuating said claw or finger bar so as to have an in and out throw and an up and down throw positively controlled; to construct a claw or finger bar for feeding the picture film or ribbon in two parts or members one part or member having engaging pins and having an in and out throw, and the other part or member having an up and down throw, and carrying with it the part or member having the in and out throw; to construct a feed for the picture film or ribbon of two parts or members, one part or member having an in and out throw positively given thereto, and the other part or member having an up and down throw positively given thereto, and actuating each part or member by its individual cam for giving the required throw; to construct revoluble cams for actuating the feed of a picture film or ribbon and driving such cams by intermeshing gearing from a common driving shaft, so that both cams will be given a rotation simultaneously; to mount the actuating devices, as to the feeding of the picture film or ribbon, on a movable plate and regulating the position of the plate by means of an eccentric so as to

properly position and register the sight opening for making and displaying the pictures; and to improve generally the construction and operation of the several devices entering into the structure of the machine as a whole.

In the drawings illustrating the invention Figure 1 is an elevation of the rear of the machine with the frame or support partly broken away at one corner, and showing the devices in their lowermost position; Fig. 2 a sectional elevation on line *a— a* of Fig. 1, looking in the direction of the arrow, with the carrying plate for the devices lowered; Fig. 3 a similar view to Fig. 1 and taken on the same line *a— a*, looking in the direction of the arrow as in Fig. 2, with the supporting plate and the actuating devices in raised position; Fig. 4 a detail partly in section showing a corner of the movable plate and the eccentric for raising and lowering the plate; Fig. 5 a detail in elevation of the shaft for the gear operating the shutter; Fig. 6 a detail in perspective of the block or wedge for attaching the shutter gear to the operating shaft; Fig. 7 a sectional elevation taken on line *c— c* of Fig. 1 looking in the direction of the arrow showing the arm, for moving the claw or finger bar up and down, partly in elevation and partly in section; Fig. 8 a detail, in section, showing the claw or finger bar of the feed in its raised position with the arm, for moving the same up and down, partly in elevation and partly in section, said device being shown in its depressed position in Fig. 7; Fig. 9 a face view of the cam for raising and lowering the claw or finger bar; Fig. 10 a similar view to Fig. 7, and taken on the same line *c— c* of Fig. 1 as Fig. 7, and showing the pins of the claw or finger bar in their advanced position with the arm, for moving the claw or finger bar up and down, partly in elevation and partly in section, the pins being shown in their receded position in Fig. 7; Fig. 11 a detail partly in section of the claw or finger bar, showing the pins in their advanced and depressed position, Fig. 10 showing the pins in their advanced and raised position; Fig. 12 a perspective view of the slide for giving the claw or finger bar its in and out throw; Fig. 13 a perspective view of the cross head carrying the pins of the claw or finger bar; Fig. 14 a perspective view of the arm for giving the claw or finger bar its up and down throw; Fig. 15 a perspective view of the plate or guard for the picture film or ribbon at the point of engagement

therewith of the claw or finger bar; Fig. 16 a sectional plan view on line $d-d$ of Fig. 1, looking in the direction of the arrow, and showing only the sight opening and the shutter with its operating gear, the parts below the line $d-d$ being removed; Fig. 17 a sectional plan view on line $b-b$ of Fig. 1 looking in the direction of the arrow, and showing the cams for actuating the claw or finger bar; Fig. 18 a detail in elevation showing the connection of the crank to the driving shaft; and Fig. 19 a longitudinal section of the parts shown in Fig. 18.

The machine is constructed with a base or bottom plate 1, which supports the structure as a whole. An upright or standard 2 is attached to this plate on the top at one side, and to this standard is attached a plate 3 having on its inner edges guide strips 4, forming a guideway 5 between them. A plate 6 is attached to the top of the base 1 on the opposite side to the plate 3, and this plate 6 on its inner face has guides 7 with a guideway 8 between them. The movable plate 9, carrying the operating devices of the machine, is located between the plates 3 and 6, and is held so as to be movable up and down in the guideways 5 and 7 of the side plates or posts 3 and 6, thus enabling the operating mechanism to be raised and lowered.

The vertically movable plate 9, with the actuating mechanism carried thereby, is raised and lowered as follows: A cross bar 10 is fixedly attached to the plate 9 above its lower end, and the lower end of the plate 9 has a cross piece or bar 11 projecting out therefrom, such cross bar or plate 11 being on a depending portion 12 of the plate 9. The space between the cross bar 10 and cross plate 11 receives therein an eccentric 13 mounted on a shaft 14, which shaft passes through a slot 15 in the depending end 12 of the plate, so that the plate 9, with the devices thereto attached, can be raised and lowered by turning the eccentric 13 up or down as may be required, and the plate 9 with the actuating devices thereon can be adjusted at any position midway between the limits of its up and down movement by turning the eccentric into the proper position for the required adjustment of the plate. The shaft 14 is mounted in a support 16 on a bar 17, attached to the post or plate 3 at one end by a rod or sleeve 18, and attached to the bedplate 1 by a foot or leg 19, and to the side post or plate 6 by a support or leg 20, and suitable screws. The shaft is also supported in a suitable journal box or bearing at the top of a post 21 having a side wing or ear 22 for attachment to the base plate 1, and, as shown, endwise movement of the shaft 14 is prevented in one direction by the bearing of the eccentric 13 against the face of the plate 9 and in the other direction by a collar 23 abutting against the post 21 and secured to

the shaft 14 by a set screw 24 or otherwise. The outer end of the shaft 14 carries a wheel or disk 25 having a hub 26 attached to the shaft by a set screw or bolt 27 or otherwise, and the wheel or disk 25 has arms or handles 28 by means of which the shaft 14 can be turned, carrying with it the eccentric 13, for the eccentric to act and raise and lower the plate 9 with the actuating devices carried by the plate.

It will be seen that the operator of the machine, through the hand wheel on the shaft 14, can operate or turn the eccentric 13 and thereby raise and lower the plate 9 and the actuating devices, so as to properly center or register the picture for correct taking and for correct display, thus enabling the picture to be properly registered where the feed of the ribbon does not center or register the pictures with the sight opening. This centering or registering of the pictures with the sight opening in no manner interferes with the operation of the machine as a whole, as no matter what position the plate 9 may occupy the actuating devices will not be thrown out of use or disarranged. This raising and lowering of the supporting plate 9, with the actuating devices carried thereby, enables the operator to readily and quickly register the pictures and thereby overcome any defect there might be in the operation of the machine, as to the feed of the picture film or ribbon in presenting the pictures.

The side plate or frame piece 6 has therein a slot 29 for the passage of the socket or head 30 of a crank arm 31 having a grab for the hand of the operator. The socket or head 30 has in its end face a T slot 32 into which is entered a pin 33 on a hub or sleeve 34 of a gear 35, and the slot 32 and the pin 33 furnish a connection between a crank 31 and gear 35 for driving the gear. The gear 35 is loosely mounted on a shaft 36 supported in bearings or journal boxes at the end of bracket arms 37 attached to the movable plate 9, as shown by dotted lines in Fig. 2.

The periphery of the gear 35 has inclined cogs which mesh with inclined cogs of a pinion 38 fixedly attached to a shaft 39 supported in journal boxes or bearings 40 attached to the movable plate 9, as shown in Fig. 1. The shaft 39 has fixedly secured thereto a gear 41 with inclined cogs or ribs on its periphery, and this gear meshes with a pinion 42 having inclined cogs and fixedly secured to a shaft 43, supported at one end in a journal box or bearing 44 on an arm 45 of a plate 46, attached to the plate 9 and slidably held in position by a guide 47 attached by screws or otherwise to the side piece or plate 6 of the frame. The opposite end of the shaft 43 is supported in a journal box or bearing 48 on an arm or support 49, depending from a plate 50 attached by screws or otherwise to the face of the mov-

able plate 9, so that the shaft 43 and the parts connected therewith can be raised and lowered with the raising and lowering of the plate 9, in the operation of the machine.

5 The shaft 43 has fixedly secured thereon a pinion 51 which meshes with a pinion 52 fixedly attached to the end of a vertical shaft 54, which shaft is mounted in a suitable journal box or bearing 55 on the arm 45, and is
10 held in position in the journal box or bearing by the hub 53 of the pinion 52 and a collar 56 attached to the shaft by a set screw or otherwise. The upper end of the shaft passes through a box or bearing 57 in an arm or
15 cross bar 58 projecting out from a plate 59, attached by screws or otherwise to the face of the movable plate 9, and above the box or bearing 57 the end of the shaft 54 has fixedly secured thereto a pinion 60, which meshes
20 with a gear 61 having cogs on its side face and fixedly mounted on a shaft 62 supported at one end in a box or bearing 63 on an arm 64 upwardly extending from the arm or bar 58, and supported at its other end in a box or
25 bearing 65 on an arm 66 of a plate 67, having depending ears for attaching the plate to the face of the plate 9 by screws or otherwise. The shaft 62 has fixedly attached thereto a roller 68 having on each end a series of en-
30 gaging pins 69 for taking into the perforations on the edges of the picture film or ribbon. A retaining roller 70 is mounted on a pin 71 and has at each end circumferential ribs 72, with a groove 73 between them, for
35 the ribs to engage the edges of the picture film or ribbon and insure the engagement of the pins 69 with the perforations of the picture film or ribbon, so that the revolving of the roller 68 will feed the picture film or ribbon. The pin 71 is mounted in the ends of
40 arms 74 attached to a sleeve 75 encircling a pin or shaft 76 supported in arms 66 and 66^a of the plate 67, and the sleeve has thereon a stop 77 engaged by the end of a spring 78, so
45 as to hold the roller 70 in proper relation to the roller 68 for the feed of the picture film or ribbon.

The shaft 54 on one side is cut away so as to furnish an open slot or passage 79, and the
50 body of the shaft 54 at the cut-away portion has thereon the hub 80 of a spur pinion 81, which is attached to the shaft so as to revolve therewith by a wedge or block 82 secured in the hub by the set screw 83 or otherwise.
55 (See Figs. 3, 5 and 6).

The pinion 81 meshes with a pinion 84 having a hub 85 and loosely mounted on a journal or pin 86 secured to an arm or plate 87, with an adjusting nut 88 around the journal
60 or pin and between the arm 87 and the pinion. The pinion 81 is held in position against endwise movement on the shaft 54 by stops 89 on a plate 90 attached to the arm 87. (See Figs. 2 and 16). The hub 85 of the
65 pinion 84 has connected therewith a shutter

or cut-off 91 by means of a backing 92, a washer 93 and a set screw 94 entered into the end of the journal or pin 86, so that the revolving of the gear 84 will revolve the shutter or cut-off 91 to control the sight opening
70 for taking and displaying the pictures. The shutter is located in proximity to a tubular wall 95 having the arm 87 extending out therefrom and having a central circular hole 96, and a square hole 97 in its outer end
75 wall, as shown in Fig. 16. The tubular wall 95 is attached by a foot or ear 98 and a suitable screw or otherwise to a cross piece 99 of a frame, having side and end strips 100, which frame at one end is attached to the
80 fixed post or plate 3 by tubes or rods 101, and at its other end is attached by a flange or plate 102 and suitable screws or otherwise to the post or plate 6, as shown in Fig. 16. The bars or plates 100 of the frame
85 at the sides and ends have flanges 103, forming a recess or chamber into which is entered a block 104, having attached thereto a metal plate or ring 105, with a circular hole 106 which alines with a circular hole 107
90 in the head or block 104, and the holes 106 and 107 are in line with an opening 108 in the frame and in axial alinement with the hole 96 of the wall or stop 95, so that a lens of the proper formation entered into the cir-
95 cular plate or ring 105 will properly aline with the display opening for the picture. It will thus be seen that the shutter or cut-off 91 and its operating gear and the support for the lens have a fixed relation, while the plate
100 9, with the actuating devices carried thereby, can be raised and lowered, thus enabling the operator to adjust the display opening properly for centering or focusing the picture on the sheet or screen on which it is displayed,
105 and that the movement of the plate 9 with the actuating devices carried thereby to properly register or center the picture does not in any way affect or change the position of the lens and the shutter, which remain
110 operative irrespective of the movable plate 9 and the parts carried thereby.

The plate 9 has therein a rectangular opening 109 for projecting the pictures onto the screen or sheet, and this opening 109 is in
115 line with a similar opening 110 in a rectangular frame 111, entered into a rectangular opening 112 of a swinging plate 113 (see Figs. 7, 10, 16) held in place by springs 114 each carried by a plate 115 pivotally attached
120 to a lug 116 on the plate 113, so that the springs 114 on each side can be turned to engage with or be disengaged from the side bars of the frame 111, for holding the frame in place, so as to have a slight yield for the passage of
125 the picture film or ribbon between the inner face of the frame and the face of the plate 9. The swinging plate 113, at its lower end, has a sleeve 117 mounted on a journal or pin 118, supported from one of the arms 37 for the
130

shaft 36 or otherwise, so as to be movable with the plate 9. The picture film or ribbon passes through the opening 119 between the frame 111 and the movable plate 9, and the plate 9 has a guideway or passage 120 for the travel of the ribbon; and, as shown, the inner face of the plate 113 also has a guideway or passage 121, so that the ribbon has a free line of travel and is not liable to become clogged or interrupted in its travel, and the ribbon passes through an opening 122 in the base plate.

The swinging plate 113, below the opening 112 has therein an opening 123 in which is entered a face plate 124, held in place by springs 125 each on a plate 126 pivotally mounted on a stud 127 of the plate 113, so that the springs will support the face plate 124 yieldably for the passage of the picture film or ribbon, between the face plate and the plate 9, through a passage corresponding to the passage 119. The face plate 124 has on its inner face ribs 128 with a slot between them, and the passage corresponding to 119 is formed between the edge faces of the flanges or ribs 129 and the plate 9, as shown in Figs. 7 and 10. A cross head 130 having at each end a plurality of pins 131 is located in coöperative relation with the face plate 124, for the ends of the pins 131 to be projected into the slots 129 with the forward throw of the cross head, and to be withdrawn from the slots 129 with the rearward throw of the cross head. The body of the cross head has therein a T slot 132 for the reception of a plate 133 attached to the end of an arm 134; and the arm is slidably in a recess 135 formed in the arm 49, so that the arm 34 can be reciprocated; and, in order to allow of the reciprocating movement, the arm 134 has in its end a slot 136 passing over the shaft 43, as shown in Fig. 12. A pin 137 projects out from one side face of the arm 134 and carries a roller 138, which enters a cam groove having a circular portion 139, a projected portion 140 and a receded portion 141, and formed in a disk 142 fixedly mounted by its hub 143 on the shaft 43, so as to revolve with the shaft. The revolving of the disk 142, through the cam groove therein and the roller 138, gives the arm 134 a reciprocating movement by which, through the plate 133, the cross head 130 is given an in and out throw to advance and withdraw the pins 131 from engagement with the perforations of the picture film or ribbon. The pins 131 are advanced and receded through a slot 144 for each set of pins, each slot formed in the plate 109, and each slot of a sufficient length for the rising and falling movement of the cross head and pins. The pins pass through holes 145 in cross arms 146 on a plate 147, which plate, at its upper end, is guided and held in a slot 148 formed in the plate 50, and is guided and held at its lower

end in a T slot 149 formed in a plate 150, attached to the plate 9 and having a catch plate 151 projecting out from its lower end, as shown in Fig. 10. The lower end of the plate 147 has a pin 152 on which is mounted a roller 153, projecting through the T slot 149 and entering a cam groove having a true circle portion 154, end portions 155, practically straight portions 156, and a depressed portion 157 uniting the straight portions, as shown in Fig. 9. The cam groove having the sections 155, 156 and 157 is formed in a disk 158 fixedly mounted on a shaft 159, journaled at one end in the plate 9 and at the other end in a cross bar 160 attached at its ends to the plate 9. The shaft 159 has fixedly attached thereto a pinion 161, which meshes with a pinion 162 on a shaft 163, supported in boxes or bearings 164 depending from the cross bar 160, and the shaft 162 has fixedly mounted thereon a spur pinion 165 in mesh with the gear 41 so as to drive the shaft 163 from the gear 41. The shaft 163 is held against endwise movement by collars 166 on the shaft and the hubs of the pinions 162 and 165, and on the shaft 163 is a sprocket wheel 167.

The revolving of the shaft 163 from the gear 41 through the pinion 165 revolves the pinion 162, and through the pinion 161 revolves the shaft 159, and with it the disk 158, and the revolving of the disk 158, through the cam groove therein and the roller 153, gives an up and down throw to the bar 147 carrying with it the cross arms 146, and, by means of the pins 131 in the holes 145 of the cross 146, gives an up and down throw to the cross head 130 and its pins 131. It will thus be seen that by means of the cam groove of the disk 142 and the cam groove of the disk 158, the cross head 130 with the pins 131 is given a positive in and out throw and also a positive up and down throw, by which the pins are made to act in correlation with the roller 68, and properly feed the picture film or ribbon for taking and displaying the pictures on the receiving screen or sheet.

The operation will be understood from the foregoing description, but briefly is as follows: The operator, through the shaft 14, turns the eccentric 13, so as to properly adjust the movable plate 9 and the devices carried thereby in position to accurately center or register the pictures in relation to the sight opening for projection on the screen or sheet. After the proper adjustment has been made the operator, by turning the crank 31, revolves the shaft 36, and through the gear 35 and the intermeshing gears actuates the several parts. The picture film or ribbon passing over the roller 68 is by such roller, in connection with the claw or finger having the pins 131, advanced and held momentarily to present a picture in front of the sight opening for projection on the screen or sheet, or

to take the pictures on the film or ribbon accordingly as the machine is used for displaying pictures or for making pictures. The shutter or cut-off is actuated so as to rapidly
 5 open and close the sight opening in proper time with the feed of the picture film or ribbon. The several devices are positively actuated from the main driving shaft and by their use a machine is provided by which the
 10 taking of pictures and the projecting of the pictures is attained with great accurateness and with rapidity and precision.

The machine is positive in operation, as regards the feeding of the picture film or
 15 ribbon and the operation of the shutter or cut-off, thereby insuring the operation of the several devices positively and accurately, making the machine a simple one for taking and projecting the pictures.

20 The shutter or cut off and its driving gear have the same fixed relation irrespective of whether the operating parts of the machine are raised or lowered, so that, no matter what the adjusted position of the parts may be,
 25 the shutter or cut off remains unchanged. This arrangement enables a shutter or cut off of less width circumferentially to be used, thereby reducing the period of time for the operation of the cut off, thus enabling a
 30 much more rapid exposure to be attained.

What I claim as new and desire to secure by Letters Patent is:

1. In a picture making and displaying machine, the combination of fixed guide plates
 35 one for each side of the machine, a vertically movable plate located between the side guide plates and carrying all of the operating mechanisms for the machine, an eccentric engaging the lower end of the vertically
 40 movable plate, a shaft having the eccentric fixed thereon, and means for turning the shaft and eccentric and raising and lowering the plate into adjusted position for registering the pictures, substantially as described.

45 2. In a picture making and displaying machine, the combination of fixed guide plates one for each side of the machine, a vertically movable plate located between the side guide plates and carrying all of the operating
 50 mechanisms for the machine, an eccentric engaging the lower end of the vertically movable plate, a shaft having the eccentric fixed thereon, a wheel fixed on the shaft and a handle for the wheel for turning the shaft
 55 and eccentric and raising and lowering the plate into adjusted position for registering the pictures, substantially as described.

3. In a picture making and displaying machine, the combination of fixed guide plates,
 60 one for each side of the machine, a vertically movable plate located between the side guide plates and carrying all of the operating mechanisms of the machine, transverse guides on the vertically movable plate at its
 65 lower end, an eccentric located between and

in engagement with the guides, and means for turning the eccentric and raising and lowering the plate into adjusted position for registering the pictures, substantially as described.

4. In a picture making and displaying machine, the combination of fixed guide plates, one for each side of the machine, a vertically
 70 movable plate located between the side guide plates and carrying all of the operating mechanisms of the machine, transverse
 75 guides on the vertically movable plate at its lower end, an eccentric located between and in engagement with the guides, a shaft having the eccentric fixed thereon, and means for
 80 turning the shaft and causing the eccentric to operate and raise and lower the plate into adjusted position for registering the pictures, substantially as described.

5. In a picture making and displaying machine, the combination of a revoluble roller
 85 over which the picture film or ribbon continually travels, a vertically adjustable plate having a longitudinal guideway through which the picture film or ribbon passes, and
 90 an intermittent feed mechanism for the picture film or ribbon, said mechanism consisting of a claw having a two-part member with a straight line in and out throw and a one-
 95 part member with a straight line up and down throw, and connected with one part of the two-part member, and revolving cams, one cam for each member, for actuating both
 100 members and engaging and disengaging the claw with and from the picture film or ribbon, substantially as described.

6. In a picture making and displaying machine, the combination of a revoluble roller
 105 over which the picture film or ribbon continually travels, a vertically adjustable plate having a longitudinal guideway through which the picture film or ribbon passes, an
 110 intermittent feed mechanism for the picture film or ribbon, said mechanism consisting of a claw having a two-part member with a straight line in and out throw and a one-
 115 part member with a straight line up and down throw, and connected with one part of the two-part member, revolving cams, one cam for each member for actuating both members
 120 and engaging and disengaging the claw with and from the picture film or ribbon, a shaft for each cam, and means for revolving both shafts, substantially as described.

7. In a picture making and taking machine, an intermittent feed mechanism for
 125 the picture film or ribbon, said mechanism consisting of a claw having a two-part member, one part slidably mounted on the other part and the member as a whole having an in and out throw in a straight line, and a one-
 130 part member having an up and down throw in a straight line and carrying with it the slidable part of the member having the in and out throw, a cam for actuating the two-part member having the in and out throw, a cam

for actuating the one-part member having the up and down throw, a shaft for each cam, and means for revolving both shafts, substantially as described.

5 8. In a picture making and displaying machine, an intermittent feed mechanism for the picture film or ribbon, said mechanism consisting of a member formed of a cross head having at each end a series of pins and an arm carrying the cross head slidably thereon and having an in and out throw in a straight line, a roller on the arm, a disk having a cam groove engaging the roller, a revoluble shaft carrying the disk, and means for giving the cross head an up and down throw in a straight line, substantially as described.

9. In a picture making and displaying machine, an intermittent feed mechanism for the picture film or ribbon, said mechanism consisting of a member formed of a cross head and having at each end a series of pins, means for giving the cross head an in and out throw in a straight line, a member formed of a movable bar having longitudinal arms, each provided with a series of holes for the passage of the cross pins of the cross head and having an up and down movement carrying with it the cross head, a roller on the movable bar, a disk, having a cam groove engaging the roller, and a revoluble shaft carrying the disk, substantially as described.

10. In a picture making and displaying machine, an intermittent feed mechanism for the picture film or ribbon, said mechanism consisting of two members, one member formed of a cross head having at each end a series of pins, an arm carrying the cross head slidably mounted thereon and having an in and out throw in a straight line, a roller on the arm, a disk having a cam groove engaging the roller, and a revoluble shaft carrying the disk, and the other member of the feed mechanism formed of a movable bar having lateral arms, each provided with a series of holes for the passage of the pins of the cross head, and having an up and down movement carrying with it the cross head of the two-part member, a roller on the bar, a disk having a cam groove engaging the roller, and a revoluble shaft carrying the disk, a pinion on each revoluble shaft, and a driving gear common to the pinions of the two revoluble shafts, substantially as described.

11. In a picture making and displaying machine, an intermittent feed mechanism for the picture film or ribbon, said mechanism consisting of two members, one member formed of a cross head having at each end a series of pins and an arm carrying the cross head slidably mounted thereon and having an in and out throw, and the other member formed of a movable bar having lateral arms, each provided with a series of holes for the passage of the pins of the cross head, and having an up and down movement carrying

with it the cross head, and revoluble cams, one cam for giving the cross head and its carrying arm an in and out throw, and the other cam for giving the cross head and the movable bar their up and down throw, substantially as described.

12. In a picture making and displaying machine, the combination of a vertically slidable plate having the operating mechanisms of the machine mounted thereon and having on each side of its vertical center line a vertical slot, and an intermittent feed mechanism for the picture film or ribbon mounted on the vertically slidable plate, said mechanism consisting of two members, one member formed of a cross head having at each end a series of pins adapted to project through the slots of the slidable plate, an arm carrying the cross head slidably mounted thereon and having an in and out throw, a roller on the arm, a disk having a cam groove engaging the roller, a revoluble shaft carrying the disk, and a driving pinion on the shaft, and the other member formed of a movable bar having lateral arms, each provided with a series of holes for the passage of the pins of the cross head, and having an up and down movement carrying with it the cross head, and roller on the bar, a disk having a cam groove engaging the roller, a revoluble shaft carrying the disk, and a driving pinion on the shaft, and a gear common to the pinions of the two revoluble shafts for projecting and withdrawing the pins through the slots of the vertically slidable plate, substantially as described.

13. In a picture making and displaying machine, an intermittent feed mechanism for the picture film or ribbon, said mechanism consisting of two members, one member formed of a cross head having at each end a series of pins, an arm carrying the cross head slidably mounted thereon and having an in and out throw in a straight line, a roller on the arm, a disk having a cam groove engaging the roller, and a revoluble shaft carrying the disk, and the other member of the feed mechanism formed of a movable bar having lateral arms, each provided with a series of holes for the passage of the pins of the cross head and having an up and down movement carrying with it the cross head of the two-part member, a roller on the bar, a disk having a cam groove engaging the roller, a revoluble shaft carrying the disk, a pinion on each revoluble shaft, a driving gear common to the pinions of the two revoluble shafts, in combination with a continuously revoluble shutter having a fixed relation and actuated irrespective of the position of the intermittent feed mechanism, substantially as described.

WILLIAM N. SELIG.

Witnesses:

WALKER BANNING,
PIERSON W. BANNING.