

No. 846,658.

PATENTED MAR. 12, 1907.

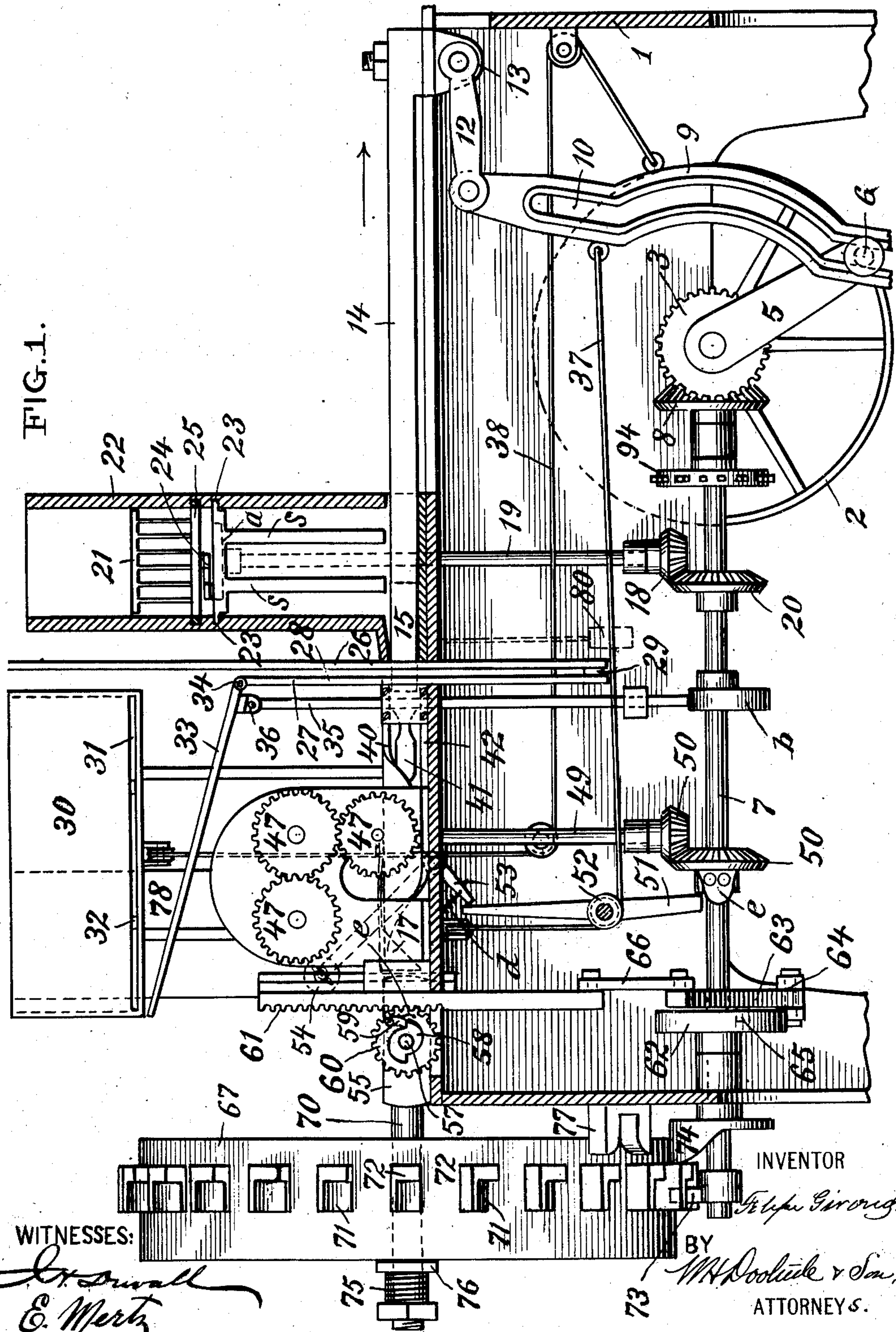
F. GIROUD.

CIGARETTE BOX MAKING AND PACKING MACHINE.

APPLICATION FILED JUNE 11, 1901.

5 SHEETS—SHEET 1.

FIG. 1.



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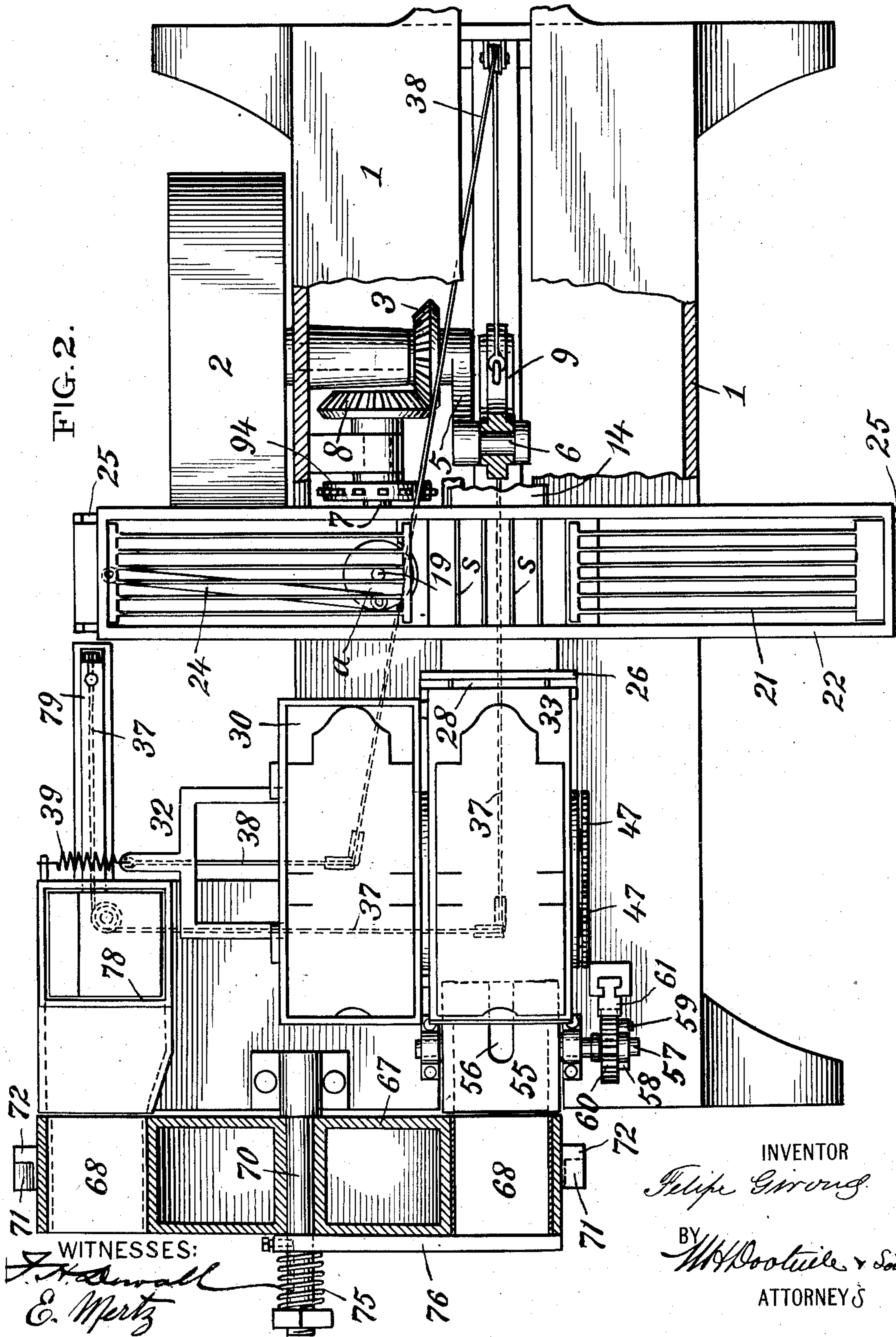
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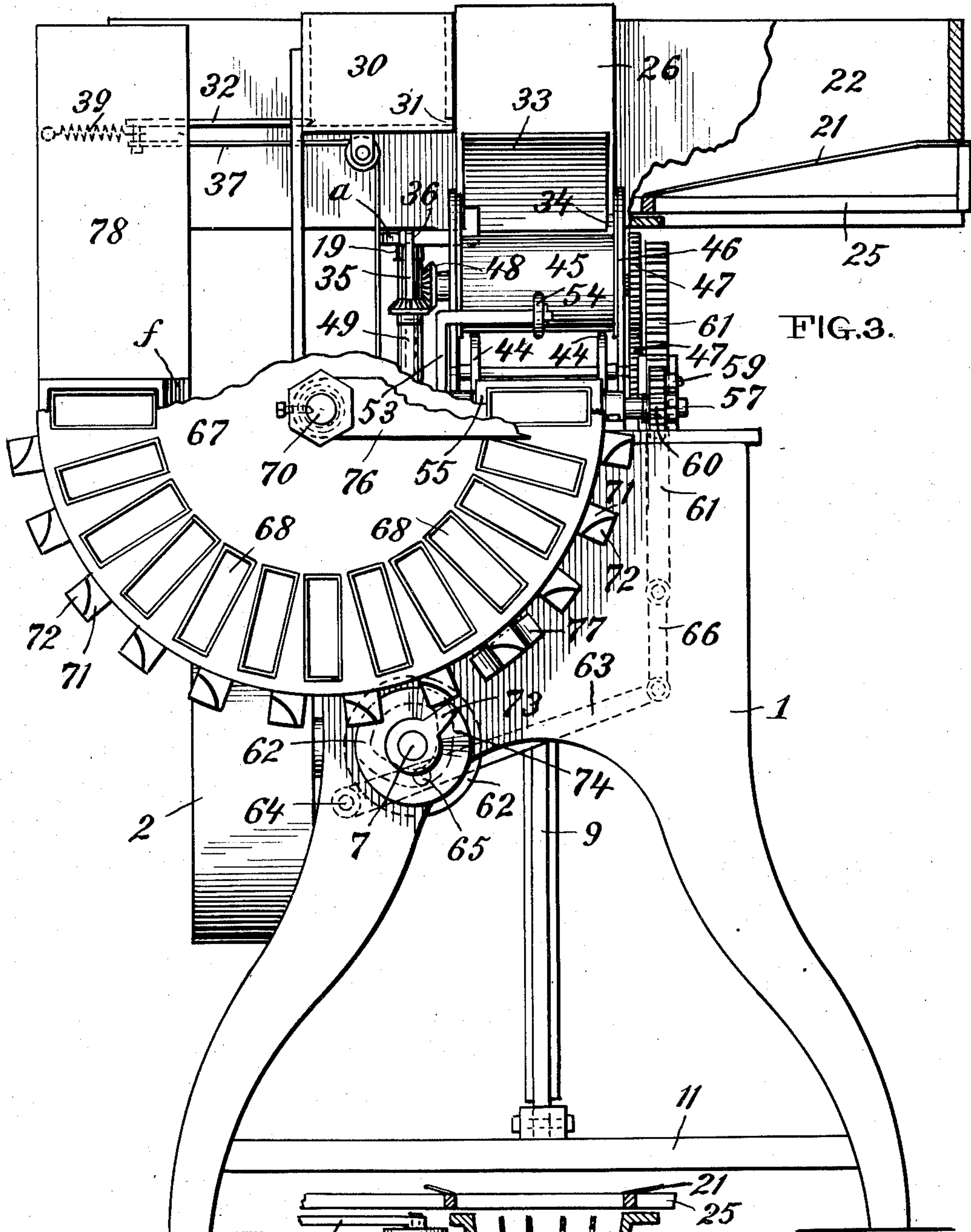
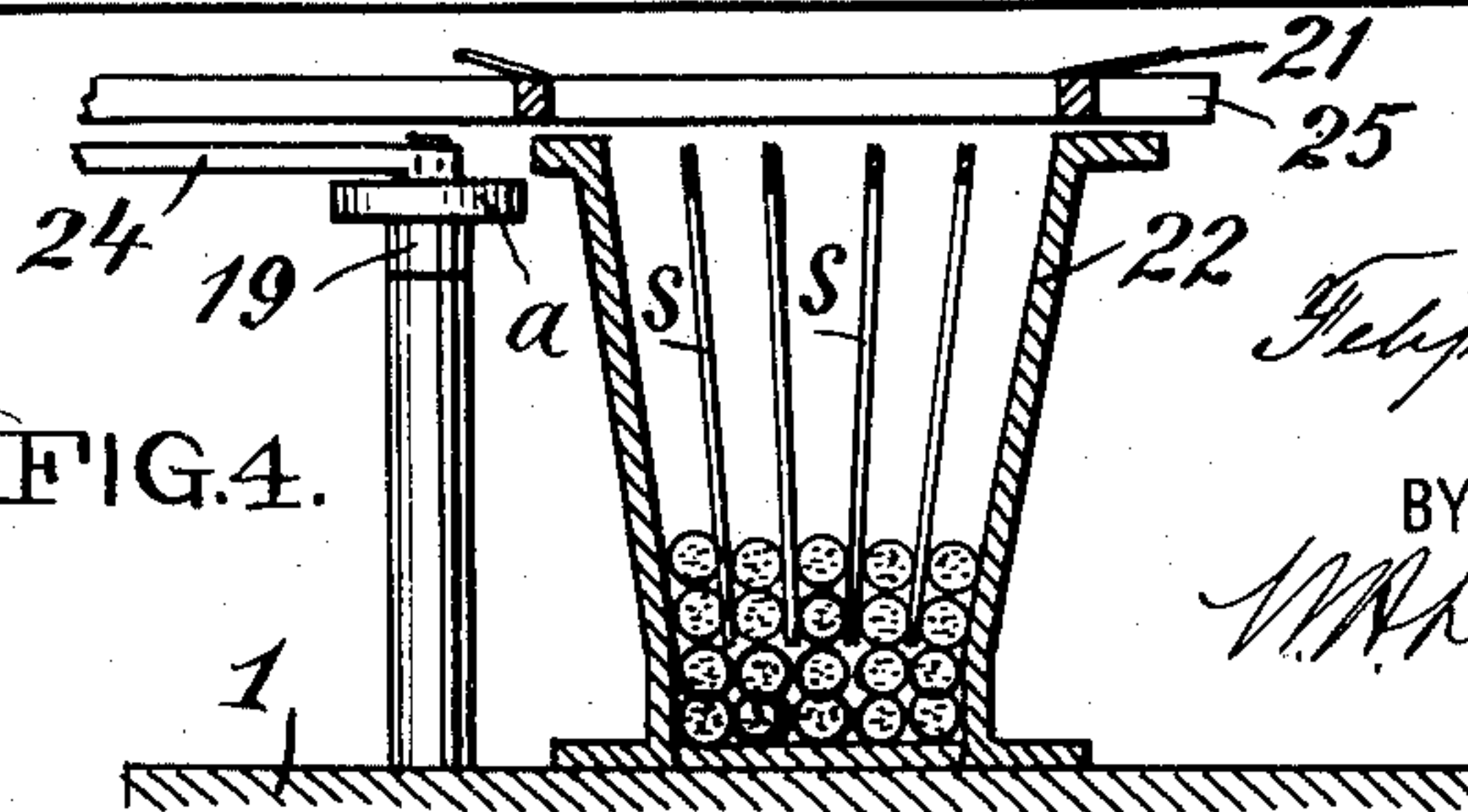


FIG. 3.

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FIG. 4.



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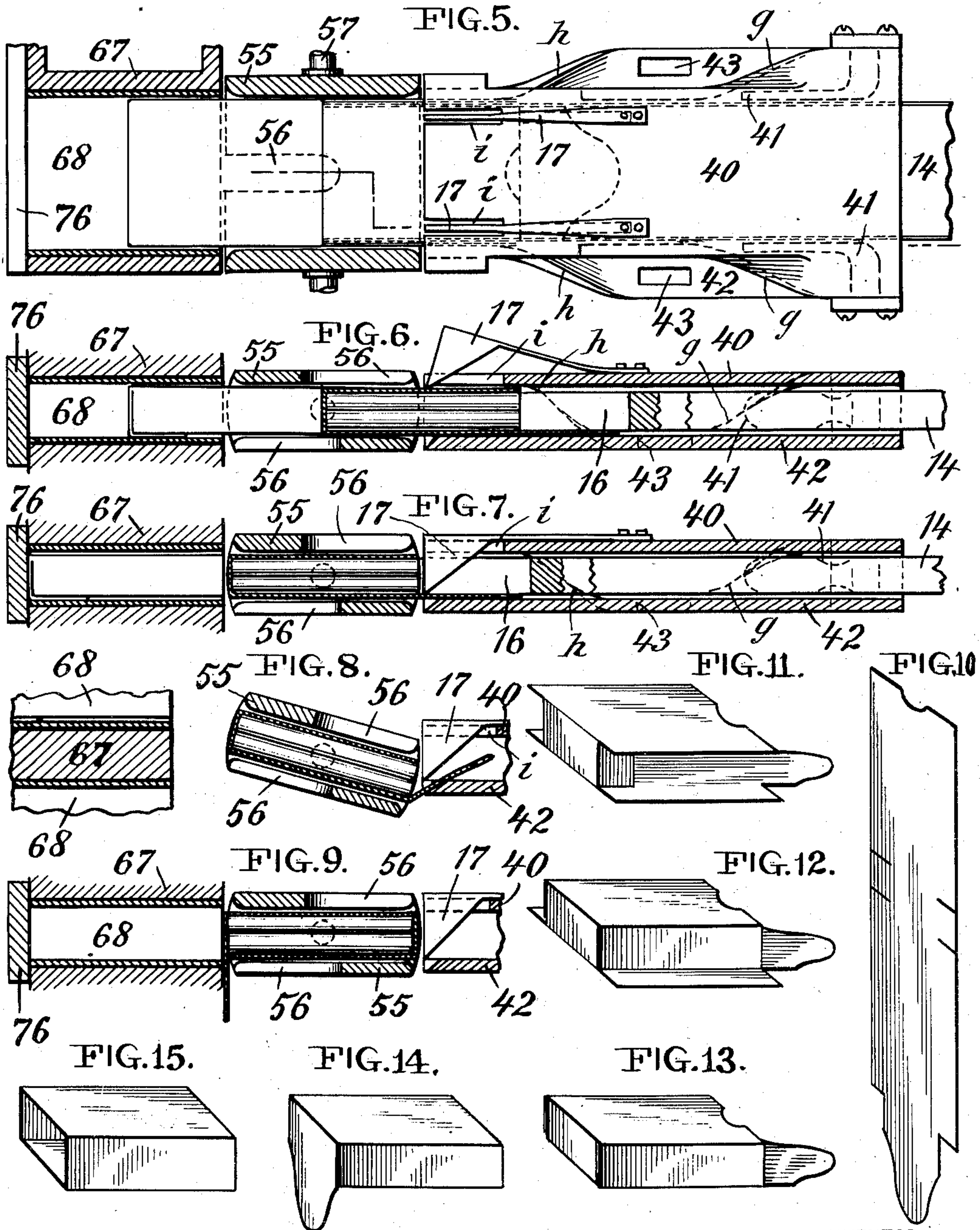
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5 SHEETS—SHEET 4.



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5 SHEETS—SHEET 5.

FIG. 17.

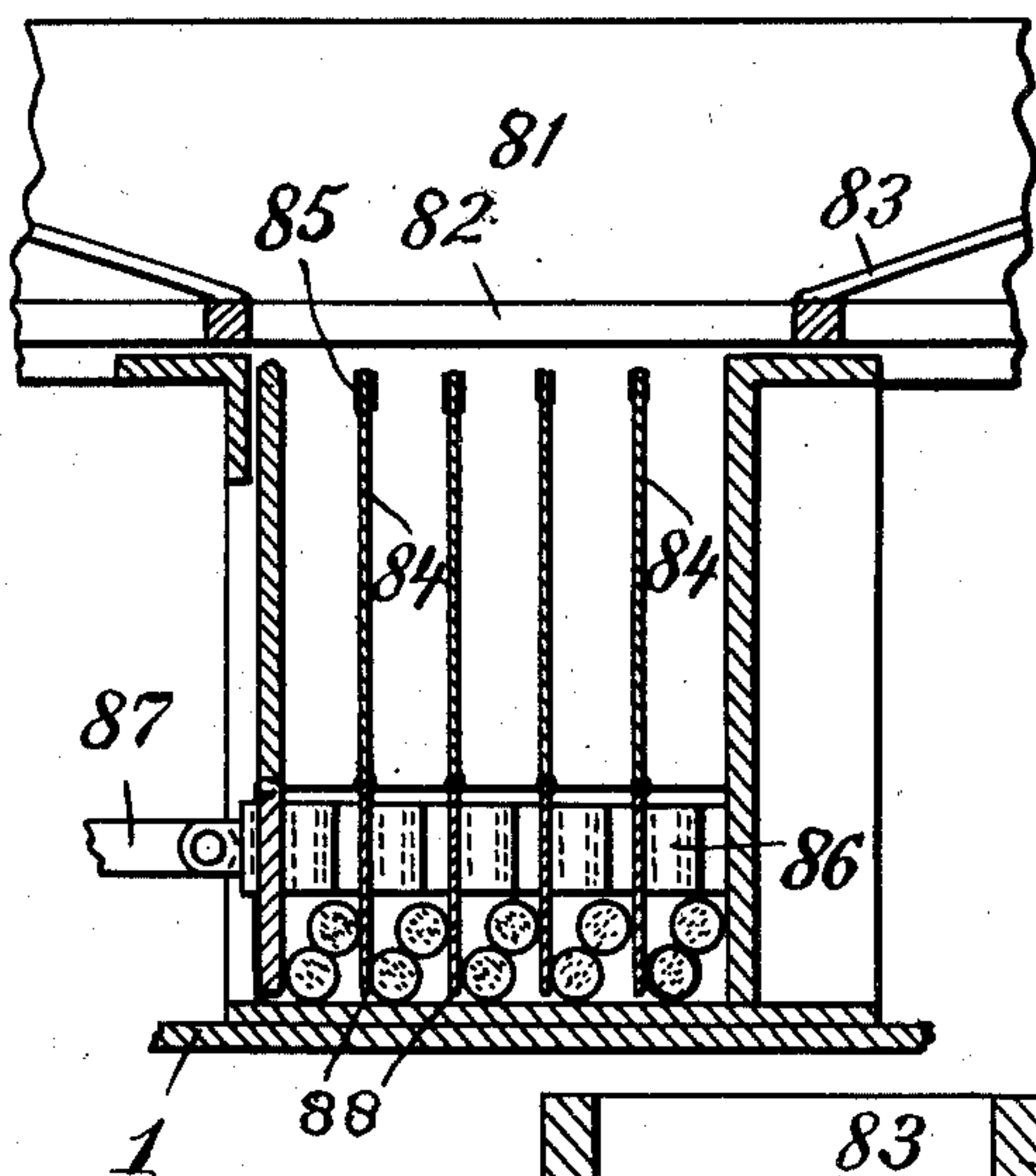


FIG. 18.

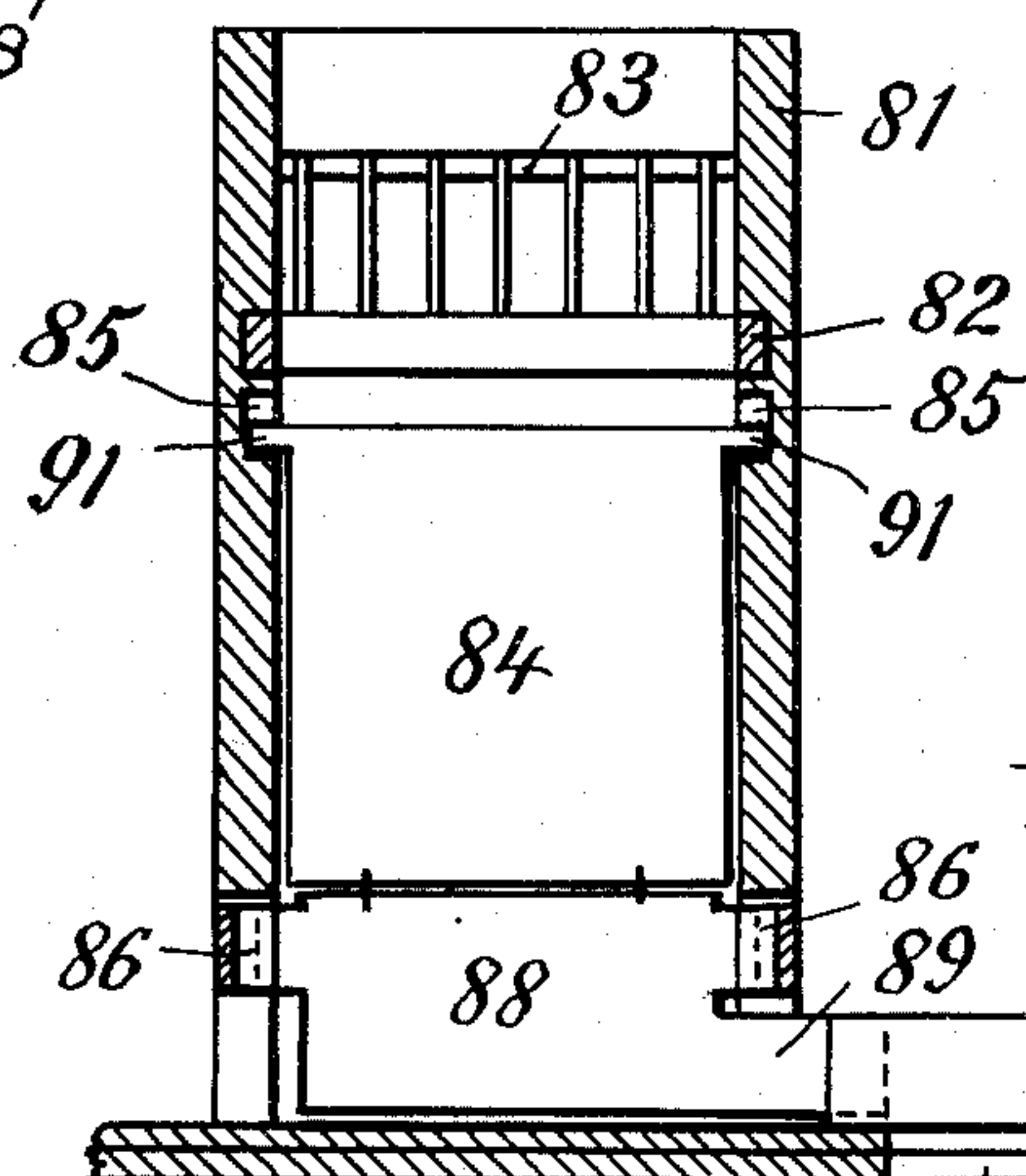
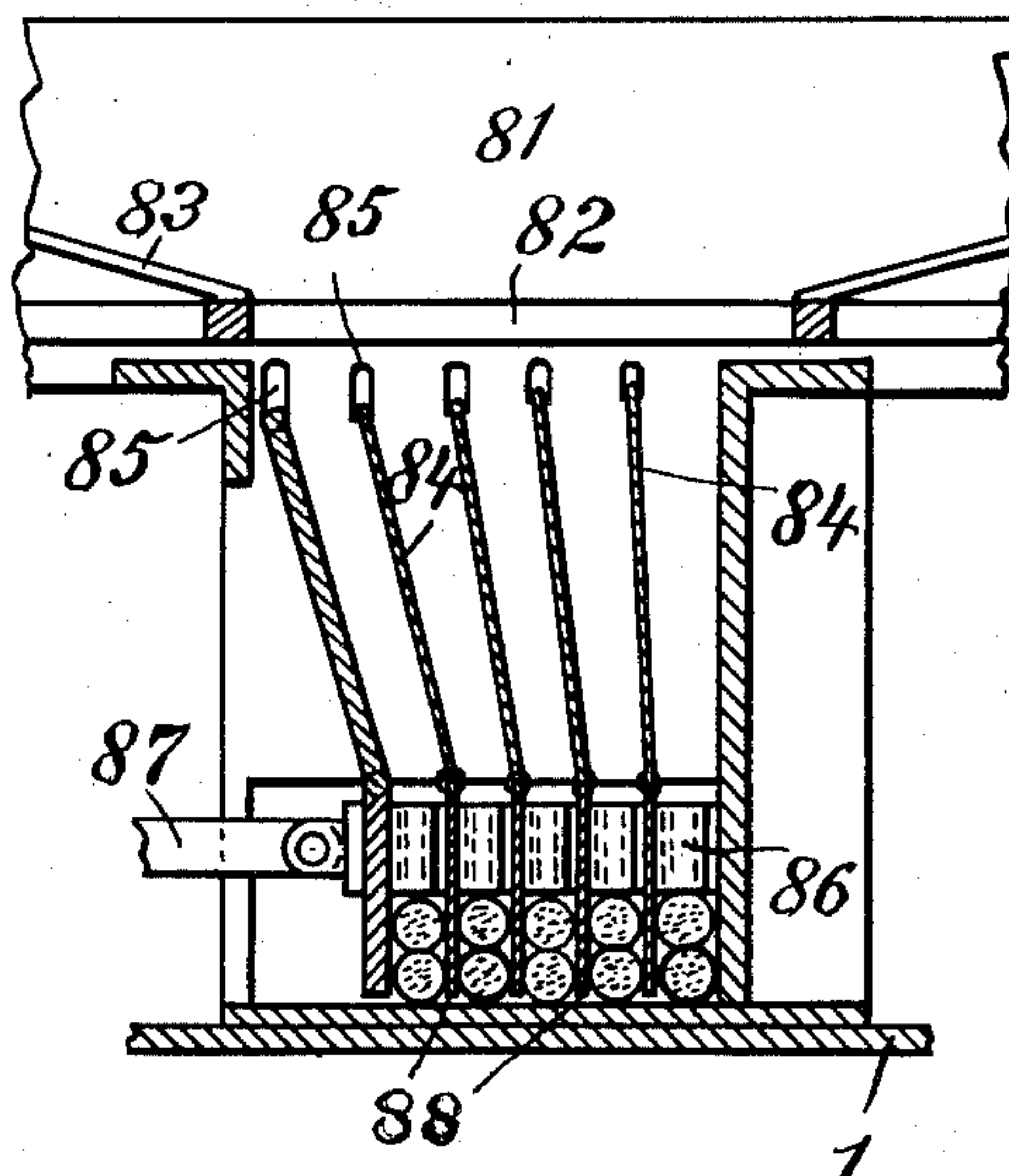


FIG. 19.

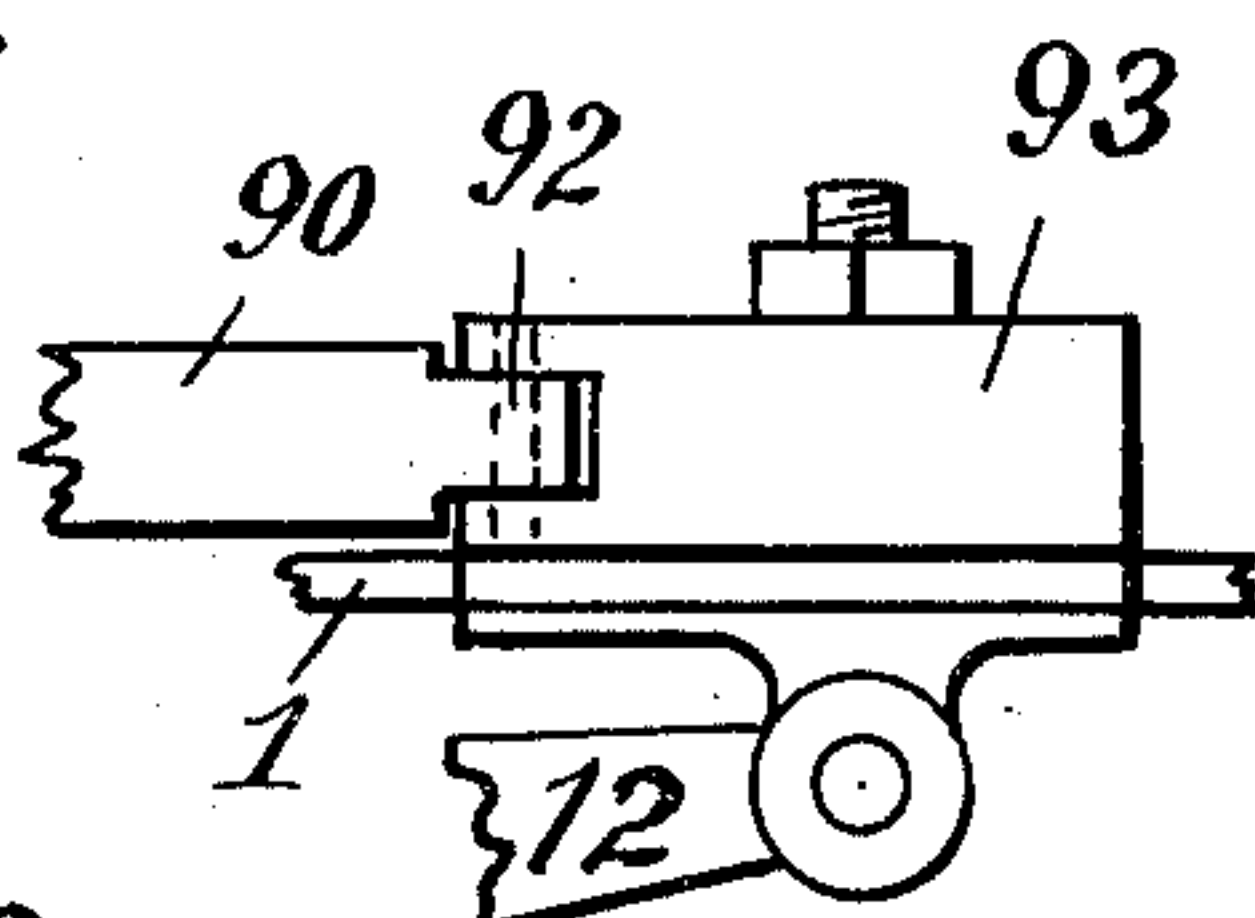
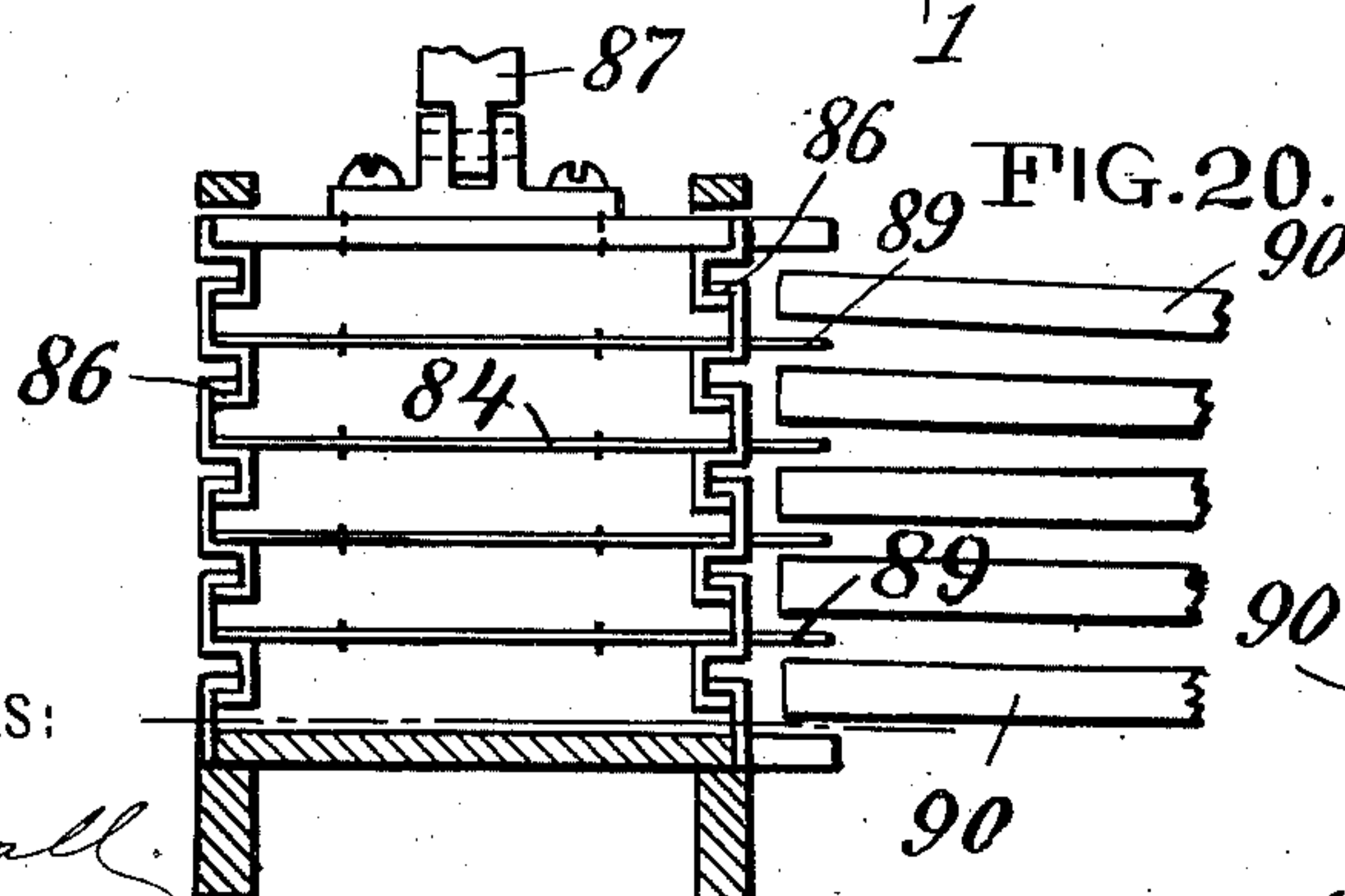


FIG. 20.



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UNITED STATES PATENT OFFICE.

FELIPE GIROUD, OF NEW YORK, N. Y., ASSIGNOR TO AMERICAN WRAPPING AND BOX MACHINE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

CIGARETTE-BOX MAKING AND PACKING MACHINE.

No. 846,658.

Specification of Letters Patent.

Patented March 12, 1907.

Application filed June 11, 1901. Serial No. 64,127.

To all whom it may concern:

Be it known that I, FELIPE GIROUD, a citizen of Cuba, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Cigarette-Box Making and Packing Machines, of which the following is a specification.

My invention relates to a cigarette box and packing-machine, and consists in means for automatically making the body of a box, feeding the cigarettes thereto and compressing them therein, and in applying the box-cover to said body, all as more fully herein-
after described and particularly claimed.

The objects of my invention are to save time, trouble, labor, and expense in employing independent machinery for making a cigarette-box, and independent means for packing the box with cigarettes, and for closing or sealing the same.

My invention is illustrated in the accompanying drawings, of which—

Figure 1 is a side longitudinal view in elevation, partly in section; Fig. 2, a plan of the machine. Fig. 3 is a rear end view of the machine, parts being broken away; Fig. 4, a sectional view of the counter-box, showing its partitions and the cigarettes lying within them. Fig. 5 is a plan view of the folder, showing in section the turning-box and the final receiving-box of the drum; Fig. 6, a side elevation of the same in section with the cigarettes half-way in the turning-box and the finger for arresting the cigarettes standing above them. Fig. 7 is a longitudinal sectional view showing the cigarettes held within the turning-box and the arresting-fingers down; Fig. 8, a view of the turning-box, partly in section, and its connections, showing the box beginning its turning movement and the lip of the package projecting. Fig. 9 is a view of the same parts with the box turned end for end, showing the lip of the package turned down ready to be forced in the receptacle in the drum; Fig. 10, a view of the wrapper-blank before it is doubled; Fig. 11, a wrapper-blank doubled over on the cigarettes with the margins unturned; Fig. 12, the next stage of the wrapper-blanks with the top margin turned down; Fig. 13, the wrapper-blank with both side margins

turned, leaving the lip projecting; Fig. 14, a view of the same with lip of the wrapper turned down; Fig. 15, a stiff paper or cardboard box to receive the wrapped package; Fig. 16, a plan view of the plunger and its attachments. Fig. 17 is a front section of an attachment used with the machine when paper is used for the wrapper instead of cardboard and by which the cigarettes are compressed; Fig. 18, a view of the same when the same are compressed. Fig. 19 is a side view of the same with the box in section, showing the face of one of the partitions and the plunger about to enter below. Fig. 20 is a plan view of the parts shown in Fig. 19.

In the drawings, 1 is the frame of the machine, on which a drive-pulley 2 is properly journaled and driven by any suitable power. The shaft of this pulley carries a bevel-wheel 3, and mounted on the shaft is the crank 5, which carries the crank-pin 6. Suitably journaled in the frame is the shaft 7, Fig. 1, which carries the bevel-wheel 8, meshing with the wheel 3. This shaft imparts movement to the various devices of the machine.

9 is a bar or lever provided with the slot 10, in which works the crank-pin 6. At its lower end the lever is pivoted to a cross-piece near the bottom of the frame, (not shown in the accompanying drawings,) and at its upper end there is pivoted one end of a link 12, which is connected at its other end with a projection 13 from a horizontally-reciprocating plunger 14, by means of which the plunger is given its reciprocating movement.

The plunger 14 (also shown in Fig. 16) is for the purpose of pushing forward the cigarettes into the box-body and by its continuing movement effecting the folding and delivery of the boxes, as hereinafter described. It is provided at its forward end with extensions consisting of two plates 15, between which the cigarettes are received from a suitable receptacle, and with grooves 16, into which fingers 17 are adapted to fall at the proper time to hold and prevent the cigarettes from being carried back with the plate on its return movement.

18 is a cog-wheel mounted on the upright shaft 19, meshing with and operated by a cog 20 on shaft 7. Shaft 19 carries on its upper end a disk *a*, which is connected with

the bottom of the shaker 21 within a feed-box 22 to shake the cigarettes down between the partitions S, hung on frame 23. 24 is a rod connecting disk *a* with the shaker, and 25 is the bottom of the shaker, having a slight reciprocating motion in slots in the sides of the box 22.

26 is a channel into which a cardboard or paper blank is fed in front of the cigarettes and plunger. The channel is formed by the walls 27 and 28 and closed at its bottom by block 29, and on which the blanks fall.

30 is the receiving-box for the blanks, and 31 is a slot formed in the bottom of the box, through which the blanks are pushed by a reciprocating frame 32.

33 is an inclined plate or apron upon which the blanks fall and by which they are conveyed to the channel 26. The apron 33 is hinged at 34 to the top of the wall 27 of the channel 26 and receives a vertical vibratory motion by means of a vertical rod 35, connected to apron 33 at 36. The rod 35 is operated by means of a cam *b* on shaft 7.

The pushing-frame 32 (shown particularly in Fig. 2) is operated by a cord or chain 38, which is connected to lever 9. It passes from lever 9 over suitable pulleys secured to the framework and is connected at its opposite end to the pusher 32. A spring 39 is employed to retract the pusher after its forward movement.

40 (shown in Fig. 5) is the upper plate of the former provided with grooves *i*, and its function is to curve down, as shown at *g*, the upper side margins of the blank.

41 are fingers at the sides of the former for turning inwardly the corners of the blank.

42 (shown in Fig. 5) is a bottom plate having surfaces *h* for turning up the marginal side portion of the lower part of the wrapper. The upper surfaces of these marginal portions are furnished with a coat of paste by means of paste-rollers 44 coming into contact therewith at a point between the surfaces *g* and *h*, said rollers being supplied with paste by running in contact with one of a pair of cylinders 45, on which the pasting material, preferably corn-starch, is fed and spread.

46 are the side supports in which the rollers 45 are mounted.

47 are three meshing cogs by which the rollers 45 are turned continually, the shaft of the upper cylinder being rotated through cog 48, engaging with a cog on the end of shaft 49, as shown in Fig. 3. Shaft 49 is rotated, by means of the gearing 50, from shaft 7, as shown in Fig. 1. A paste-wheel 54 is provided for applying paste to the package at a point upon which the final flap of the package is pressed, this wheel being carried at one end of a bell-crank lever which has its opposite end 53 projecting in a path of an operating-lever 51. A spring interposed be-

tween the arm 53 and the frame serves to hold the roller 54 into contact with one of the cylinders 45, and said roller is moved from this position into contact with the package when the bell-crank is tilted by the lever 51. The lever is tilted at intervals by a lug C on the gear 50 coming into contact with its lower end.

55 is a rotary box provided with a channel therethrough into which the package is forced. This box is arranged to be turned end for end. The box 55 is provided with slots 56, Figs. 5, 6, and 7, in which slots the wheels 54 enter and apply the paste to the upper part of the package within the box. The box is mounted on a shaft 57, carrying at one end a ratchet 58 and pawl 59 and a gear-wheel 60, which engages with a vertical rack-bar 61. The rack-bar 61 is operated by an eccentric 62, Figs. 1 and 3, mounted on shaft 7. A lever 63 is pivoted at 64 and carries a pin 65, which works in the groove of the eccentric. At its outer end the lever 63 is connected with the bar 61 by means of a link or arm 66.

67 is a revolving drum (shown in Figs. 1, 2, and 3) and provided with a series of separate compartments 68. The drum 67 is splined to shaft 70 and is adapted to be rotated at intervals, so as to be presented to the incoming packages at the proper times. To this end the drum on its periphery is provided with lugs 71 72. Lugs 71 are adapted to engage with a cam-lever 73 on shaft 7 to give the drum its separate turns, and lugs 72 engage with a cam-lever 74 on the same shaft to force the drum outward when a box-body is received therein, so that it can then be rotated.

75 is a coiled spring near the end of the shaft 70 for the purpose of throwing back the drum to its normal position after it escapes from the action of cams 73 and 74.

76 is a plate on shaft 70 between the drum and the spring to guard the open end of a compartment and prevent the packages therein from being ejected when the box-body is pushed into such compartment.

77 is a stationary block secured to the framework of the machine and provided with a socket, as shown in Fig. 1, into which is forced the lugs 71 and 72 by the action of the spring on the return movement of the drum and by which the drum is locked and prevented from rotating until forced out again by the entrance of a succeeding box-body.

78 is a box in which are placed a supply of complete covers, and 79 is a reciprocating plate to force the lowest cover in the box out of the latter into the drum, and which plate is operated by a cord 37, which passes over a series of idle pulleys, Fig. 2, and is connected at its other end with lever 9. A weight 80, Fig. 1, connected by a cord to the other end of the plate, retracts it when the lever 9

moves forward. When the blanks are made of thin paper instead of cardboard, I use the attachments shown in Figs. 17 to 20.

81 is the box for receiving the cigarettes, and 82 is a reciprocating plate which constitutes the shaker and which is vibrated by the same means as box 22, before described.

83 is an inclined wire platform for receiving the cigarettes and forms the floor of the shaker.

84 are the partitions which swing loosely in slots 85.

86 are hooks or links forming a chain extending on both sides of the partitions and connected at one end to the reciprocating bar 87, which is adapted to be reciprocated by motion communicated from shaft 7. The partitions 84 are made in two parts, the upper part 84 being hinged to the lower part 88, and to these lower parts 88 the links 86 are connected.

89 is an extension of 88 at its lower end for holding and opening the fingers 90 of the plunger. The plate 84 is provided at its upper end with lugs 91, by which it is supported in slots 85 in the wall of the box.

90 are the fingers of the plunger in open position and hinged at their rear ends at 92 to the body of the plunger 93.

When it is desired to pack the cigarettes in paper instead of cardboard, they are required to be compressed, and it is therefore necessary to remove the box 22 and plunger 14 and to substitute therefor the box 81 and plunger 93. The employment of the sprocket chain and wheel 94 are necessary in order to give the proper reciprocating motion to the bar 87 in the operation of compressing the partitions 88 and their inclosed cigarettes. It will be understood that the sprocket-chain driven by wheel 94 drives a cam which operates upon a pivoted arm intended to impart a reciprocating movement to the bar 87. The subsequent operations of the plunger are the same as in the operation on the cardboard blank. The cigarettes are pushed out from the box 81 the moment the compression of the partitions is completed.

The general operation of the machine is as follows: The first step is to fill the box 22 with cigarettes, care being taken that each compartment between the partitions S is continually kept well filled. At the same time the box 78 is also filled with the covers. The compartments in the upper half of the drum are also filled with covers by hand at the beginning of the operation, but subsequently automatically. The box 30 will also be filled with blanks. The cigarettes fall from between the partitions S onto the table between the plates 15 in front of the plunger 14. When the machine is started, the plunger 14 pushes the cigarettes through the slot formed in the walls of the channel 26 and

against a blank, such as shown in Fig. 10, and against the central part of the blank, which is held in a vertical position in the channel 26. As the plunger continues to move the cigarettes force the blank forward between the upper and lower plates 40 and 42, which movement has the effect to double the blank, as shown in Fig. 11. The motion of the plunger continuing, the forward corners of the blank are turned in by the fingers 41 between the upper and lower edges of the blank. Further continuing, the upper margin of the blank is turned down by the upper plate 40 of the former. The lower side margins of the blank held horizontally will be carried below the wheel 44, which supplies those margins with gum. As the motion of plunger continues the lower edges of the blank are turned up by the bottom plate 42. Then the package is carried forward into the box 55, leaving the lip or flap of the wrapper within the forming-box, and then the plunger is retracted by the reverse action of the lever 9, and the link 12, crank-arm 5, bevel-gear 8, and shaft 7 to its original position. Then the lever 57 operates the spring-lever 53 and brings down the wheel 54 into the slot 56 and pastes the parts of the blank exposed in the slot. At that moment the eccentric 62 on shaft 7 rotates and forces down the rack 61, rotating the toothed wheel 60, which gives half a revolution to the rotating box 55, reversing the position of the box, bringing its front end to the rear, and at the same time the flap is turned up and doubled over the end of the box, as shown in Fig. 8. At this point the completely-formed body of the package is still held in the box 55 and in front of the drum 67 with the flap turned down, as shown in Fig. 9. The plunger now goes forward again, performing the same operation as before, and the succeeding package forces the package before it out of the box into the cover, which occupies a compartment of the drum 67. At the moment the box enters the drum the flap is turned over onto the body of the wrapper, which before has been pasted through the slot in the box. The drum is now pushed outward by the cam 74 and rotated the distance between the compartments by the cam 73 on shaft 7. The spring 75 then throws the drum back to its former position, where it is held by the entrance of lug 72 in the socket of block 77. When the drum is stationary, and at the same time the package is forced into the drum, the reciprocating bar 79 pushes a lower cover in the bottom of the box into a compartment of the drum. The blanks fall from box 30 onto the inclined plate 33. At this moment the cam 37 operates to push up the bar 35, which is hinged to 33, and lifts up the plate 33, which has the effect to cause the blank to slide down into the channel 26 until it reaches

block 29 at the bottom of the channel. In this position the plunger 14 meets the blank at the middle and folds it, as before described.

5 Having thus described my invention, what I claim is—

10 1. In a wrapping-machine, means for feeding a wrapper, means for feeding to the latter the article to be wrapped and for advancing the wrapper with the article, a receiving-drum, means for locking the same against rotation, means for shifting the drum axially to release the same, and means thereupon co-

15 2. In a wrapping-machine, a shuck-containing receptacle, means for feeding a wrapper, means for feeding to the latter the article to be wrapped and for advancing the wrapper with the article in a rectilinear di-
20 rection, means located in the path of movement of the wrapper coacting therewith during said advancing movement to fold the wrapper about the article, a receiving-drum having a pocket designed to be brought into
25 alinement with the said path of movement of the article and wrapper, and means for feeding a shuck to said compartment before the latter is brought into alinement with the said path of movement.

30 3. In a wrapping-machine a shuck-containing receptacle, means for feeding the shucks successively therefrom along a rectilinear path, means for feeding a wrapper along a parallel path and a drum turning on
35 an axis parallel with said paths of movement having pockets designed to register successively, first with the path of feed of the shucks and thereafter with the path of feed of the wrappers as and for the purpose set
40 forth.

4. In a wrapping-machine a receptacle containing the articles to be wrapped, a receptacle containing the wrappers, a plunger for advancing the article and wrapper, fold-
45 ing means located contiguous to the path of movement of the plunger, means for feeding

the article into the path of the plunger in advance of the latter, means for feeding the wrapper into the path of an article, means for advancing the plunger whereby the arti- 50 cle will be advanced and engage the wrapper and the latter will be brought into engagement with the folding means whereby it will be folded about the article, means for containing a plurality of shucks, means for feed- 55 ing the same successively in a direction substantially parallel with the line of movement of the wrapper and article, a drum having a plurality of pockets designed to be registered in rotation with the line of feed of the shucks 60 and thereafter with the line of feed of the wrapper and article, as and for the purpose set forth.

5. In a wrapping-machine a shuck-receptacle, a receiving-drum provided with a plu- 65 rality of pockets, means for feeding the shucks therinto, an article-receptacle, a wrapper-receptacle, an advancing-plunger, means for feeding the articles in advance of the plunger, and means for feeding the wrap- 70 per in advance of the article, the article and wrapper being advanced under the influence of the plunger in a single general direction and discharged into registering pockets of the drum, as and for the purpose set forth. 75

6. The drum herein described, provided with the compartments, and with lugs 73, 74 on its periphery, in combination with a driving-shaft a cam-lever on the driving-shaft to engage and force the drum outward, 80 a cam-lever on the same shaft to cooperate with said lugs and to rotate the drum, and a spring to throw the drum back to its normal position after the operation of the said cams, substantially as described. 85

Signed at New York, in the county of New York and State of New York.

FELIPE GIROUD.

Witnesses:

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