

No. 884,237.

W. B. SULLIVAN.

PATENTED APR. 7, 1908.

COIN CONTROLLED CIGAR VENDING APPARATUS.

APPLICATION FILED NOV. 7, 1907.

4 SHEETS—SHEET 1.

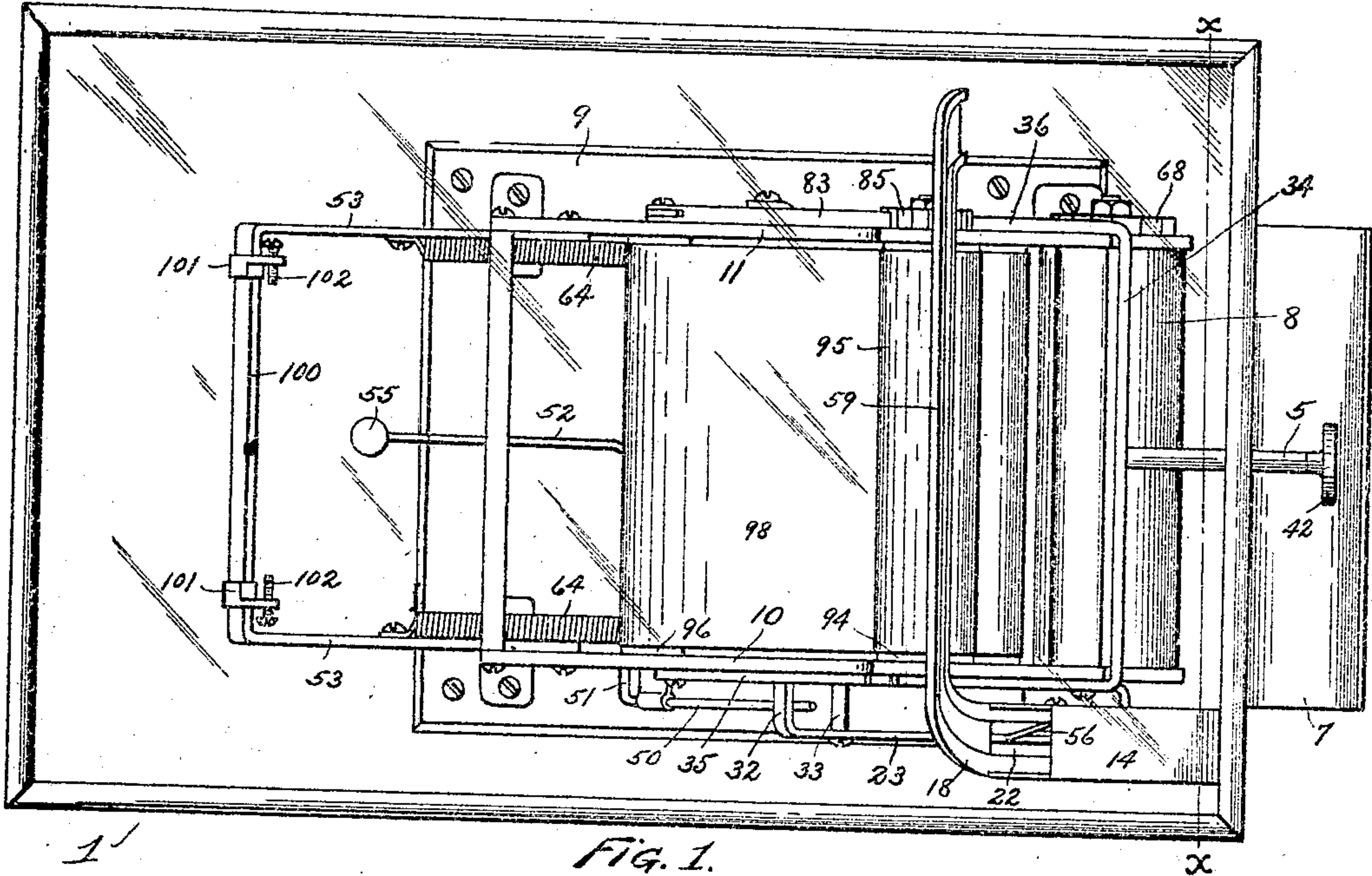


FIG. 1.

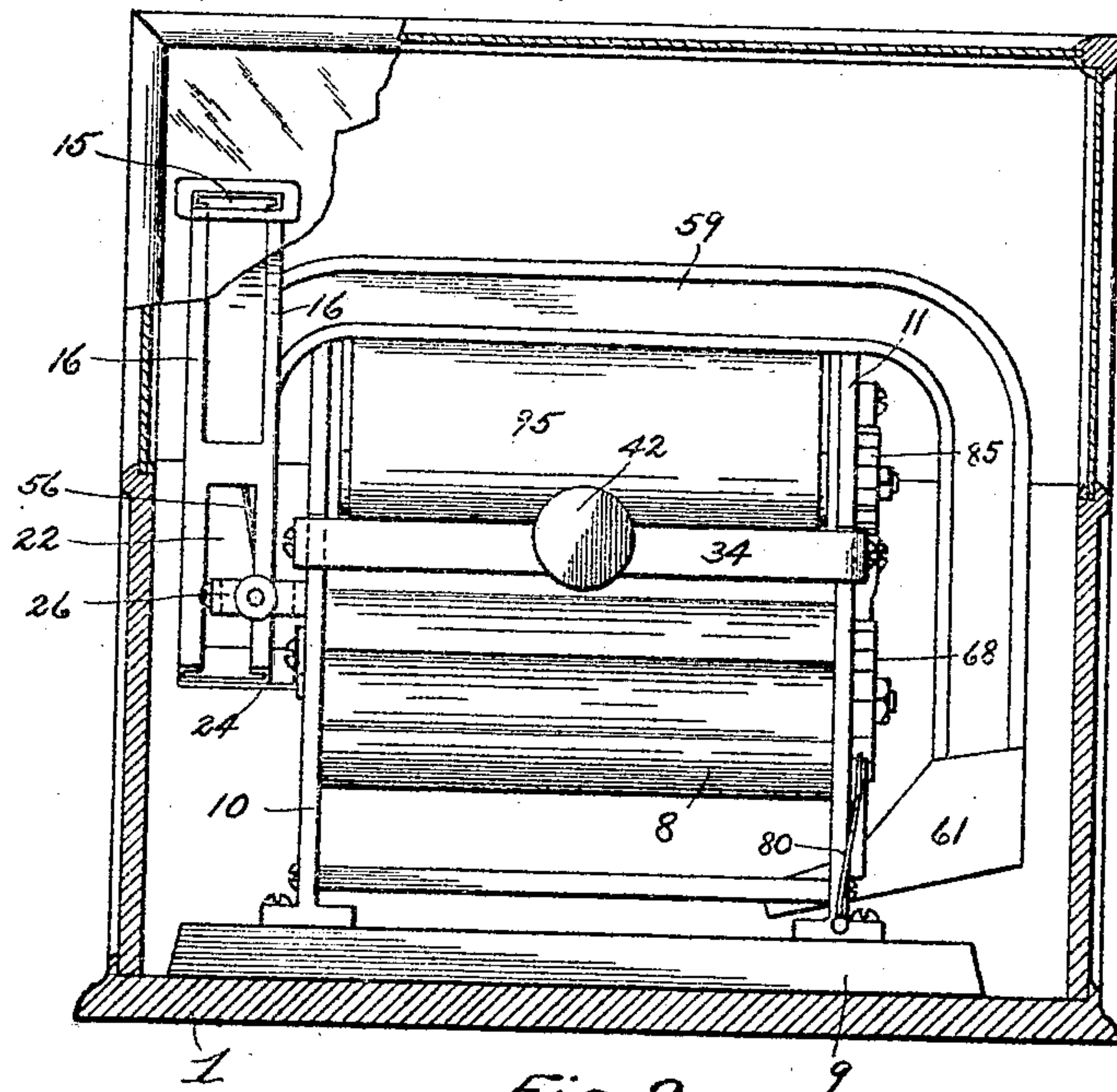


FIG. 2.

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4 SHEETS--SHEET 2.

Fig. 3.

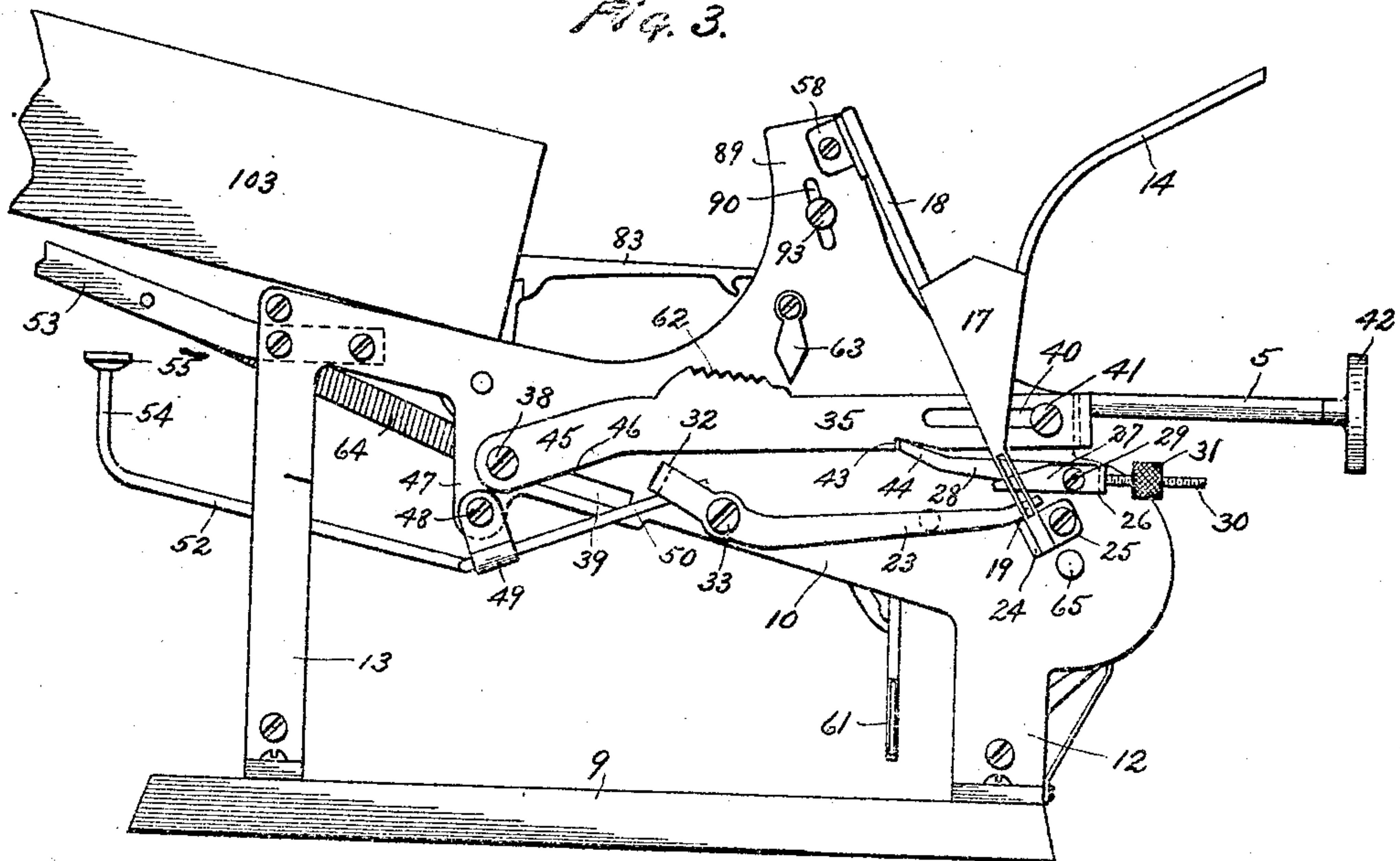
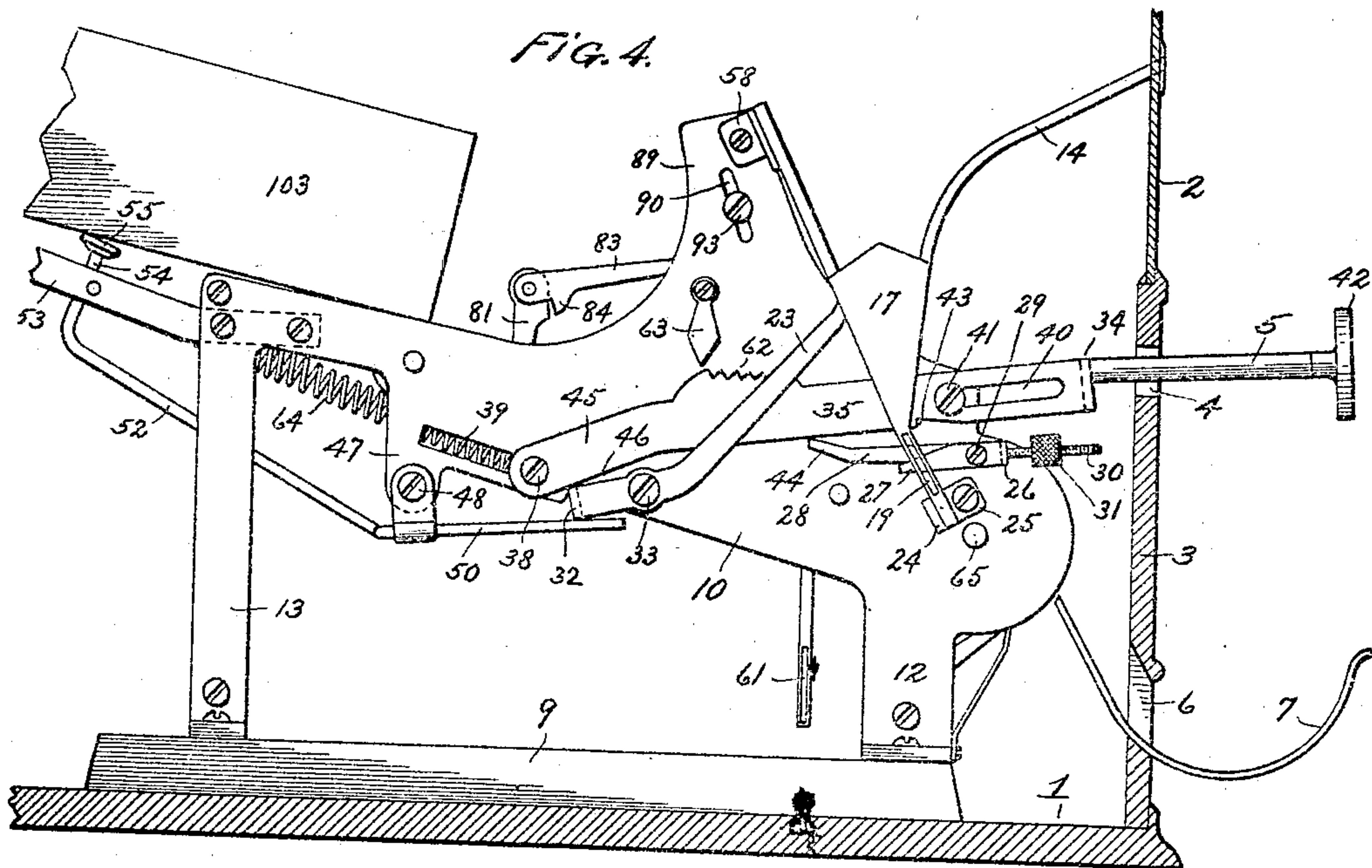


Fig. 4.



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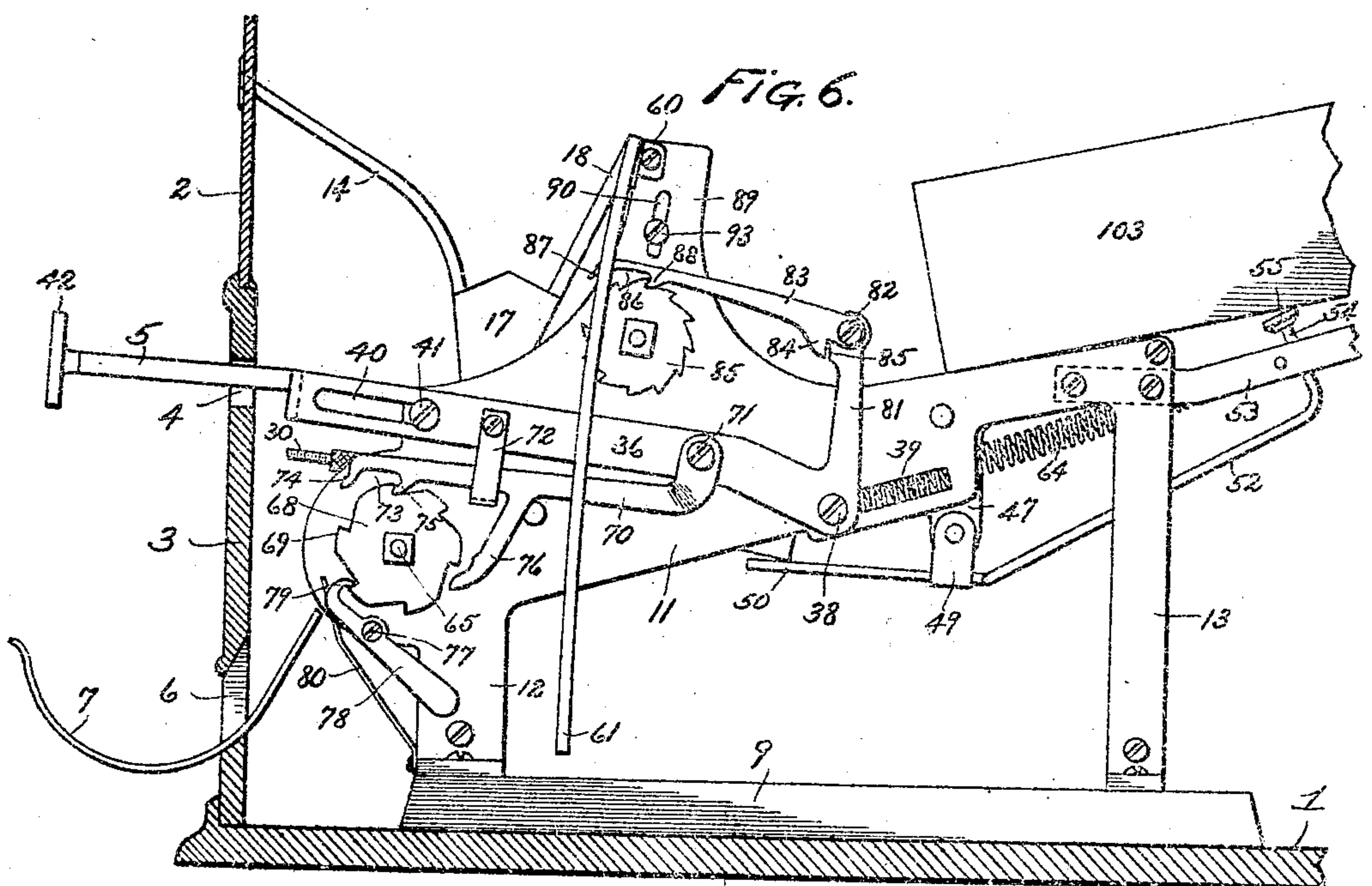
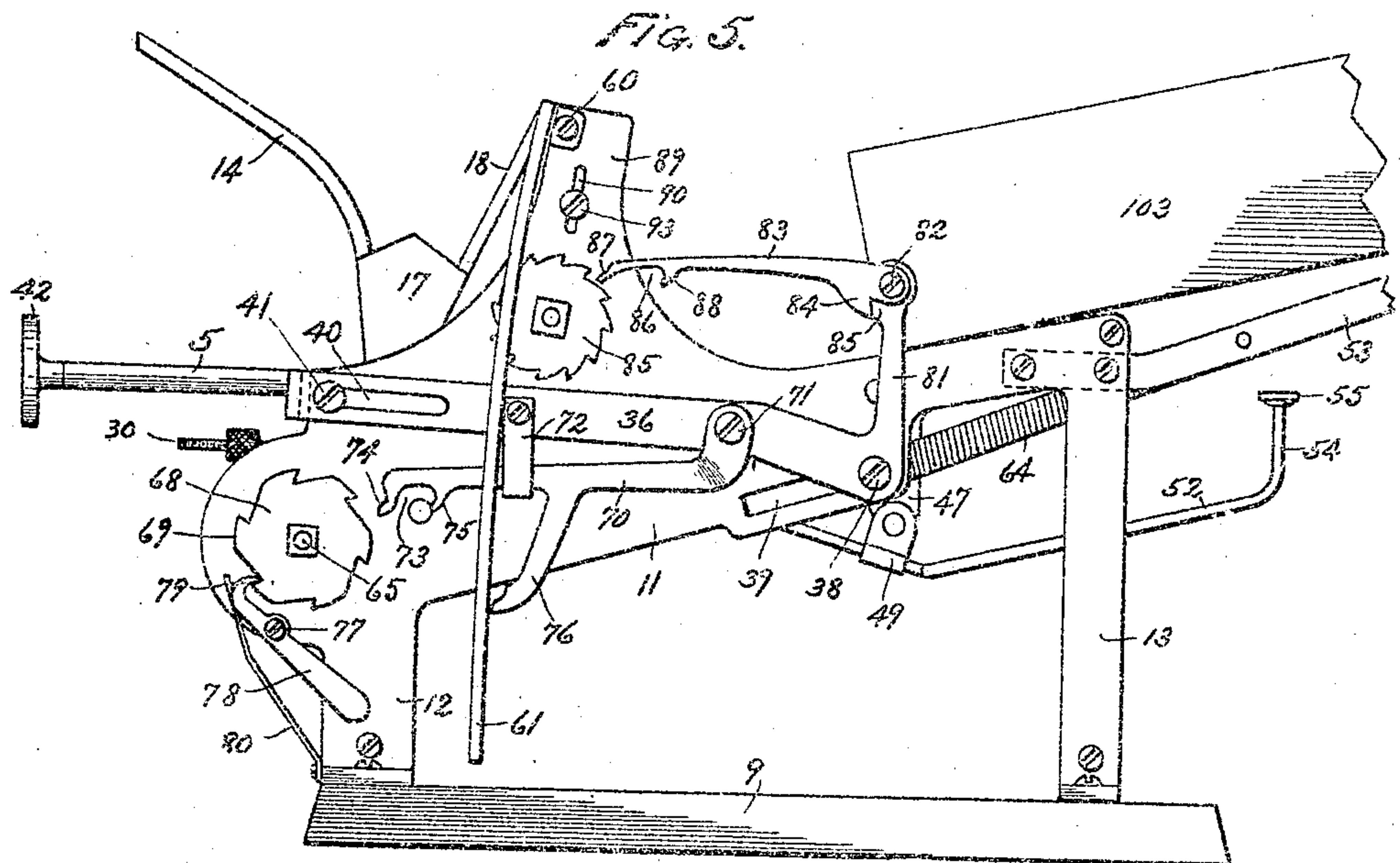
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4 SHEETS—SHEET 3.



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4 SHEETS—SHEET 4.

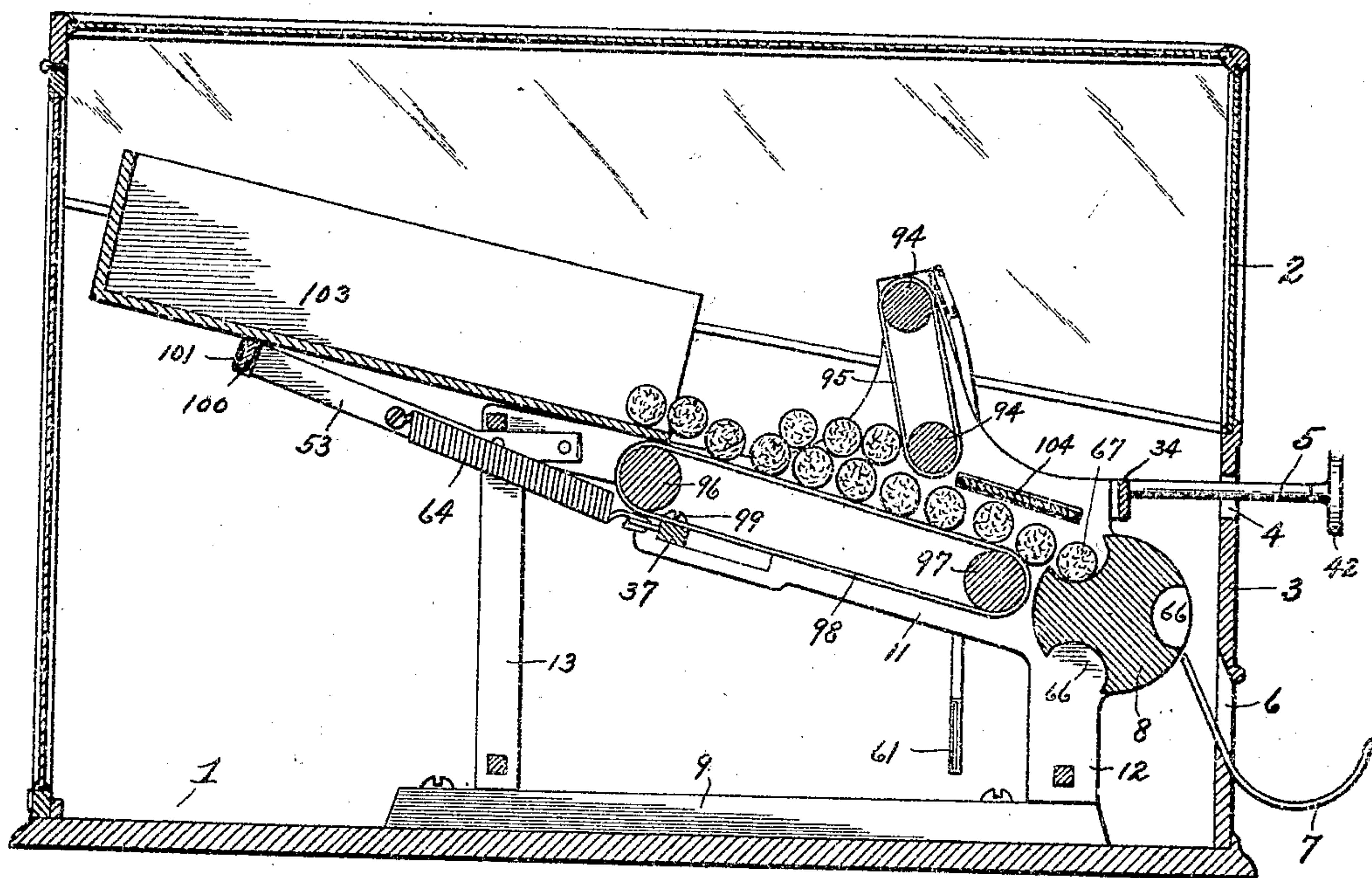


FIG. 7.

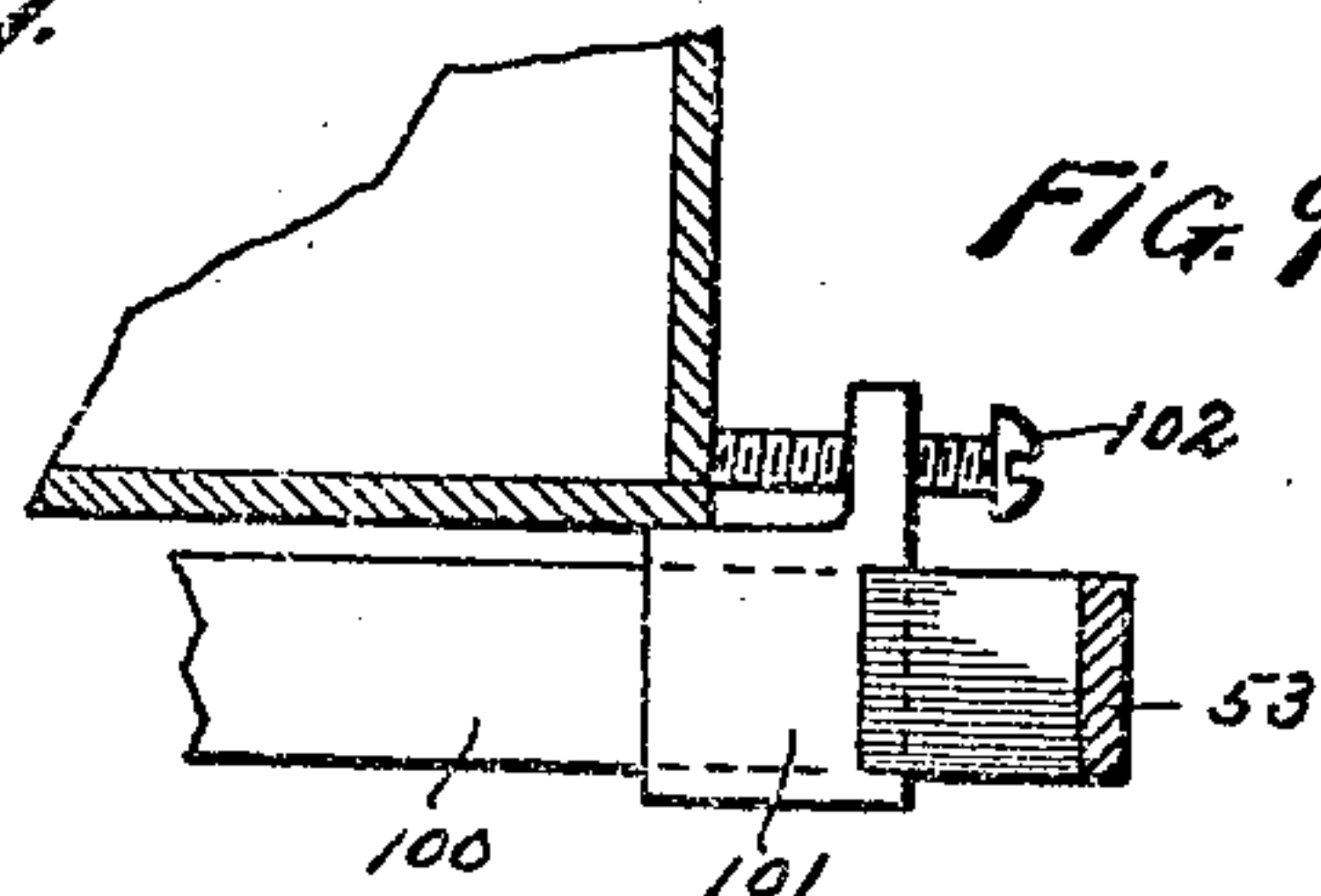


FIG. 9.

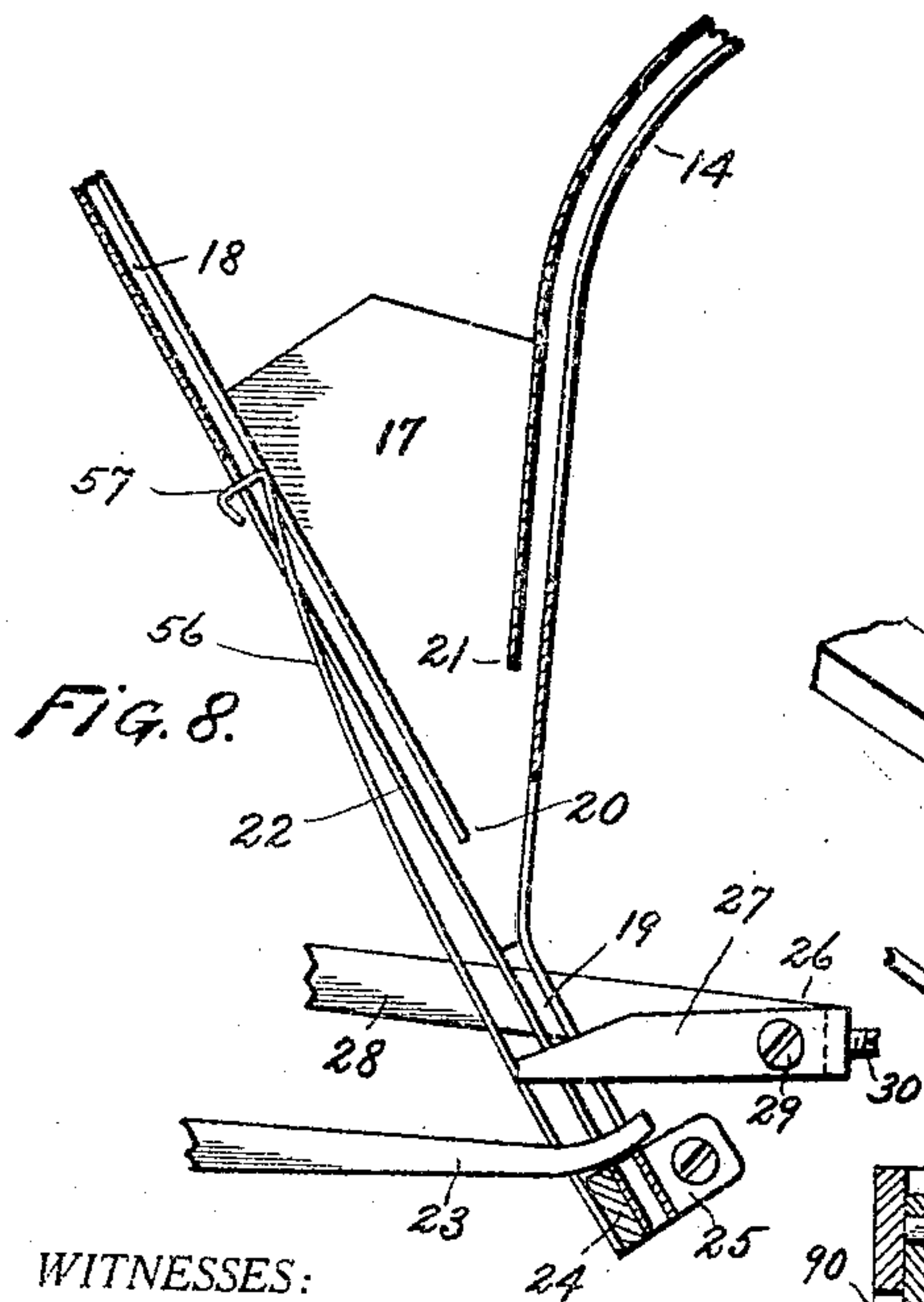


FIG. 8.

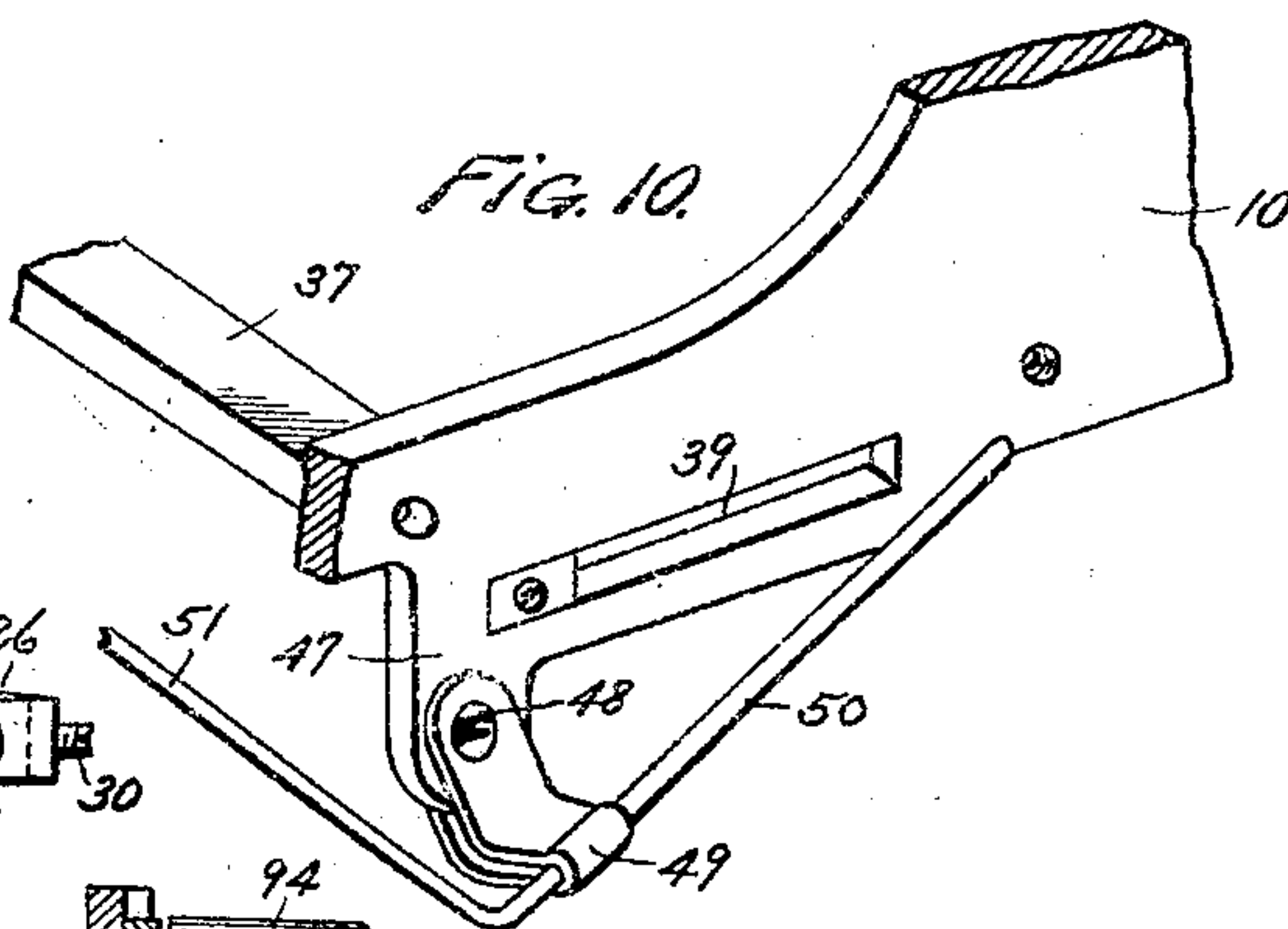
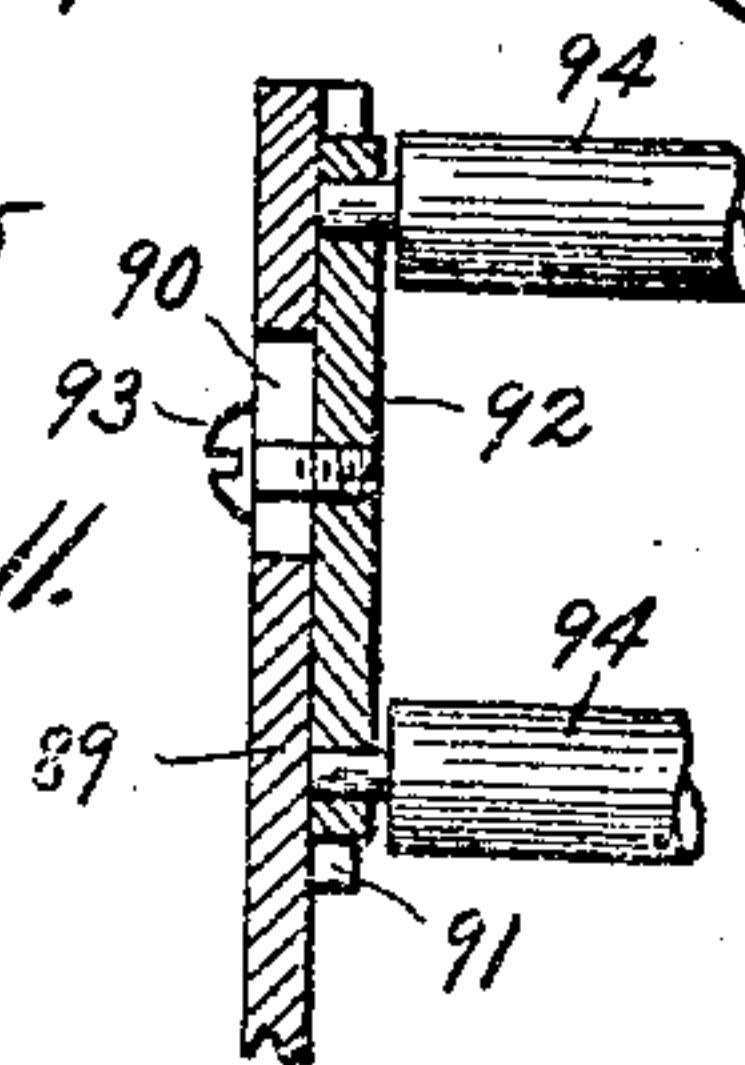


FIG. 10.

FIG. 11.



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UNITED STATES PATENT OFFICE.

WILLIAM B. SULLIVAN, OF ST. LOUIS, MISSOURI.

COIN-CONTROLLED CIGAR-VENDING APPARATUS.

No. 884,237

Specification of Letters Patent.

Patented April 7, 1908.

Application filed November 7, 1907. Serial No. 401,054.

To all whom it may concern:

Be it known that I, WILLIAM B. SULLIVAN, a citizen of the United States, residing in the city of St. Louis and State of Missouri, have
5 invented new and useful Improvements in Coin-Controlled Cigar-Vending Apparatus, of which the following is a specification.

This invention relates to certain new and useful improvements in coin-controlled vending apparatus, and particularly to the mechanism for causing the delivery of a cigar after the said mechanism has been released for operation by the insertion of a coin. The mechanism which is operated on the insertion of a coin to permit the manual manipulation of the machine to cause the delivery of a cigar, while shown and briefly described herein, forms the subject matter of a companion application, filed November 7, 1907,
15 Ser. No. 401,053.

The present invention relates to improved means for causing the proper feed of the cigars to the delivery roller; and to improved means for actuating the delivery roller; to mechanism for controlling the extent of rotation of said roller during the time the machine is in operation.

In addition to these leading features of the invention, the same also has reference to
30 certain novel combinations, operations and arrangements of parts, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings: Figure 1 is a plan view of my machine; Fig. 2 is a view in end elevation of the mechanism, all but a portion of the front of the casing being removed, the view being substantially a section on the line $x-x$ of Fig. 1; Fig. 3 is a
40 view in side elevation of the machine, on a slightly enlarged scale, a portion of the frame at the rear being broken off, and the mechanism being removed from the casing; Fig. 4 is a similar view with a portion of the casing shown in section and showing the position of the parts after the slide frame has been pulled outward to deliver a cigar; Fig. 5 is a view similar to and corresponding to Fig. 3, but showing the opposite side of the
50 mechanism to that shown in Fig. 3; Fig. 6 is a view similar to and corresponding to Fig. 4, but showing the opposite side of the mechanism to that shown in Fig. 4; Fig. 7 is a transverse sectional view through the machine and casing, illustrating more particularly the manner in which the cigars are

fed to the delivery roll; Fig. 8 is a transverse sectional view on a still more enlarged scale showing the mechanism directly associated with the coin chute; Fig. 9 is a broken sectional view of a detail of the means for fastening the cigar-box containing the cigars in the machine; Fig. 10 is a broken perspective view illustrating the manner of supporting the cigar agitator; and Fig. 11 is a broken
65 sectional view of one side of the frame showing the manner of adjustably mounting the rollers supporting the feed controlling apron.

Referring now to the drawings, 1 indicates the casing, which is preferably rectangular in shape and is provided at its top, two sides and front with glass panes so that the mechanism as well as the cigar box may at all times be visible. The glass pane at the front of the casing is indicated by 2, and occupies
75 only the upper half of the front, the lower half 3 being principally of wood and having an opening therein 4, through which the handle 5 for actuating the machine projects, and another opening 6, through which the cigars
80 fall into a trough 7, said trough projecting into the machine and having its inner end lying in close proximity to the periphery of the delivery roller 8, so as to guide the cigars in their descent therefrom. The trough 7 is
85 mounted in any suitable way in the front member 3 of the casing.

9 indicates the base of the machine, which is firmly secured to the bottom of the casing 1, and to which base is secured the metal
90 framework of the machine proper. Such framework may be described, generally, as comprising two similar side plates 10, 11, each of which has at its front a leg 12 and at its rear a similar but longer leg 13, the bottom of these legs being flanged and apertured and having screws passed through such apertures and into the base 9, whereby the framework is secured to said base. The coin chute proper is indicated at 14, and, as shown
100 in Figs. 3 to 6, inclusive, is curved outward to the front of the casing, where a coin opening 15 is provided. The said chute has its bottom and front side formed by two side flanges 16, the space between the edges of
105 said flanges being less than the width of a five-cent piece, but greater than the width of a penny or of a dime. Should either one of these latter two coins be inserted through the opening 15 it will fall out of the coin chute
110 before passing to the locking dog. The coin chute 14 is secured to and forms one side of a

triangular-shaped housing 17. The opposite or rear side of this housing is formed by what I term a coin trough 18, which extends some distance below the housing 17, as indicated at 19, forming a receptacle for the coin after it is inserted in the machine. The inner wall of the coin trough 18 terminates some distance above the bottom of the housing 17, as indicated at 20, (Fig. 8.) and the inner wall of the coin chute 14 terminates a slight distance above the point 20, as indicated at 21, the purpose of which construction is to permit the coin inserted in the chute to pass out of the same into the trough 18. The front side of the depending portion 19 of the trough is opened and has the same construction as the front side of the chute 14. The rear side of the trough is provided with a relatively long slot 22. Through the slot 22, and through the opening of the front of the trough passes the outer end of the throw-lever 23, which normally rests on a bridge-piece 24, which is secured to and braces the lower end of the trough 18 and has a flange extension 25 at one end, by means of which it is secured to the side 10 of the frame.

26 indicates a locking dog, which in practice comprises a strip of metal bent at two points at right angles to itself to form a short arm 27 and a long arm 28, the said dog being pivotally mounted on the side plate 10, by means of a screw 29 passing through the two arms. Projecting from the body of this dog is a screw-threaded arm 30, on which is mounted a screw-threaded weight 31. The throw-lever 23 has its free end lying in a plane closely adjacent to the short arm 27, and at its opposite or inner end is provided with an inward extending arm 32, which is designed to be engaged by a slidable member to operate the throw-lever and also a cigar agitator, as later described. The throw-lever is pivotally mounted on a stud 33, which, in turn, is mounted on the side 10.

34 indicates a cross-bar extending across the front of the machine, and which at its opposite ends is provided with arms 35 and 36, which are parallel to each other and which project rearward and in close proximity to the sides 10 and 11 of the frame. The ends of the bars 35 are connected by a cross-bar 37, (shown in Figs. 7 and 10) through the medium of screws 38, said cross-bar having its opposite ends extending through and adapted to slide in slots 39 formed in the side plates of the machine. Toward its front end each of the arms 35 and 36 is provided with a slot 40, through which extends a screw 41, which engages in the side plate of the frame. The bar 34, with arms 35 and 36, forms a slide frame, which is guided in its movements by the slots 39 and 40, and which is adapted to operate the delivery roller. The handle 5 is secured to and projects from the center of the bar 34 through the opening 4 in the front

of the casing and has on its outer end a knob 42, by grasping which the operator may pull the sliding frame outward toward the front of the machine. The arm 35 of said sliding frame is provided on its under side with a notch 43, and the long arm 28 of the locking dog has its inner end bent upward, as indicated at 44, to engage in said notch. When in such engagement, it will be impossible to pull the sliding frame outward. The inner end of the arm 35 is bent downwardly, as shown at 45, to form an inclined portion 46 at its rear end. As the arm 35 moves outward this inclined portion engages the arm 32 on the throw-lever 23, thereby depressing the end of said throw-lever and causing its outer or free end to be thrown upward. The side plate 10 has a depending ear 47, which is apertured and has pivotally mounted thereon by a screw 48, an L-shaped clip in which is secured the front portion of a bent arm 50, which is bent inward, as indicated at 51, to extend under the machine, then rearward, as indicated at 52, to extend beneath a rear frame extension 53 and then again upward, as indicated at 54, said upward extension having on its inner end a button 55.

56 indicates a spring arm, which may be formed of wire, and has its lower end secured to the bridge-piece 24. The said arm extends upward for some distance parallel with the rear side of the coin trough, and is then bent on a long curve across the plane of the coin trough through the slot 22, and has its outer end bent in a reverse direction to form a support 57. The coin trough 18 extends upward to the top of the side 10, where it is braced by a cleat 58, whence it extends across the front of the machine in a horizontal direction, as indicated at 59, where it is braced at the top of the side plate 11 by a cleat 60, and is then curved downwardly, and has its outlet beneath the frame, as indicated at 61. On the upper side of the arm 35 I provide a rack-plate 62, and I pivotally mount on the side plate 10 a gravity pawl 63, the lower engaging end of which occupies a plane slightly below that of the teeth of said rack-plate. The rack-plate 62 will ride under the pawl 63, swinging it to one side as the sliding frame is pulled outward, and in the event the operator should release his hold upon the knob 42 before pulling the frame to the extreme limit of its outward movement, the pawl will at once engage the teeth of the rack-plate 62 and prevent the return of the sliding frame. The said sliding frame must, therefore, be pulled to the extreme limit of its outward movement before the machine can again be operated. Springs 64 secured at one end to the side member of the frame extension 53 and at their other end to the cross-bar 37, insure the full return movement of the sliding frame.

The delivery roller 8 is provided at oppo-

site ends with short journal shafts 65, which have bearings in the opposite side plate 10 and 11. Said roller is provided at three equidistant points with longitudinally-extending grooves 66, each of which is adapted to turn to receive a cigar 67 from the feed mechanism hereinafter described. Secured on one of the journal shafts 65, and located on the outer side of the plate 11, is a ratchet wheel 68, having six teeth 69, or twice the number of teeth that there are grooves in the delivery roller.

70 indicates the main actuating dog, which is pivotally supported at its rear end on the arm 36 of the sliding frame toward the rear end of the latter, as indicated at 71, and is slightly bent inward from the point of its pivoted connection to extend under the arm 36, and parallel with the side plate 11.

72 indicates a stirrup, which is mounted on the arm 36 intermediate the ends thereof and is adapted to support the actuating dog 71 toward its outer or free end after it has passed off of the ratchet wheel 69. The actuating dog 70 has an enlarged free end portion which is recessed on its under side, as indicated at 73, said recess being of a size to receive one of the teeth 69 of the ratchet wheel and forming two tongues on the actuating dog, indicated by 74 and 75 respectively. Formed integral with, and depending from the under side of, the actuating dog 70 midway the ends thereof, and having a slight forward curve, is a stop arm 76.

Pivotally mounted intermediate its ends on the side plate 11, as indicated at 77, is a pawl 78, having a hooked end 79, adapted to engage the teeth of the ratchet wheel 68, and being held in contact with said teeth by a spring-leaf 80.

Projecting upward from the rear end of the frame 36 is an upright 81, pivotally mounted on the upper end of which, as indicated at 82, is a feed dog 83, having on its under side, near its pivoted end, a lug 84, which normally bears upon a shoulder 85, on the upright 81, and supports the feed dog 83 in a given horizontal position after its free end moves off of a ratchet wheel 85. The free end of the feed dog 83 is enlarged and recessed on its under side, as indicated at 86, said recess being of a size to fit over two of the teeth on the ratchet wheel 85, and providing a forward tongue 87 and a rear tongue 88. Each of the side plates 10 and 11 has an upward extension 89, which is provided with a slot 90 and is further recessed on its inner side, as indicated at 91, (Fig. 11) to receive a plate 92, which is held adjustably therein by means of a screw 93, passing through the slot 90. Only one of the plates 92 is shown, but it will be understood that each of the projecting portions 89 of the side plates is provided with a similar plate 92. In each of these plates is journaled the opposite ends of

two rollers 94, over which rollers passes an endless apron 95, which is preferably composed of ribbed or corrugated rubber. The rollers 94 may be so positioned with respect to each other as to give this apron 95 a greater or less inclination to the vertical.

Mounted at opposite ends in the side plates 10 and 11 are two rollers 96 and 97, over which rollers passes an endless apron 98, which also is composed of a sheet of ribbed or corrugated rubber, and which is secured by screws 99, or otherwise, to the cross-bar 37, which, as previously described, connects the arms 35 and 36 of the sliding frame. The roller 96 has a slightly elevated position, as respects the roller 97, so that the apron 98 will have a greater or less inclination downward toward the delivery roller 8. The frame extension 53 has an upper cross-bar 100, (Fig. 1) on which are mounted two sleeves 101, each of which carries a set screw 102, which screws are designed to be screwed into contact with opposite sides of a cigar box 103, and hold it in fixed relation with respect to the feed apron 98. The cigar box 103, as shown more clearly in Figs. 3, 4 and 7, will rest toward its rear end upon the cross-bar 100 of the frame extension, where it is secured in position by the set screws 102, while its forward end portion will rest upon the upper edges of the side plates 10 and 11, the edge of its bottom being directly over a roller 96, or, in other words, directly over the feed apron 98. The end of the cigar box located over the feed apron is removed to permit the cigars to roll from the box, as will be understood and as clearly shown in Fig. 7.

104 indicates a plate extending parallel to the apron 98 between the lower end of the endless apron 86 and the roller 8, said plate being secured at its ends to the side plates of the machine, and being located such distance above the feed-apron 98 as to allow the cigars to roll freely, one at a time, between them.

The operation of the mechanism described is as follows:—A coin of the requisite denomination, in the present instance, a five-cent piece, is inserted through the opening 15 and passing down the coin chute 14, it falls upon the short arm 27 of the locking dog, which passes through the extension of the coin chute in an opposite direction to that of the throw-lever 23. The weight of said coin is sufficient to move the said short arm downward and thereby turn the locking dog upon its pivot, carrying the end of the long arm 28 of the dog out of engagement with the notch 43. The coin now rests in the extension 19 of the trough upon the arm 27. The operator now grasps the knob 42 and pulls the bar with arms 35 and 36 and cross-bar 37 outward. As the sliding frame moves outward the inclined portion 46 of the arm 35 engages the arm 32 of the throw-lever 23, thereby de-

pressing the rear end of said throw-lever, causing its outer or free end to be thrown upward. In such upward movement the end of the throw-lever engages the under side of the nickel and forces it upward in the trough 18. As the coin is carried upward it presses the spring-arm 56 outward until the coin has passed the upper end of said arm, and when the throw-lever descends the coin will then rest upon the support 57 of the arm. This will prevent the coin from falling back upon the locking dog. As the sliding frame is pulled outward the forward tongue 74 (Figs. 5 and 6) of the actuating dog will engage one of the teeth 69 of the ratchet wheel 78 and revolve the delivery roller 8. The tongue 74 will pass out of engagement with the tooth 69 before the roller has been turned sufficiently to deliver the cigar and to complete the revolution the rear tongue 75 of the actuating dog engages the next succeeding tooth 69, and, as shown in Fig. 6 completes the revolution of the roller. In order to insure that the delivery roller shall be revolved only a predetermined distance I provide the stop arm 76, which is so positioned that when the sliding frame has been pulled outward the requisite distance to cause its actuating dog to revolve the delivery roller to deliver a cigar, it will engage the rear side of one of the teeth of the ratchet wheel 68, and thus positively stop the delivery roller from further rotation, as well as lock the sliding frame against further outward movement. Without the provision of the stop arm the delivery roller might be given such an impetus in operating the machine as to revolve the roller more than the distance required to deliver one cigar, and furthermore, to leave the ratchet wheel in a position in which the tongue 74 might not engage with a tooth thereof. When the knob 42 is released the springs 64 will carry the sliding frame backward. In this movement the tongues 74 and 75 ride over the teeth of the ratchet wheel, and will have a tendency to turn the delivery roller in a direction the reverse of that just described. To prevent this I have provided a pawl which engages one or the other of the teeth 69 and prevents such reverse movement of the roller. In the delivery movement of said roller the pawl will ride over the teeth of the ratchet wheel, as will be understood. As the sliding frame is pulled outward the under side of the arm 32 of the throw-lever 23 will engage the bent arm 50 and throw its inner end having the button 55 upward, causing said button to strike the bottom of the cigar box 103, with more or less force, thereby agitating and tending to loosen and separate the cigars in the said cigar box.

Referring again to Figs. 5 and 6, in the outward movement of the sliding frame the forward tongue 87 of the feed dog 83 will engage

a tooth on the ratchet wheel 85 and thereby revolve the lowermost roller 94, causing the side of the endless apron 95 against which the cigars roll to move upward, the purpose of which is to prevent crowding the cigars in the feed-way and to facilitate the feed of the cigars, one at a time, to the delivery roller. As in the case of the actuating dog 70, the forward tongue 87 of the feed dog will pass off of the teeth of the ratchet wheel 85 before the same has been revolved to move the feed apron the desired distance; but as this occurs, the rear tongue 88 comes into engagement with a tooth of said ratchet wheel and continues the movement thereof. Referring to Fig. 7 it will be seen that the inclined feed apron 98 supports the cigars rolling out of the cigar box, and it will be further seen that as the bottom side of this apron is secured to the cross-bar 37 the upper side of the apron will be moved to the rear as the sliding frame is pulled out, thereby moving the cigars away from the delivery roller, this further preventing the jamming of the cigars and permitting them to roll gently down toward the delivery roller, one of the grooves 66 of which will always be left in a position to receive a cigar. By loosening the set screws 93 the plates 92 may be adjusted to carry the lower end of the apron 95 toward or from the upper side of the feed apron, according as the size of the cigar or the exigencies of the case require. When the delivery roller has been moved the required distance the cigar in its groove will fall out into the trough 7, whence it may be removed by the operator.

I claim:—

1. In a cigar vending apparatus, in combination with a grooved delivery roller, a slidable member, means carried by said slidable member for actuating the delivery roller in one direction only, means, also carried by said slidable member, for stopping the delivery roller at a given point in its rotation.

2. In a cigar vending apparatus, in combination with a grooved delivery roller having a ratchet wheel, a slidable member, means carried by said slidable member, and adapted to engage said ratchet wheel in the movement in one direction of said slidable member to partially rotate said roller, means, also carried by said slidable member, for engaging said ratchet wheel to stop the delivery roller at a given point in its rotation, and means for preventing the rotation of said roller in a direction reverse of that of its delivery movement.

3. In a cigar vending apparatus, in combination with a grooved delivery roller having a ratchet wheel, a slidable member, an actuating dog carried by said slidable member and adapted to engage said ratchet wheel in one movement of the slidable member to partially rotate said roller, and an arm carried by said dog and adapted to engage and

lock the ratchet wheel against further movement.

4. In a cigar vending apparatus, in combination with a grooved delivery roller having
5 a ratchet wheel, a slidable member, an actuating dog pivotally mounted at one end on said slidable member and supported therefrom toward its opposite end, said opposite
10 end having tongues for engaging the ratchet wheel to partially rotate the roller in the movement in one direction of said slidable member, and means carried by said dog for engaging and positively locking the ratchet
15 wheel in a given position to which it has been turned by said actuating dog.

5. In a cigar vending apparatus, in combination with a grooved delivery roller, a slidable actuating member therefor, a pair of
20 rollers mounted in the machine, and an endless apron mounted on said rollers and adapted to receive and deliver cigars to said roller, the said apron having its under side secured to said slidable member, whereby its upper
25 side is moved in a direction away from the roller when the slidable member is moved to rotate the roller to deliver a cigar.

6. In a cigar vending apparatus, in combination with a grooved delivery roller having
30 a ratchet wheel, a slidable member, an actuating dog pivotally mounted on said slidable member at one end and loosely supported from said slidable member toward its free end, the free end of said dog being re-

cessed on its under side to provide tongues for engaging the successive teeth of said
35 ratchet wheel in the movement toward the ratchet wheel of said dog, and a stop arm carried by said dog and adapted to engage the ratchet wheel when the roller has been moved by the actuating dog to its delivery
40 position.

7. In a cigar vending apparatus, in combination with a grooved delivery roller having
45 a ratchet wheel, a slidable member, an actuating dog pivotally mounted on said slidable member at one end and loosely supported from said slidable member toward its free end, the free end of said dog being adapted to engage the teeth of said ratchet wheel in the movement toward the ratchet wheel of
50 said dog, a stop arm carried by said dog and adapted to engage the ratchet wheel when the roller has been moved by the actuating dog to its delivery position, and a spring-controlled pawl normally engaging a tooth of
55 said ratchet wheel to prevent the rotation of the latter in a direction reverse to that of its delivery movement.

In testimony whereof I have hereunto set my hand in presence of two subscribing
60 witnesses.

WILLIAM B. SULLIVAN.

Witnesses:

BRUCE S. ELLIOTT,
CLORA CONLEY.