

No. 749,682.

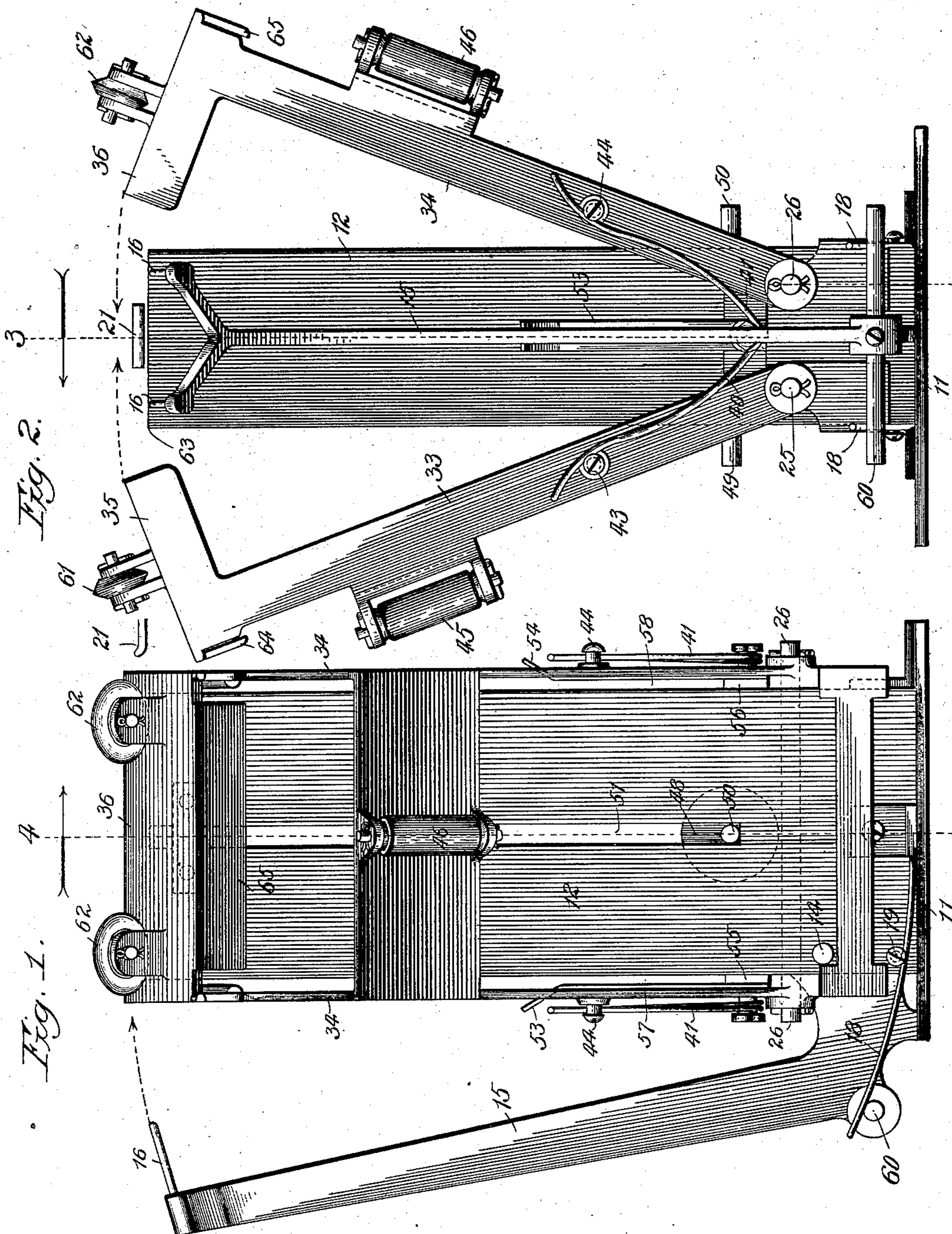
PATENTED JAN. 12, 1904.

R. F. W. BEARDSLEY.
PACKAGE SEALING MACHINE.

APPLICATION FILED SEPT. 22, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

Fig. 4.

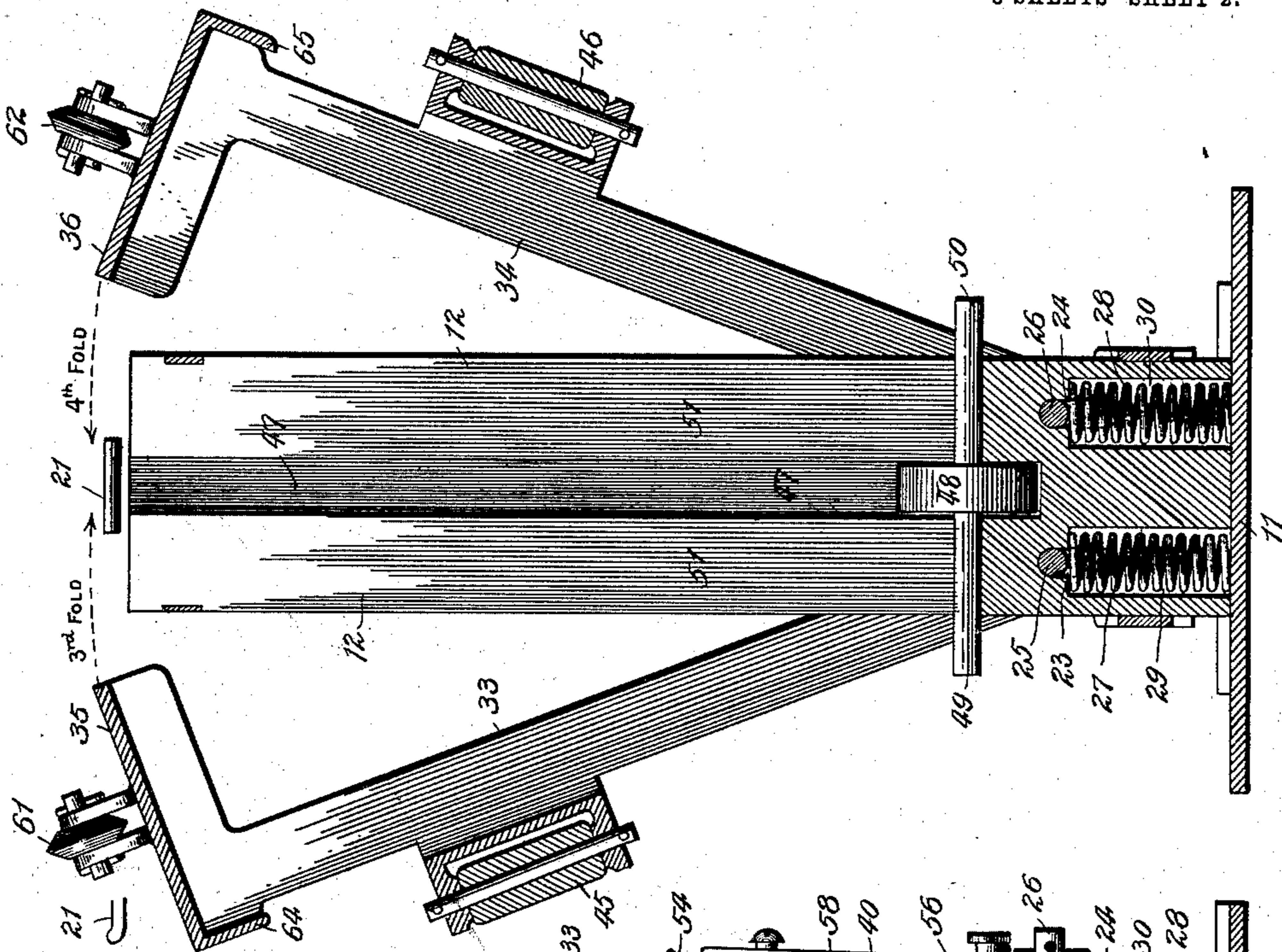
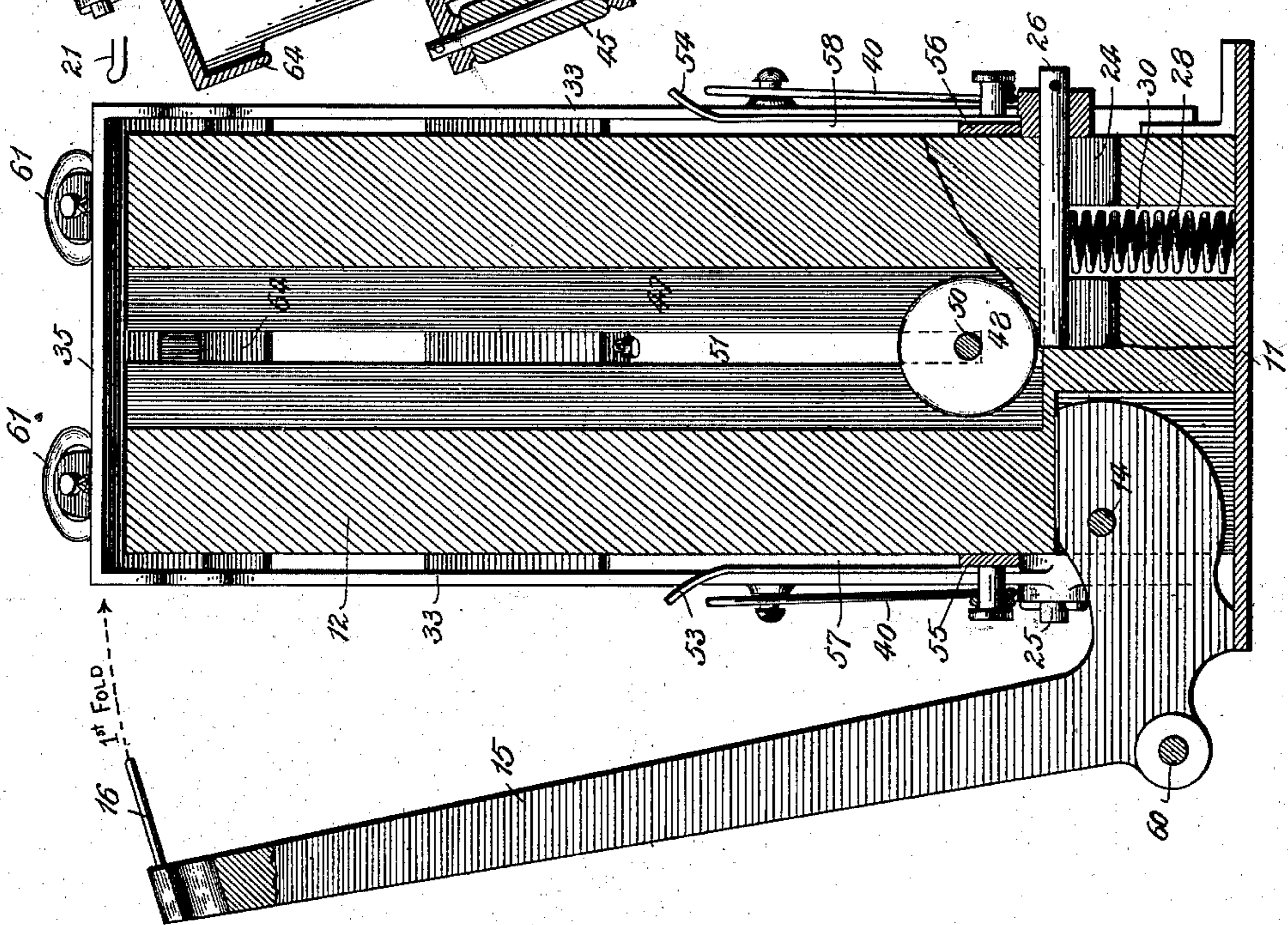


Fig. 3.



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3 SHEETS—SHEET 3.

Fig. 5.

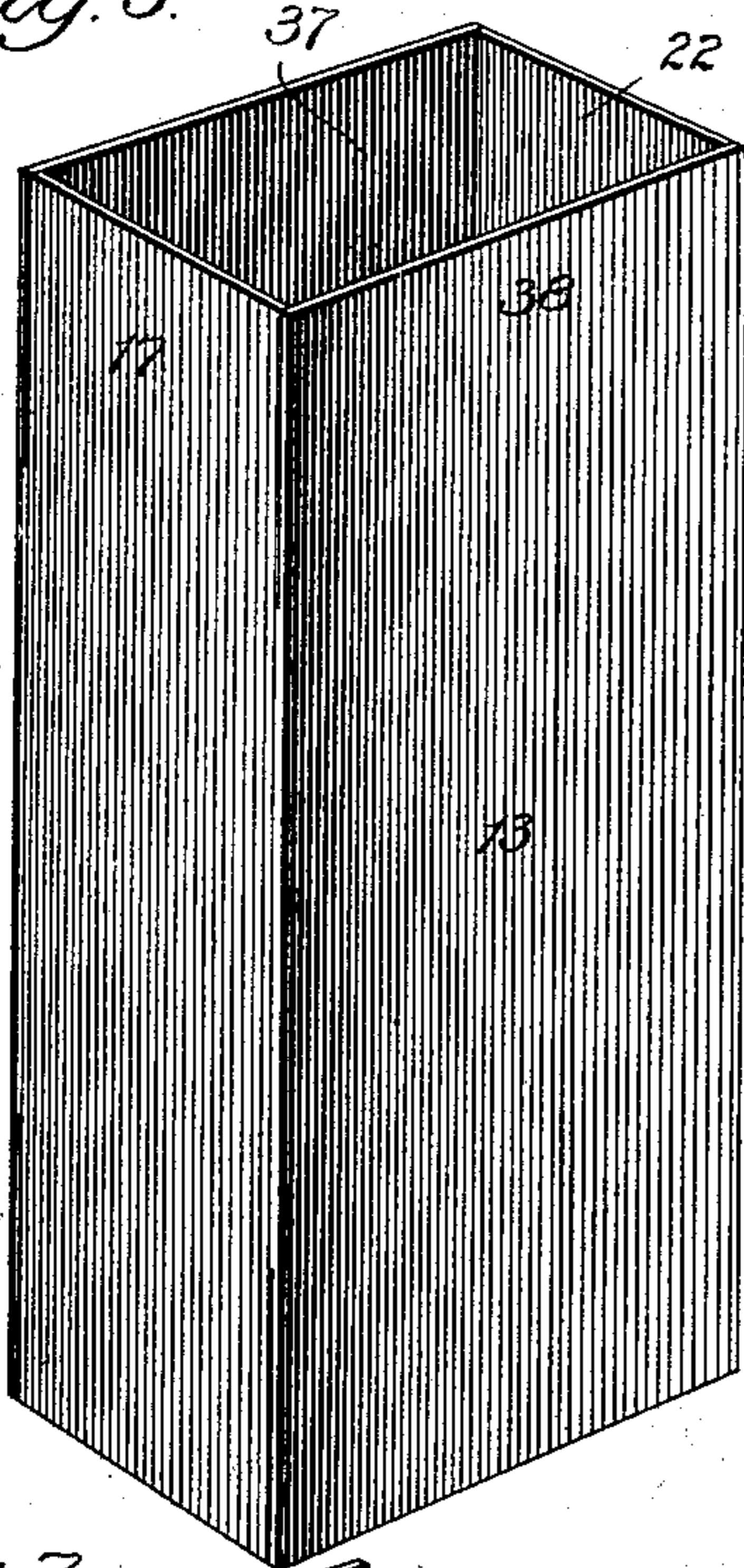


Fig. 6.

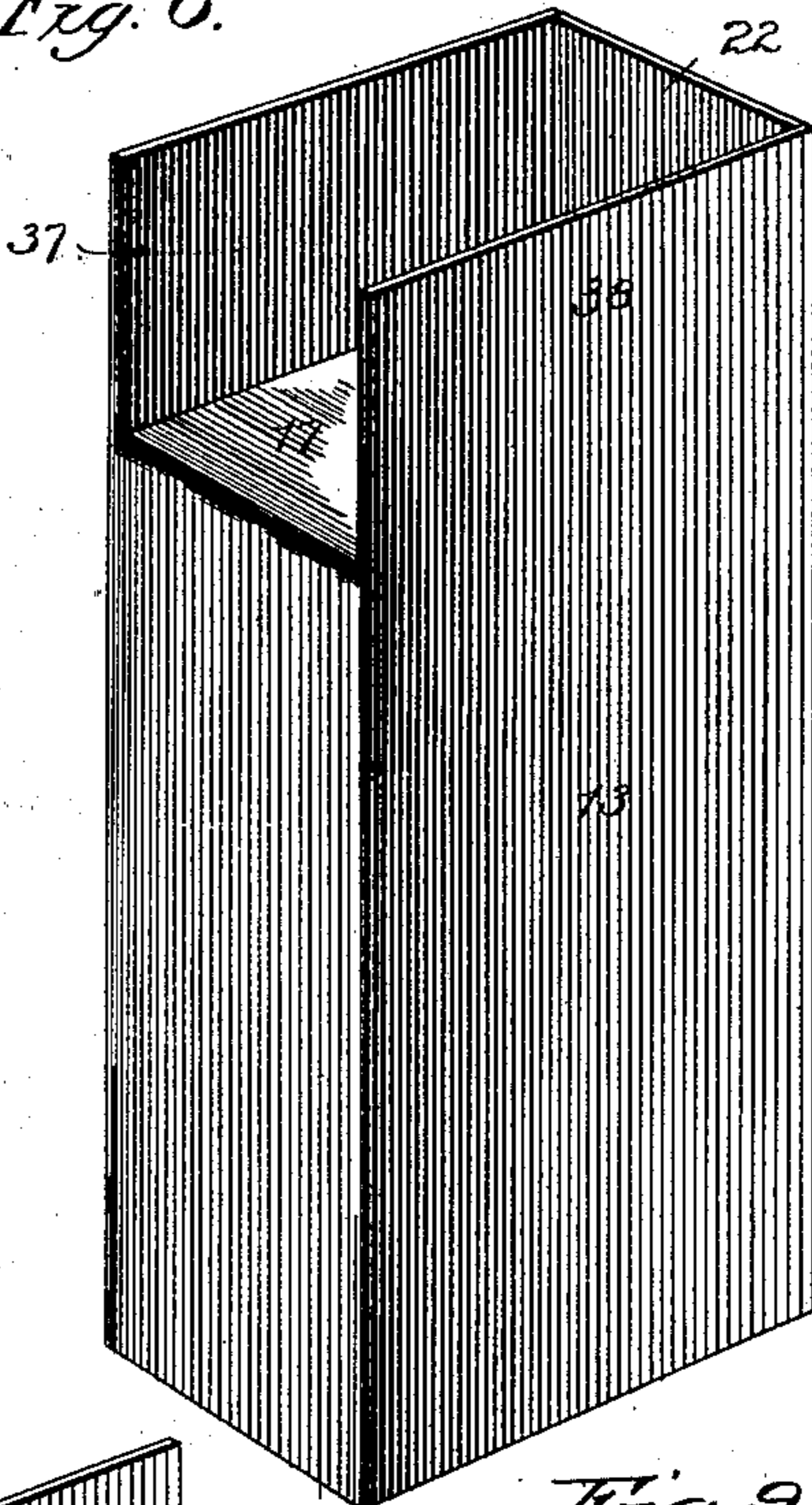


Fig. 7.

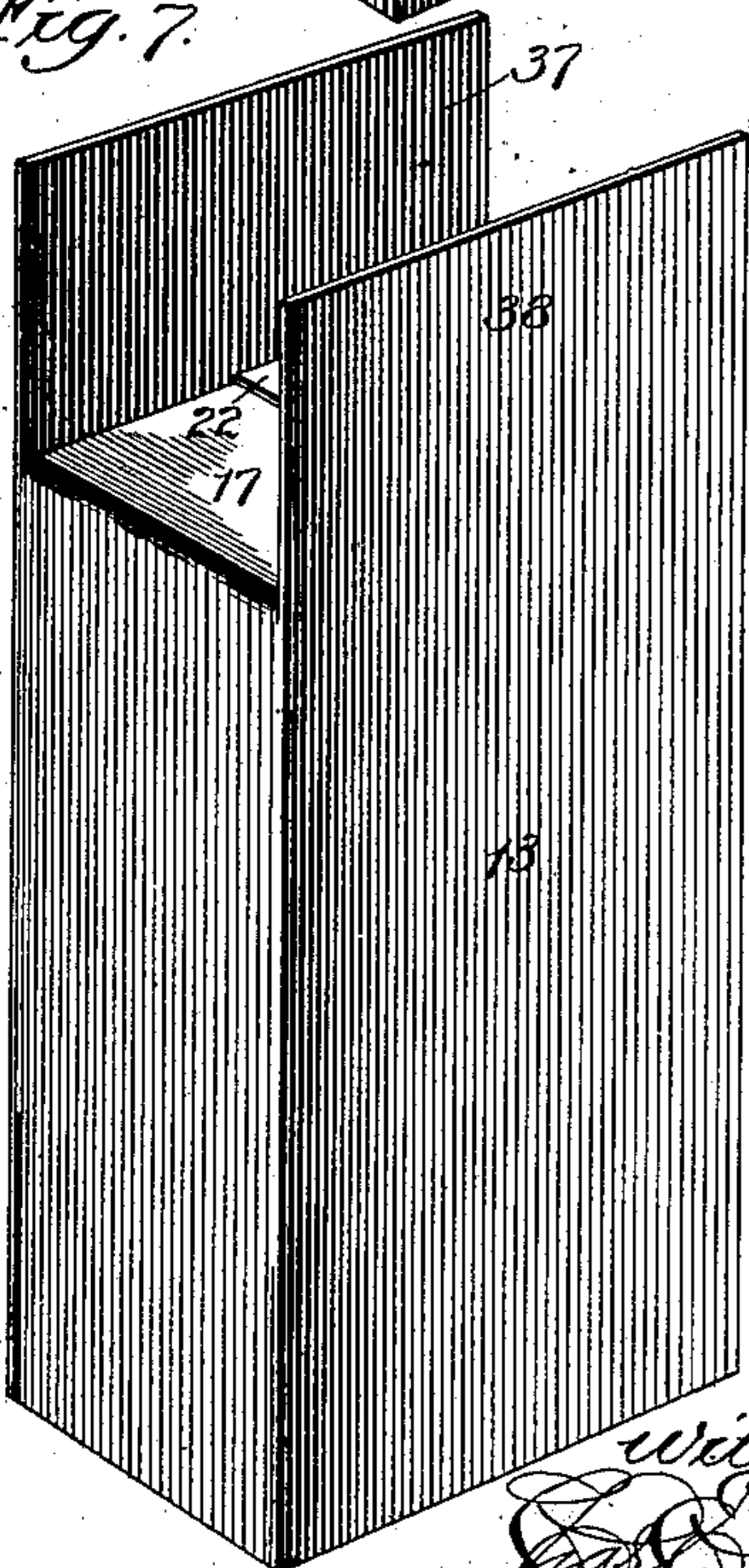


Fig. 8.

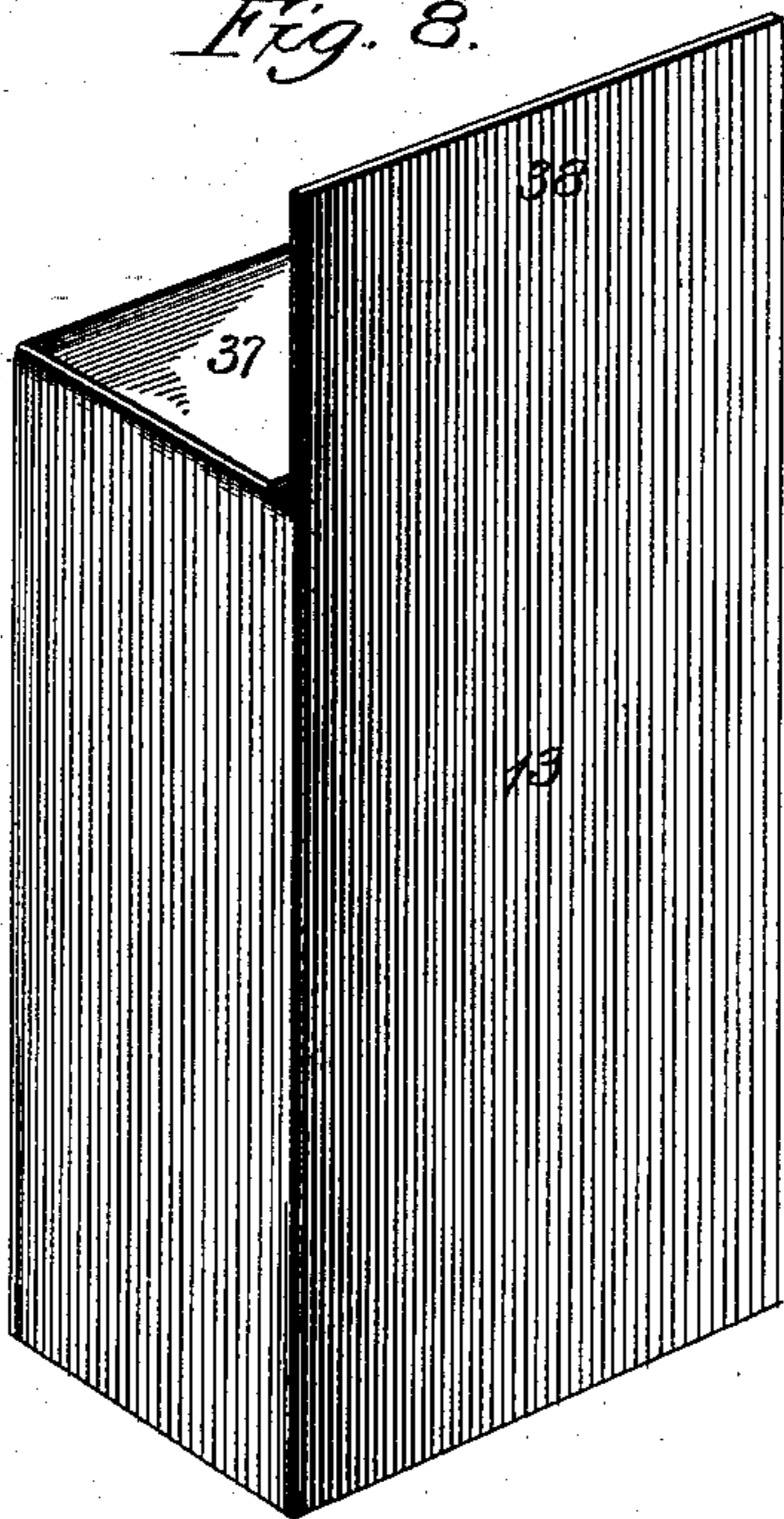
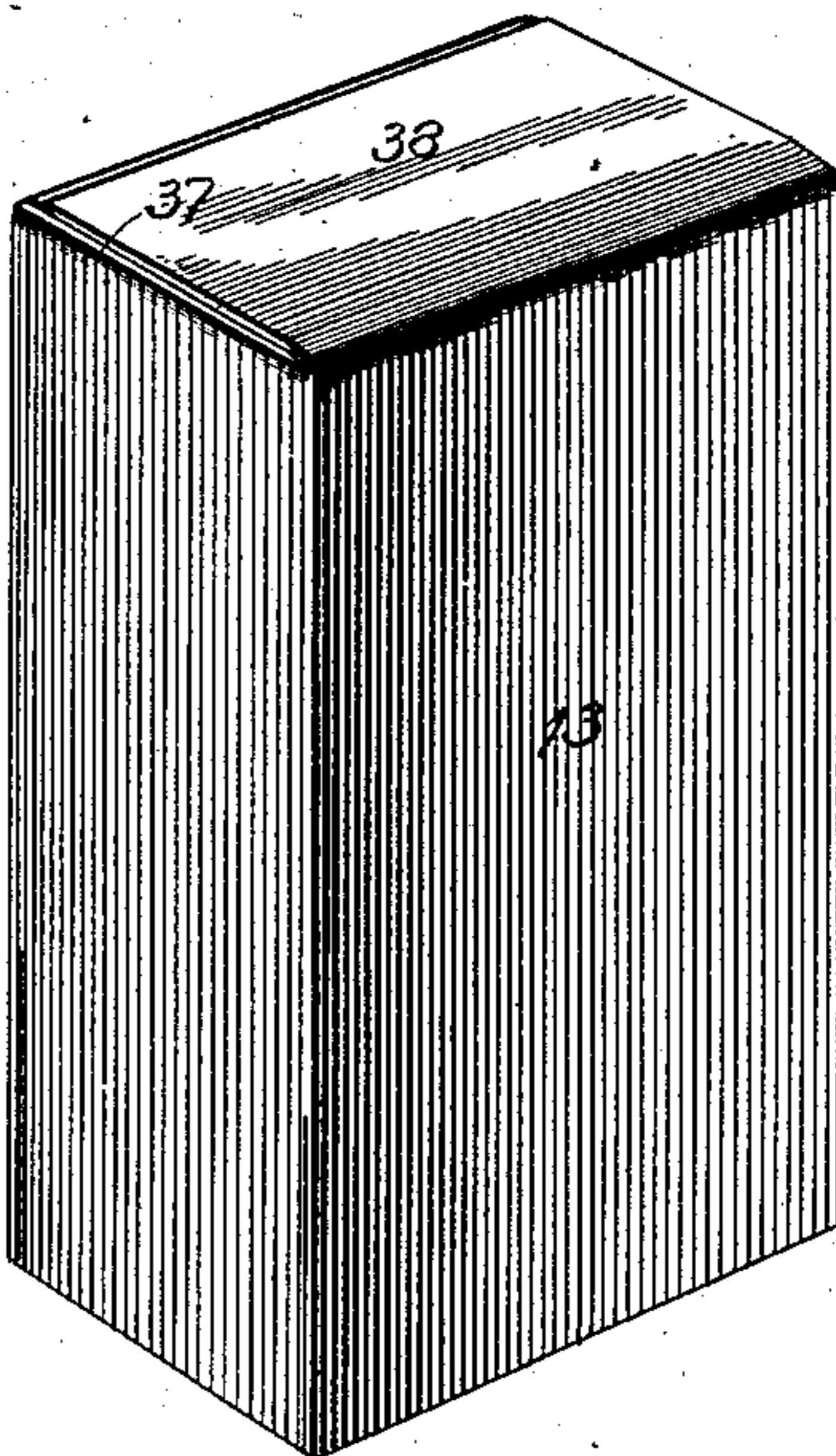


Fig. 9.



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UNITED STATES PATENT OFFICE.

ROBERT F. W. BEARDSLEY, OF CHICAGO, ILLINOIS, ASSIGNOR OF FOUR-FIFTHS TO ROSE LEVY, LYDIA LEVY, HARRY D. LEVY, AND BERTRAM E. NUSEBAUM, OF CHICAGO, ILLINOIS.

PACKAGE-SEALING MACHINE.

SPECIFICATION forming part of Letters Patent No. 749,682, dated January 12, 1904.

Application filed September 22, 1902. Serial No. 124,353. (No model.)

To all whom it may concern:

Be it known that I, ROBERT F. W. BEARDSLEY, a citizen of the United States, residing at Chicago, in the county of Cook, State of Illinois, have invented a new and useful Improvement in Package-Sealing Machines, of which the following is a specification in its best form now known to me, reference being had to the accompanying drawings, in which similar numerals indicate the same parts throughout the several views.

My invention relates to package-sealing machines, and is particularly an improvement upon the flap-folding device used in an invention heretofore made by me and fully described in an application entitled "Package-sealing machine" filed in the Patent Office March 12, 1902, Serial No. 97,948.

My invention relates to the class of machines for folding in the flaps of cartons or boxes where a block holding a carton is carried through the machine, and in passing successive mechanisms the flaps of the carton are successively folded in upon each other. One form of such mechanism to which my invention is specifically adapted is illustrated in my application heretofore referred to, Serial No. 97,948; but the device may be applied to other machines of this class.

The object of the invention is to combine a carton-carrying plug and mechanism connected with it for successively closing in the various flaps of the carton, whereby the work is done in a smoother, neater, and more efficient manner than by the devices heretofore used.

It consists in such an apparatus which can be easily and cheaply constructed and operated and is not liable to get out of order. It also consists in many details of construction hereinafter more fully described and claimed.

In the drawings, Figure 1 is a side and Fig. 2 an end view of mechanism illustrating the invention. Figs. 3 and 4 are center sectional views taken on lines 3 and 4, respectively, of Figs. 2 and 1. Fig. 5 is a perspective view of the carton with the flaps at both ends opened. Figs. 6, 7, 8, and 9 are similar views of the

carton, showing successively one, two, three, and all four of the flaps at one end of the carton folded down. In other words, Fig. 5 represents the carton as it is placed in the machine, and Figs. 5, 6, 7, and 8 represent the successive steps performed by the mechanism of my invention.

The device consists of a base 11, rigidly secured by suitable mechanism to the usual endless chain, (not shown,) which moves through the machine of the type to which the invention is applicable. Rising from this base is a block 12, adapted to carry a carton with its flaps raised, as shown in Fig. 5.

Pivoted at 14 near the base of the plug or holder is a finger 15, having L-shaped prongs 16, adapted when the finger is moved to a vertical position against the carton-plug 12 to strike the flap 17 of the carton and fold it in the position shown in Fig. 7. This finger 15 is normally held away from contact with the plug by a flat spring 18, resting on the base 11 and bearing against pin 19 and rod 60. Rigidly secured to the top of the machine in front of the path of travel of the plug is a cam 21, (corresponding to cam 43, shown in full in my former invention,) adapted as the plug is carried past it to strike the flap 22 of the carton and fold it into the position shown in Fig. 7. Near the base of the plug and running lengthwise through it are two slots 23 and 24, in which shafts 25 and 26 are adapted to move up and down under the action of coiled springs 27 and 28, mounted in the openings 29 and 30, cut below the shafts 25 and 26. These springs are at opposite ends of the plug 12, as shown in Figs. 3 and 4, and the lower ends of springs 27 and 28 bear on the base 11. Journaled on the ends of these shafts 25 and 26 are fingers 33 and 34, having rigidly extending from their upper ends the L-shaped pieces or plates 35 and 36, the L-shaped piece 35 being adapted to fold in the flap 37 to the position shown in Fig. 8 when the finger 33 is moved up against the plug 12 and the L-piece 36 being correspondingly adapted to close in flap 38 to the position shown

in Fig. 7 when the finger 34 is swung up in contact with the plug 12. The fingers 33 and 34 are normally held apart by a spring 40, coiled around a pin 41 on the base of the plug and bearing against pins 43 and 44 on said fingers, as shown in Fig. 2. This spring has the advantage of being very positive in its action and always holding both fingers with the same equal tension at the same moment of time, the pressure on the fingers varying as one or both are moved toward the plug. On the back of finger 33 is a roller 45, adapted to be engaged by a cam on the machine corresponding to cam 78 of my former invention above referred to, and on the back of finger 34 is a corresponding roller 46, adapted to be engaged by a cam corresponding to cam 79 of my former invention referred to. In order to get past the corner 63 of the plug 12 and allow the L-top 35 to swing to a horizontal position, as just described, the finger 33 has to be of such a length that the L-top 35 when in a horizontal position above the plug 12 is some little distance (about a quarter of an inch) above the top of the plug 12. Consequently this top exerts little or no pressure upon the flap 37 which is under it, and it is only by exerting direct pressure upon the flap that the glued surface can be made to take hold properly and stick to flaps 17 and 22.

In order to enable the L-shaped top 35 to exert a direct flat pressure upon the top of the folded-in flap 37 sufficient to make the flap adhere to the flaps below it, (assuming that it has been coated with adhesive material either by hand or mechanism not shown and forming no part of the invention here in question,) I provide on the top of the plate a roller 61, adapted to pass under a cam in the machine corresponding to cam 89, illustrated in my previous invention above referred to, and I also mount the shaft 25, on which the fingers 33 are pivoted, on the springs 27 in the manner heretofore described, whereby when the finger is swung to a vertical position and the pressure is exerted by the proper cam on roller 61 the L-shaped top 35 will be depressed against the resistance of the springs 27 upon the top of the flap 37, thereby holding it securely against the flaps below it a sufficient time for the glue to set. In a similar manner and for the same reasons I provide a roller 62 on the top of L-plate 36 and mount the bearings of the finger 34 upon the shaft 26, resting on the springs 28. To make sure that the L-pieces 35 and 36 properly close in the flaps they are adapted to work on, I provide at the back of said L-pieces, respectively, the lips 64 and 65, adapted to engage the side of the plug 12 and force the corner of the flap over flush with the side of the plug.

Mounted within a slot 47 inside the carton-holding plug 12 is a weight 48, preferably of circular cross-section, having rigidly secured

to it arms 49 and 50, extending through slot 51 outside of the plug 12 a sufficient distance, so that when the plug 12 is inverted the weight 48 will slide down slot 47, (upward in position shown in Fig. 3,) and the arms 49 and 50, bearing against the lower flaps of the carton, will force it off from plug 12.

In order to hold the cartons in proper position on plug 12, I attach to the ends the spring-clips 53 and 54, the same being held away from the plug by washers 55 and 56, thus affording spaces 57 and 58, into which the carton slips.

The rod 60, heretofore referred to and extending through the base of finger 15 and engaged by springs 18, is long enough so that in the travel of the carton-holder the end of it engages with a cam on the main machine corresponding to cam 35 in my previous application heretofore referred to, which cam is of sufficient height so that as the rod 60 passes over it the finger is elevated to close in carton-flap 17 in the manner heretofore described.

In the operation of my invention I attach one or more of the plugs 12, mounted on bases 11, to the endless chain of machine of the class referred to, such as is fully illustrated in my said application Serial No. 97,948, having a cam adapted to operate the rod 60 and finger 15 in the manner heretofore described, a cam corresponding to cam 21 in the path of travel of the machine adapted to close in the flap 22, as heretofore described, two separate cams, one in front of the other, adapted to successively move fingers 33 and 34 to close in the flaps 37 and 38, two cams on the top of the machine, (corresponding to cams 39 and 93 of Fig. 1 of my former invention heretofore referred to,) the first adapted when finger 33 is in a vertical position against plug 12 to operate on roller 31 on L-shaped top 35 to depress that top and finger 33 against the action of spring 27, the second similarly adapted under similar conditions to bear against roller 62 on L-shaped top 28. I now start the machine, and thus move the chain carrying the plug, with the fingers attached to it, along the table, when the rod 60 engages with its cam, and move finger 15 to a vertical position, thereby folding in the flap 17 and holding it there until the machine has reached the position where the cam 21 has begun to act to move flap 22 into the position shown in Fig. 1, thereby holding down flap 17. By this time the cam-controlling rod has ceased to act and finger 15 is swung back under the action of springs 18 to its position shown in Fig. 3. Just as the mechanism passes off from the cam 21 the roller 45 engages its cam, and the finger 33 is swung up to a vertical position, thereby folding in flap 37. (This flap has been previously coated by adhesive material either by hand or mechanism not shown or forming any part of this invention.)

The roller 61 now passes under its proper cam and presses down flap 37 in the manner heretofore described. This cam, which acts on this roller, is of sufficient length to hold this flap down for a sufficient length of time to have flap 37 secure itself in depressed position, as heretofore described. The roller 61 passes off from the cam and the roller 65 passes off from its cam, whereby the finger and L-top are elevated under the action of spring 27 and tilted back under the action of spring 40. As plug 12 now passes along roller 46 strikes its proper cam and is elevated to vertical position, thereby depressing the flap (previously coated with glue, either by hand or machinery) 38 to the horizontal position, and for the same reason that roller 61 was passed onto its cam roller 62 passes onto a corresponding cam, thereby depressing in a vertical position L-top 36 and finger 34, the lip 65 on the back of the plate serving to make sure that flap 38 is pressed down right back to its corner. When the parts have been held in position for a sufficient length of time for the glue on the under side of flap 38 to set and hold the parts in the position shown in Fig. 9, the roller 62 is released from its cam, and the parts assume the position shown in Fig. 2 ready to have another carton inserted.

The construction here shown and just described presents many other particular advantages over the construction described in my former invention Serial No. 97,948, frequently referred to, in that the action of the cams operating upon the rollers 61 and 62, as just referred to, depresses the L-top of the fingers on which they act positively on a line parallel to the center of plug 12. In other words, the use of springs at the bases of fingers 33 and 34 makes this vertical motion certain and positive.

It should of course be understood that a shorter plug may be substituted for the one shown, whereby filled packages may be inserted in the machine to have the top flaps closed in exactly the same way that such substitution is made in the machine shown and described in my prior application referred to.

I do not wish to be understood as limiting myself to the exact details shown. These may be varied within reasonable limits without departing from the spirit of my invention.

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

1. In mechanism of the class described, the combination of a carton-holding block or plug, a folding-finger pivotally mounted to fold in a flap of a carton on said plug, and spring mechanism supporting the pivotal mechanism of said finger in such a way that said finger may be bodily moved by any suitable means to press in a flap folded down by said finger.

2. In mechanism of the class described, the combination of a carton-holding block or plug, a folding-finger pivotally mounted to fold in a flap of a carton on said plug, and spring mechanism, adapted to move in a line parallel to the center of the plug, supporting the pivotal mechanism of said finger, whereby said finger may be bodily moved by any suitable means to press in a flap folded down by said finger.

3. In mechanism of the class described, the combination of a carton-blank-holding plug or block, a folding-finger pivotally mounted to fold in a flap of a carton on said plug and coiled-spring mechanism adapted to move in a line parallel to the center of the plug, supporting the pivotal mechanism of said finger whereby said finger may be bodily moved by any suitable means to press in a flap folded down by said finger.

4. In mechanism of the class described, the combination of a carton-blank-holding block or plug, a folding-finger pivoted to the base of the plug adapted to fold in a flap of a carton on said plug, and spring mechanism supporting the pivotal mechanism of said finger whereby said finger may be bodily moved by any suitable means to press down a carton-flap folded down by said finger.

5. In mechanism of the class described, the combination of a carton-holding block or plug, a folding-finger pivoted to the base of the plug adapted to fold in a flap of a carton on said plug, and spring mechanism, adapted to move in a line parallel to the center of the plug, supporting the pivotal mechanism of said finger whereby said finger may be bodily moved by any suitable means to press down a carton-flap folded down by said finger.

6. In mechanism of the class described, the combination of a carton-holding block or plug, a folding-finger pivoted to the base of the plug adapted to fold in a flap of a carton on said plug and coiled-spring mechanism adapted to move in a line parallel to the center of the plug, supporting the pivoted mechanism of said finger, whereby said finger may be bodily moved by any suitable means to press down a carton-flap folded down by said finger.

7. In mechanism of the class described, the combination of a carton-blank-holding block or plug, two flap-folding fingers pivoted in such a position that they are adapted to fold in opposite flaps of the carton on the plug, a spring mechanism supporting the pivotal mechanism of each finger whereby said finger may then be bodily moved parallel to itself by any suitable means to press down a carton-flap folded down by said finger and a spring secured to a fixed point having one end bearing on each finger adapted to normally hold it away from the block.

8. In mechanism of the class described, the combination of a carton-blank-holding block or plug, two flap-folding fingers pivoted to

the base of the plug on two opposite sides each adapted to fold in the carton-flap adjacent to it, a coiled-spring mechanism supporting the pivotal mechanism of each finger whereby said
5 finger may be bodily moved by any suitable means to press down a carton-flap folded down by said finger, and a spring secured to a fixed point at the base of the plug having one of its ends bearing on each finger adapted to normally hold it away from the block.

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