

No. 775,148.

PATENTED NOV. 15, 1904.

E. T. POLLARD.

MACHINE FOR MAKING BOXES FROM PAPER AND FOR FILLING SAME  
WITH CIGARETTES, &c.

APPLICATION FILED AUG. 27, 1903.

NO MODEL.

18 SHEETS—SHEET 1.

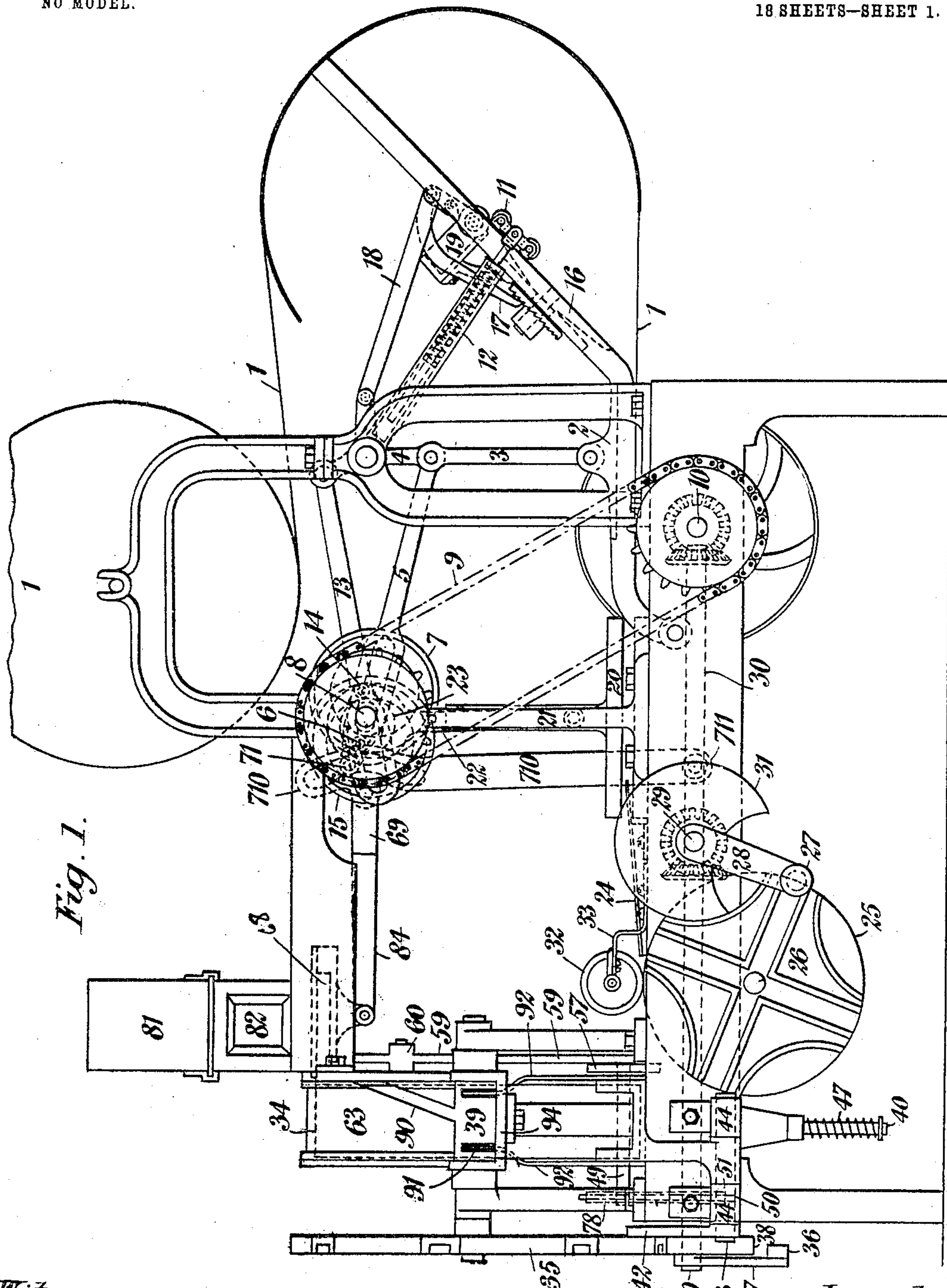


Fig. 1.

Witnesses  
*[Signature]*  
M. L. Adams

Inventor  
E. T. Pollard  
By his attorney  
*Baldwin Davidson Wright*

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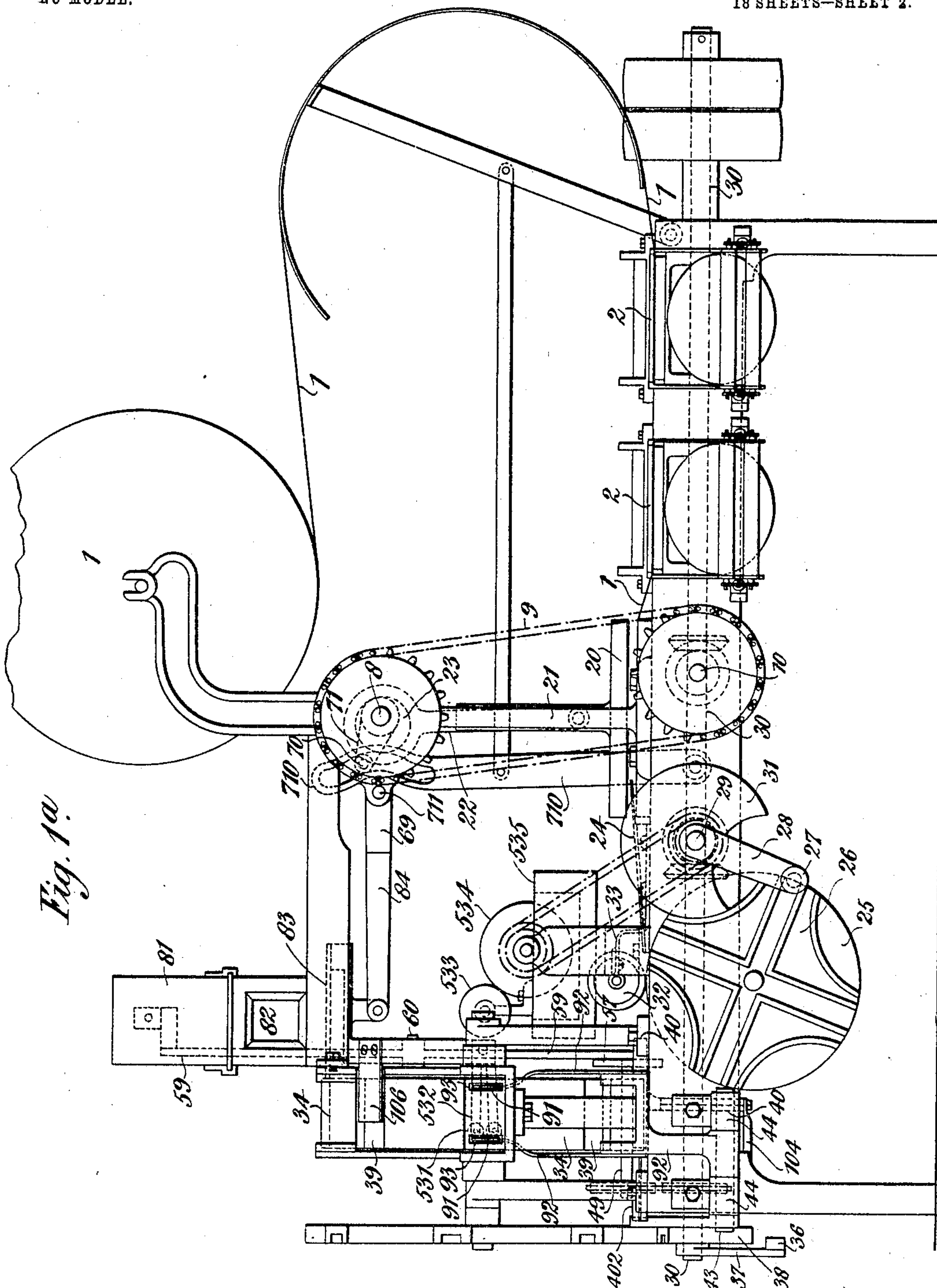


Fig. 1a.

Witnesses.  
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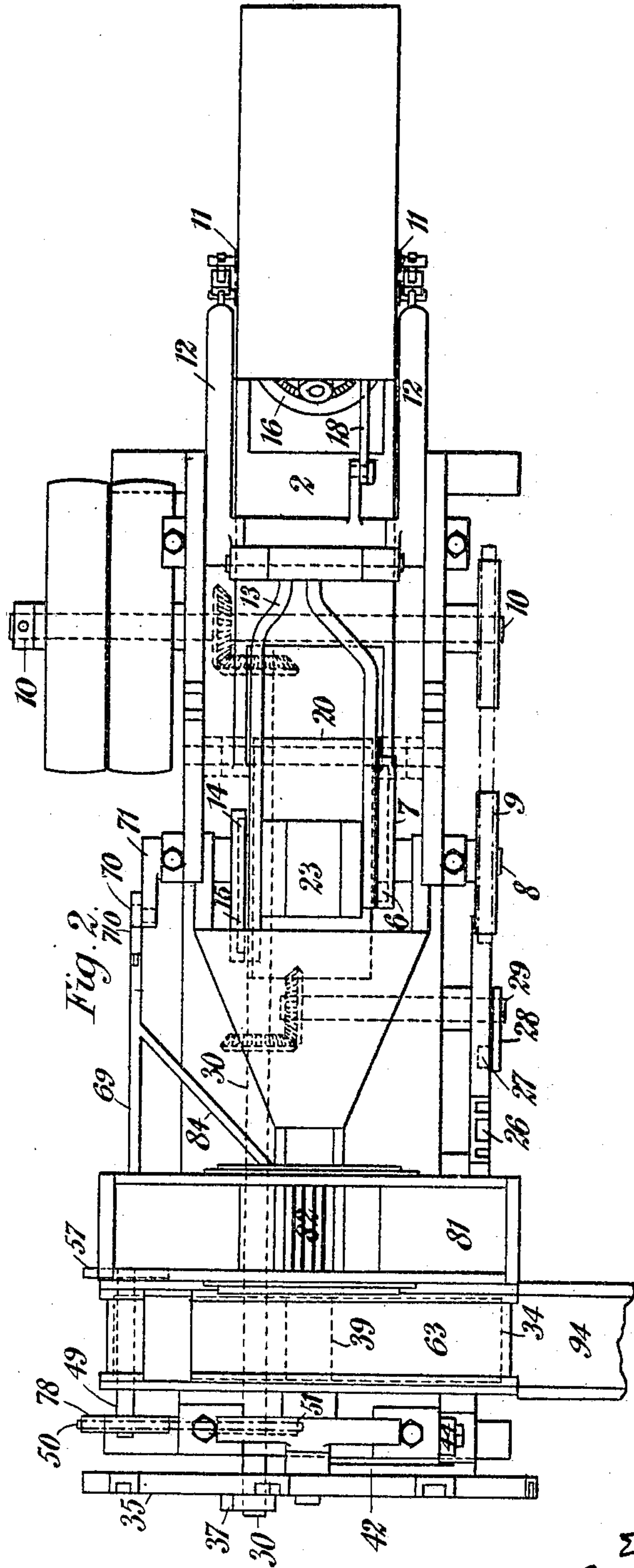
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18 SHEETS—SHEET 3.



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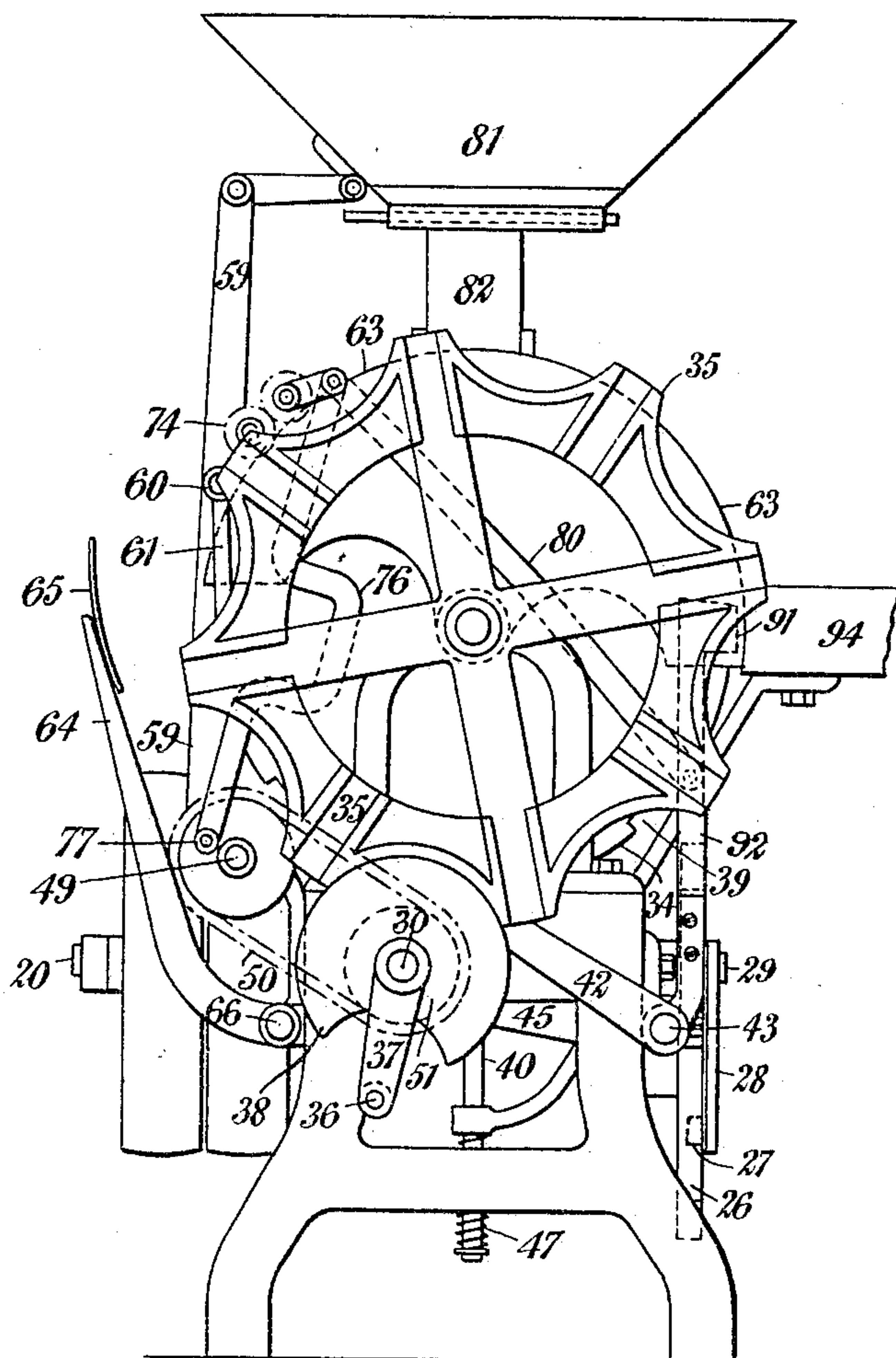
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18 SHEETS—SHEET 4.

Fig. 3.



Witnesses

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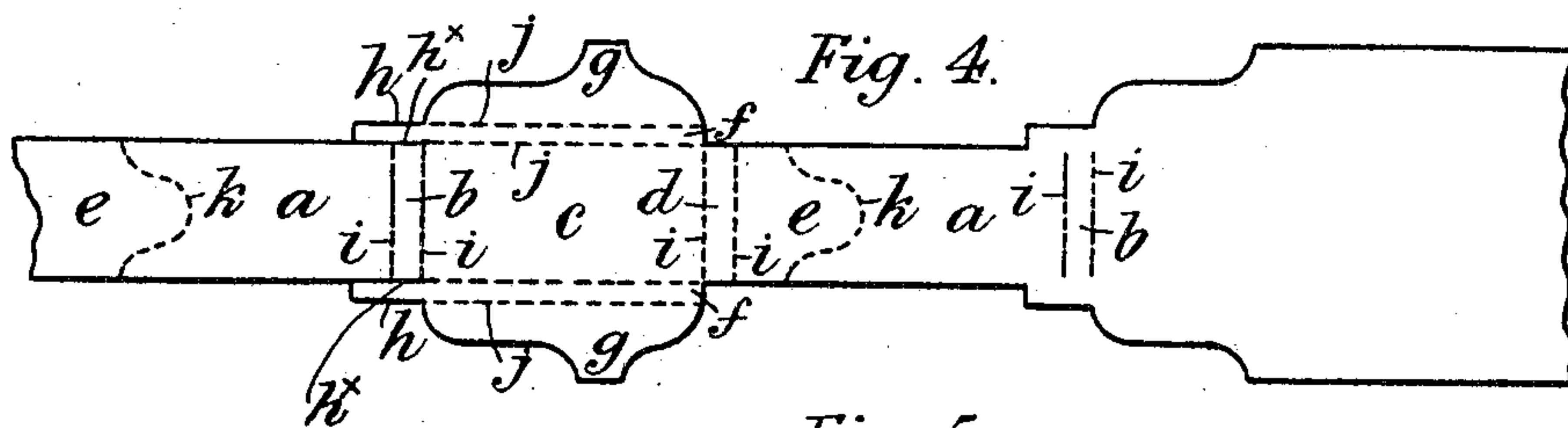
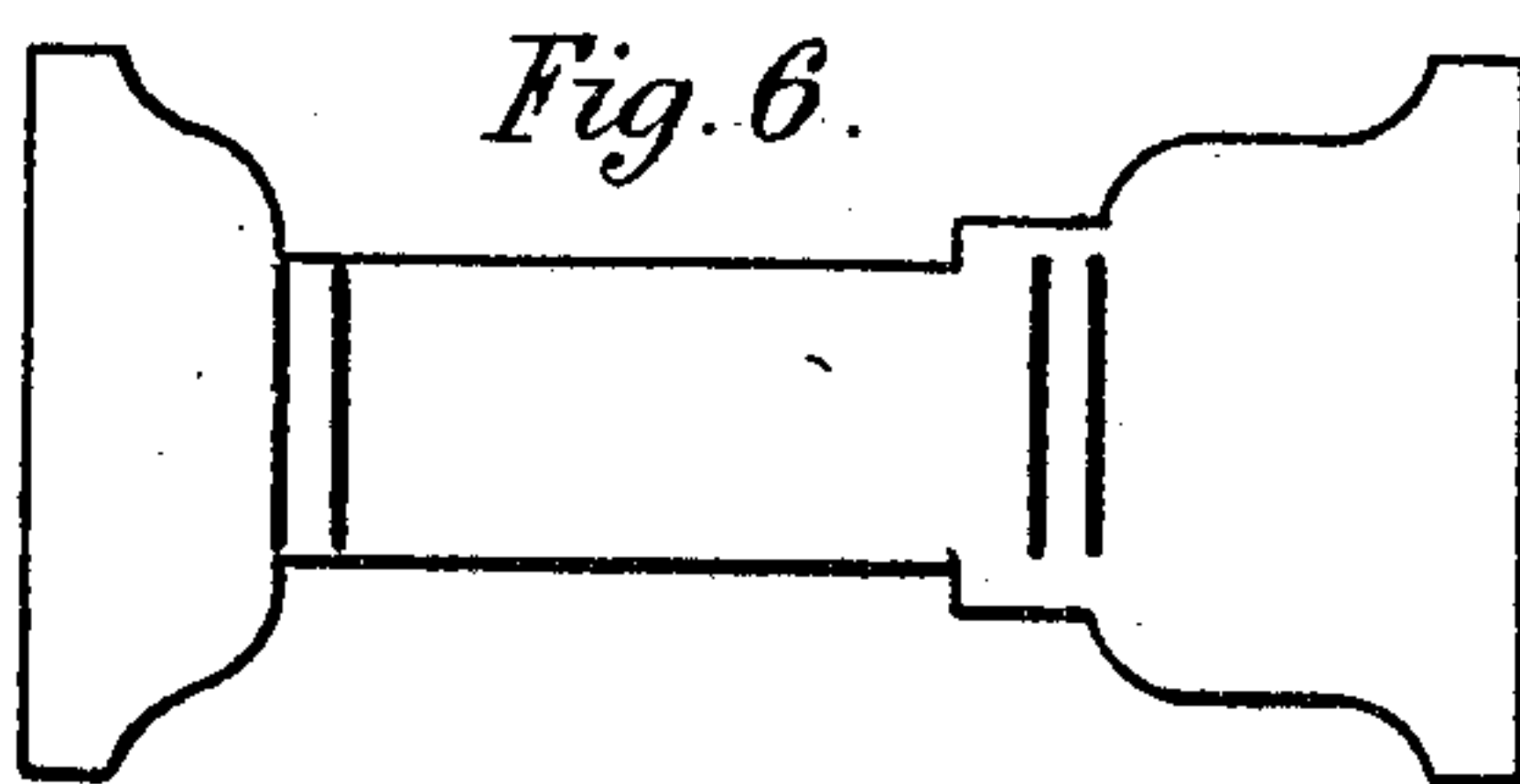


Fig. 5.



Witnesses

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18 SHEETS—SHEET 6.

Fig. 4<sup>a</sup>

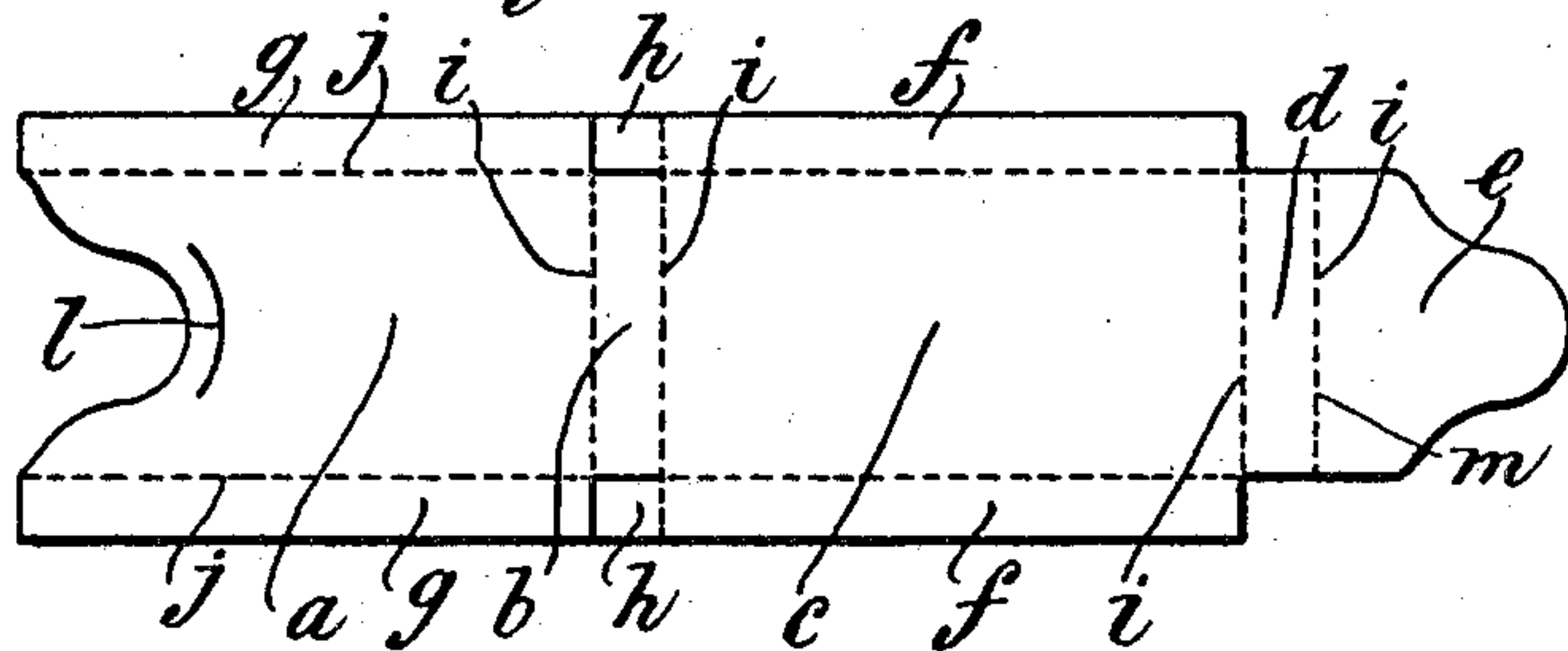


Fig. 5<sup>a</sup>

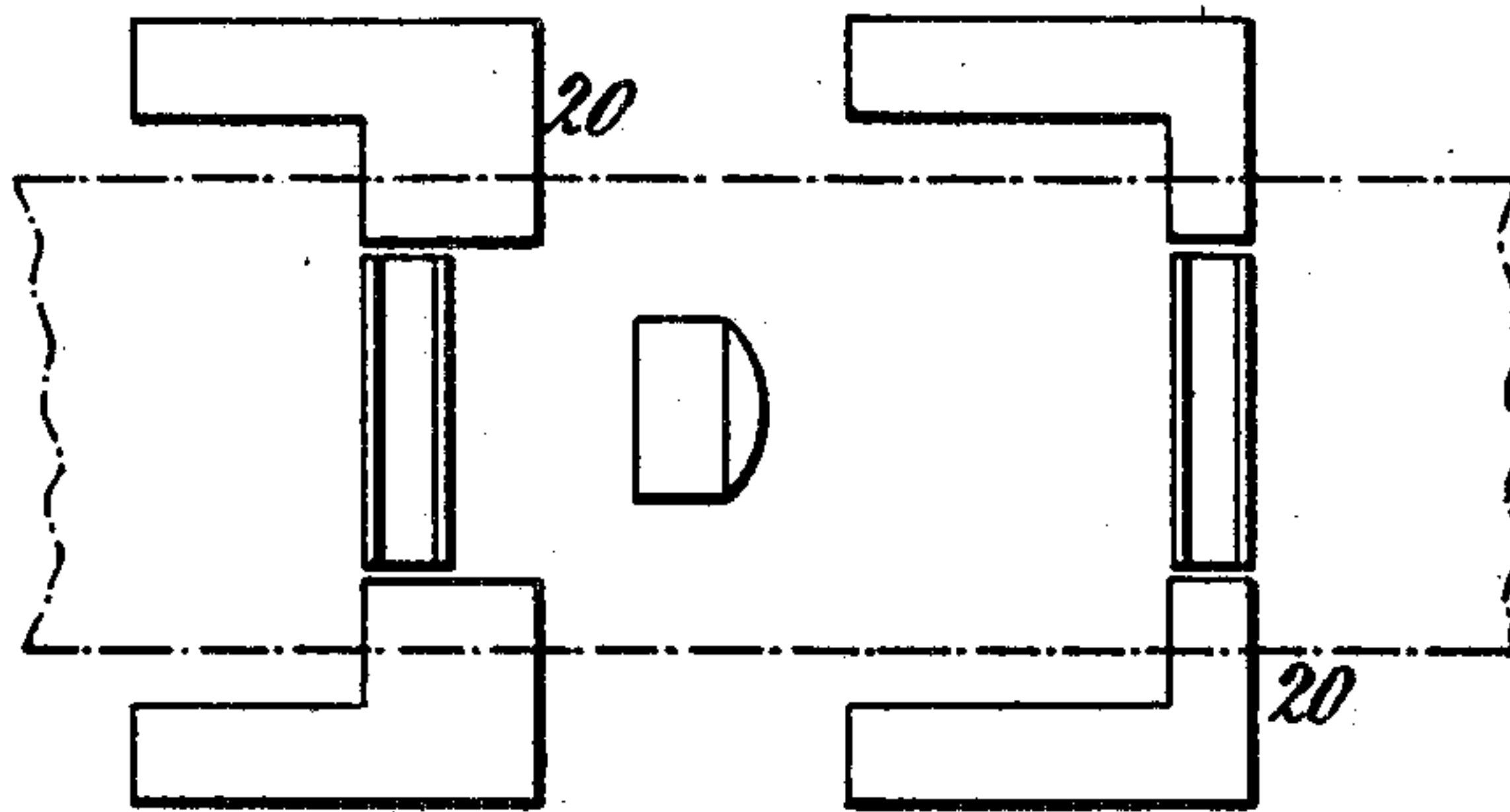
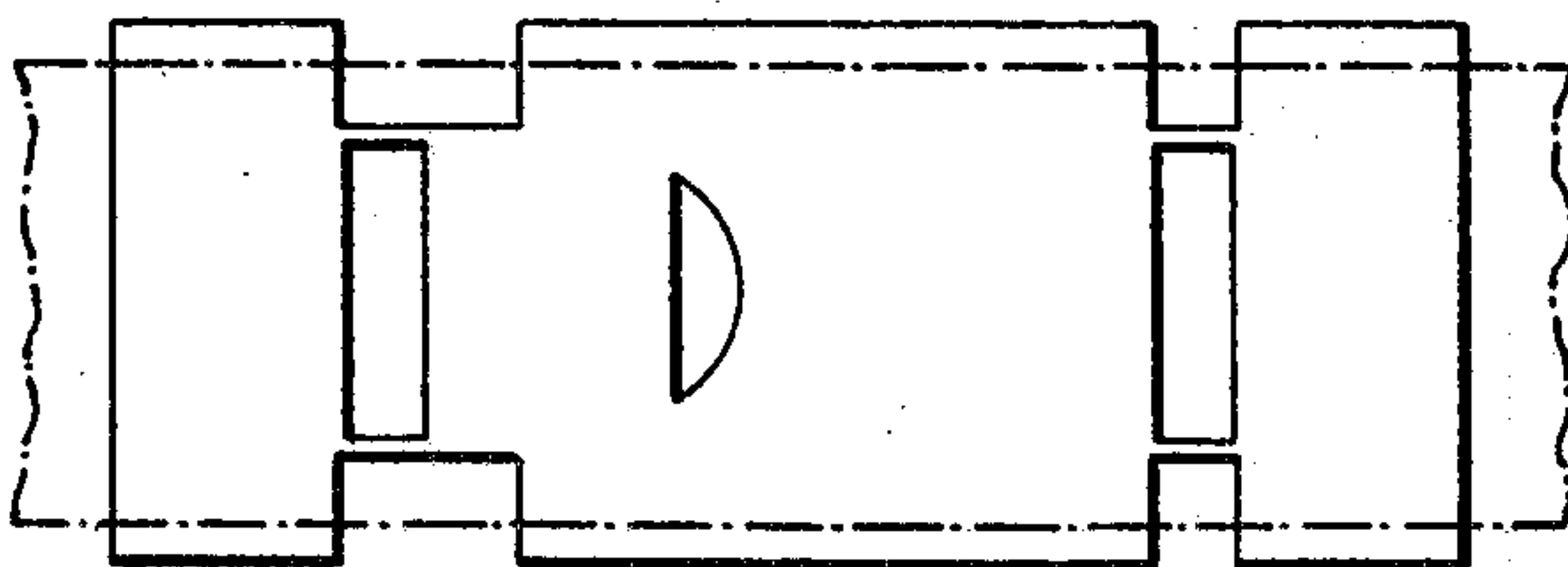


Fig. 6<sup>a</sup>



Witnesses.  
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18 SHEETS—SHEET 7.

Fig. 7.

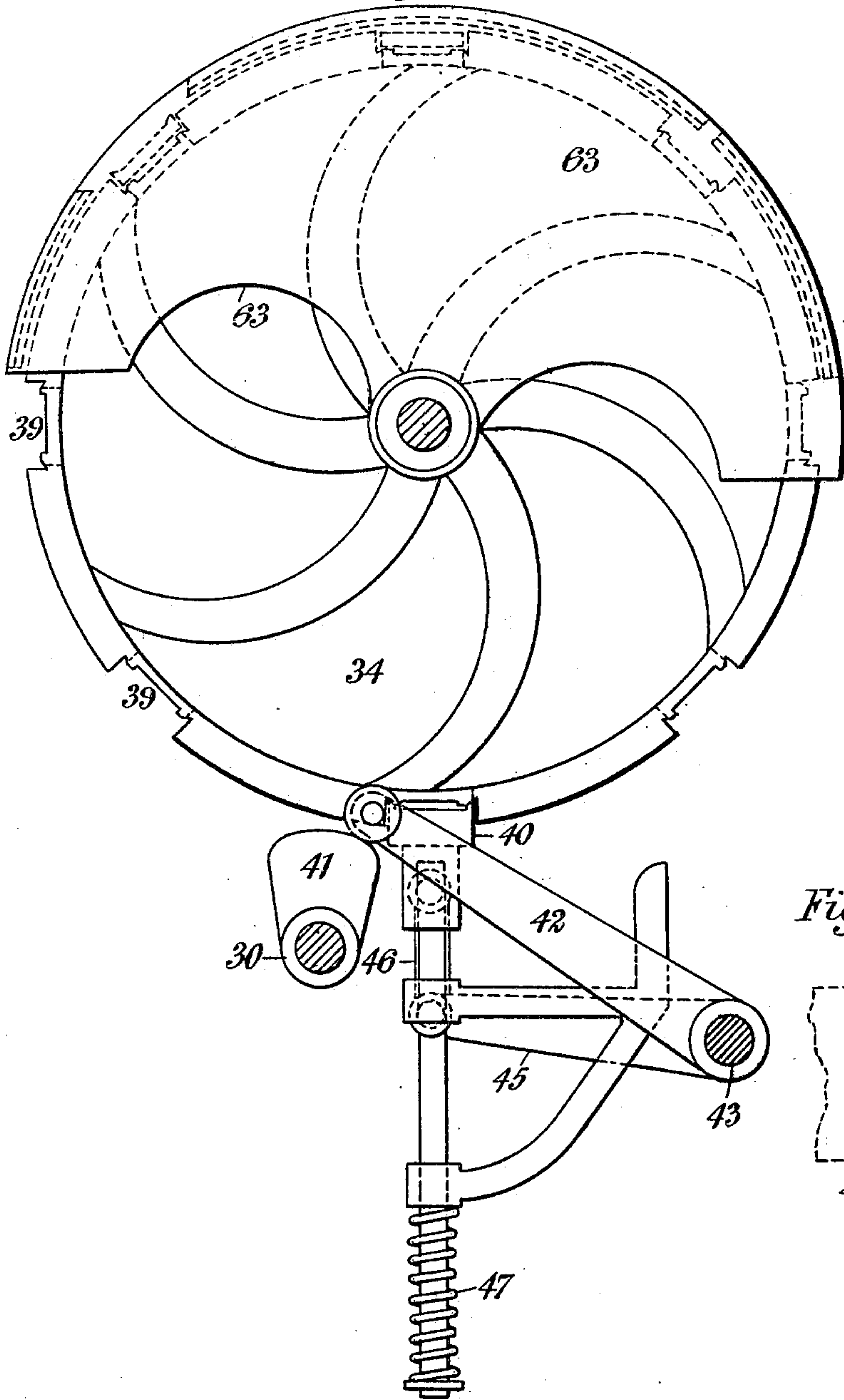


Fig. 8.

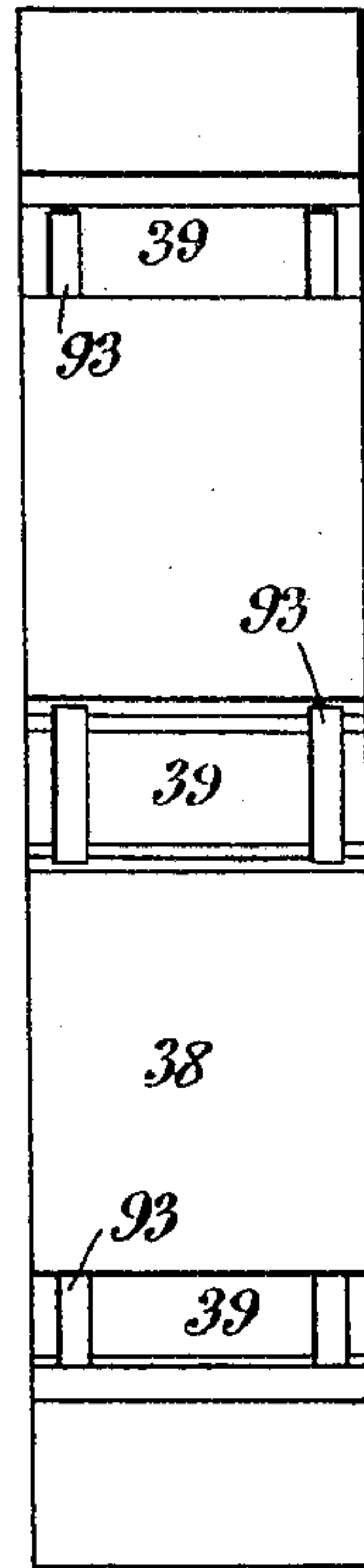
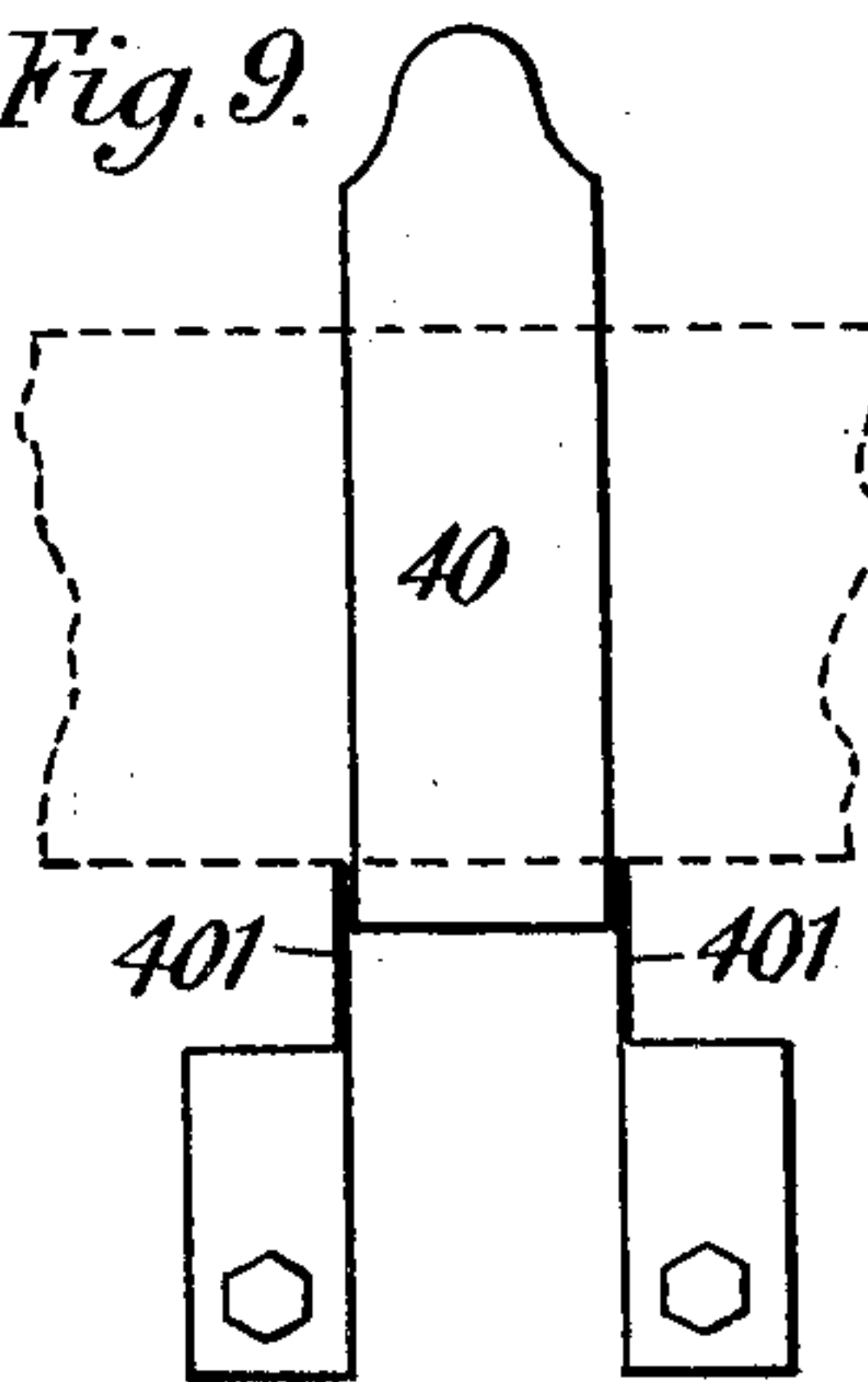


Fig. 9.



Witnesses  
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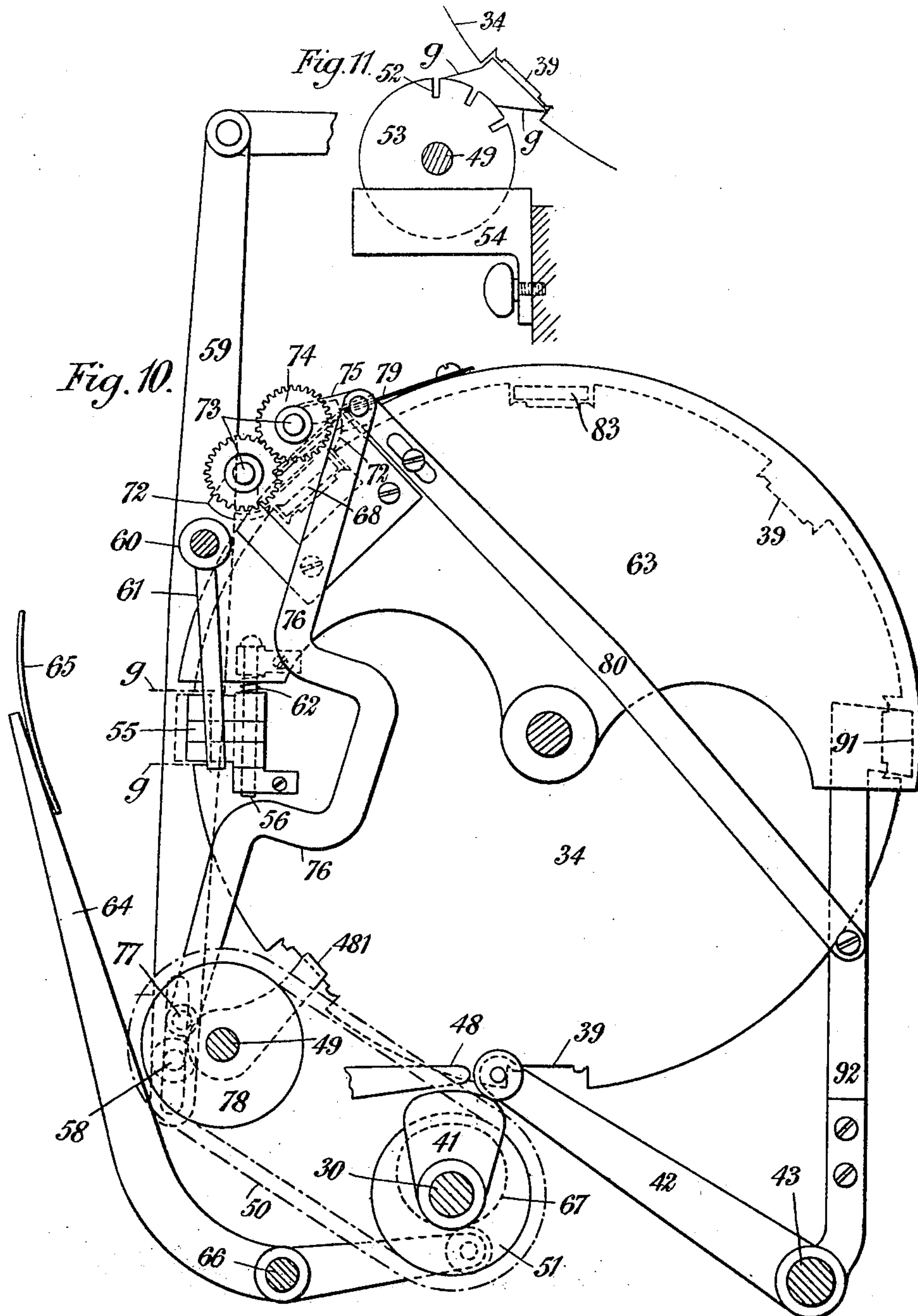
E. T. POLLARD.

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NO MODEL.

18 SHEETS—SHEET 8.



Witnesses  
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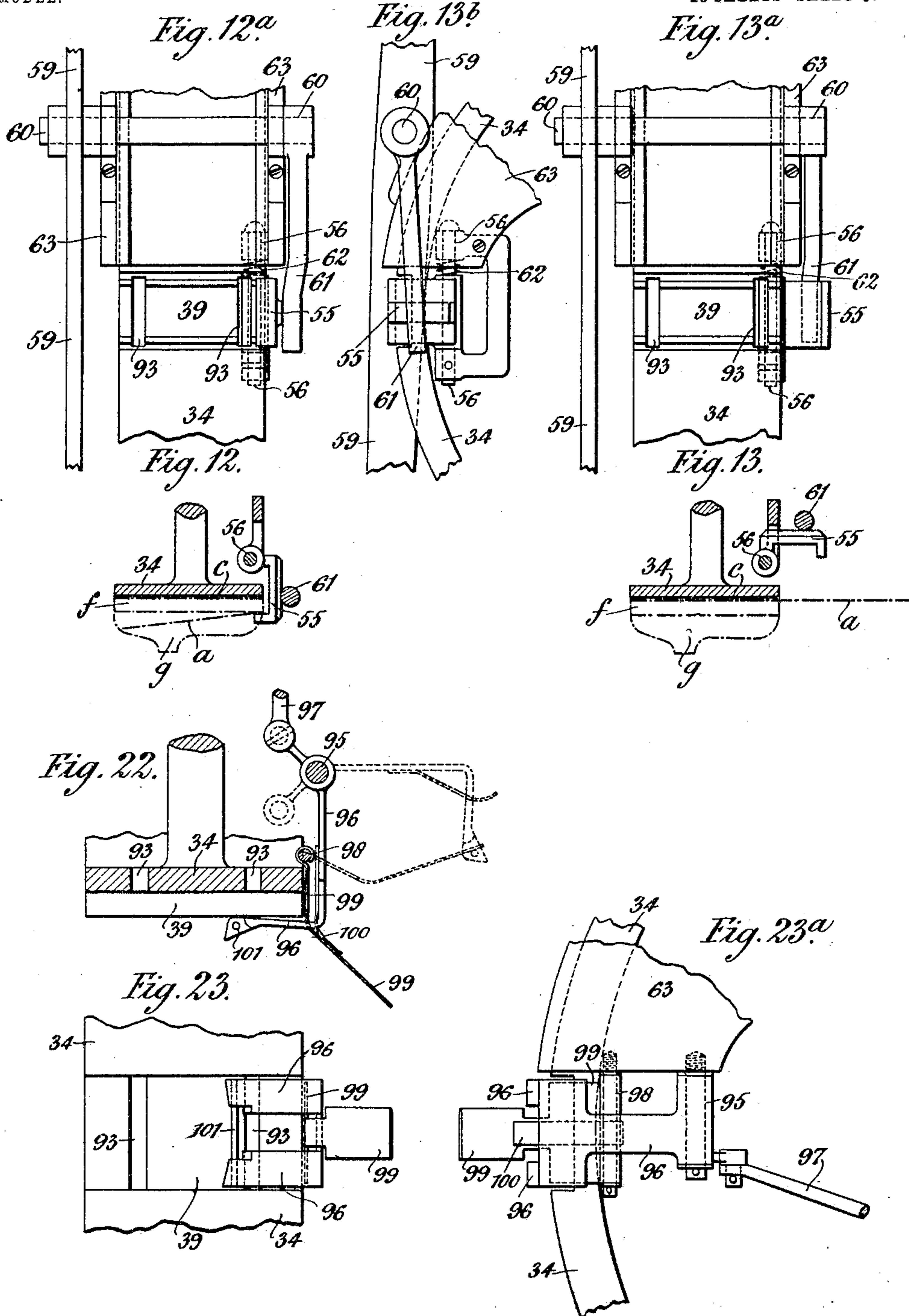
E. T. POLLARD.

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APPLICATION FILED AUG. 27, 1903.

NO MODEL.

18 SHEETS—SHEET 9.



Witnesses.  
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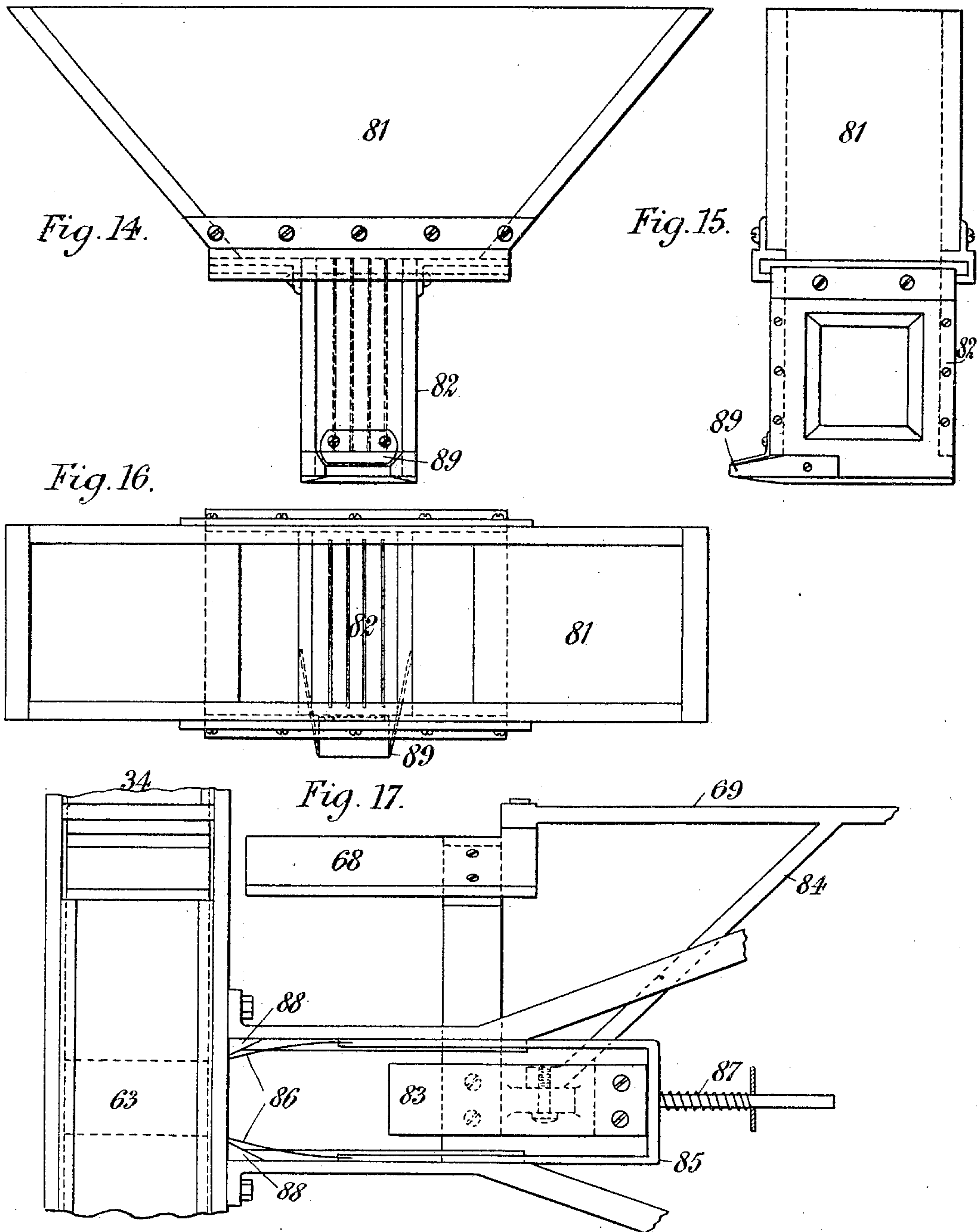
E. T. POLLARD.

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APPLICATION FILED AUG. 27, 1903.

NO MODEL.

18 SHEETS—SHEET 10.



Witnesses

*M. L. Adams*

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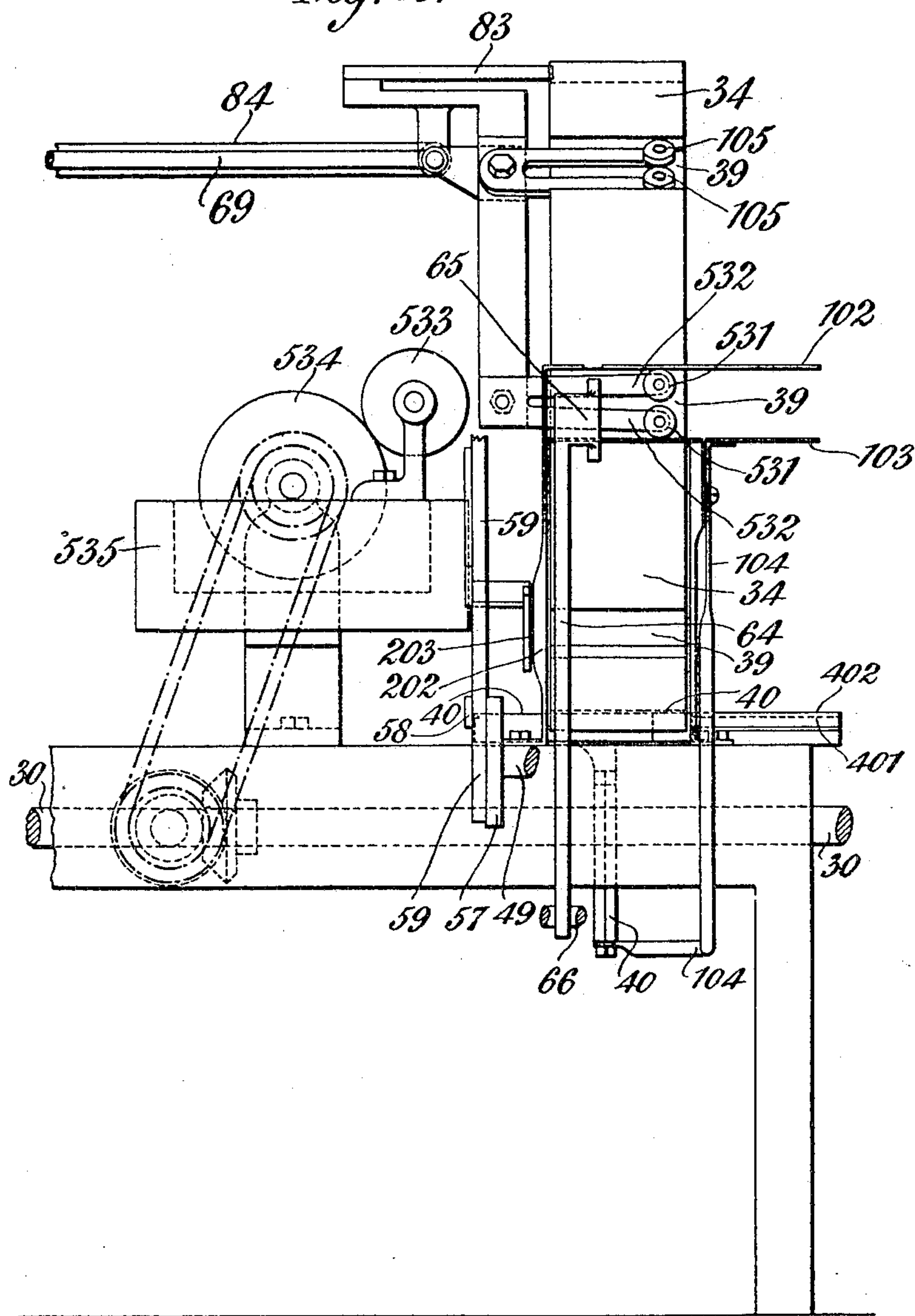
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NO MODEL.

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18 SHEETS—SHEET 11.

Fig. 18.



Witnesses.  
*Attest*  
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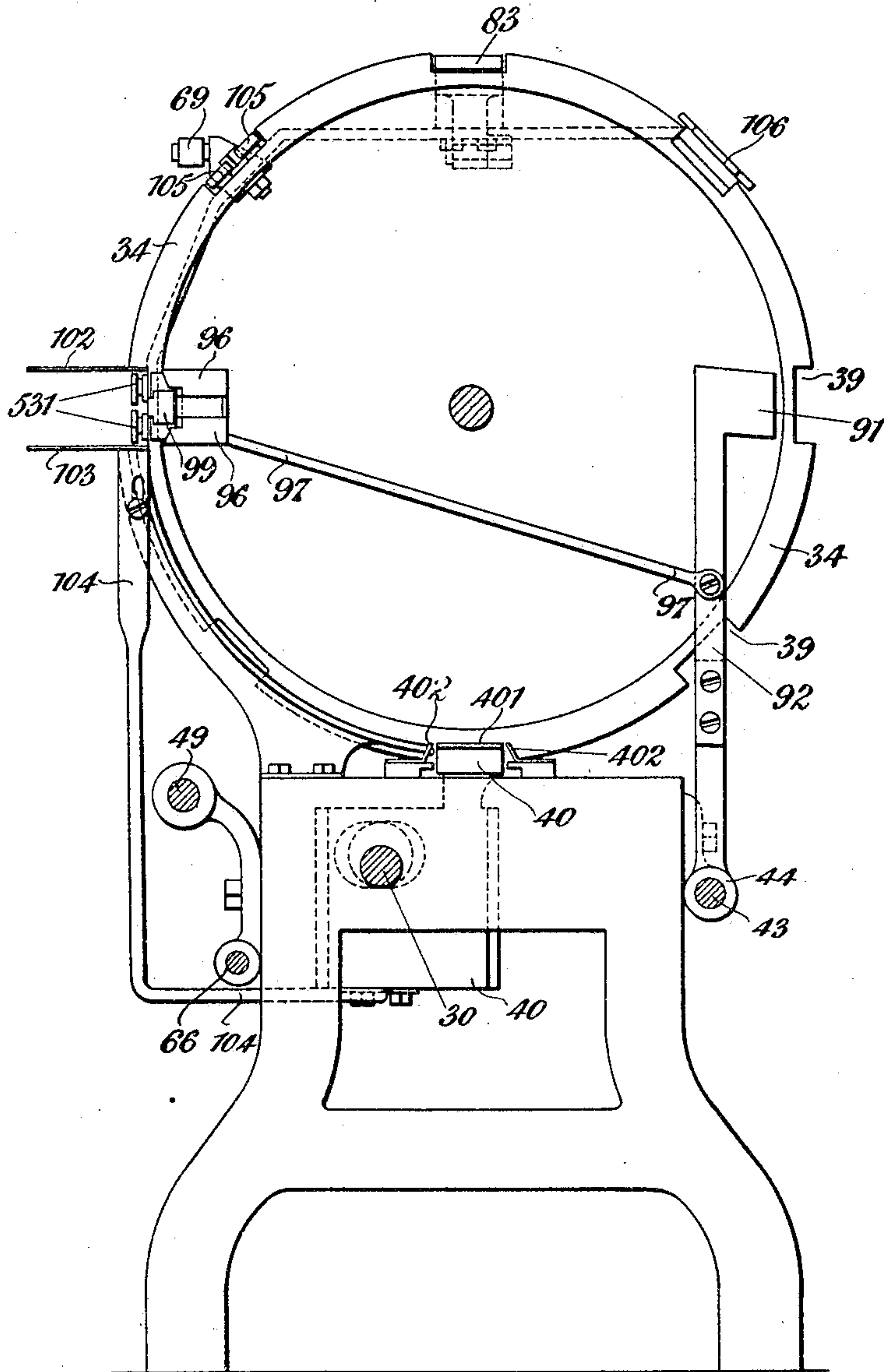
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APPLICATION FILED AUG. 27, 1903.

NO MODEL.

18 SHEETS—SHEET 12.

Fig. 19.



Witnesses

*Witnessing*  
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No. 775,148.

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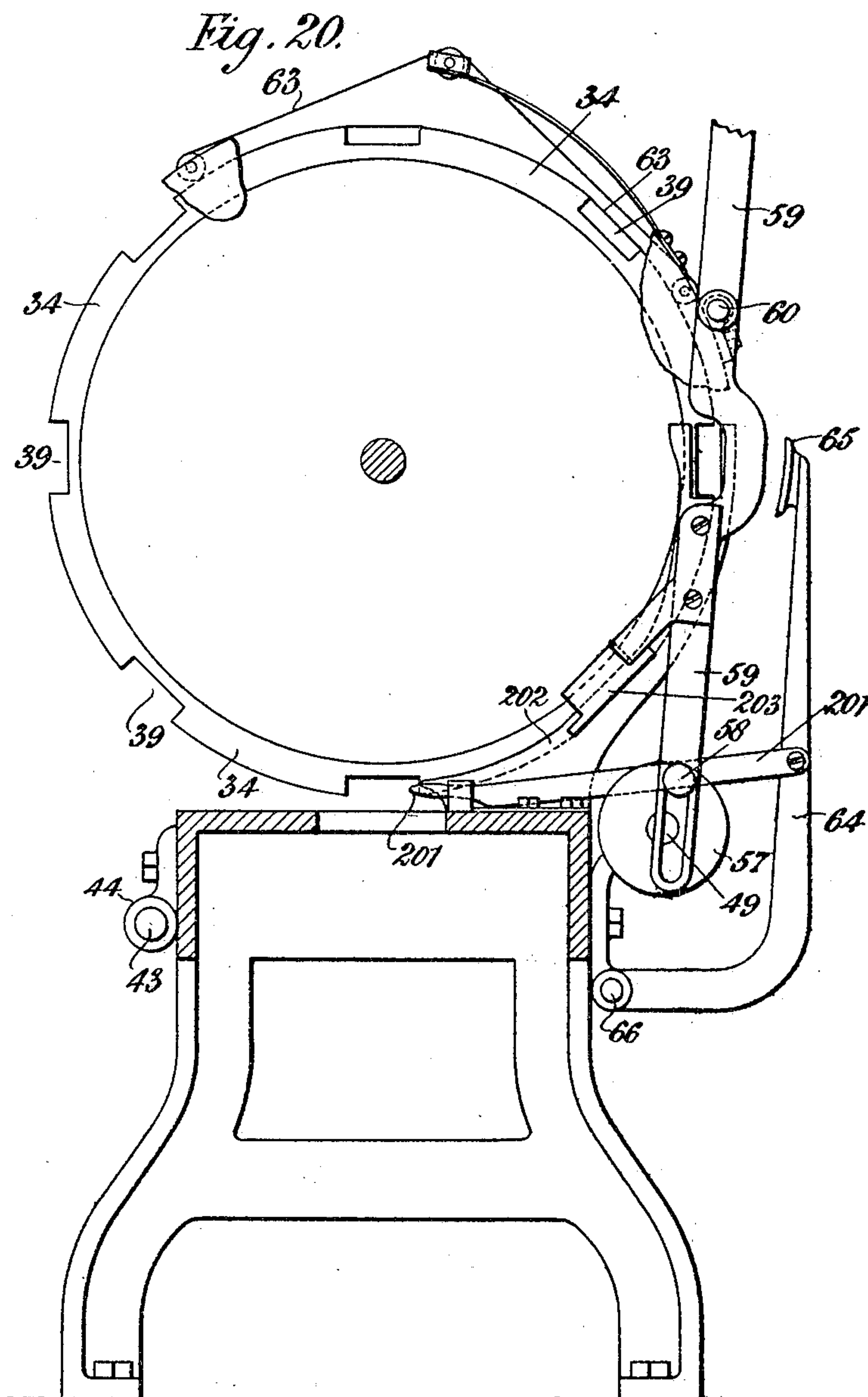
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APPLICATION FILED AUG. 27, 1903.

NO MODEL.

18 SHEETS—SHEET 13.



Witnesses.  
S. H. T. Mining  
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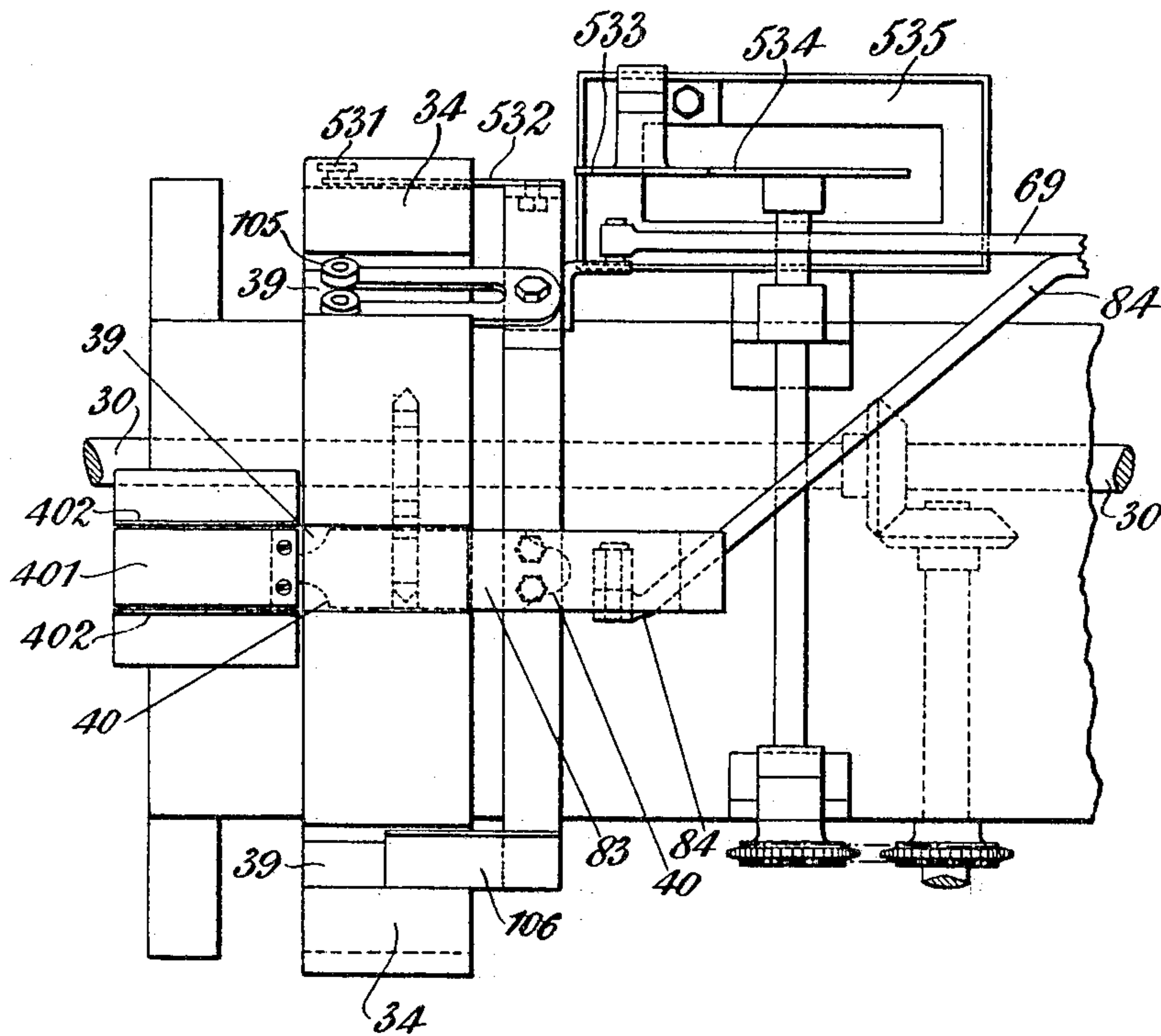
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NO MODEL.

APPLICATION FILED AUG. 27, 1903.

18 SHEETS—SHEET 14.

*Fig. 21.*



*Witnesses.*

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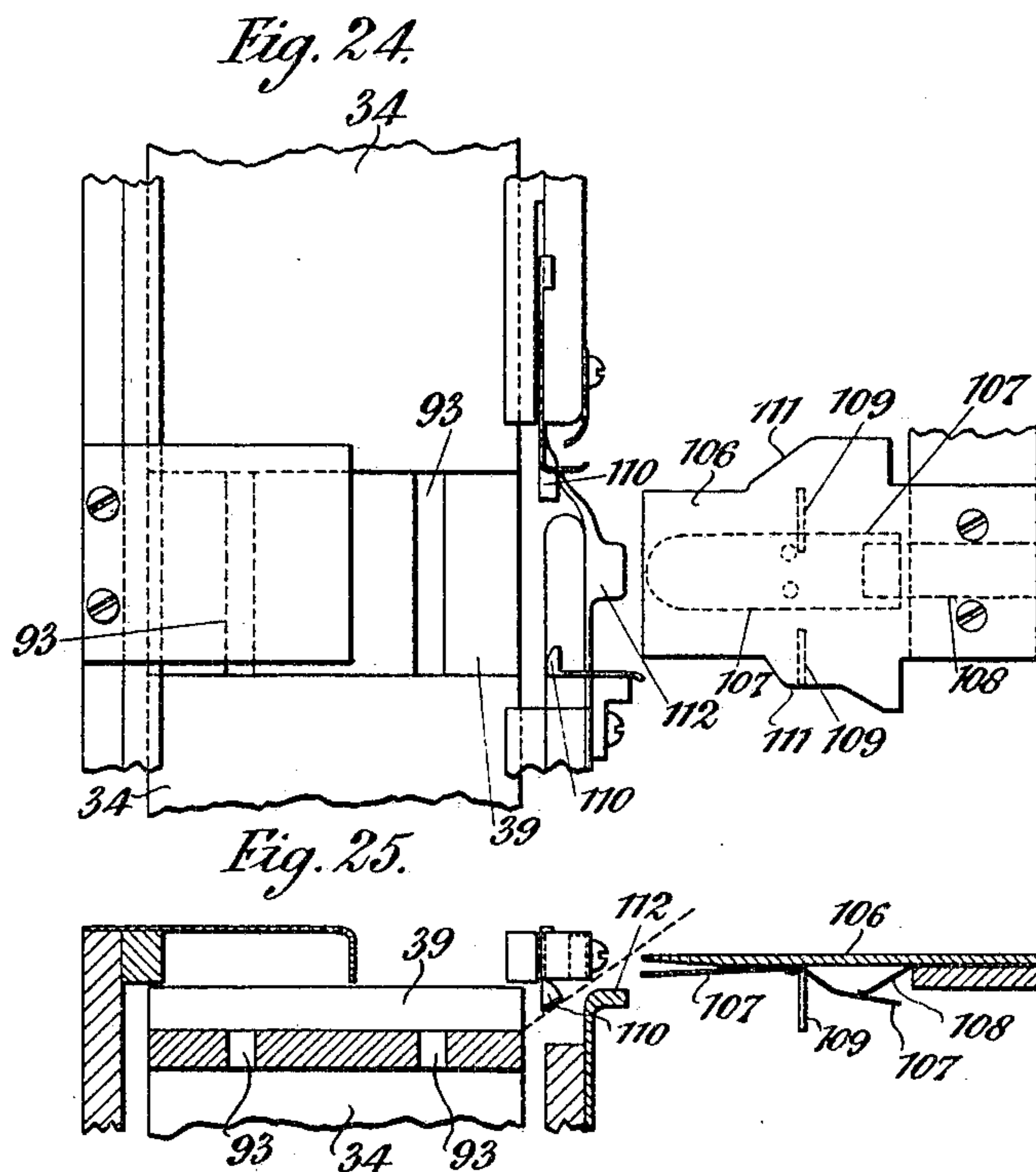
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18 SHEETS—SHEET 15.



Witnesses  
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18 SHEETS—SHEET 16.

Fig. A.

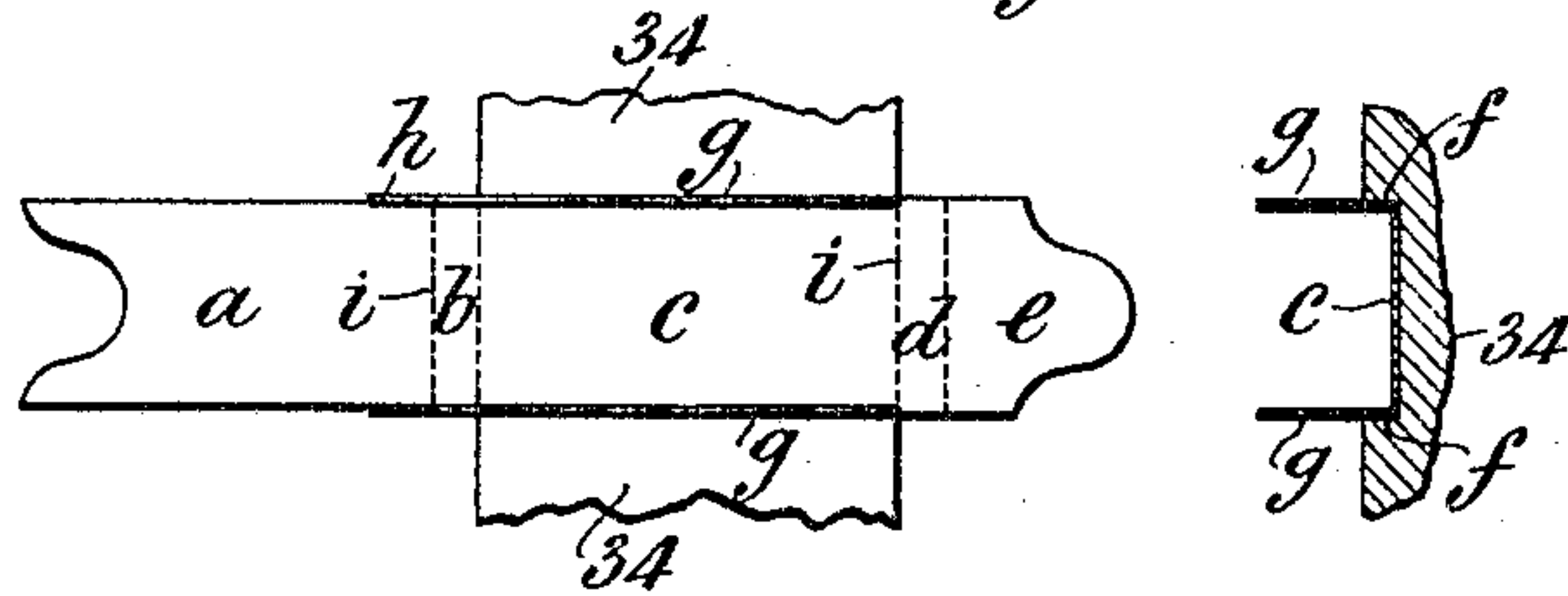


Fig. B.

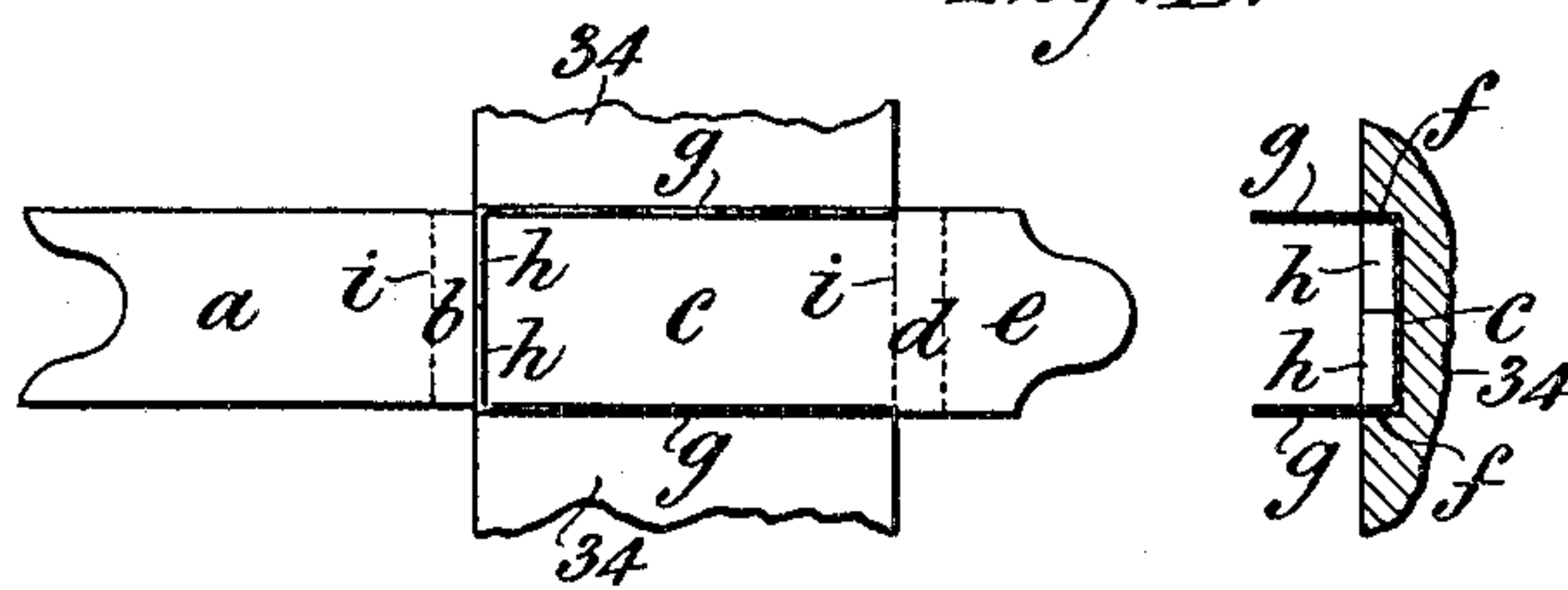


Fig. C.

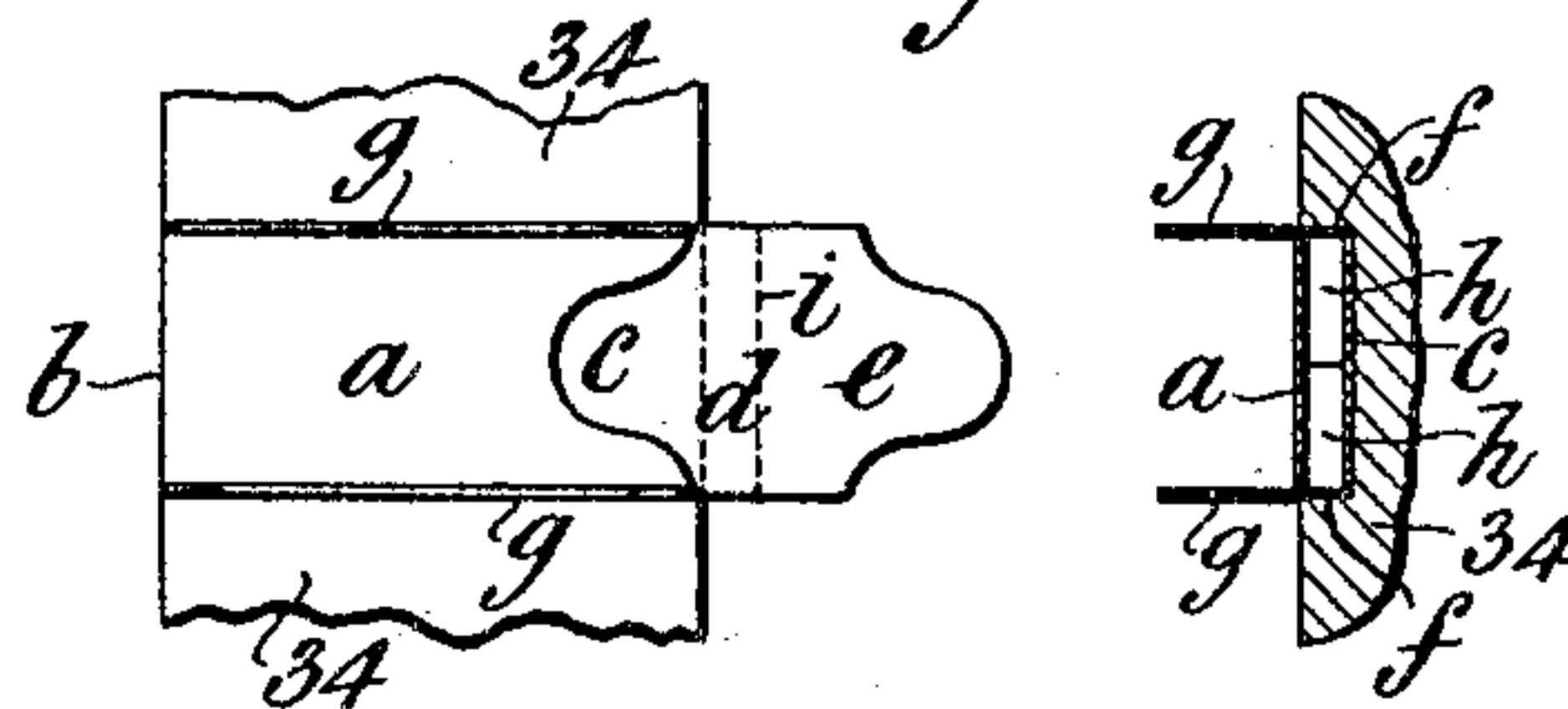


Fig. D.

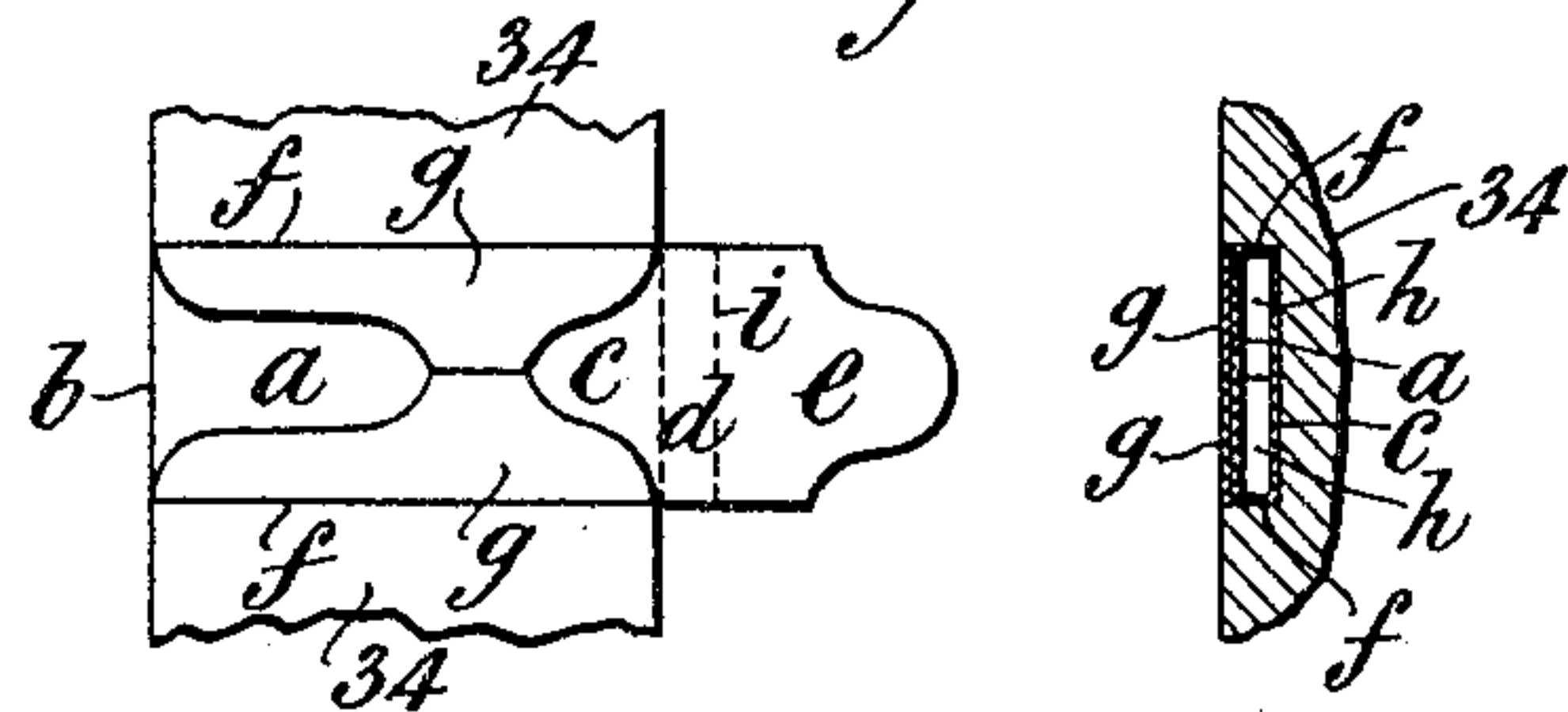
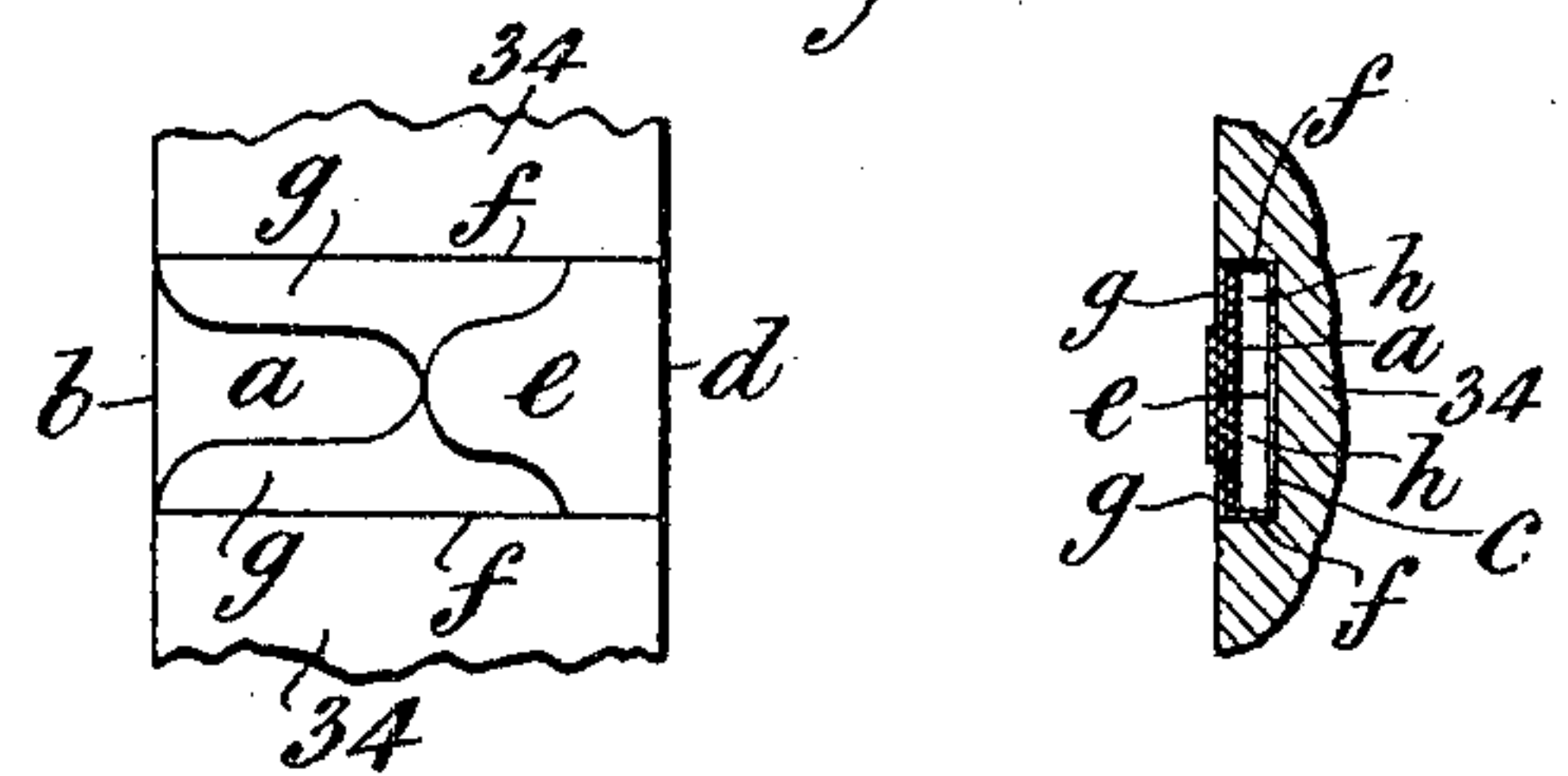


Fig. E.



Witnesses  
E. B. Bremer  
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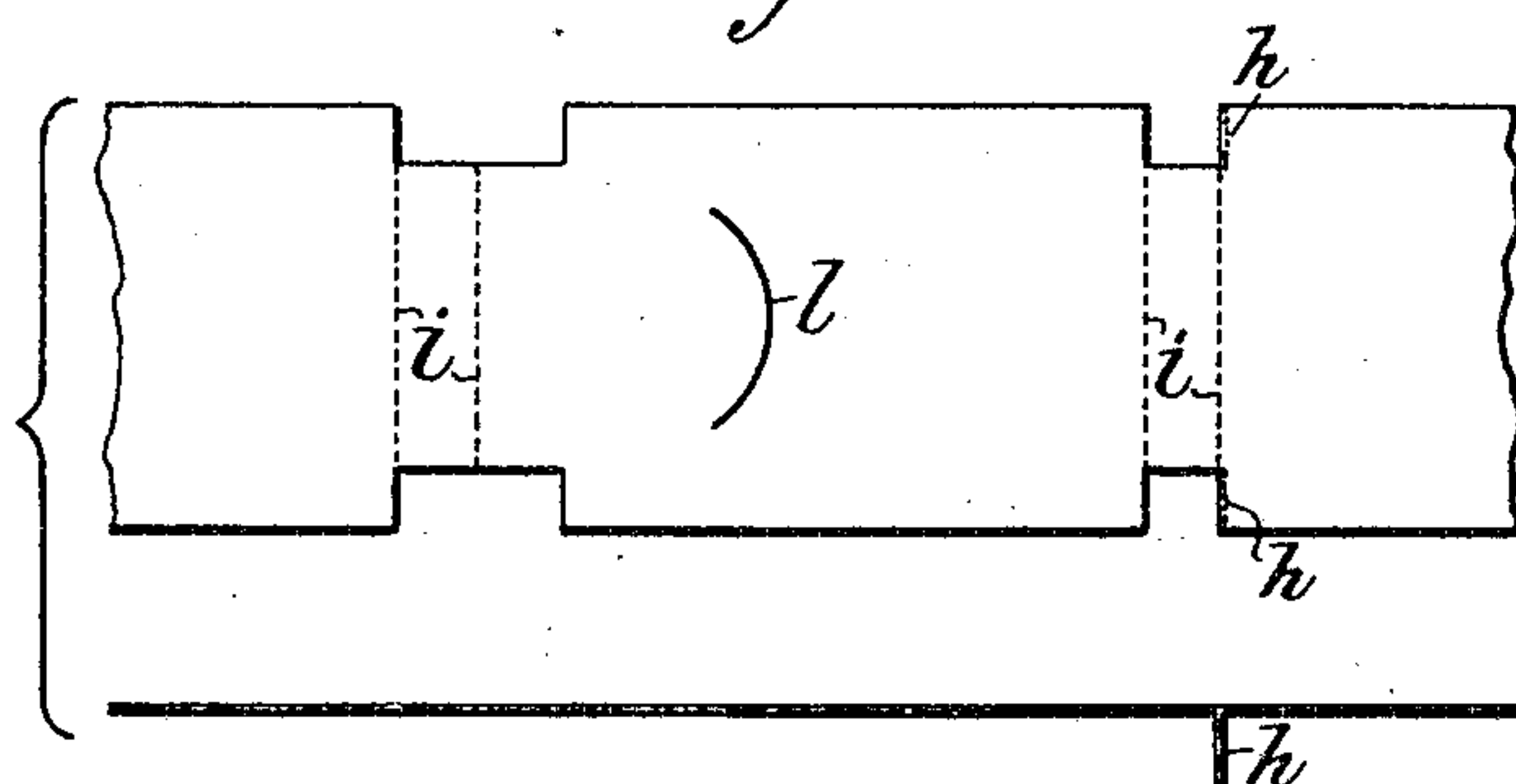
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18 SHEETS—SHEET 17.

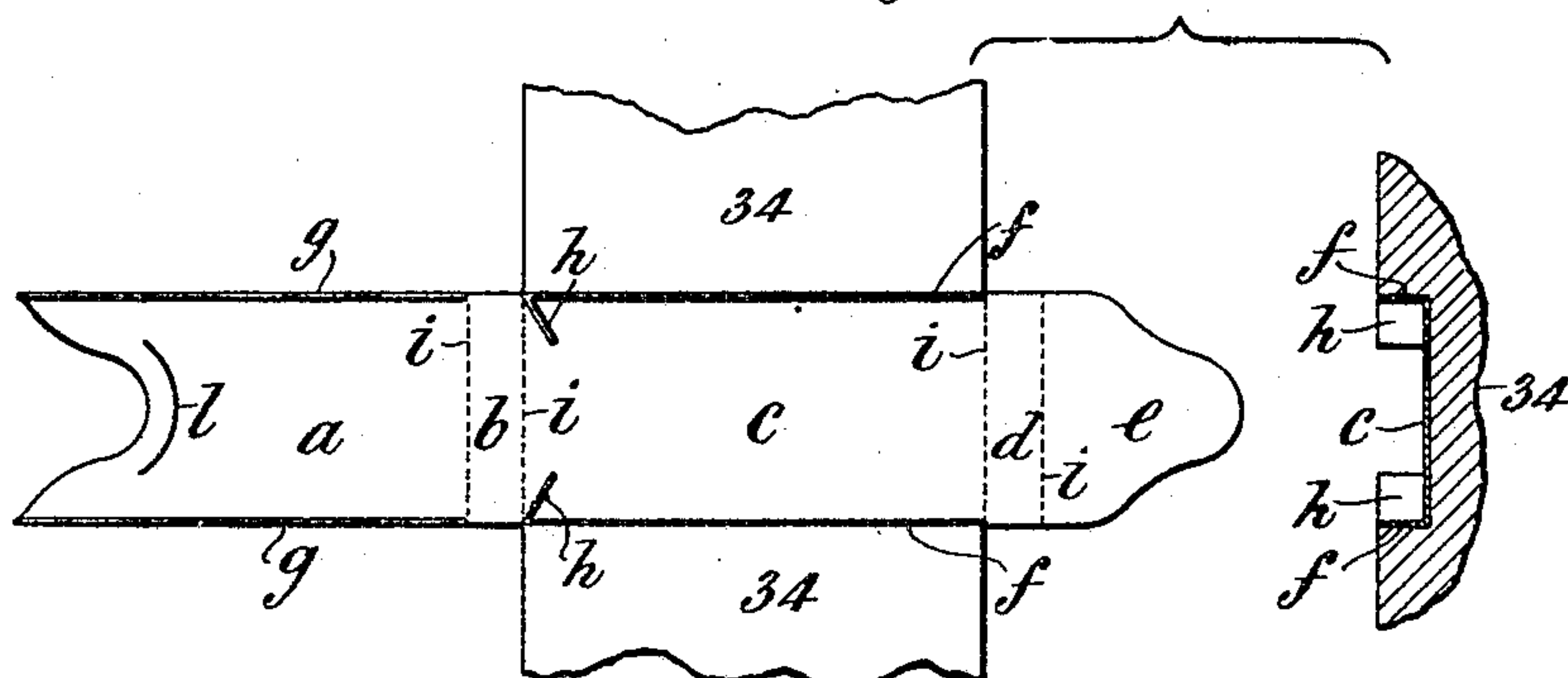
*Fig. F.*



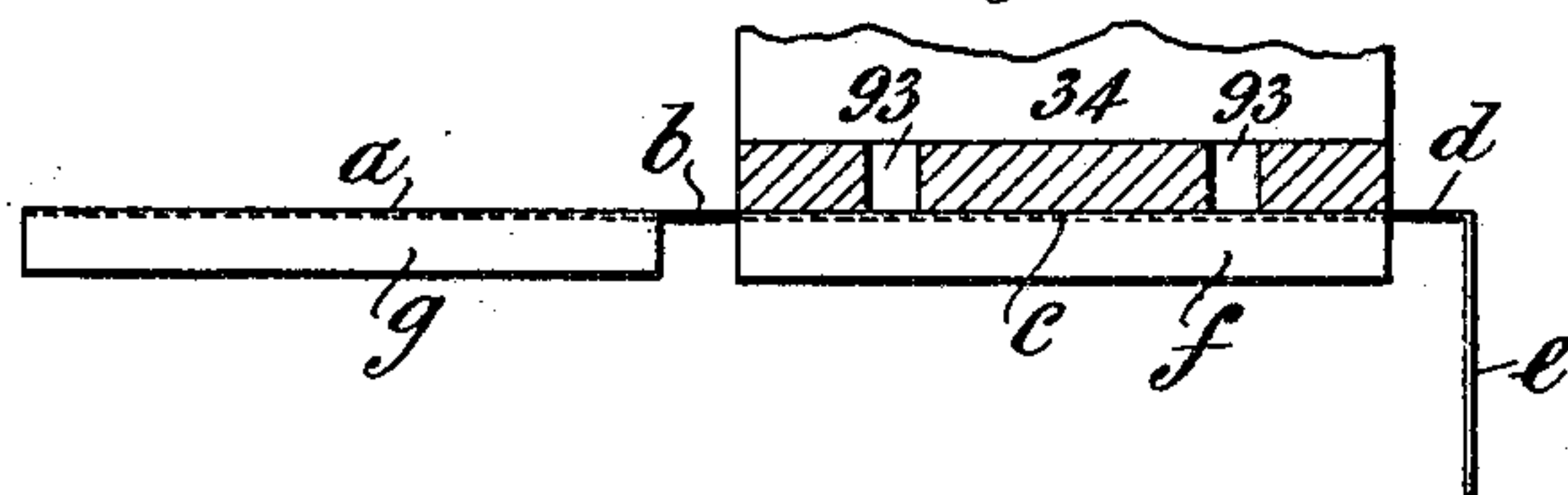
*Fig. G.*



*Fig. H.*



*Fig. I.*



Witnesses.

E. B. Bruner

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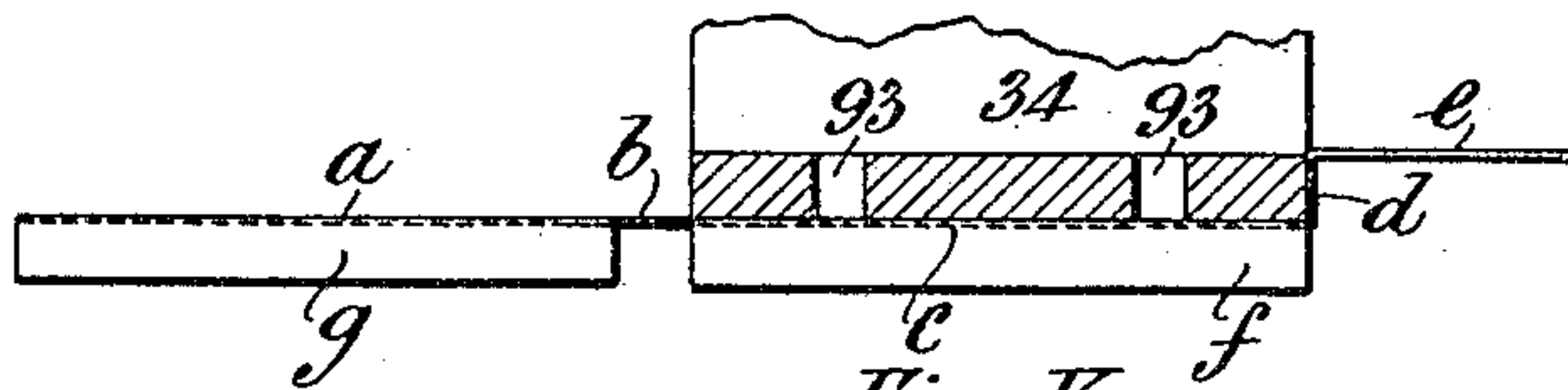
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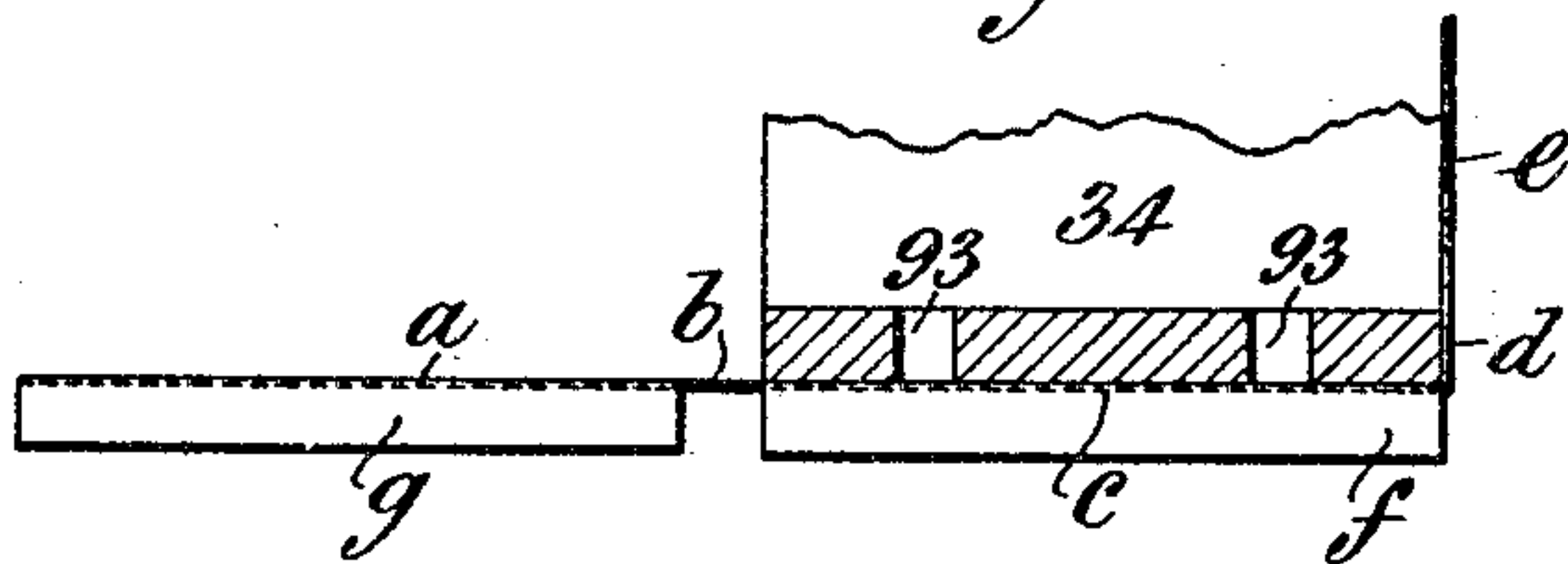
APPLICATION FILED AUG. 27, 1903.

18 SHEETS—SHEET 18.

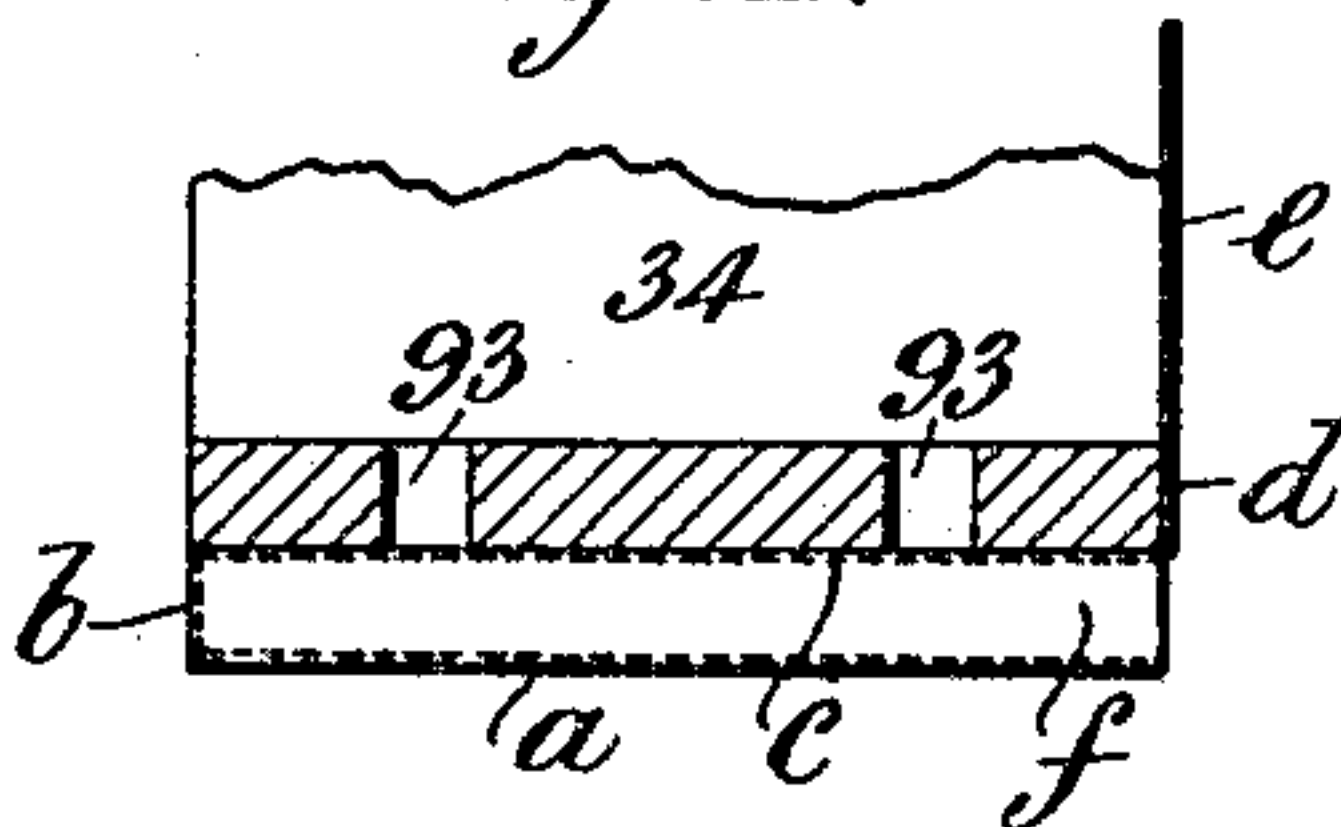
*Fig. J.*



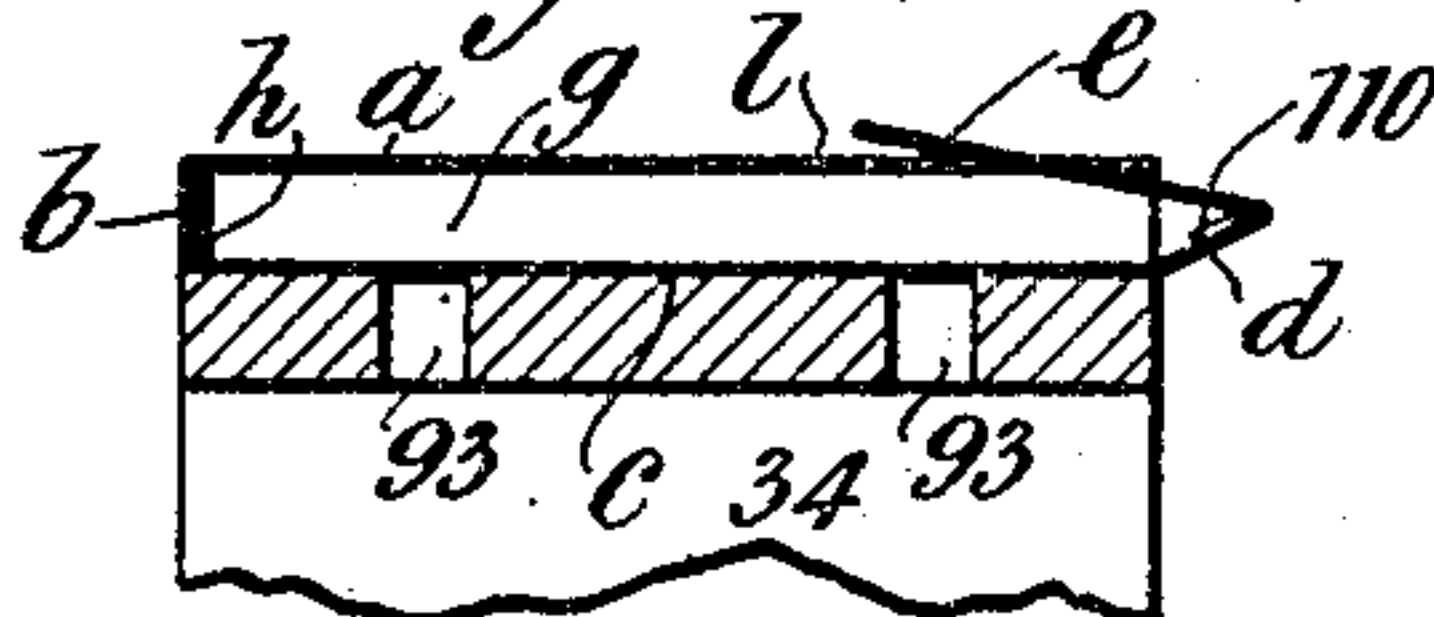
*Fig. K.*



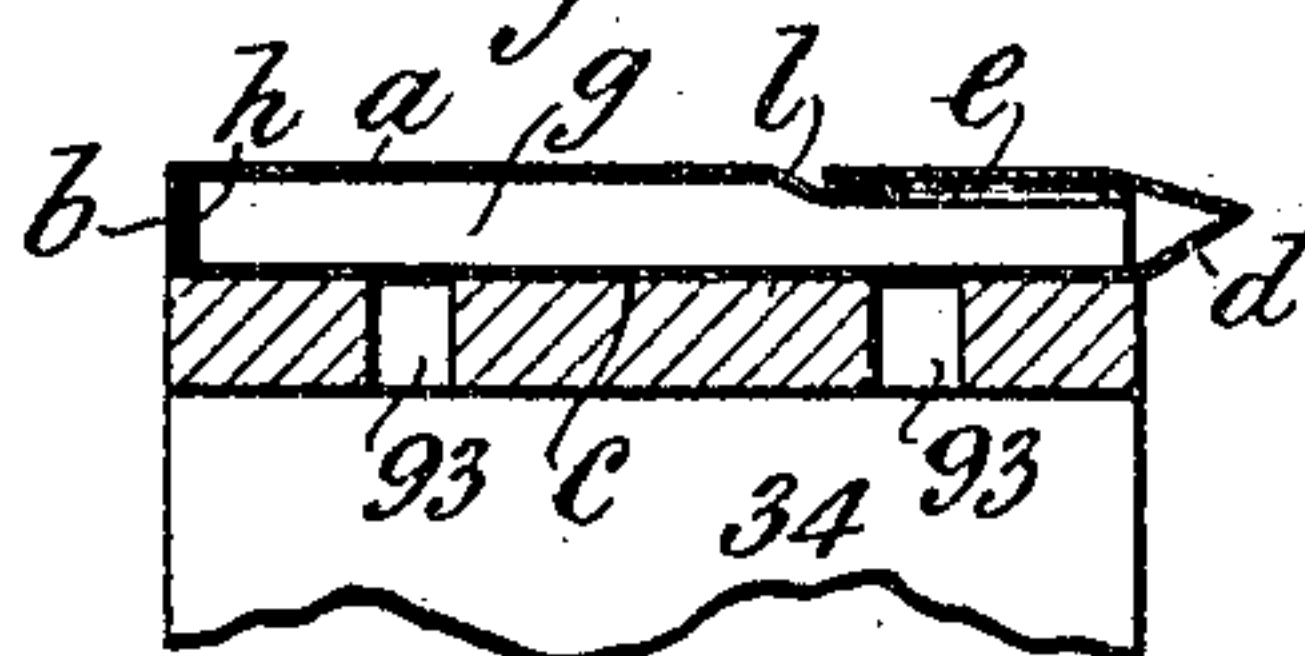
*Fig. L.*



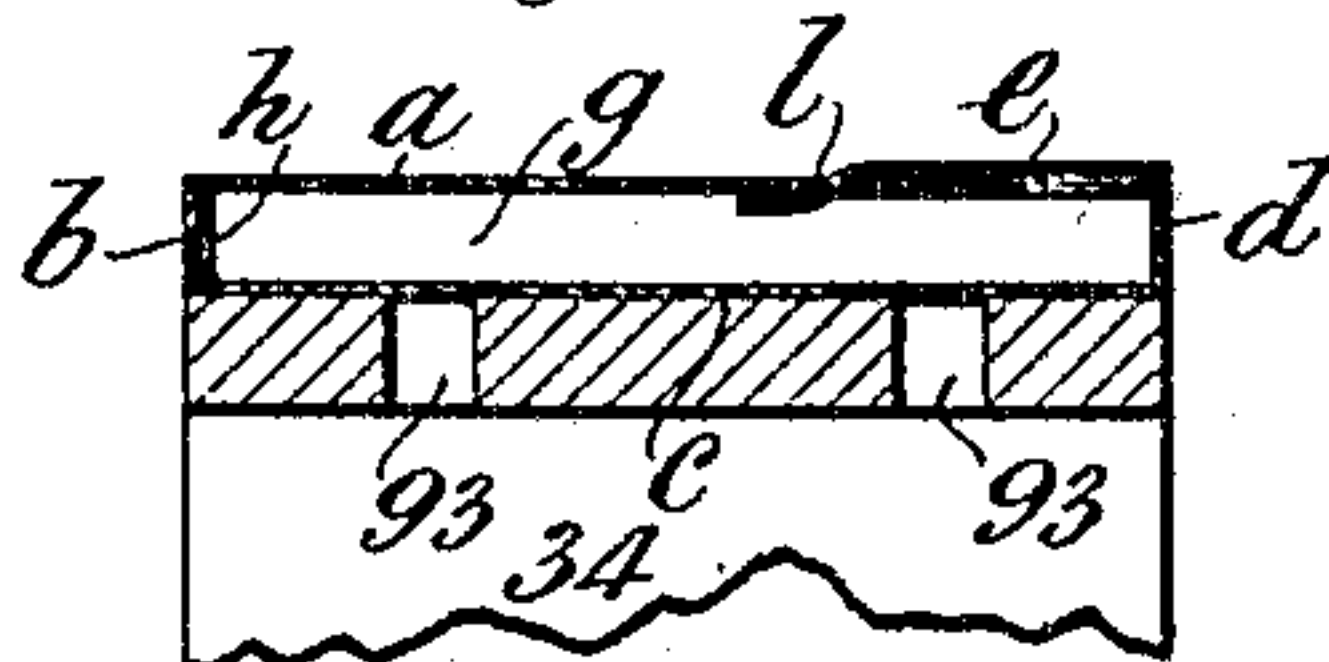
*Fig. M.*



*Fig. N.*



*Fig. 0.*



*Witnesses.*

E. B. Brewer

M. L. Adams

E. J. Pollard *Inventor.*

By his Attorneys

Baldwin Sanderson Wright

# UNITED STATES PATENT OFFICE.

EDWARD THOMAS POLLARD, OF LONDON, ENGLAND.

MACHINE FOR MAKING BOXES FROM PAPER AND FOR FILLING SAME WITH CIGARETTES, &c.

SPECIFICATION forming part of Letters Patent No. 775,148, dated November 15, 1904.

Application filed August 27, 1903. Serial No. 170,999. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD THOMAS POLLARD, engineer, a citizen of the United States of America, residing at 8 Regent street, London, in the county of Middlesex, England, have invented a certain new and useful Machine for Making Boxes from Paper and for Filling the Same with Cigarettes or other Articles, of which the following is a specification.

The object of this invention is to provide a machine which shall make a box or wrapper from paper or cardboard, fill the box with cigarettes or other articles, and deliver the filled box. The paper is fed forward intermittently from a roll by feed-wheels, is printed, and then passes between a plunger and die, which score it for the subsequent folding and cut it to the required shape, but without separating the blanks one from the other. The paper then passes under a revolving wheel on whose periphery are formed recesses. The wheel is as broad as the height of the finished box, and the width and depth of the recesses are equal to the width and thickness of the finished box. A plunger rises intermittently and cuts off the leading blank, forcing it at the same time into that recess which is at the time at the bottom of the wheel, so that the front lies at the bottom of the recess and the sides lie against its sides. The wheel has a step-by-step movement imparted to it in any convenient way, and the blank is first carried past a pasting or gumming mechanism, which pastes it, and the back is then turned in. All this time the top has not been folded and leaves the box open. Above the wheel a hopper and filler are provided. The hopper receives a vibratory motion, so as to keep the filler beneath it constantly filled with cigarettes, for instance. The filler is fitted with narrow partitions, and each of the spaces between these partitions is filled with cigarettes, one above the other. When the wheel comes to rest, a mouthpiece enters the mouth of the box and holds it open while a plunger pushes the lowest row or rows of cigarettes into the box, the cigarettes being guided by the mouthpiece. As the wheel moves on the top is turned over onto the back, to which it is held

by paste, thus closing the box, or a tongue may be inserted into a slit in the back. The recess next comes opposite a chute or trough, into which the box now filled and closed is ejected by a pusher.

Though the machine has been described for packing up cigarettes, it is obvious that it may be used for cigars, sweets, or the like.

Figure 1 of the drawings is a side elevation, Fig. 2 a plan, and Fig. 3 an end view, of a machine constructed according to this invention. Fig. 4 is a view of the paper blank, and Figs. 5 and 6 views of the plunger and die which cut it. Figs. 7 and 8 show end and side views of the wheel, in which the box is operated upon. Fig. 9 is a plan of the plunger which forces the paper into the wheel. Fig. 10 is an end view showing the method of effecting several of the movements. Fig. 11 shows the pasting mechanism. Figs. 12 and 13 show the folder for the bottom flap. Figs. 12<sup>a</sup> and 13<sup>a</sup> are face views of the same, and Fig. 13<sup>b</sup> is a side elevation. Figs. 14, 15, and 16 are side view, end view, and plan of the hopper; and Fig. 17 is a plan showing the cigarette-pusher and other parts. Figs. A, B, C, D, E illustrate the formation of the box. Fig. 1<sup>a</sup> is a side elevation of the machine when modified to make a box from the blank shown in Fig. 4<sup>a</sup>. Figs. 4<sup>a</sup>, 5<sup>a</sup>, 6<sup>a</sup> show this modified form of blank with plunger and die. Figs. 18 to 25 show in detail the modifications in the machine for such a blank, Fig. 18 being a part side elevation of the opposite side to Fig. 1, Fig. 19 an end view similar to Fig. 3, and Fig. 20 a view of the mold-wheel from the opposite side to Fig. 19. Fig. 21 is a part plan similar to Fig. 2. Figs. 22, 23, and 23<sup>a</sup> are detached views of a folding device, and Figs. 24 and 25 detached views of the device for closing the box. Figs. F, G, H, I, J, K, L, M, N, O illustrate the formation of the box.

In Figs. 1 to 17 and Figs. A to E, 1 is the paper passing beneath and printed by the type-forms 2, pivoted to the frame and operated by the links 3 4 5, the last of which carries the truck 6, moving in the groove of the cam 7 on the shaft 8, driven by the chain 9 from the main shaft 10. As the form moves away from the paper it is inked by the roll-



ers 11, carried by the spring-arms 12, operated by the link 13, truck 14, and cam 15 on the shaft 8. The rollers take ink from the table 16, which is rotated through a small angle at each operation by the pawl 17, moved by the link 18, and which receives ink from the well 19. All this printing mechanism is of a well-known type and requires no further explanation. The paper after printing passes beneath the plunger 20, reciprocated in guides 21 on the frame by the link 22 from the strap of the eccentric 23 on the shaft 8. This plunger cuts the blank shown in Fig. 4 and consisting of the back *a*, bottom *b*, front *c*, top *d*, top flap *e*, sides *f f*, side flaps *g g*, and wings *h h*. It also scores the paper along the four transverse dotted lines *i*; but it does not sever the blank from the web following, to which it is still connected by its top flap along the dotted line *k*. The plunger and die are made in several pieces to admit of sharpening the various cutting edges. The plunger and die are seen in Figs. 5 and 6. The paper passes under guides 24 to the feed-wheel 25, fast with the wheel 26, intermittently operated by the bowl 27 on the arm 28 of the shaft 29, driven by bevel-gear from the shaft 30, which is also driven by bevel-gear from the main shaft 10. The shaft 29 has on it a locking-wheel 31, which locks the wheel 26 when the bowl 27 is not engaging it. Above the feed-wheel 25 is a roller 32, carried by springs 33, which gears with the feed-wheel and is ridged to score the paper along the longitudinal dotted lines *j*. The blank now arrives beneath the wheel 34 of the width of the front *c* of the blank and fast with the wheel 35, intermittently rotated by the bowl 36 on the arm 37, fast with the shaft 30, on which is also the stop-wheel 38, all so arranged that the wheel 34 receives an eighth of a revolution for every revolution of the shaft 30. On the circumference of the wheel 34 are molds or recesses 39, into which the portion *c* of the blank is forced by the plunger 40. A cam 41 on the shaft 30 rocks an arm 42 on the spindle 43, carried in bearings 44 on the frame and having an arm 45, linked by the link 46 to the stem of the plunger 40, so that the plunger is moved up against its spring 47 to sever the top flap *e* of the leading blank from the back *a* of the next blank and to force the blank into the recess, the front *c* being against the bottom of the recess and the sides *f f* against the sides thereof, as shown in Fig. A, the wheel of course being stationary while the plunger is in operation. As the blank rises it meets with two fixed knives 401, which cut slits *h<sup>x</sup>* in the blank, (see Fig. 4,) and so cut the wings *h h* free from the back and bottom, so that they now remain attached to the sides *f f* only. As soon as the plunger 40 has been withdrawn from the blank in the recess 39 the wheel 34 moves on one step. As it moves the two wings *h h* are

bent in, as shown in Fig. B, the leading one by coming against a fixed incline 48 and the following wing by the action of a wiper 481 on the spindle 49, which is continuously rotated in fixed bearings by a chain 50 from a chain-wheel 51 on the shaft 30. The wheel 34 now stops, and the tips of the two side flaps *g g* are caught by radial slots 52 in the roller 53, fast on the continuously-rotated spindle 49 and dipping into the paste-trough 54, so that the tips of both side flaps are pasted on each side. The wheel 34 now moves on a step, after which the back *a* is turned over so as to lie parallel to the front *c*, as shown in Fig. C. This is effected by the action of the folder 55, carried on the spindle 56 and rocked at the proper time, as follows: On the spindle 49 is a disk 57, carrying a pin 58, working in a slot in the long lever 59, whose function will be described later and which is pivoted at 60. This pivot 60 carries an arm 61, which knocks against the folder 55 to turn over the back *a*, as shown in Figs. 12, 12<sup>a</sup>, 13, 13<sup>a</sup>, and 13<sup>b</sup>, the folder being brought back by the spring 62. The wheel 34 now again moves on a step, and the recess 39, whose progress is being followed, passes beneath a cover 63, which retains the box in its recess for the rest of its journey. In order that the back *a* may not open out, and so get torn by the cover 63, the arm 64, carrying the shield 65 and pivoted at 66, is moved at the right time by the cam 67 on the shaft 30, so that the shield 65 may hold the back down as the box enters the cover. When the wheel 34 next stops, the side flaps are turned down onto the back, as shown in Fig. D, to which they adhere by reason of the paste on them. In order to keep the box in shape, a former 68 is thrust into the box by the arm 69, operated by a crank-pin 70 on a crank 71 on the shaft 8, working in a slot in the arm 710, pivoted at 711. When the former has been inserted, the side flaps are pressed down onto the back by a pair of wipers 72, acting through an aperture in the cover 63 and carried by spindles 73, geared together by toothed wheels 74, one of the spindles 73 being rocked by an arm 75, pivoted to the link 76, operated by a pin 77 on a disk 78, fast with the spindle 49. To hold the side flaps down as the box passes again under the cover, a blade-spring 79 is pulled down onto them by the link 80, pivoted to one of the ejector-arms hereinafter described. The next movement of the wheel brings the box into the position in which it is to be filled with cigarettes. These are contained in the hopper 81, which is moved backward and forward above a deliverer 82 by the lever 59, already referred to. The deliverer is divided into, say, five compartments, which are kept constantly filled with cigarettes, the bottom row or rows of which are pushed into the box by the pusher 83, reciprocated by a branch 84 from the arm 69, already described. This pusher 83 moves with-



in a frame 85, carrying two springs 86 and kept in contact with the pusher by a spring 87 until stopped by fixed shoulders 88, so that the springs 86 move into the box, and the  
 5 pusher then ejects the cigarettes from the bottom of the deliverer into the box between the springs 86. Additional springs 89 are fixed to the bottom of the deliverer, which prevent the cigarettes from being drawn out of the  
 10 box by the springs 86 as they retire. For the next movement and stoppage of the wheel nothing is done to the box, but during the subsequent movement the top *d* and top flap *e* enter the slot 90 in the cover 63 and are  
 15 turned over, and the top flap is pressed against the paste on the exterior of the side flaps, as shown in Fig. E. When the wheel stops, the ejector-fingers 91 on the ejector-arms 92, fast with the spindle 43, enter the recess 39  
 20 through the apertures 93 and eject the finished box into a trough 94, or it may be desired to form a box of a blank (shown in Fig. 4<sup>a</sup>) in which there is much less waste of paper. The blank consists of back *a*, bottom *b*, front *c*,  
 25 top *d*, top flap *e*, sides *f* *f*, inner sides *g* *g*, and wings *h* *h*. This is cut by a plunger 20 and die. (Shown in Figs. 5<sup>a</sup> and 6<sup>a</sup>.) These cut the side edges of the paper from which the blank is to be formed and score it along the  
 30 lines *i* and make the slit *l*. They also make cuts for the wings *h* and bend them down, as shown in Fig. F. The construction of this box necessitates certain modifications in the folding and pasting devices, which are shown  
 35 in Figs. 1<sup>a</sup> and 18 to 25.

The plunger 40 carries a plate 401, which forces the back *a* between fixed side plates 402, and so turns the inner sides *g*, at right angles to the back. This forms the creases *j*,  
 40 and as the wheel moves the top flap *e* is caught by a finger 201, pivoted to the arm 64, and lifted onto a guide 202. At the next stop the top flap *e* is pressed by a presser 203, carried by the arm 59, over the guide 202 to crease  
 45 the blank along the line *m*. It is necessary to paste the sides *f* on their inner surface, and this is effected by a pair of pasting-rollers 531 on arms 532, carried by a bridge-piece operated by the arms 69 and 84, as before. (See  
 50 Fig. 17.) As these recede from the wheel they come up against a wheel 533, revolving in contact with a wheel 534 in a box 535, and so get pasted. As soon as the paste-rollers are clear of the blank the bottom is turned up and the back and inner sides turned in as follows, (see Figs. 22 and 23:) A fixed pivot 95 carries a forked arm 96, which is rocked by a link 97, similar to link 80, Fig. 10. Between the pivot 95 and the mold is a second pivot  
 55 98, carrying a folder 99, which projects between the forks of the arm 96. As this arm turns the folder is turned by it from the dotted position to the position shown in full in Fig. 22 to turn up the back *a* and bottom *b*. The  
 60 folder can turn no more, but is cut away to

enable the arm to continue its movement to the position shown in full, whereby the back *a* is turned parallel to the front *c* and the inner sides *g* are turned in against the sides *f*, to which they are held by the paste. The arm  
 70 96 is fitted with a spring 100 to keep the folder 99 hard up against the bottom *b*, and as the arm returns a pin 101 upon it carries the folder 99 back with it. In order to insure the inner sides *g* getting within the sides *f*, they are  
 75 squeezed as the back is turned between a fixed plate 102 and a plate 103, carried by an arm 104, fast with the plunger 40. As the mold-wheel moves the back is kept down by the shield 65, Figs. 3, 10, 18, and 20, and at the  
 80 next position another pair of spring-rollers 105, similar to the pasting-rollers 531, presses the inner sides *g* against the sides *f*. At the next position cigarettes are inserted, and it only remains to close the box. (See Figs. 85  
 24 and 25.) A pusher 106, reciprocated by the arms 69 and 84, carries on its under side a pivoted finger 107, kept in its normal position by a spring 108. This finger inserts the tongue of the top flap *e* into the slit *l*, while  
 90 the lugs 109 push the top *d* home. In order that the tongue may not miss the slit, the top *d* is held out at first by spring-fingers 110, which at the proper time are pushed outward by inclines 111 on the pusher 106. The tail  
 95 of the finger 107 is also caught by a lug 112 on the frame and raised, so that the tongue is depressed just as it reaches the slit. In Fig. 1<sup>a</sup> an alternative arrangement of printing mechanism is shown, two printers being ar-  
 100 ranged to print one after the other in different colors.

Any convenient printing mechanism may be used.

The operation of the improved machine is  
 105 therefore as follows: The paper is drawn forward with an intermittent movement by the feed-roller 25. It is first printed. Then after the next forward movement its side edges are cut, as shown in Fig. F, the slit *l* and the  
 110 creases *i* being also formed. The parts *h* are not entirely cut away, but are bent down, as shown. When the paper is again moved forward, the wings *h* are bent back, as shown in Fig. G, as they pass below the roller 32.  
 115 The next movement of the paper brings the blank or portion of the paper which has been cut away at the sides into position beneath the wheel 34, which is of the same width as the front portion *c* of the blank. The plunger  
 120 40 then rises, the blank is cut off to the shape shown, and the portion *c* is pressed into one of the recesses of the wheel 34, while the two ends of the blank are left projecting from the two opposite sides of the wheel. The  
 125 side portions *f* and *g* of the blank are also at the same time bent down at right angles to the central portion, as shown in Fig. H. After the wheel has made a partial turn and again come to rest the flap *e* of the blank is  
 130



by the action of the blade 203 bent outward in the way shown at Fig. I. As the wheel makes its next movement the top end *d* of the blank is by the action of the curved guide-plate 202 first bent back in the way shown at Fig. J, and then the flap *e* is likewise bent back by the action of the guide-plate into the position shown in Fig. K, so that the top end *d* of the blank and the flap *e* are made to lie against the side of the wheel 34, and so remain out of the way until the box has been filled. When the wheel comes to rest, the pasting-rollers are made to advance and to roll over and supply paste to the inner surfaces of the sides *f* of the blank. As the paste-rollers go back the portions *b* and *a* of the blank are by the mechanism shown in Figs. 22, 23, and 23<sup>a</sup> turned over, so as to bring *a* parallel to *c*. As the back portion *a* of the blank is being thus turned over the sides *g* of this portion are pressed somewhat toward one another between the fixed plate 102 and the plate 103, as before explained, so as to insure that the side portions *g* of the blank shall come inside the side portions *f*. The parts of the blank have therefore now been brought into the position shown in Fig. L. The wheel 34 now again makes a partial turn, and when the movement is completed the rollers 105 are made to roll over the inner face of the sides *g* and press them firmly against the sides *f*. This completes the formation of the box. At the next movement of the wheel the box is brought into position to be filled with cigarettes, and when it has been filled and the wheel makes its next movement the portions *d* and *e* of the blank are by the action of a fixed incline moved outward away from the side of the wheel 34 into the position shown by the dotted line in Fig. 25, and when the wheel comes to rest the pusher 106 advances and folds over the flap into the position shown in Fig. M, the top portion *d* of the blank being at this time held back by the fingers 110. As the pusher continues to advance, the fingers 110 are withdrawn, and the finger 107 on the under side of the pusher turns downward and presses the tongue *e* against the back of the box, so bringing the parts into the position shown in Fig. N, and then as the pusher completes its movement the tongue *e* of the box is caused to enter the slit and the closing of the box is completed, as shown in Fig. O. When the wheel has again made a partial turn, the box is ejected as before.

What I claim is--

1. The combination of a step-by-step revolving wheel having recesses extending across its circumference, means for pressing a paper blank intermediate of its length into each recess as it is brought to rest at one point in the revolution of the wheel and for causing this portion of the blank to fit to the bottom and sides of the recess leaving the two ends of the

blank projecting one from one side of the wheel and the other from the opposite side thereof, mechanism for bending over the portion of the blank left projecting from one side of the wheel and for pasting it to the portion of the blank held in the recess to form a box open at one end, means for filling the box through the end so left open, means for subsequently bending over the portion of the blank projecting from the opposite side of the wheel to close the box and means for finally ejecting the closed box from the recess.

2. The combination of a step-by-step revolving wheel having recesses extending across its circumference, means for pressing the "front" and connected side pieces of a paper blank into each recess as it is brought to rest at one point in the revolution of the wheel, means for subsequently pasting the inner surfaces of such side pieces, means for bending over the bottom end and "back" of the blank and for bringing the side pieces which project from the "back" between the pasted side pieces in the recess, means for pressing together the pasted and unpasted side pieces to make them adhere and so form the blank into a box open at one end, means for filling the box through such open end, and means for turning over the "top" and "top flap" and for tucking the end of the flap into a slit in the front, the pasting mechanism, the pressing mechanism, the filling mechanism, and the closing mechanism being all situated at one side of the wheel while the mechanism for turning over the bottom end and back of the blank are on the opposite side of the wheel.

3. The combination of a step-by-step revolving wheel having recesses extending across its circumference, means for feeding forward a continuous strip of paper, means for cutting such strip into successive blanks, each comprising a "back" with sideways-projecting pieces along each side edge, a "bottom end," a "front" with side projections, a "top end" and "top flap," means for cutting off the blanks one at a time and for pressing the front and connected side pieces of the blank as it is cut off into one of the recesses in the wheel as it is brought to rest at one point in the revolution and for causing the "front" and its side pieces to rest against the bottom and sides of the recess, means for turning back the "top" and "top flap" and causing them to lie against the side of the wheel, means for pasting the inner surfaces of the side pieces held in the recess, means for bending over the bottom end and "back" and for bringing the side pieces which project from the back between the pasted side pieces of the front, means for pressing together the pasted and unpasted side pieces to form the blank into a box open at one end, means for filling the box through such open end and means for turning over the "top" and "top flap" and for tucking the end of the flap into a slit in the front.



4. In machines for packing articles into boxes, the combination of the pusher 83, means for actuating the same, the frame 85 moved in one direction by the pusher and in the reverse direction by a spring 87, blade-springs 86 carried by the frame, and a stop 88 limiting the movement of the frame.

5. The combination of the wheel 34 having recesses 39 across its circumference, means for pressing a part of a paper blank into its recesses, leaving parts of the blank projecting from either side, a curved guide 202 located at one side of the wheel, a presser-plate 203 for bending part of the blank over the guide and means for giving a to-and-fro movement to this plate.

6. The combination of the wheel 34 having recesses 39 across its circumference, means for pressing a part of a paper blank into its recesses, leaving parts of the blank projecting from either side, a curved guide 202 located at one side of the wheel, a presser-plate 203 for bending part of the blank over the guide, means for giving a to-and-fro movement to this plate, and an inwardly-radial projection upon a continuation of the guide adapted to bend inward the whole part of the blank which projects from this side of the wheel.

7. In a box-making machine the combination with an intermittently-rotating mold-wheel having recesses across its circumference of means for pressing part of a paper blank against the bottom and sides of the recess, a

pair of fingers 532, paste-rollers 531 carried by the fingers, and means for imparting a reciprocating motion to the fingers to traverse the paper resting against the sides of the recess.

8. In a box-making machine the combination with an intermittently-rotating mold-wheel having recesses across its circumference of means for pressing part of a paper blank against the bottom and sides of a recess leaving part projecting on one side, the plates 102, 103 adapted to squeeze toward one another the side portions of this projecting part, the arm 96 and folder 99 adapted to then fold over this part into the recess substantially as described.

9. In a box-making machine the combination with an intermittently-rotating mold-wheel having recesses across its circumference of means for pressing a paper blank into the recess leaving a bottom and back projecting from one side and a top and tongue on the other side, means for bending the top and tongue back against the wheel, means for folding over the bottom and back to make them lie within the recess, means for subsequently bending out the top and tongue and for folding over the tongue and finally inserting it into a slit in the back.

EDWARD THOMAS POLLARD.

Witnesses:

EMIL Z. LEHRMANN,

GERALD R. CLEMENTS.