

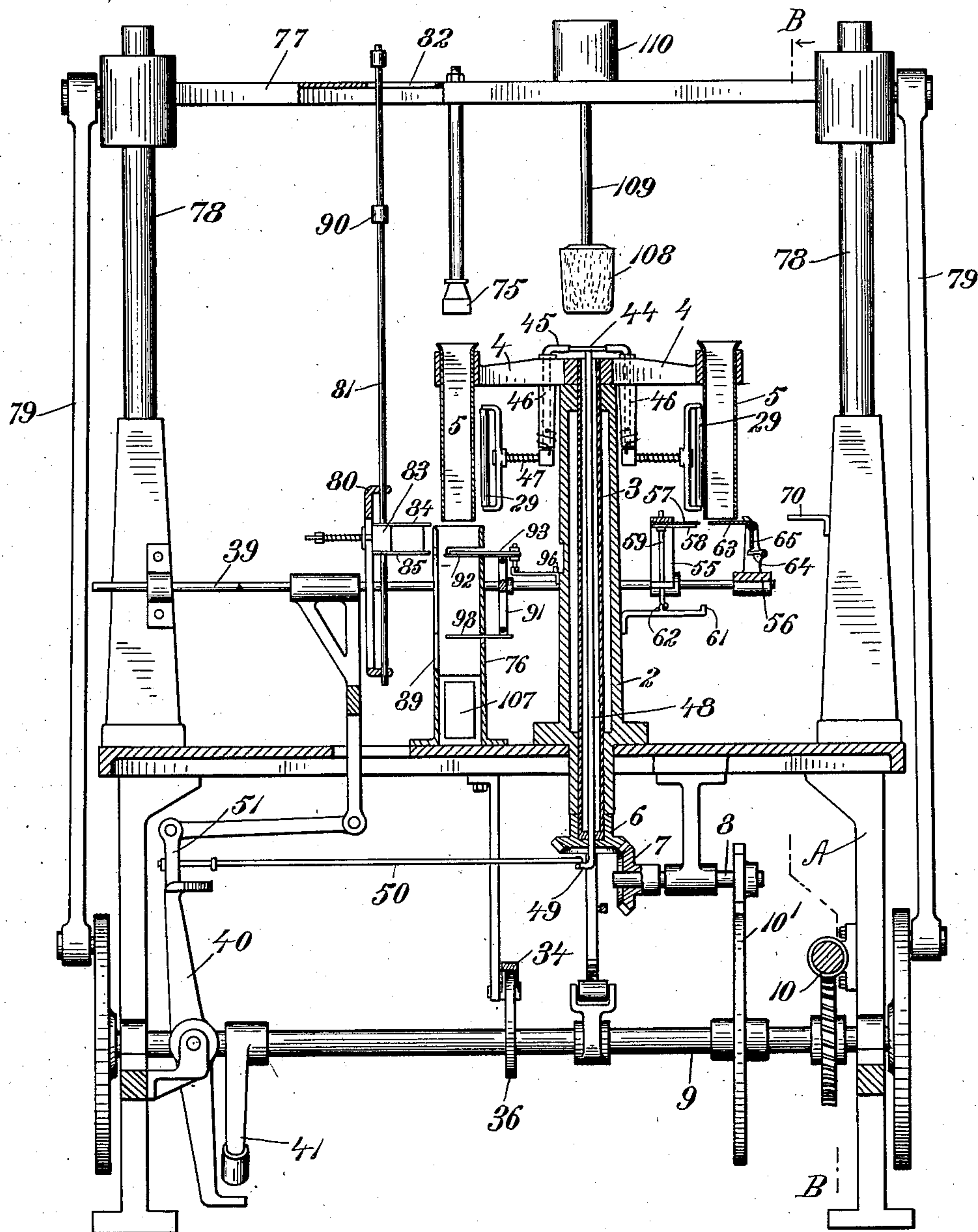
A. E. BIMMERLE.
PACKAGING MACHINE.
APPLICATION FILED MAY 8, 1908.

929,541.

Patented July 27, 1909.

6 SHEETS—SHEET 1.

Fig. 1.



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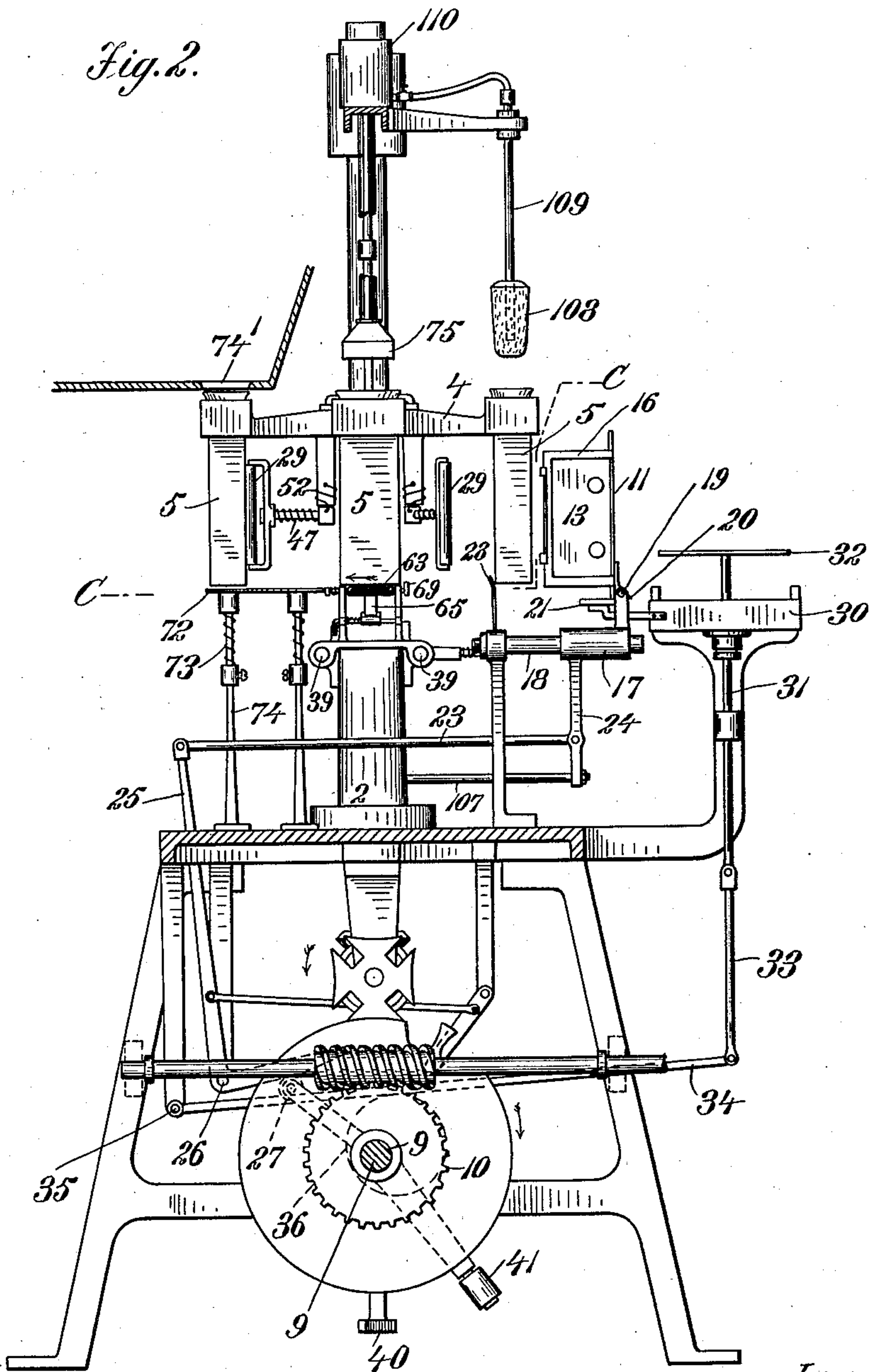
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Fig. 2.



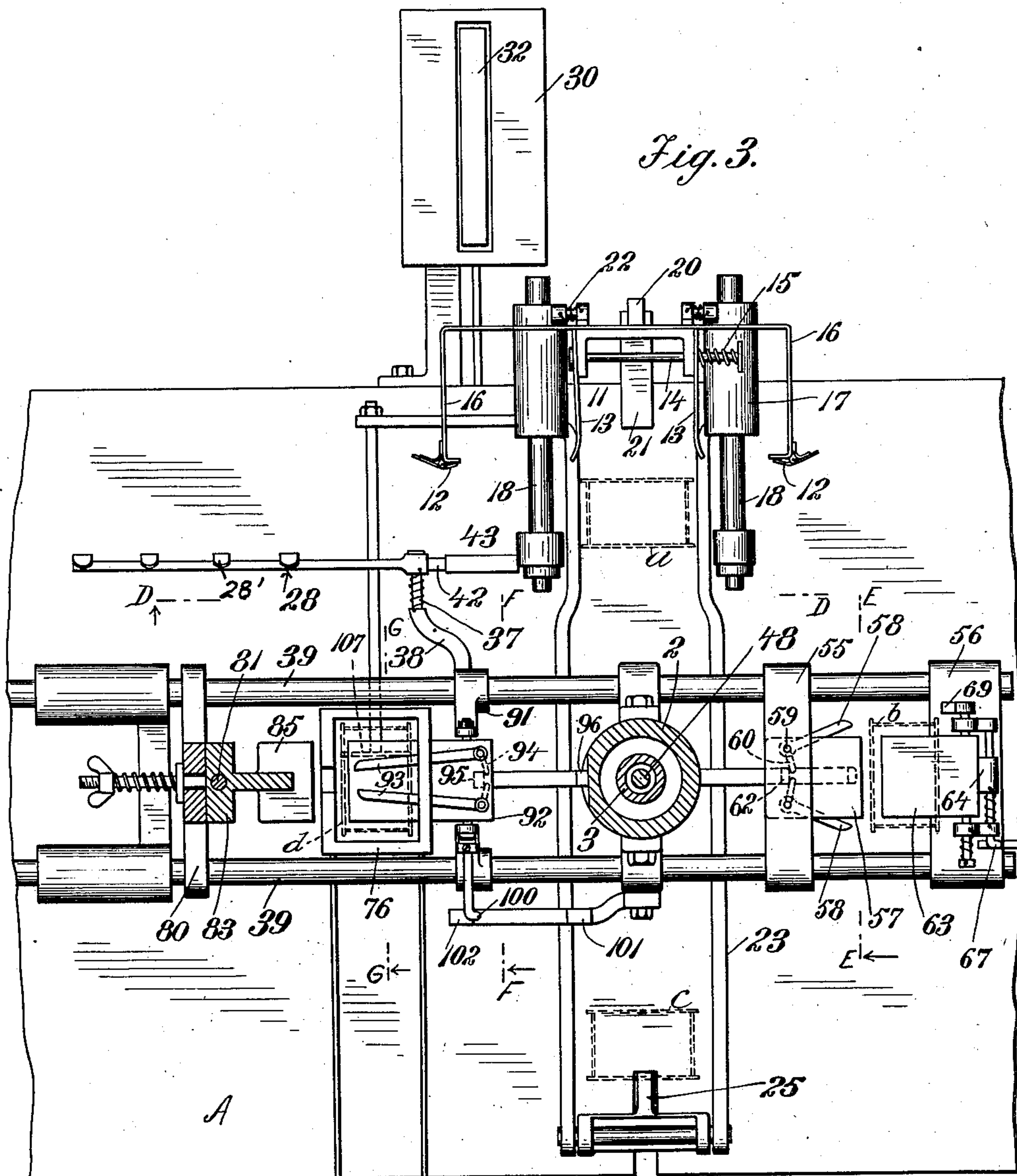
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6 SHEETS—SHEET 3.



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Fig. 4

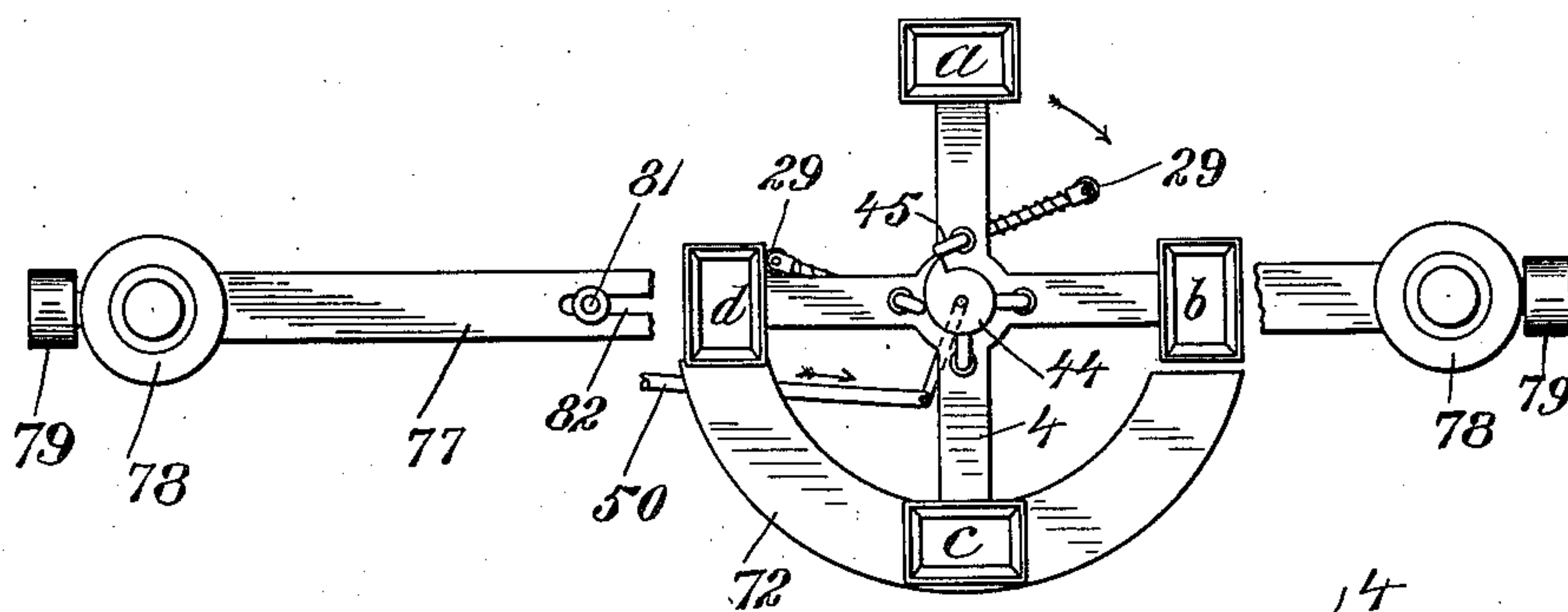
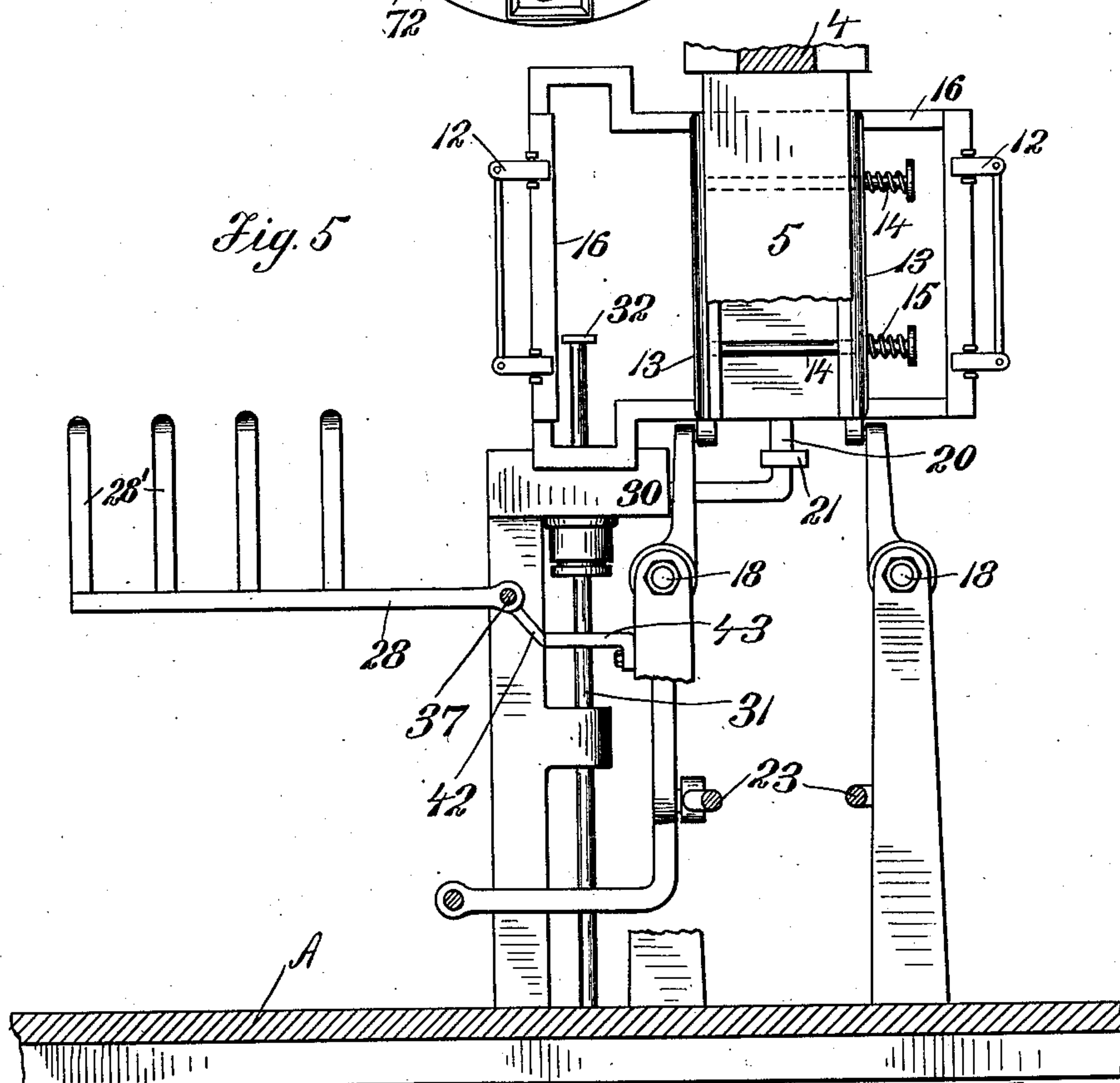


Fig. 5



Witnesses
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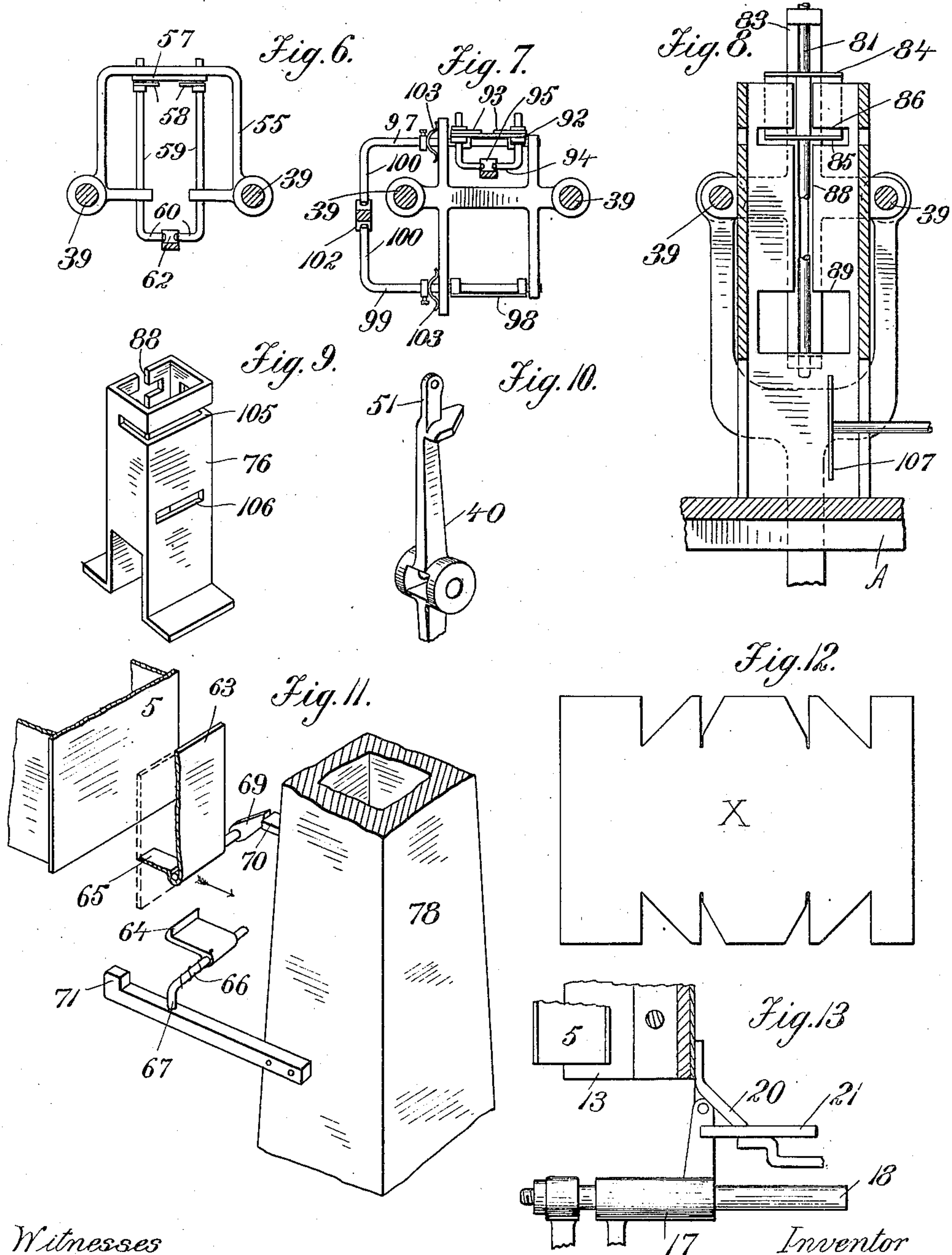
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6 SHEETS—SHEET 5.



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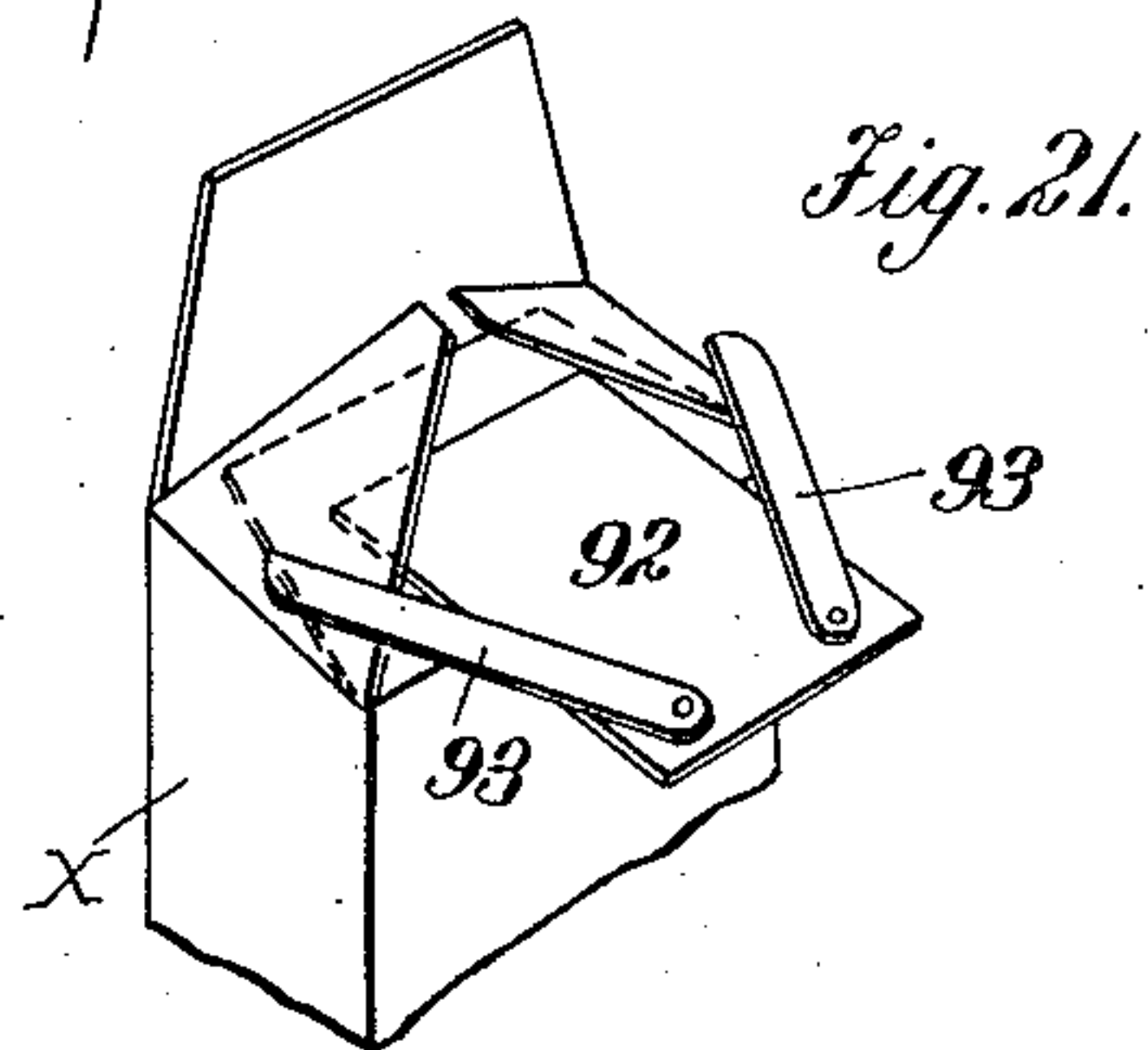
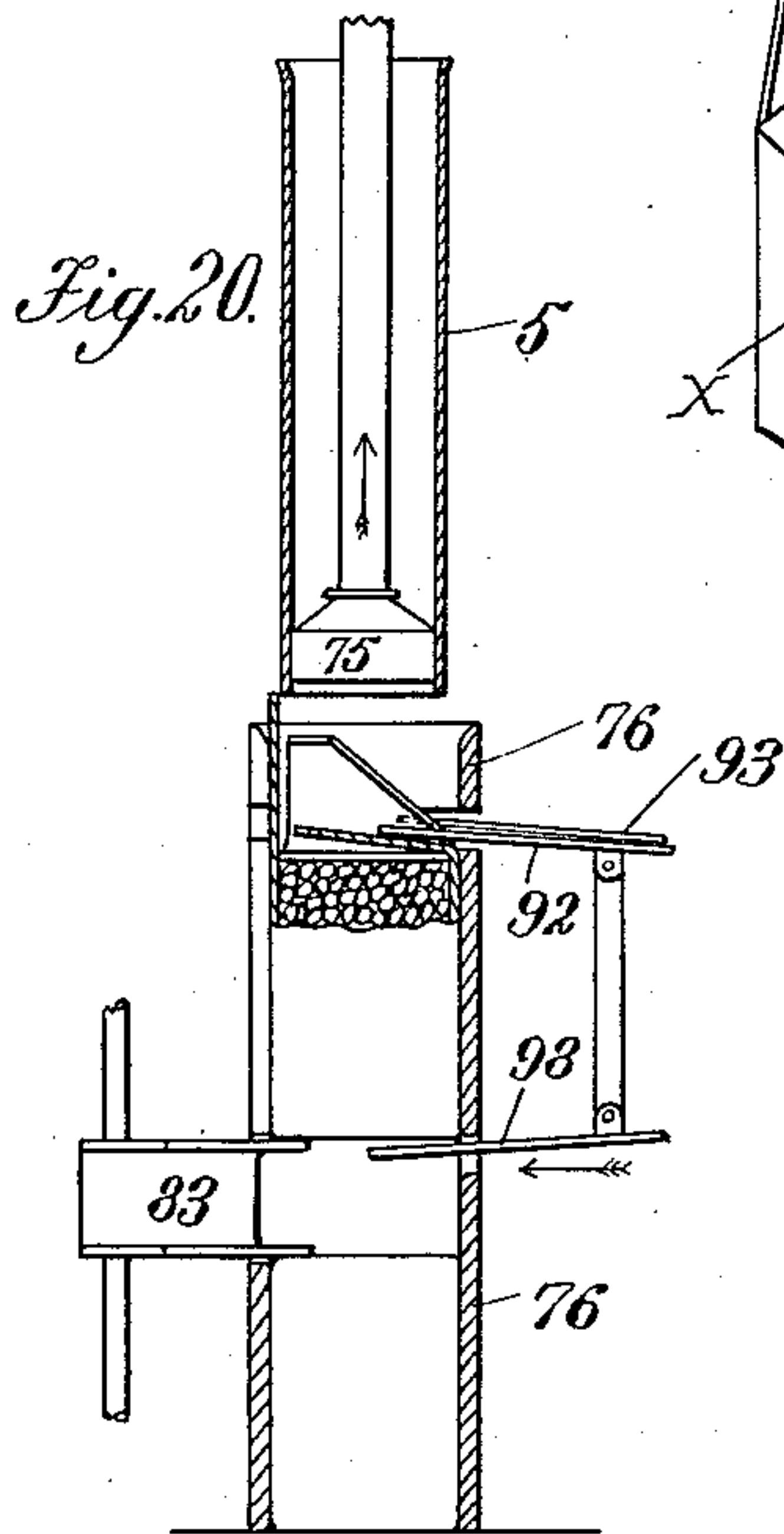
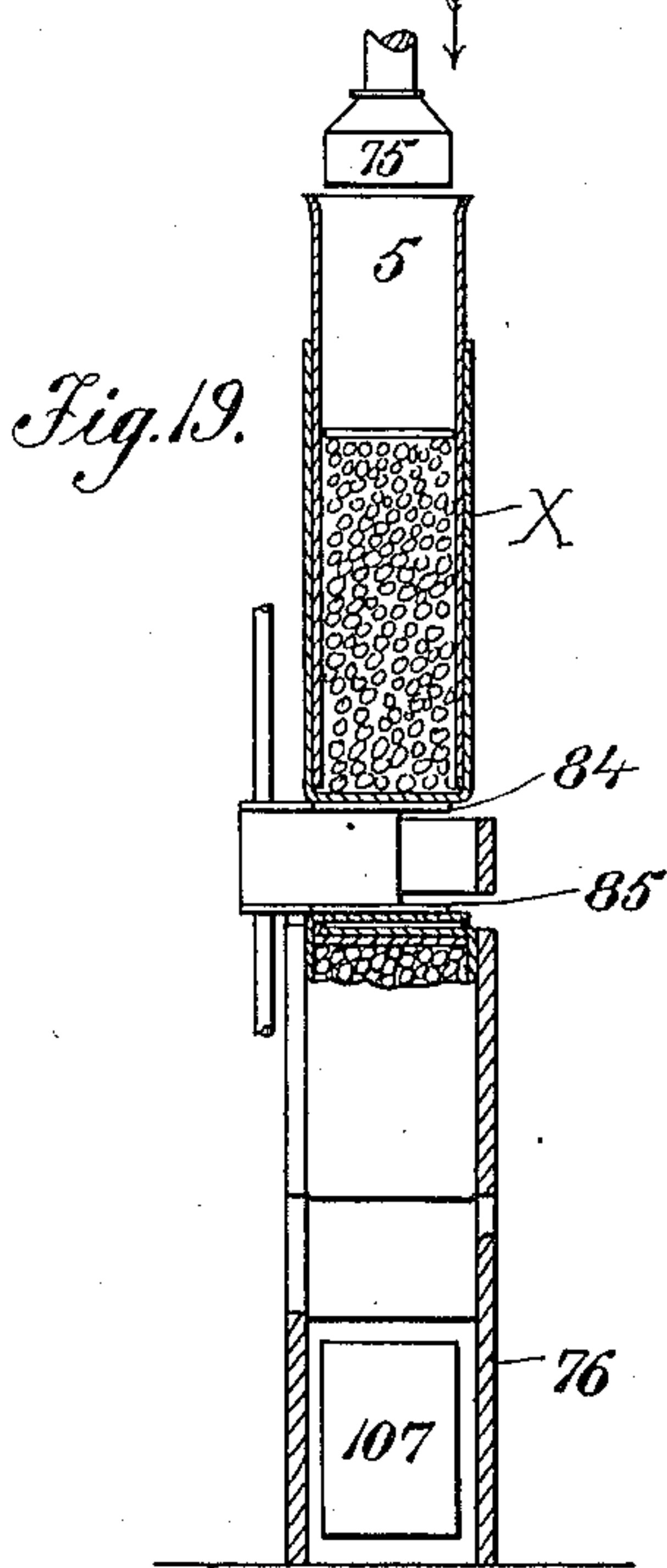
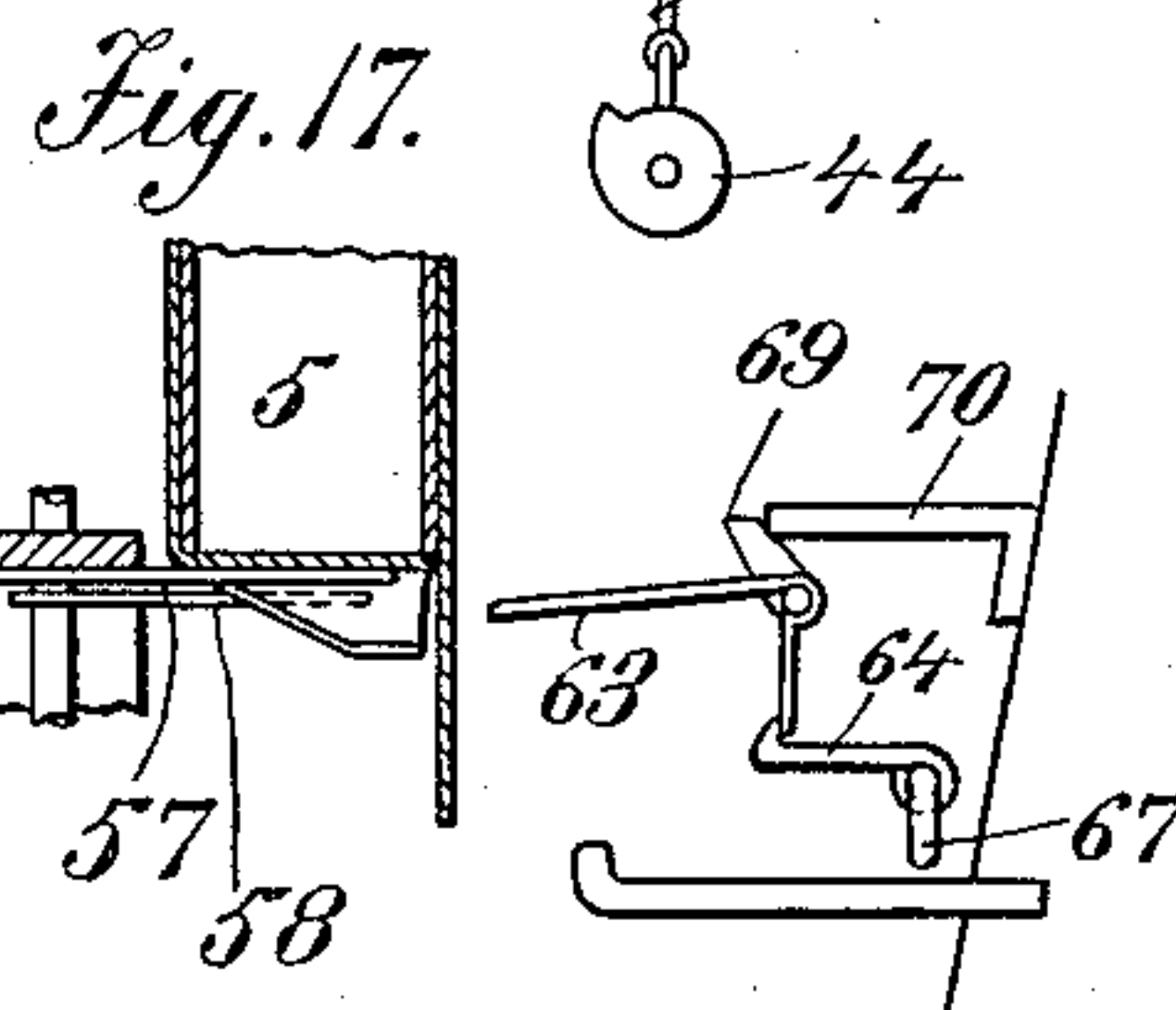
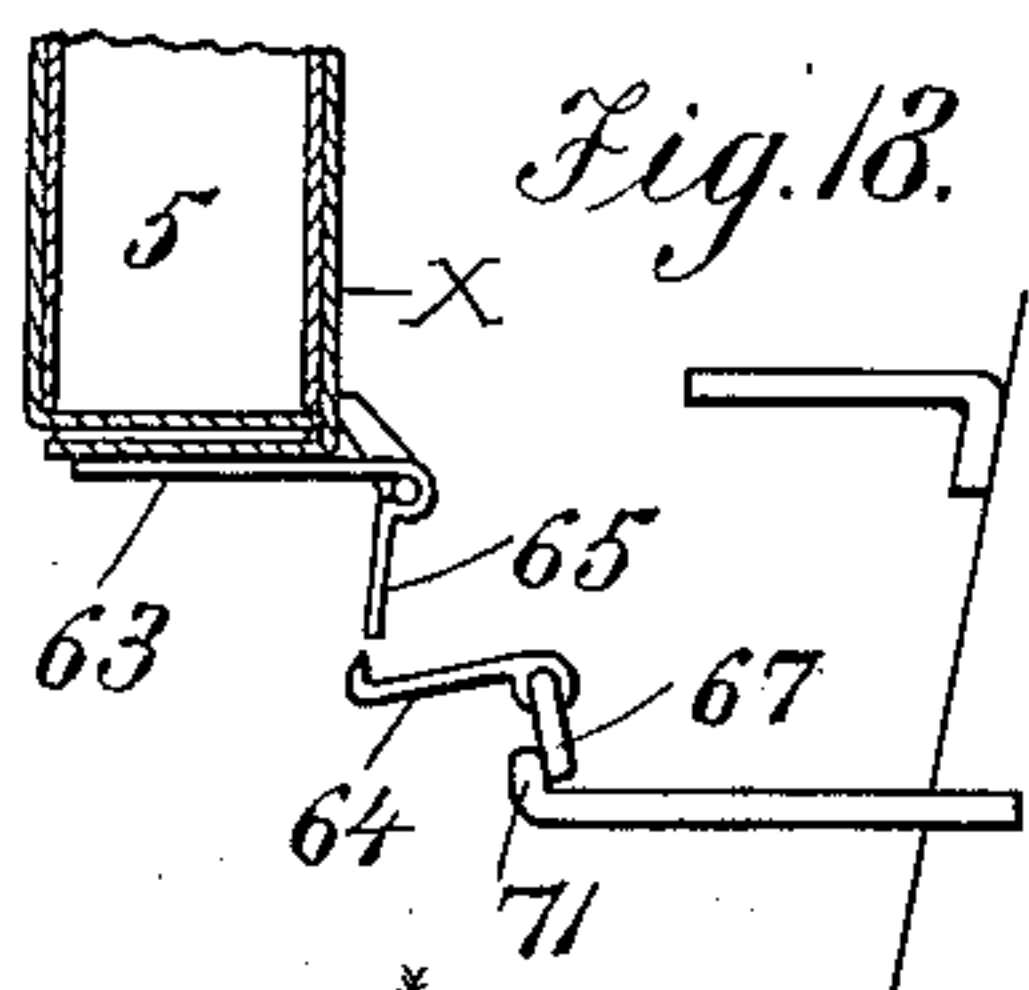
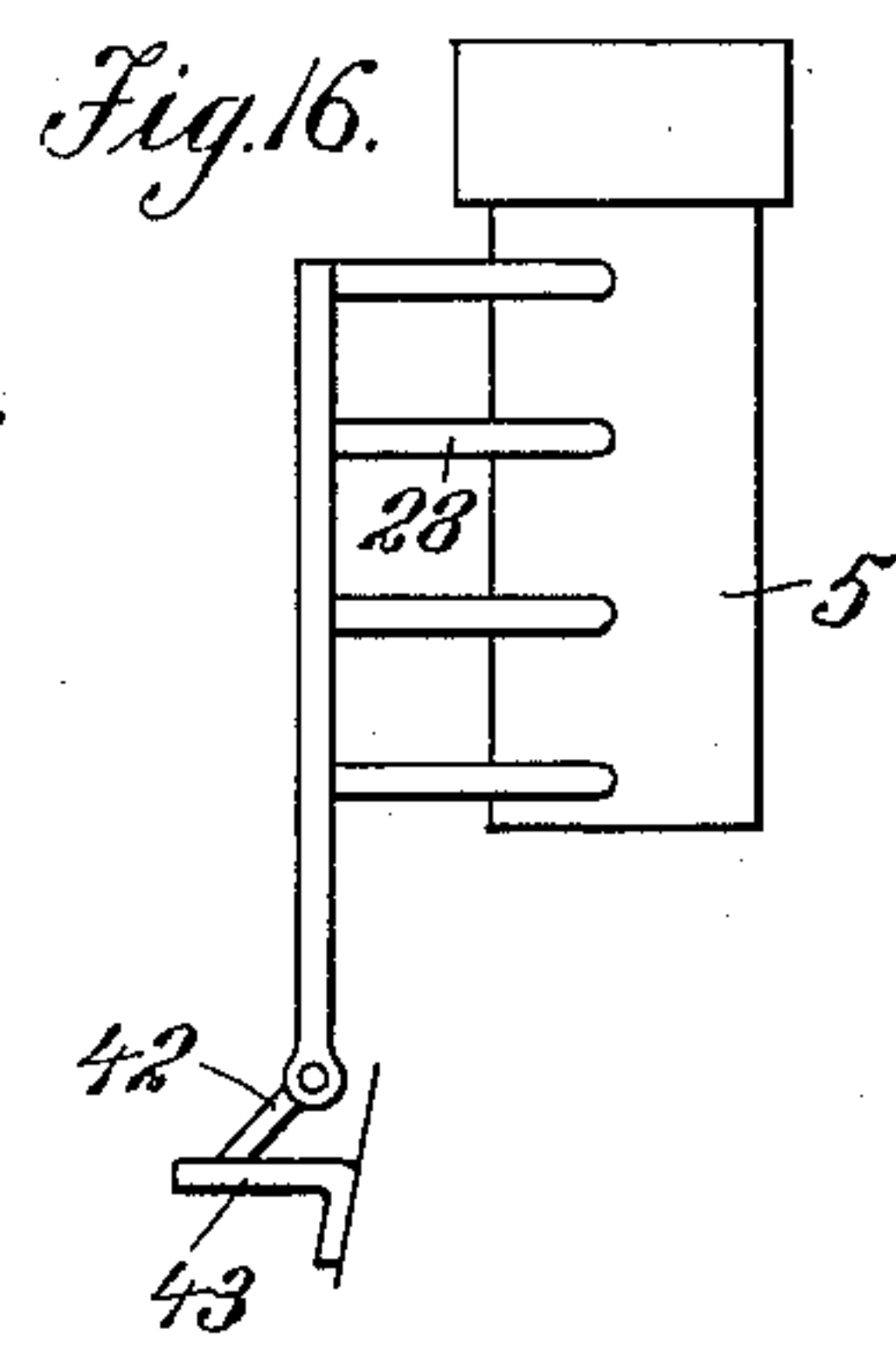
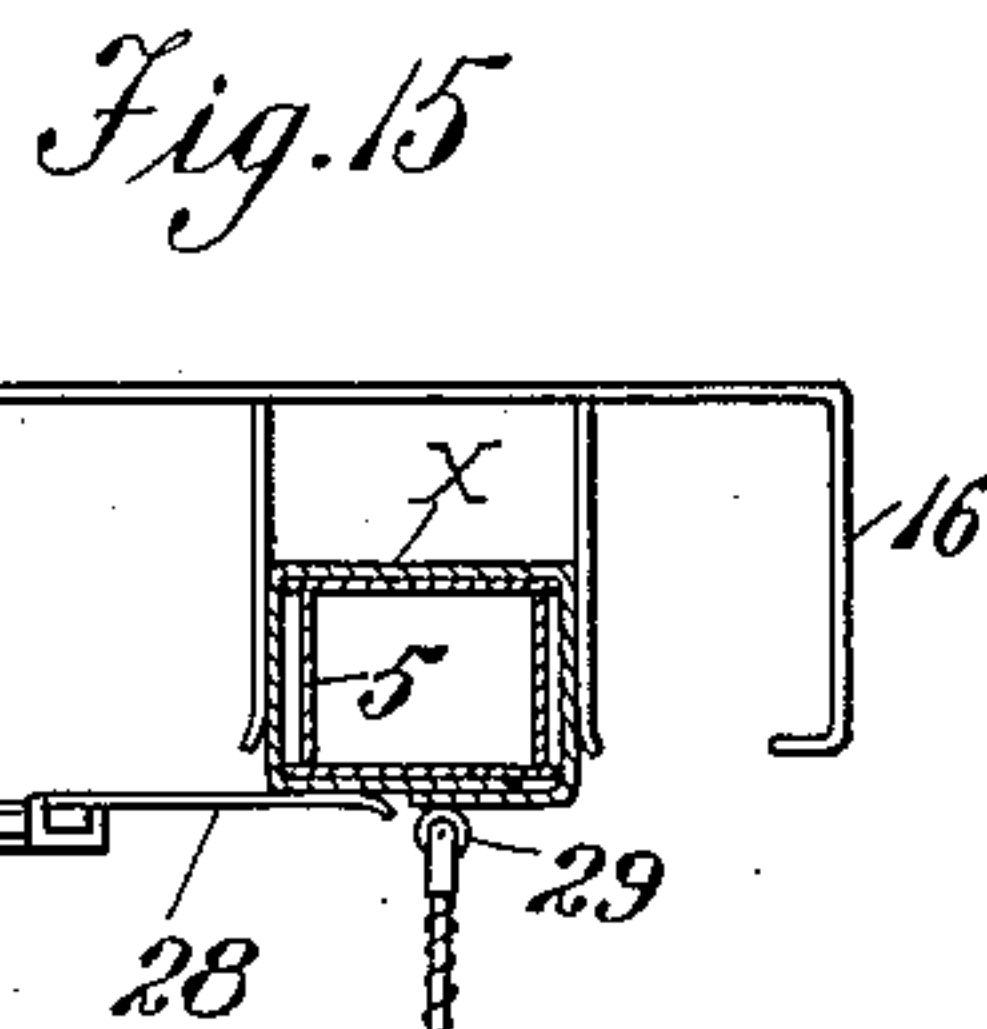
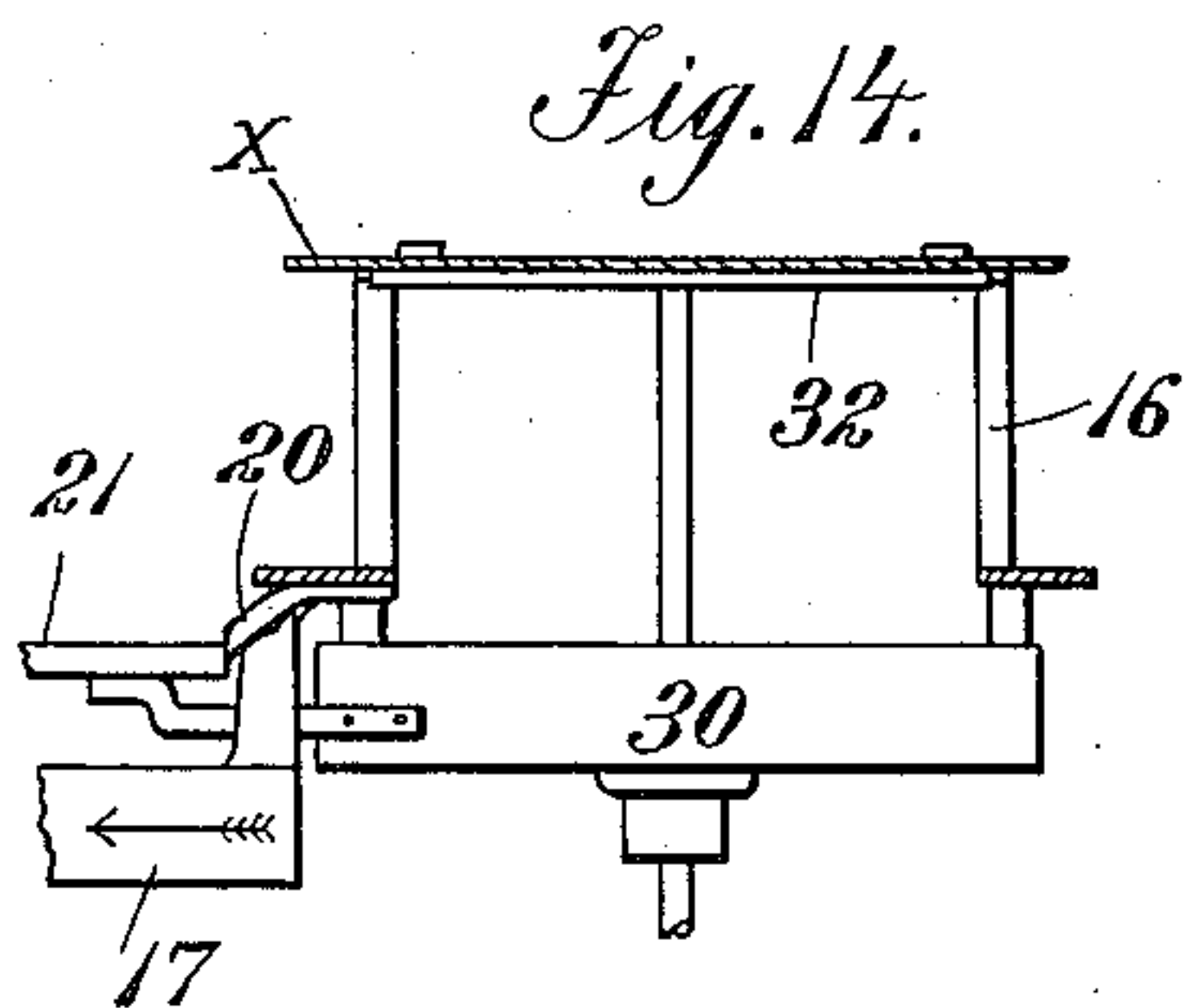
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6 SHEETS—SHEET 6.



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UNITED STATES PATENT OFFICE.

AUGUSTUS E. BIMMERLE, OF EDENVALE, CALIFORNIA.

PACKAGING-MACHINE.

No. 929,541.

Specification of Letters Patent.

Patented July 27, 1909.

Application filed May 8, 1908. Serial No. 431,546.

To all whom it may concern:

Be it known that I, AUGUSTUS E. BIMMERLE, a citizen of the United States, residing at Edenvale, in the county of Santa Clara and State of California, have invented new and useful Improvements in Packaging-Machines, of which the following is a specification.

My invention relates to packaging machines for packing dried fruits, raisins and other things in package form. Its object is to provide an automatic, labor-saving machine of maximum capacity which will make its own package from a properly prepared sheet of paper, the latter being lined, if desired, with a paraffin paper lining, and which machine will have means for filling the package or carton and for folding or closing the ends of the carton and for discharging the finished product.

Having reference to the accompanying drawings—Figure 1 is a longitudinal vertical section of the machine. Fig. 2 is a transverse vertical section on line B—B, Fig. 1. Fig. 3 is an enlarged horizontal section taken on line C—C, Fig. 2. Fig. 4 is a plan view of the upper portion of the machine. Fig. 5 is a longitudinal section taken on line D—D, Fig. 3. Fig. 6 is a transverse vertical section taken on line E—E, Fig. 3. Fig. 7 is a similar view taken on line F—F, Fig. 3. Fig. 8 is a similar view taken on line G—G, Fig. 3. Fig. 9 is a perspective view of the mold. Fig. 10 is a perspective view of one end of the double-acting cam for reciprocating the folding devices. Fig. 11 is a perspective view of one of the flap folding devices. Fig. 12 is a plan of the carton blank. Fig. 13 is a sectional elevation of the device for folding the carton around the tube. Fig. 14 is a diagrammatic view showing the carton blank receiving the paste. Fig. 15 is a diagrammatic view showing the carton folded around the former tube. Fig. 16 is a diagrammatic view showing the manner in which the folding fingers act to fold one edge of the carton over the former tube. Figs. 17 and 18 are diagrammatic views showing the manner of folding the bottom flaps of the carton. Figs. 19 and 20 are diagrammatic views showing the closing of the top flaps of the filled package. Fig. 21 is a perspective view illus-

trating the manner in which the wing plates fold in the side flaps of the carton.

A represents the stationary framework of the machine. 2 is a rigid hollow column thereon supporting in suitable bearings the hollow shaft 3, which latter carries the intermittently revolving spider 4. This spider 4 is shown as having four arms, each arm supporting a hollow wrapper former 5 about which the carton is wrapped, and over the lower end of which one end of the carton is folded, the fruit being delivered at the proper time into the top of the former, pushed down thereinto, and the fruit and wrapper discharged from the former; suitable mechanism, hereinafter to be described, being employed to close the open end of the filled carton.

Intermittent motion is given to the spider by any suitable means. As here shown, the lower end of the hollow shaft 3 carries a miter gear 6 meshing a corresponding gear 7 on a shaft 8.

9 is the drive-shaft receiving continuous motion through the worm gearing 10, and intermittent motion is transmitted to shaft 8 through suitable connections, as the stop movement 10'; the idea being to give the shaft 8 and spider a quarter turn at each full revolution of the drive-shaft 9.

A sheet of paper or carton blank suitably shaped and notched, and represented at X, Fig. 12, is placed over a device 11, Figs. 2—3—5, and engaged in suitable spring clips 12. The device 11 is suitably mounted so as to have a movement toward and from a former 5 when the latter is at rest, to lay the carton blank against the side of the former 5 and fold the same around three sides of said former. As here shown, this folding device 11 comprises a box-like frame holding two loose plates or jaws 13, one on each side of the frame 11 and held in place by the bolts 14 and springs 15; the bolts and plates having a limited yielding movement so that when the folding device is brought forward toward a former 5, the side plates 13 will yieldingly embrace the sides of the former 5 and carry the end of the wrapper around the former. The clips 12 are carried on a skeleton-like frame 16, which latter is secured to and moved with the box 11; the clips 12 being disposed on

each side of the plates 13, and being so positioned that when the ends of the carton blank are drawn out of the clips, these ends will be allowed to pass around behind the former 5, where suitable devices operate to overlap and seal these edges.

The box 11 is pivotally mounted on a sliding carriage 17, which latter slides back and forth in suitable guides 18; the box 11 being pivoted to the carriage 17 at 19. The back of the box carries a projecting cam 20 which engages, at each forward or inward reciprocation of the carriage, a horizontal rigid stop 21 by which the box is turned from a horizontal to a vertical position, as indicated in Fig. 2. As the carriage 17 moves outwardly from the center of rotation of the formers, the cam 20 rides off of the stop 21, while a spring 22 tends to lay the folding device 11—13—12 flat into horizontal position ready to receive the next carton blank.

The reciprocatory motion of the carriage 17 is produced by any suitable means. As here shown, a pair of links 23 connect arms 24 on carriage 17 with a bell-crank lever 25, which latter is fulcrumed at 26 and oscillated at suitable intervals by engagement with a cam 27 on shaft 9.

The carton formers 5 are preferably provided with sharp corners produced by extending the face and back plates of the former tube a short distance over the side plates, as represented in Fig. 3; the purpose of these sharp corners being to produce a well-defined sharp edge or corner on the resulting package.

After the folding device 11—13 has placed the carton around three sides of the former tube, the next operation is that of folding in the edges of the carton blank, which is done in two operations; the first operation being accomplished by a pivoted comb-like device 28, and the second operation being done by a swinging roller-bearing arm 29. Prior to the operation, however, of these devices 28—29, the paper sheet while still lying in horizontal position in the clips 12 receives some paste on its under side and adjacent to one of the clips 12. This pasting mechanism is shown in Fig. 2 and consists of a paste box 30 up through which operates a rod 31 carrying at its upper end a paste brush or pad 32, which alternately is drawn down into the paste and then raised upward into contact with the carton blank in the clips 12 before the carton blank is lifted and wrapped around the former tube 5. Any suitable means may be employed to effect the proper reciprocating motion of the paster 32. As here shown, the lower end of the rod 31 is connected by a link 33 with a lever 34 fulcrumed to a fixed part of the frame, as 35, and intermittently operated by a cam 36 on shaft 9.

The folder 28 is pivoted on the bracket 37, and is adapted to swing in a vertical plane and come in just behind the former tube 5, about which has been wrapped the freshly pasted carton blank; this folder 28 engaging the pasted end of the blank and carrying the latter around behind the former tube and laying it flat against its rear vertical side. Any suitable means may be employed to effect this oscillatory movement of the folder 28 synchronously with the operation of the other parts of the apparatus. As here shown, the bracket 37 is rigidly secured to a carrier 38, which latter is mounted rigid on the parallel sliding rods 39. These rods 39 are arranged horizontal and parallel, and are supported in suitable guide boxes on either side of the column 2 and travel together backward and forward intermittently; motion being imparted to them from the cam 40, Fig. 10, which receives two impulses from the revolution of shaft 9 from the rotating arm 41 on the latter. It will thus be observed that the carrier rods 39 have two movements, one forward and one back, to one movement of the several former tubes 5. Thus, when the rods 39 move in one direction they carry the folder 28 with them and cause a toe portion 42 on this folder to engage a fixed stop 43 and turn the folder up into vertical position. The continued movement in the same direction of the rods 39 then causes the fingers 28' of the elevated folder 28 to move across the back of the adjacent former tube 5 and lay the edge of the carton against the folder with the pasted portion outward. As soon as this operation is done, a cam 44, Fig. 4, engages the arm 45 of a rock shaft 46, which latter yieldingly carries a folding roller 29, to swing the latter in a horizontal plane in a direction opposite to the just described motion of the folder 28, and thereby fold in the other edge of the carton blank over the pasted edge which has just been laid flat against the former tube by the folder 28. These folders 29 are disposed vertically and have a limited radial movement on a respective horizontal arm 47 which is fixedly secured to the shaft 46. There are four of these folder rollers 29, one for each former tube and each with its separate shaft, and they all travel with the spider 4. Each shaft 46 is disposed vertically and journaled in suitable bearings in the spider. The cam 44 has only a rocking movement, and is so fashioned that the rollers 29 will normally be in contact with its particular former tube, except during about a quarter of a revolution of the spider.

The rocking cam 44 is fixed to the rock shaft 48 which extends down through the hollow shaft 3 and has a crank arm 49, at the lower end of which a link 50 is connected; this link 50 also being connected

with a bracket arm 51 mounted on the cam 40. Just before the paper-holding device 11—12—13 is lifted to put a carton blank about the former tube, the cam 44 is rocked 5 to carry the roller 29 to one side, as is seen in Fig. 4, out of any interference with the proper folding of the paper about the former tube. Then, after the folder 28 has been elevated and folded in its end of the carton, 10 the cam is rocked so that the arm 45 of the just mentioned roller 29 will ride off of the point of the cam, allowing the spring 52 to act to pull the roller 29 around and against the projecting end of the carton blank and 15 lap it over on the one held down by the folder 28, and thus complete the carton tube. When the carrier rods 39 move in the opposite direction, they carry the folder 28 along with them, and on the toe 42 dropping off 20 of the stop 43, the folder 28 drops into horizontal position, as shown in Fig. 5, so that the next succeeding former tube can come in position to receive a fresh carton blank.

The rollers 29 are preferably of soft rubber, and the springs 47 with the loose connection of the roller brackets on the stems allow these rollers to accommodate themselves yieldingly to press the paper with just the right pressure against the former tubes. 25

The several positions of the former tubes in the cycle necessary to form and complete a package are represented by the characters *a*, *b*, *c* and *d*; position *a* being the one for receiving the carton blank and having it 30 folded and pasted around the tube. When the spider makes its next move it carries this former tube, with its encircling wrapper, and with its rubber roller 29 still in contact with it, into position *b*. While in 35 this position the lower end of the wrapper is closed by the following mechanism: The rods 39, which it will be observed extend parallel with the positions represented by *b* and *d*, carry adjacent to position *b* two 40 brackets 55—56 which carry suitable folding devices adapted to operate successively on the carton end flaps which hang down below the former tube 5. The bracket 55 carries a 45 plate 57 which has two underneath wing plates 58; these wing plates being secured to rock shafts 59 on the bracket 55. The shafts 59 extend downwardly and carry inwardly projecting arms 60 which are designed to be engaged with respective stops 50 61—62 on alternate reciprocations of the rods 39. The bracket 55 with the plates 57—58 are arranged on the inside of the circular path of the former tubes, and are so disposed that when a tube is brought to rest, 55 the lower projecting flap ends of the carton on this tube will be directly in the path of the plate 57, so that when the rods 39 are operated to move the frame 55 outward, the plate 57 will fold one flap of the carton 60 over the lower end of the former tube, and 65

at the proper instant the arms 60 on the rock shafts 59 will engage a stop 61, causing the wing plates 58 to fold inwardly in a shear-like manner beneath the plate 57, thus folding in the two side flaps of the 70 wrapper projecting below the former tube. This position of the plates 57—58 is maintained until the rods 39 move backward again, when the plates extract themselves from the folds thus performed, but are 75 closely followed by a pivoted plate 63 on the bracket 56, which latter is also carried by the rods 39. As the rods 39 near the end of their return stroke and the plates 57—58 withdraw from the folds of the carton, the 80 arms 60 on the spindles of the wing plates encounter the dead stop 62 which opens the wing plates in readiness for the next operation. The plate 63 on moving inwardly across the lower end of the former tube, 85 folds upward the remaining flap, thus closing the lower end of the tubular carton. Suitable means, not necessary here to be shown, may be employed to apply paste to this flap which is folded up by the plate 63. 90

The plate 63 is pivotally supported on the bracket 56, and is spring-actuated to cause it normally to stand upright. However, it is held horizontal against the tension of this spring by means of a latch 64 engaging the 95 catch 65 on plate 63. The catch 64 is mounted on the spring-actuated rod 66, which carries a little crank arm 67 at one end. The shaft on which plate 63 is mounted carries a crank arm 69 at the end opposite to crank 67. 100

In order clearly to understand the operation of the plate 63, and its functions, it is to be said that in the initial movement of the rods 39 to carry the folders 57—58 underneath the former tube, simultaneously 105 the plate 63 is moved outward and away from this tube. In this outward movement of the brackets 55—56 and folding plates, the arm 69, previously referred to, engages the fixed stop 70 and turns the plate 63 into 110 a horizontal position so that the catch 65 will engage with the underneath spring latch 64. The folder 63 will thus be held in operative horizontal position until the arm 67 engages a fixed releasing stop 71, on the 115 inward movement of the parts. The latch 64, however, will not be released until the plate 63 has passed in underneath the tube and folded up the remaining flap. Then as soon as the former tube having the end of 120 its carton thus completely folded has passed off of plate 63, in the next movement of the spider, the plate 63 will fly into vertical position, so as to be out of the way of the next approaching former tube which has the 125 hanging end flaps of its carton to be folded.

It is understood that the brackets 55—56 and the plates 57—63 are so spaced apart that when the plate 63 is in the vertical inoperative position just described, and the brack- 130

ets at their limit of inward movement, and stationary, the former tube with its carton end to be folded can readily pass in between the vertical plate 63 and the end of the horizontal plate 57; the subsequent folding operations of the plates 57—63 having already been clearly described.

From position *b*, the former tube, with the end of the carton closed, passes forward to its third position, indicated at *c*. As the tube and carton move off of the pivoted plate 63 they pass on to the semi-circular stationary horizontal plate 72, which latter is preferably supported on coiled springs 73 on the rod 74, so as yieldingly to force the plate 72 upward against the bottom of the closed wrapper on the former tube. This yielding support 72 is approximately semi-circular and extends from position *b* to position *d*; the object of the plate being firmly to press the closed end of the carton and shape it, and to prevent the end or fold from opening out while receiving the charge.

The former tube and its wrapper having come to position *c* are brought to rest beneath a feed hopper 74' through which the material to be packaged, having been properly weighed, is delivered into the tube. A card of pasteboard or a piece of stiff paper, or any other desirable material, is usually placed on top of the fruit inside of the former tube; the object of this card being to prevent the fruit sticking to the plunger 75 during the next succeeding step of compressing the fruit. A further object of inserting this card is to assist in making a square fold on top of the package. The former with its wrapper having received its charge of fruit or other material at *c*, is next moved to position *d*. In so doing the bottom of the package slides over the semi-circular support 72.

The former tube and its package having arrived at its final position *d* comes directly into line with and between the plunger 75 and the mold 76. The plunger 75 is carried on a cross-head 77, which moves up and down on suitable standards 78 and is operated by suitable crank and pitman connections 79 from shaft 9. 80 is a bracket fixed to the rods 39 and supporting a vertical rod 81 which extends upward through a longitudinal slot 82 in the cross-head 77. The rod 81 carries a block 83 which has a tight sliding fit up and down in the bracket 80. This block carries two flat plates 84—85 suitably spaced apart, and these plates are adapted, when the bracket 80 has moved in toward the filled former tube, to pass in underneath the former tube, so that the top plate 84 will come directly across the lower end of the former tube and underneath the closed package and a continuation of the support 72 while the lower plate 85 will pass in through a slot 86 in mold 76, and close the top flap of a previously filled package, which during

the prior downward movement of the plunger 75 was pushed out and off of a former tube and down into the mold 76. This inward movement of the plates 84—85 takes place when the rods 39 are moved in the same direction, and takes place simultaneously with the folding operations of the plates 57—58 previously described.

The side of the mold 76 toward the block 83 is vertically slotted, as at 88, to permit the plates 84—85 to travel downward inside the mold 76; these plates being extracted when they have reached the lower end of the movement, and on the reversal of travel of the rods 39, through a suitable horizontal opening 89 in the mold. This downward movement of the plates 84—85 through the mold is effected by the plunger pushing down on the superposed material in the former tube. When this former tube with its filled package is first brought into position *d*, the plates 84—85 are moved inwardly in the manner just described, the top plate 84 serving to support the filled wrapper which is still on the tube. The plunger 75 now moving downward enters the former tube and compresses the fruit inside of the tube. The cross-head 77 in descending next strikes a tappet 90 on rod 81, causing the plates 84—85 to move downward inside of the mold 76; this compressing movement continuing until the plates 84—85 come opposite the opening 89 in the mold. On the withdrawal of the plates 84—85, the package which has just been stripped off of the former tube is left in the mold 76. Suitable folding devices are then operated to close the top of the filled package.

As here shown, the rods 39 carry a bracket 91 carrying at its top a pivoted plate 92, and having on its top side two pivoted wing plates 93; these wing plates 93 being similar in mode of operation and function to the wing plates 58, previously described. The spindles of these wing plates carry inwardly projecting arms 94 which engage respective stops 95—96 at opposite ends of their stroke, to open and close the wing plates. The plate 92 is mounted on the horizontal rock shaft 97, and the under side of the frame or bracket 91 carries another pivoted plate 98, which is also mounted on a rock shaft 99; and these rock shafts have inturned arms 100 which engage respective stops 101—102 at opposite ends of the stroke of rods 39, for the purpose of slightly opening and closing the plates 92—98 toward and from each other. Spring brakes 103 act on the rods 97—99 to limit the free turning movement of the plates 92—98.

The operation of the folding devices 92—98 is as follows; assuming that a filled package with its top still open has been pushed down into the mold 76 and left in position in between the path of movement of the two

plates 92—93: on the movement of the rods 39 to carry the folding plate 63 in under a former tube, which is in position *b*, and to retract the plates 84—85 from the mold 76, the bracket 91 is also moved to project the plates 92—98 through slots 105—106 in the sides of the mold 76. The purpose of the plate 98 is to support the already closed end of the package. The inward movement of the plate 92 into the mold folds in one flap of the top of the package, and when the little crank arms on the spindles of the wing plates 93 strike the stop 95, these wing plates fold in the two side flaps of the package. Then when the plates 84—85 are next projected into the mold, the lower plate 85 closes over the remaining top flap. The plates 84—85 serve to space the package thus finally closed on top from the package just above which is to be discharged from its former tube. Then on the down movement of the plunger the filled and finally closed package is pushed down by the descending plate 85 and is finally ejected from the mold by suitable means, as the kicker 107, which moves with the carriage 17. At the same time that the plunger 75 descends to compress the fruit at position *d*, a wiper 108 comes down and swabs out the inside of the empty tube which is at position *a*. This wiper or swab 108 consists of a sponge, or any other suitable moisture-holding material, and is carried on a hollow rod 109 supported from the cross-head 77. The rod 109 communicates with a small tank 110 containing water, so that the wiper ordinarily contains enough water properly to swab out the empty former at position *a* and prevent its becoming sticky. This wetting of the inside of the tube facilitates the discharge of the fruit therefrom when it reaches position *d*.

The operation of the apparatus is briefly as follows: A carton blank is laid over the folding plates 13 and engaged in the clips 12. At the proper moment this carton blank is lifted into vertical position and laid about three sides of the former tube, in position *a*. The rods 39 are then actuated to cause the folder 28 to operate on one edge of this fresh carton blank. Simultaneously the plates 57—58 act on the lower end of a carton which has previously been moved to position *b*; also simultaneously the plates 83—84 move inward into the mold 76 so that the plate 85 closes the top of a previously filled package in mold 76. The cam 44 is then rocked to release the folding roller 29 adjacent to position *a*, and the other end of the fresh carton is thus wrapped about the former tube; this spring-pressed roller 29 remaining in contact with the tube and carton until the latter reaches position *d*, when the cam again moves to lift it from the tube and hold it away from it until it re-

ceives a fresh carton blank. While the roller folder 29 is acting in position *a* to complete the tube form of the wrapper, the rods 39 are reversed, carrying the several folding devices 57—58—63—85—92 in an opposite direction, and correspondingly completing the lower end folding of the wrapper at position *b*, and of the filled package at position *d*. The spider is then given a quarter turn, and the cycle of operations thus described are repeated; a fresh carton blank being fed to the machine during each interim of rest of the spider, and a filled package being discharged from the machine.

It is possible that various changes and modifications may be made in the details of construction of the present invention without departing from the principle thereof; and I do not wish to be considered as limiting myself to the detailed arrangement here shown and described.

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

1. In a packaging machine, a traveling hollow vertically arranged former, means including a box-like structure having spring sides for placing a wrapper around the former, said structure having a pivotal movement in a vertical plane and radially of the former, means for closing the lower end of the wrapper, means for discharging the wrapper from the former, and means for closing the open end of the wrapper.

2. In a packaging machine, the combination of an intermittently rotating support provided with hollow tubular formers, means including a box-like structure having spring sides for placing wrappers about these formers, said structure having a pivotal movement in a vertical plane and radially of the former, means for closing the lower ends of the wrappers, means for discharging the wrappers from the formers, and means for closing the mouth of the wrapper.

3. In a packaging machine, the combination of an intermittently rotating support, tubular hollow formers upon said support, means for giving intermittent motion to the support, means for placing a wrapper blank about the former, said means including a box-like structure having spring sides, and said structure having a pivotal movement in a vertical plane and radially of the former support.

4. In a packaging machine, the combination with a traveling former, of means for placing the wrapper about the former, said means including a box-like structure with spring sides having a pivotal movement in a vertical plane and radially of the former, and means on each side of said structure for engaging the edges of the wrapper blank.

5. In a packaging machine, the combina-

tion with a traveling former, of means for placing the wrapper about the former, said means including a box-like structure with spring sides having a movement toward and
 5 from the former, means on each side of said structure for engaging the edges of the wrapper blank, means for moving said box-like structure from a substantially horizontal position to a vertical one and into en-
 10 gagement with the former, and a folding roller mounted to swing in a horizontal plane.

6. In a packaging machine, the combination with a traveling former, of means for
 15 placing the wrapper about the former, said means including a box-like structure with spring sides having a movement toward and from the former, means on each side of said structure for engaging the edges of the
 20 wrapper blank, and means operating subsequent to said first-named means for overlapping the edges of the wrapper, said subsequently operating means including a folder mounted to swing in a vertical plane, and a
 25 folding roller mounted to swing in a horizontal plane.

7. In a packaging machine, the combination of an intermittently traveling former support, tubular formers on said support,
 30 means for engaging a wrapper about three sides of the former, and means for overlapping the edges of the wrapper on the fourth side of the former, said last-named means including a pivoted arm mounted to
 35 swing in a vertical plane and a folding roller mounted to swing in a horizontal plane, and means for operating said folding arm and said folding roller.

8. In a packaging machine, the combination of an intermittently traveling former
 40 support, tubular formers on said support, means for wrapping a wrapper about the sides of a former, said means including a roller mounted to swing in a horizontal
 45 plane, said roller being yieldingly supported against the side of the former, means for normally maintaining said roller in contact with the former, and means for intermittently moving said roller out of contact
 50 with the former.

9. In a packaging machine, the combination of an intermittently traveling former support, tubular formers on said support,
 and means for wrapping a wrapper about
 55 the sides of said formers, said last-named means including a folding roller for each former, said rollers mounted to swing horizontally, means for maintaining them normally in contact with their formers, and
 60 means for intermittently moving them out of contact therewith.

10. In a packaging machine, the combination of an intermittently traveling former support, formers on said support, and means

for wrapping a wrapper about said formers, 65
 said last-named means including a yieldingly mounted folding roller in conjunction with each former, said rollers mounted to swing horizontally into and out of contact with their respective formers, means for
 70 carrying the rollers into contact with the formers, and means including a centrally disposed cam for intermittently moving said rollers out of contact with the formers.

11. In a packaging machine, a mold, an 75
 end folding device consisting of a reciprocating part carrying upper and lower hinged plates, means for moving said part to carry said plates into and out of the mold, the
 80 lowermost of said plates forming a support for the package and the uppermost of said plates forming a folding member, and means for giving the plates a limited pivotal movement toward and from each other.

12. In a packaging machine, the combination 85
 of a hollow mold to receive a filled package, and means for closing the open end of said package, said means including a reciprocating part carrying upper and lower
 90 hinged plates, means for moving said reciprocating part to carry said plates into and out of said mold, the lowermost of said plates forming a support for the package and the uppermost of said plates forming a
 95 folding member, and means for giving said upper and lower plates a limited pivotal movement toward and from each other, said means including arms on the pivot shafts of said plates and stops to engage said arms.

13. In a packaging machine, the combination 100
 of a hollow mold to receive a filled package, and means for closing the open end of said package, said means including a reciprocating part carrying upper and lower
 105 hinged plates, means for moving said reciprocating part to carry said plates into and out of said mold, the lowermost of said plates forming a support for the package and the uppermost of said plates forming a
 110 folding member, means for giving said upper and lower plates a limited pivotal movement toward and from each other, said means including arms on the pivot shafts of said plates and stops to engage said arms,
 115 said upper folding plate provided with a pair of pivoted laterally swinging wing plates, and means for operating the wing plates.

14. In a packaging machine, the combination 120
 of a hollow former, means including a box-like structure having spring sides for wrapping a wrapper about the sides of the former, means for closing an end of the wrapper over the lower end of the former,
 125 a reciprocating plunger alinable with the former, a hollow mold beneath the former, and with which the latter is alinable, means for operating the plunger to discharge the

contents of the former and the wrapper into the mold, and a reciprocating end folder for closing the open end of the package, said end folder comprising a plate movable across the open end of the package and a pair of pivoted wing plates on the first-named plate operating laterally upon the latter, and means for operating said wing plates.

15. In a packaging machine, the combination of a hollow traveling former, a hollow slotted mold, a plunger in line with the mold and between which and the latter said former is alinable, a plate mounted to have a limited combined vertical and horizontal movement to support the package on said former and over the mold, said plate being movable into and out of the mold and through the mold and lengthwise of the latter, means for effecting said movements of said plate, and means for closing the open end of the package after the same has been placed in the mold.

16. In a packaging machine, the combination of a hollow traveling former, a hollow slotted mold, a plunger in line with the mold and between which and the latter said former is alinable, a plate mounted to have a limited combined vertical and horizontal movement to support the package on said former and over the mold, said plate being movable into and out of the mold and through the mold and lengthwise of the latter, means for effecting said movements of said plate, and means for closing the open end of the package after the same has been placed in the mold, said last-named means including a folder plate and a pair of pivoted wing plates thereon.

17. In a packaging machine, the combination of a former and means for folding a wrapper about three sides thereof, and a folder cooperating with the former to lay an unfolded end of the wrapper against the former, said folder comprising an arm pivoted to swing across the former, said arm mounted on a movable carriage, means for moving the carriage toward and from the former, and means for tilting the arm on its pivot.

18. In a packaging machine, the combination of a former and means for folding a wrapper about three sides thereof, a folder cooperating with the former to lay an unfolded end of the wrapper against the former, said folder comprising an arm pivoted to swing across the former, a reciprocating carriage on which said arm is pivoted, means for reciprocating the carriage, a stop, and means on the arm to engage said stop to tilt the arm on the reciprocation of the carriage.

19. In a packaging machine, the combination of a former and means to place a wrap-

per blank against the former, said means including a carrier for the blank, a reciprocating carriage on which said carrier is pivoted, means for reciprocating the carriage, a stop, and means on the carrier engaging said stop on the reciprocation of the carriage to tilt the carrier toward and from the former.

20. In a packaging machine, the combination of a former and means to place a wrapper blank against the former, said means including a carrier for the blank, a reciprocating carriage on which said carrier is pivoted, means for reciprocating the carriage, a stop, and means on the carrier engaging said stop on the reciprocation of the carriage to tilt the carrier toward and from the former, said carrier comprising a box-like structure with spring sides.

21. In a packaging machine, the combination of a former and means to place a wrapper blank against the former, said means including a carrier for the blank, a reciprocating carriage on which said carrier is pivoted, means for reciprocating the carriage, a stop, and means on the carrier engaging said stop on the reciprocation of the carriage to tilt the carrier toward and from the former, said carrier comprising a box-like structure with yielding sides to embrace said former, and with paper-holding means at each side of the box.

22. In a packaging machine, the combination of a vertically arranged former, a sliding carriage, a box-like structure tiltable in a vertical plane and movable toward and from the former to place a wrapper blank about the former, said box-like structure pivoted on the sliding carriage, means for operating the carriage, a stop, and means on said box-like structure engaging said stop to tip said box-like structure on the reciprocation of the carriage.

23. In a packaging machine, the combination with a vertically arranged former, of a box-like structure tiltable in a vertical plane and movable toward and from the former to place a wrapper blank about said former, means including a reciprocating part to effect the tilting movement of said box-like structure, a tiltable folding arm cooperating with the former to lay an end of the wrapper blank against said former, and means operated by said reciprocating part to operate said tilting arm.

24. In a packaging machine, the combination of a series of vertically arranged hollow formers mounted on a rotary support, means for giving said support a step by step movement, means for folding a wrapper about said former, means for closing an end of the wrapper over the former, means including a plunger operable through the hollow former for discharging the wrapper from the

former, means for closing the open end of the package after its discharge from the former, and a reciprocating part with mediate connections for operating said several
5 mentioned means successively.

25. In a packaging machine, the combination with a traveling former, of means co-operating with the end of the former to close an end of a wrapper on the former, said
10 means including a reciprocating part carrying two folding members movable alternately across the end of the former, one of said folding members carrying sidewise acting wing plates, the other of said folding
15 members turnable from horizontal to vertical position, and vice versa.

26. In a packaging machine, the combination with a traveling former, of means co-operating with the end of the former to close
20 an end of a wrapper on the former, said

means including a reciprocating part carrying two folding members movable alternately across the end of the former, one of said folding members carrying sidewise acting wing plates, the other of said folding
25 members turnable from horizontal to vertical position, and vice versa, means tending to hold said last-named folding member in normal vertical position, and means operated by said reciprocating part for placing said
30 last-named folding member in horizontal folding position.

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

AUGUSTUS E. BIMMERLE.

Witnesses:

A. KOHNER,
J. H. RUSSELL.