

No. 723,072.

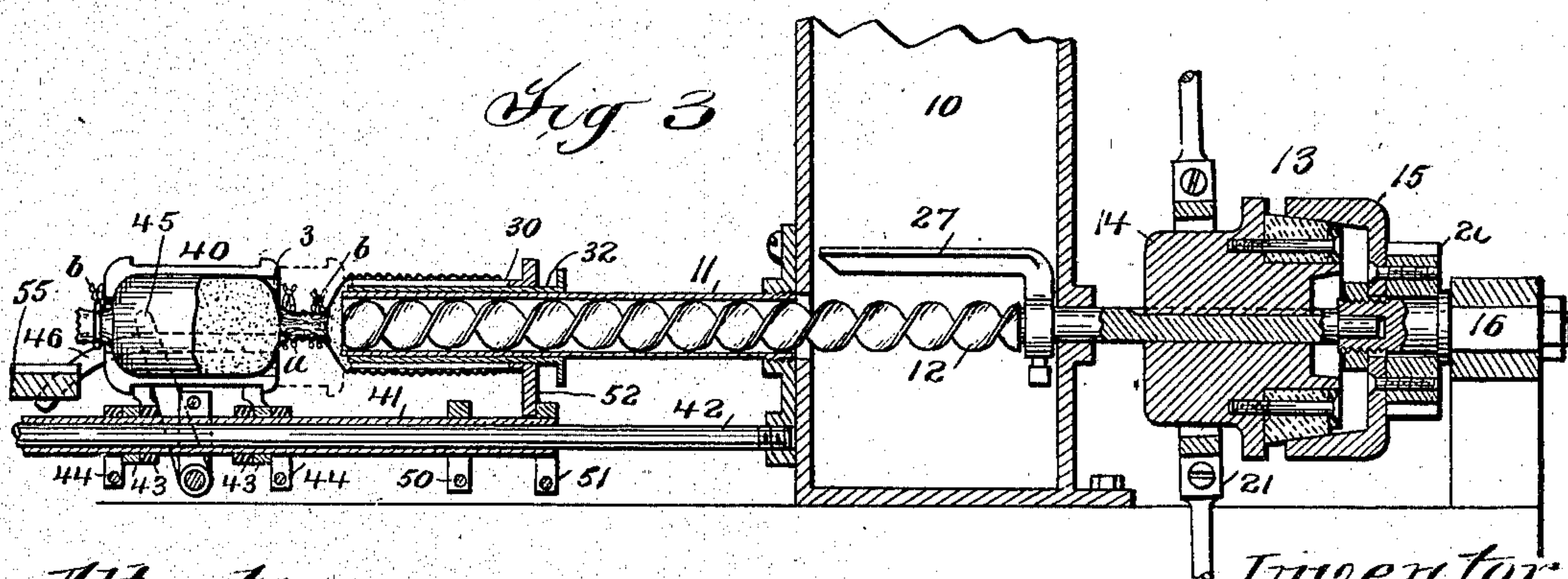
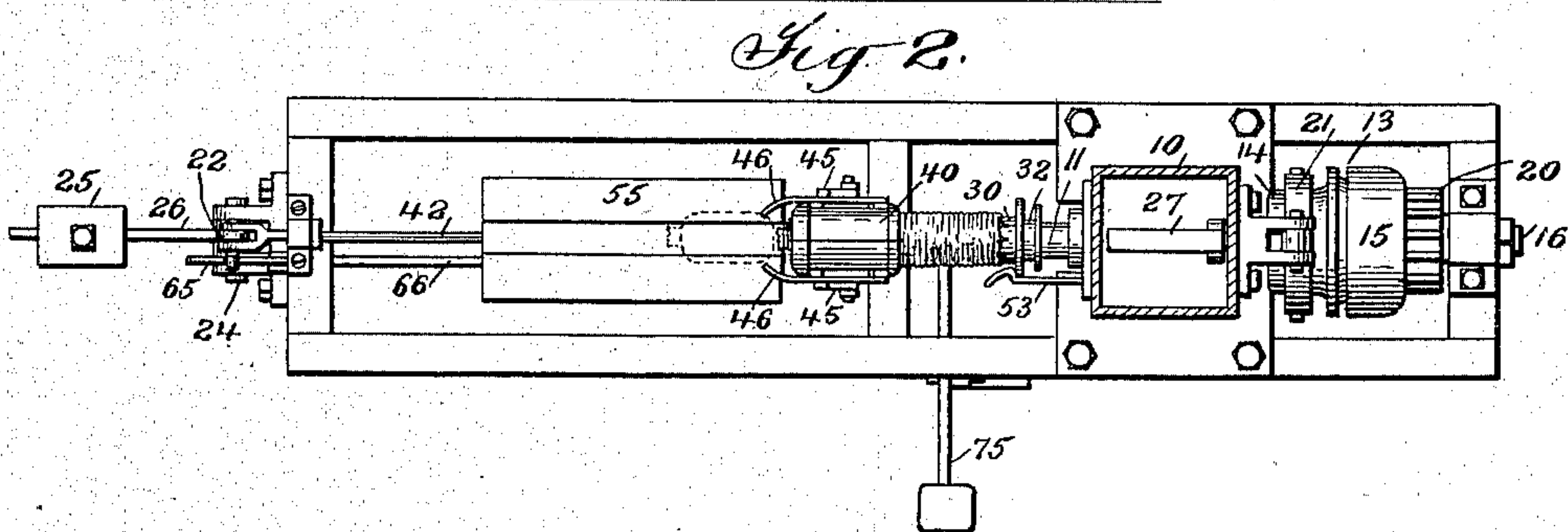
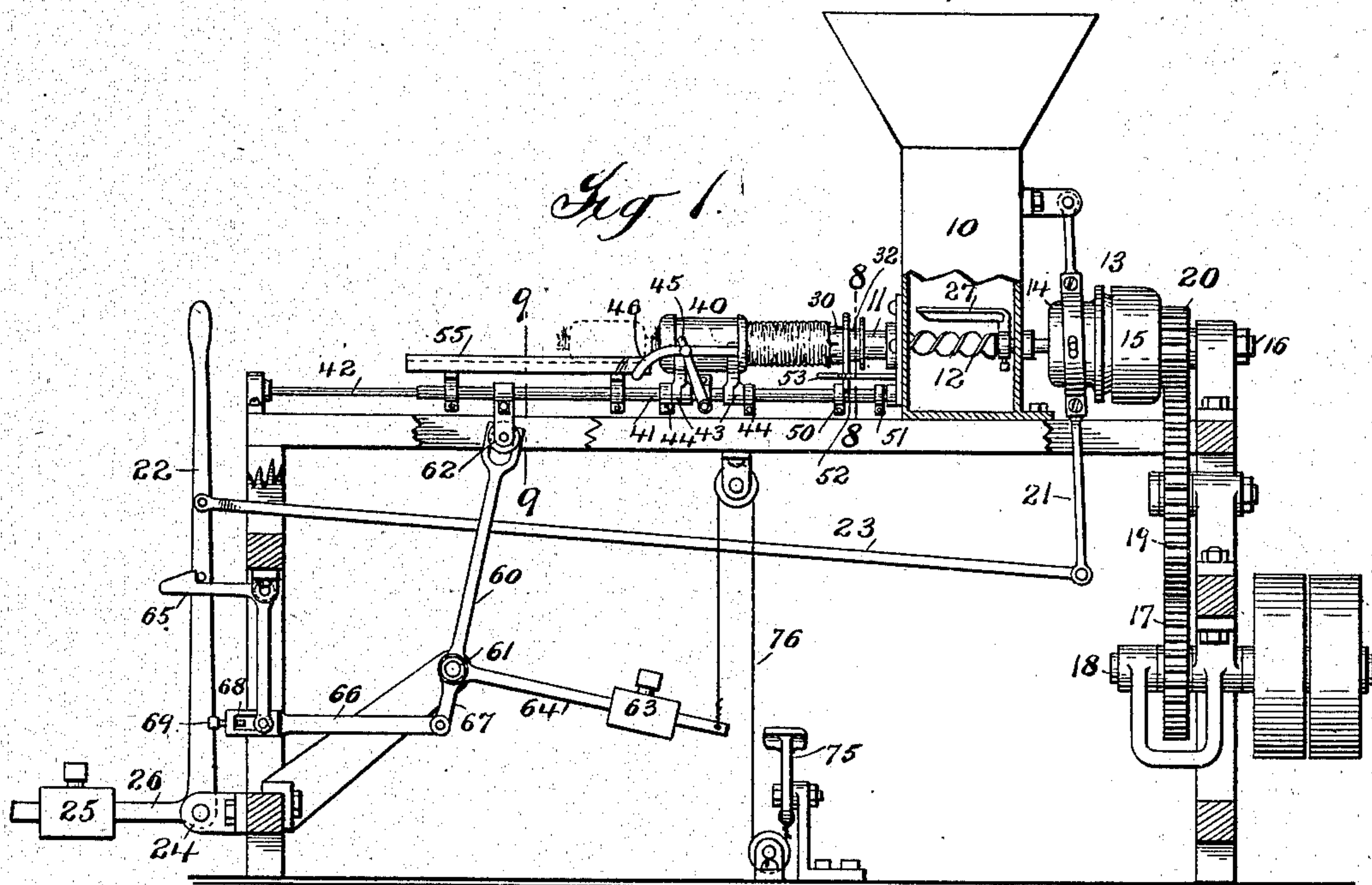
PATENTED MAR. 17, 1903.

J. C. THOM.
PACKING MACHINE.

APPLICATION FILED SEPT. 4, 1901.

NO MODEL.

2 SHEETS—SHEET 1.



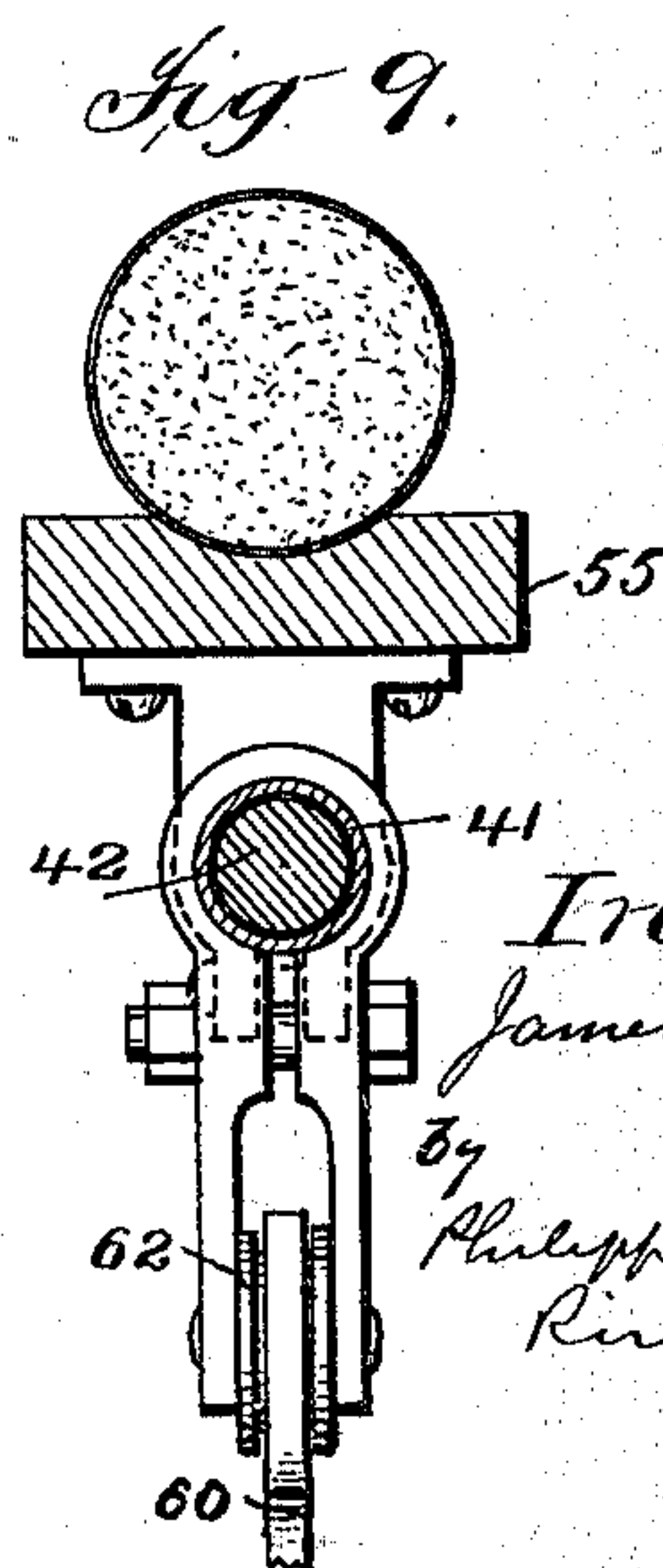
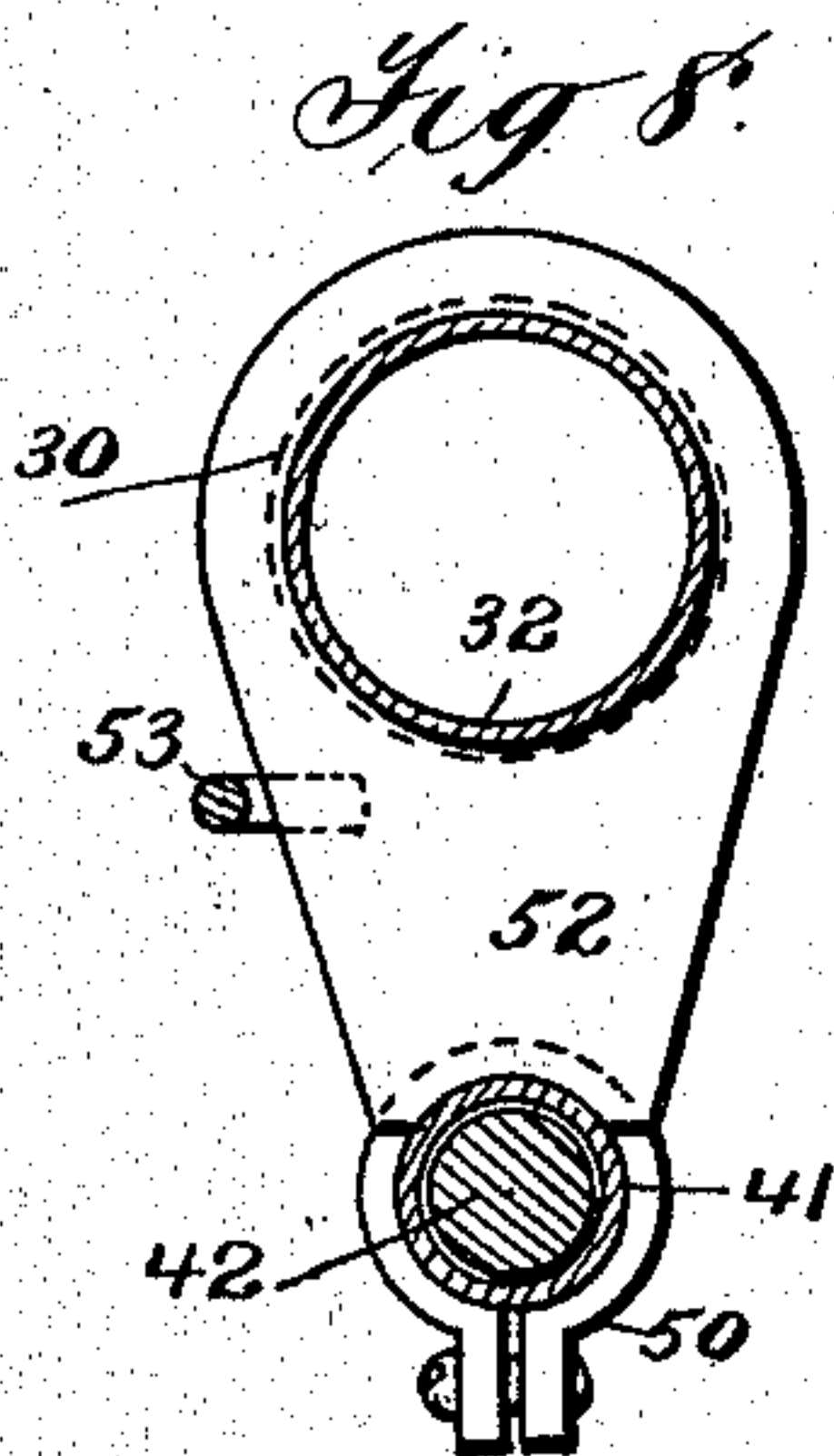
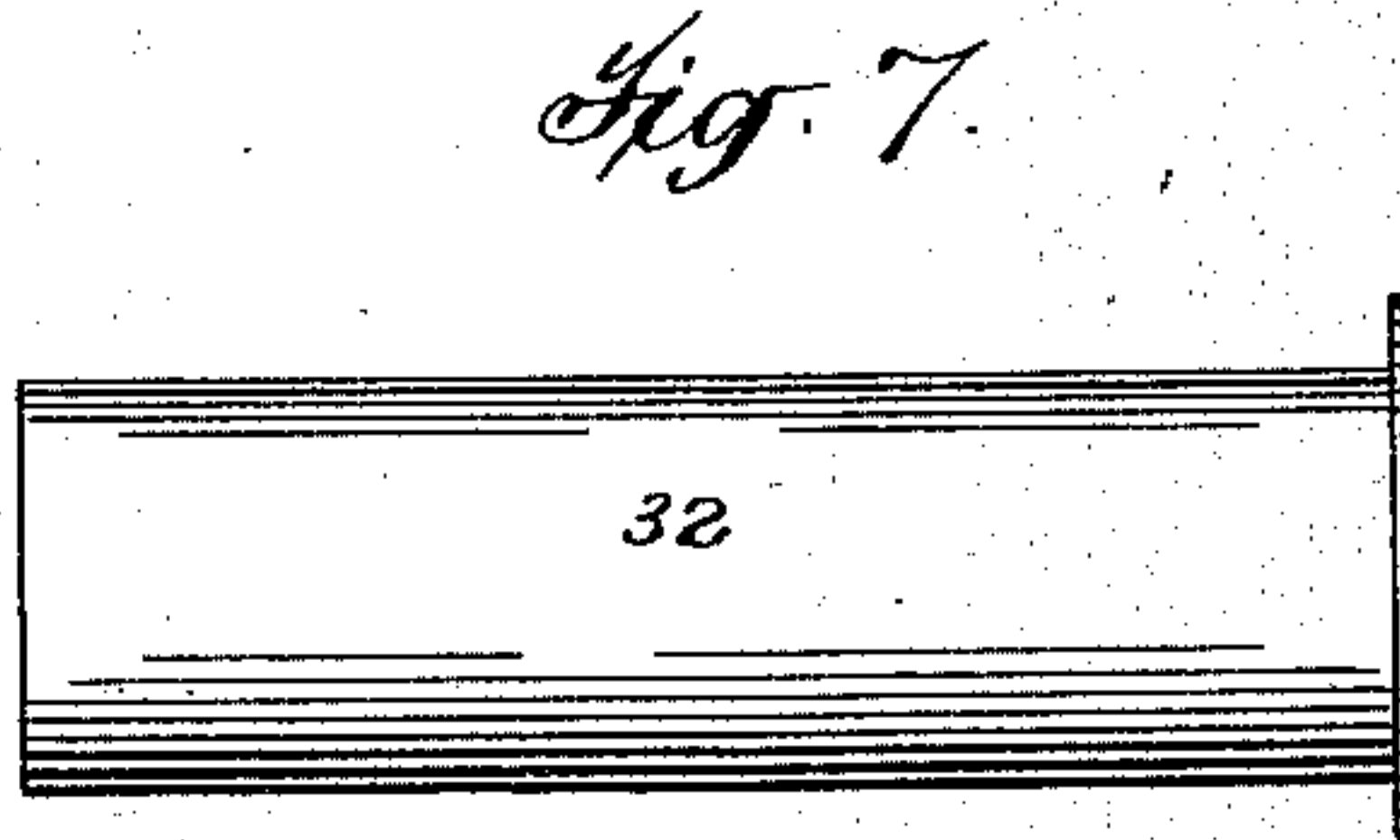
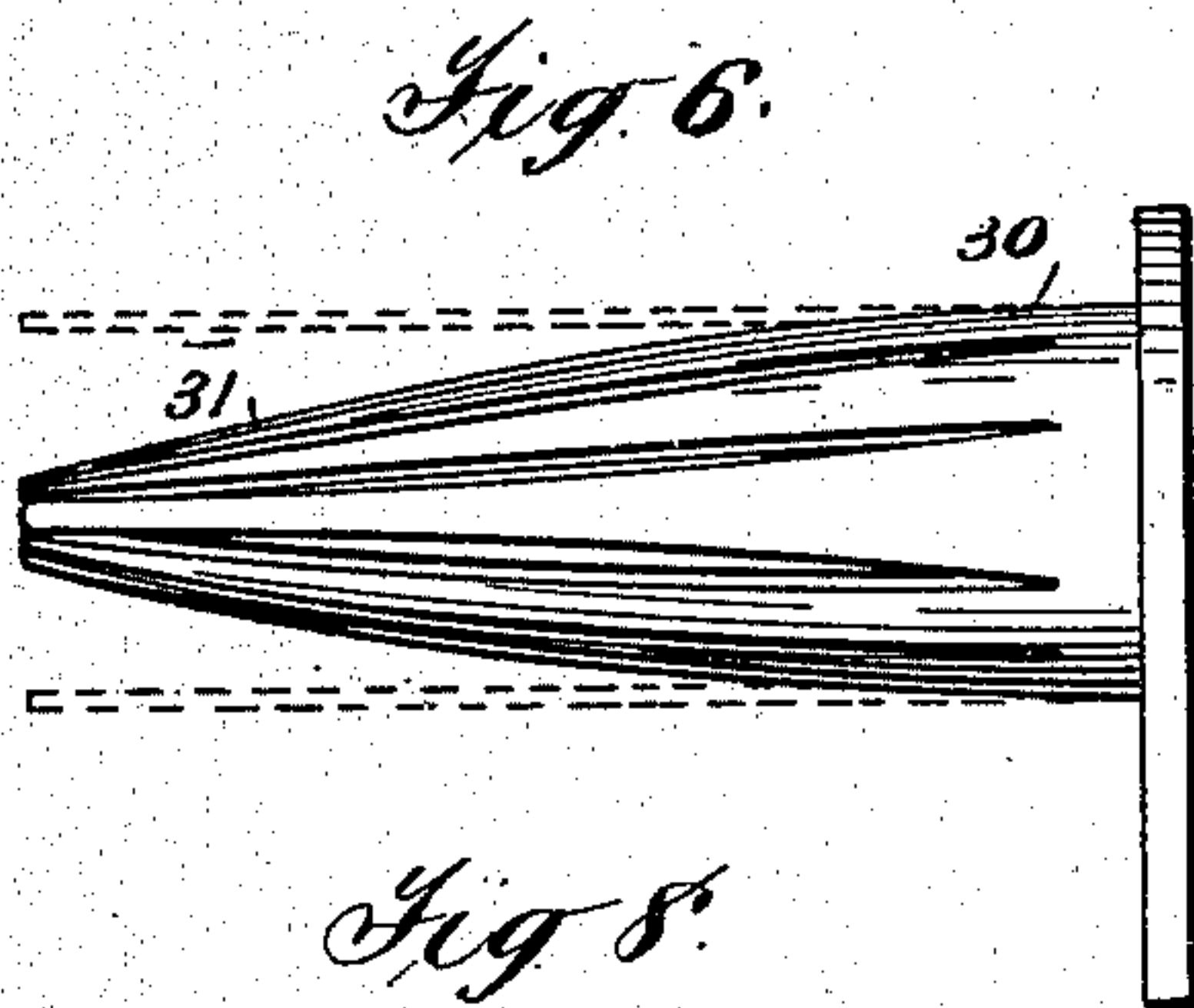
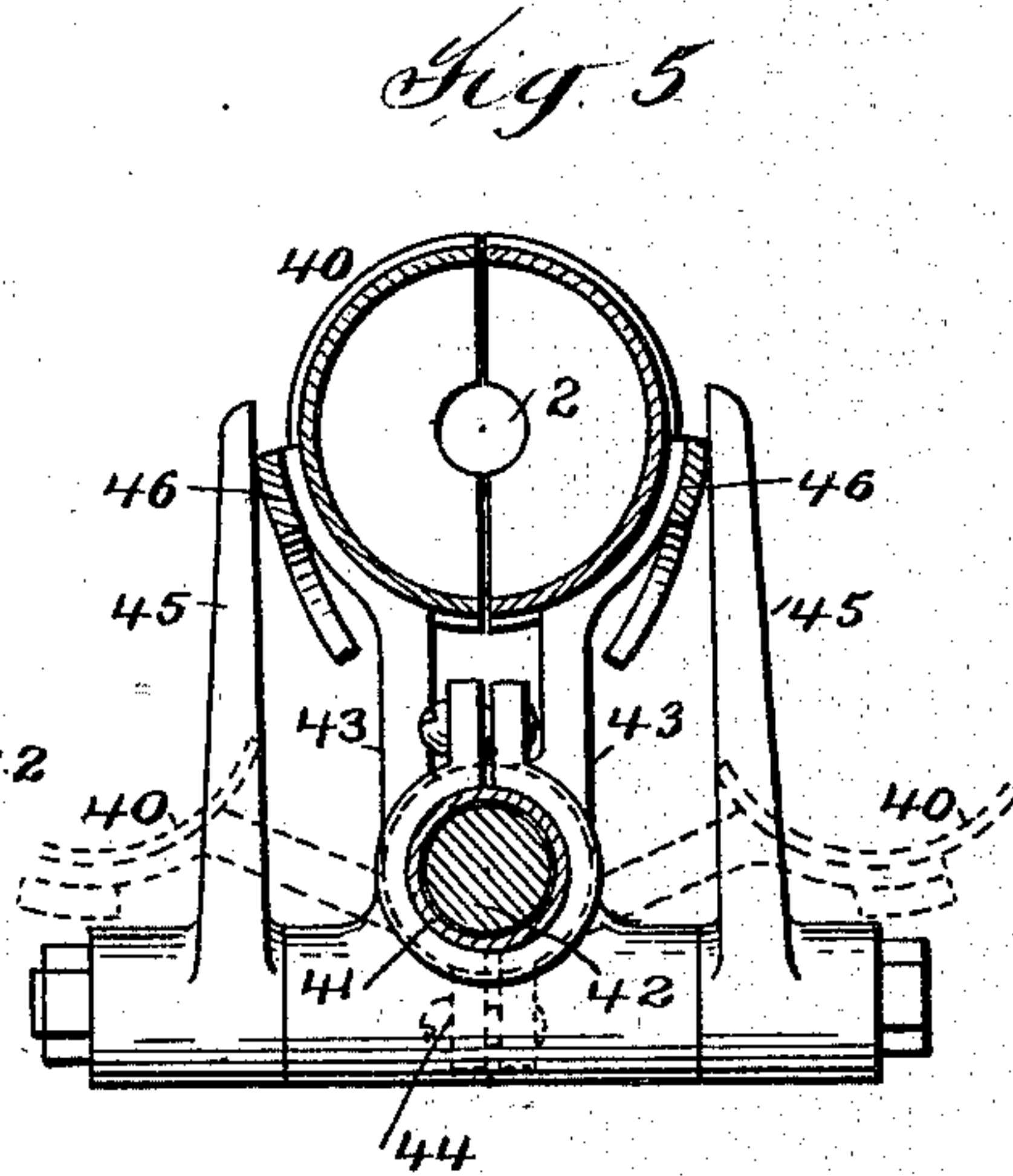
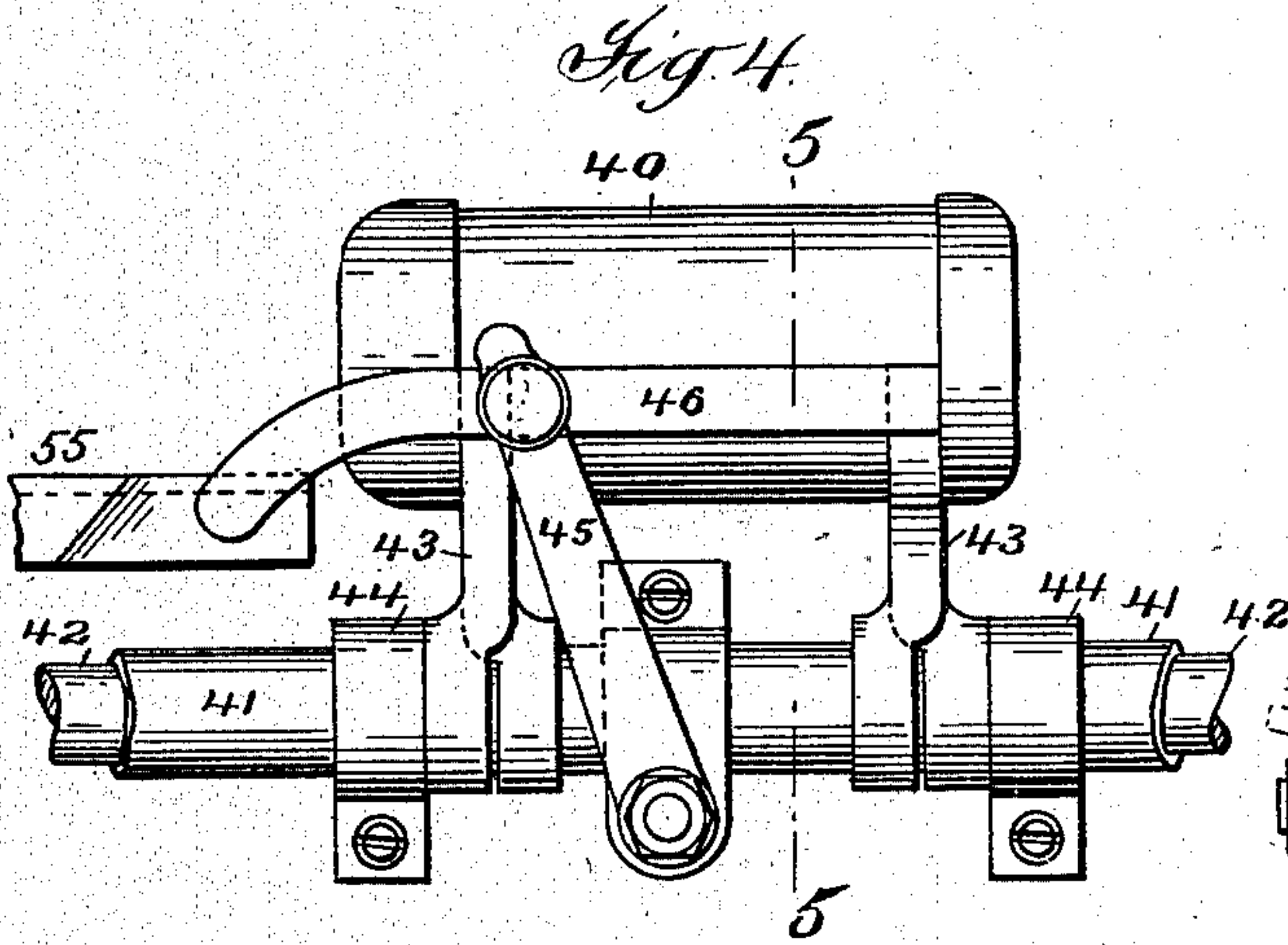
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Inventor:
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NO MODEL.

2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JAMES CRAWFORD THOM, OF HELMETTA, NEW JERSEY, ASSIGNOR TO
AMERICAN SNUFF COMPANY, A CORPORATION OF NEW JERSEY.

PACKING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 723,072, dated March 17, 1903.

Application filed September 4, 1901. Serial No. 74,312. (No model.)

To all whom it may concern:

Be it known that I, JAMES CRAWFORD THOM, a citizen of the United States, residing at Helmetta, county of Middlesex, State of New Jersey, have invented certain new and useful Improvements in Packing-Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to machines for filling receptacles with loose material.

The invention has been made especially with the idea of providing a machine for packing snuff in the prepared intestines or weasands in which it is now commonly put up for the retail trade; and the invention aims to provide a machine of this kind by means of which packages containing the desired quantity of snuff may be successively formed rapidly and economically.

As a full understanding of the invention can best be given by a detailed description of a preferred construction embodying the various features of the same, such a description will now be given in connection with the accompanying drawings, which show a preferred form of machine constructed in accordance with the invention intended especially for packing snuff-bladders.

In said drawings, Figure 1 is a side elevation of the machine with parts in section. Fig. 2 is a plan view. Fig. 3 is an enlarged sectional view of a portion of the machine. Fig. 4 is a detail view on a still larger scale, showing the package-former in side elevation. Fig. 5 is a section on line 5 of Fig. 4. Fig. 6 is a plan view of the outer member of the wrapper-holder. Fig. 7 is a similar view of the expander of the weasand-holder. Figs. 8 and 9 are sections on the lines 8 and 9, respectively, of Fig. 1.

The various parts of the machine may be supported by any suitable frame. The snuff to be packed is placed in a hopper 10, from which it is fed through a feed tube or spout 11 by means of a feed-auger 12, which extends from within the hopper into the tube 11 and preferably to the delivery end thereof. This auger is carried by a shaft which extends rearwardly beyond the hopper and which is driven by means of a clutch 13, the driven

sliding member 14 of which, as shown, is splined on the auger-shaft and the driving member 15 of which is journaled on a stud 16 and is driven from a gear 17 on a shaft 18 through an intermediate gear 19, engaging a gear 20, carried by said clutch member 15. The stud 16 also forms a bearing for the end of the auger-shaft, as shown in Fig. 3. The sliding member 14 of the clutch is thrown into and out of operative position by a lever 21, which is operated by means of a lever 22 through a connecting-rod 23, the lever 22 being located at the front of the machine and pivoted at 24 and under tension, as by means of a weight 25, adjustable on a horizontally-extending arm 26 of the lever, to throw outward, and thereby move the clutch member 14 away from the member 15 to unclutch.

To prevent clogging of the snuff in the hopper and insure the proper feed through the tube 11, an agitator 27 is mounted on the auger-shaft, so as to rotate with the auger.

The weasand for forming the wrapper or receptacles for the snuff and which will generally be of a length to form several packages is placed about the end of the feed-tube 11, the end of the weasand being brought together and tied beyond the end of the tube 11. The snuff is then forced by the rotation of the auger 12 through the tube 11 and into the weasand, the end of which is thereby forced away from the end of the tube until the desired quantity of snuff for a package has been forced into the weasand. Then the filled end of the weasand is drawn a little farther off the tube, and the weasand is tied to close the end of the package and to form the first end of the succeeding package. Then more snuff is forced through the tube 11 to fill another section of the weasand to form the succeeding package, and these operations are repeated until the length of weasand which has been placed about the end of tube 11 is used up.

For convenience in placing the weasand about the tube 11 I preferably provide a wrapper-holder 30, which is formed of an outer expansible shell 31, having a series of cylindrically-arranged tapering spring-fingers, which normally assume the position shown in Fig. 6 and which are expanded to

the position indicated by dotted lines in Fig. 6 by means of an inner member or expander 32, which is in the form of a tube of a size adapted to slide freely on the tube 11. The weasand is placed about the outer expansible member 31 of the holder, and the expander 32 is then inserted, and the holder, with the weasand gathered upon it, is then ready to be placed in position on the tube 11.

A mold or former 40 is supported by a carriage 41, which is mounted to reciprocate in a direction longitudinal of the tube 11. This carriage 41 may be of any suitable construction; but it is preferably and as shown formed by a tube or cylinder mounted to slide on a rod 42, which is supported beneath the tube 11 and is of a length to extend a considerable distance beyond the delivery end thereof. The mold 40 is preferably a divided mold, being formed of two half-cylindrical parts, which are hinged to the carriage 41, as by means of arms 43, sleeved on the tube forming the carriage and held in position by means of collars 44. The two parts of the mold are thus adapted to be thrown apart to the position shown in dotted lines in Fig. 5 to open the mold or to be brought together to the position shown in full lines in Fig. 5 to close the mold, and they are of such form as to provide when closed a chamber corresponding to the desired form of the package, closed at the forward end except for a central opening 2 of a size sufficient to accommodate the short section of bladder to be left between the tied ends of adjacent packages and having at its rear end a central opening 3 of such size that the mold may extend readily over the gathered-up bladder on the end of the tube 11 and holder 30. Closing-levers 45 are pivotally mounted on the carriage in position so that when thrown upward they will engage bearing-strips 46, carried by the mold-sections, and close the mold and lock it in its closed position. The carriage 41 also carries two abutments 50 and 51, respectively, to engage a lug 52 on the holder 30, which extends between them when the holder is in position on the tube 11. These abutments 50 and 51 are preferably located so that for each reciprocation of the carriage the holder will be caused to reciprocate a distance substantially equal to the length of the package the holder moving forward as the weasand is drawn off during the forming of the package, and then being moved backward again to cause a length of weasand for the next package to be drawn therefrom and straightened out. A spring-catch 53 is preferably provided to engage the wrapper-holder when it is placed on the tube 11 and prevent its moving forward beyond the end of the tube and through the engagement of the collar 51 with the lug 52 to limit the forward movement of the carriage.

A table 55 is carried by the carriage 41 beyond the mold 40 for supporting the formed packages.

The movements of the carriage are controlled by a lever 60, pivoted at 61 on a suitable support from the frame and connected to the carriage by means of a fork engaging an antifriction-wheel 62, carried by the carriage. The lever 60 is under tension, as by means of a weight 63 on an arm 64, extending horizontally from the lever 60 to move the carriage rearward or toward the hopper. The lever 60 thus acts to oppose the forward movement of the carriage during the filling operation and to return the carriage for forming the succeeding package, as will be hereinafter explained.

The clutch-operating lever 22 when moved to throw the clutch into operation is held in position against the tension of its weight 25 by means of a stop or catch 65, which is tripped to release the lever 22 by the forward movement of the lever 60. For thus throwing the catch 65 by the movement of the lever 60 I preferably provide a link 66, connected to an arm 67 of the lever 60 and having a pin-and-slot connection 68 with the catch 65, so that during the first part of the movement of the lever 60 as the carriage moves forward during the filling operation the catch 65 will not be moved, but when the carriage approaches the end of its desired movement the catch 65 will be moved to release the lever 22.

The pin-and-slot connection 68 between the catch 65 and the link 66 is provided with an adjustable contact-piece, as the screw 69, by means of which the time of operation of the catch 65 with relation to the movement of the lever 60 may be varied as desired. The length of the movement of the carriage before the unclutching of the clutch, and consequently the length of the package, may thus be adjusted as desired. The weight 63 is adjustable longitudinally of the arm 64 for the purpose of varying the resistance to the movement of the carriage during the feeding operation, and consequently varying the pressure under which the snuff is packed and the amount of snuff packed in a package of given size. For the purpose of giving the carriage a further forward movement after the feeding-auger has been stopped to enable the ends of the packages to be tied and to prevent the return of the carriage until desired a foot-treadle 75 is provided, being connected with the lever-arm 64 by means of a cable 76.

The operation of the machine is as follows: The hopper being provided with snuff, a holder having a weasand gathered thereon and with the end of the weasand tied beyond the end of the holder is placed upon the feed spout or tube 11, with its lug 52 extending between abutments 50 and 51 on the carriage. The mold 40 being opened, the carriage is then allowed to move rearwardly to the position shown in Fig. 1, and the mold is closed and locked by means of the levers 45 about the end of the tube 11 and the weasand there-

on. By the rearward movement of the carriage the holder 30 will have been moved rearwardly to the position shown in Figs. 1 and 2, thus drawing a length of weasand off the holder. The lever 22 will then be thrown upward until engaged by the catch 65, thereby throwing the sliding member 14 of the clutch into clutching position and causing the feed-auger 12 to rotate and force snuff through the tube 11 and into the end of the weasand, and as the snuff is forced from the tube 11 into the weasand the end of the package thus being formed will engage the end of the mold and force the mold and carriage forward against the tension of the lever 60. The snuff being forced into the end of the weasand under pressure will press the same outward in all directions against the sides of the mold, so as to form a package corresponding to the shape of the inside of the mold. This filling movement will continue until by the movement of the lever 60 the catch 65 is thrown to release the lever 22, whereupon the lever 22, being thrown by its weight 23, will move the sliding member 14 of the clutch away from the member 15, thereby interrupting the driving of the feed-auger 12. The operator will then by means of the foot-treadle 75 give the carriage a slight further forward movement to move the mold from the position indicated in dotted lines in Fig. 3 to the position shown in full lines in said figure to enable him to tie the binding-strings *a* *b* about the weasand between the mold and the end of the tube 11, the string *a* being tied close to the mold to close the end of the package just filled and the string *b* a short distance therefrom to form the end of the succeeding package. The levers 45 are then thrown downward to permit the mold to open, and the foot-treadle 75 being released the carriage will move rearwardly again under the influence of the weight 63, acting through the lever 60 to bring the mold into position to be closed again about the end of the feed-tube 11 and the weasand thereon. The lever 22 then being again thrown forward the filling of a second package will commence, and these operations will be repeated until the length of weasand which has been placed on the holder is used up.

It will be seen that by providing for the adjustment of the time for throwing the catch 65 with relation to the movement of the lever 60 and for adjusting the tension of the lever 60 I am enabled to secure a very accurate measurement of the quantity of snuff in each package.

It will be understood that the invention as claimed is not limited to the exact construction and arrangement of parts as in the preferred form of machine shown in the drawings and to which the above description has been mainly confined. It will be understood also that while the machine has been designed especially for packing snuff in weasands or similar wrapping-tubes, yet it may

be used for packing other substances or materials for which it may be found adapted and that features of the invention may be employed in machines for packing snuff or other materials in other forms and kinds of packages.

What I claim is—

1. The combination of a feed-spout, means for forcing material through the feed-spout, a package-mold adapted to be opened to permit the removal of the package, a support for the packages beyond the mold, and means for permitting the mold to be moved away from the feed-spout against yielding tension, substantially as described.

2. The combination of a feed-spout, means for forcing material through the feed-spout, a reciprocating carriage, means for permitting the carriage to be moved away from the feed-spout against yielding tension, and a package-mold mounted on the carriage and having a central opening at the end away from the feed-spout and adapted to be opened longitudinally on lines extending through said opening, substantially as described.

3. The combination of a feed-spout, means for forcing material through the feed-spout, a reciprocating carriage, means for permitting the carriage to be moved away from the feed-spout against yielding tension, a package-mold mounted on the carriage and having a central opening at the end away from the feed-spout and adapted to be opened longitudinally on lines extending through said opening, and a package-support mounted on the carriage beyond the mold, substantially as described.

4. The combination of a feed-spout, means for forcing material through the feed-spout, a reciprocating package-mold, means for permitting the mold to be moved away from the feed-spout against yielding tension, said mold being adapted to be opened after filling of a package and to be closed after its return movement, and a package-support beyond the mold and mounted to reciprocate therewith, substantially as described.

5. The combination of a feed-spout, feeding devices for feeding material through the feed-spout, a package-mold arranged to move away from the feed-spout during the filling of a package and having a central opening at the end away from the spout and adapted to be opened longitudinally on lines extending through said opening, and means for giving the mold a further movement after the filling of a package to enable the end of the package to be closed, substantially as described.

6. The combination of a feed-spout, feeding devices for forcing material through the feed-spout, a package-mold, means for permitting the mold to be moved away from the feed-spout against yielding tension, said mold having a central opening at the end away from the feed-spout and adapted to be opened longitudinally on lines extending through said opening, means for stopping the opera-

tion of the feeding devices controlled by the movement of the mold, and means for giving the mold a further movement away from the feed-spout after the stopping of the operation of the feeding devices, substantially as described.

7. The combination of a feed-spout, feeding devices for forcing material through the feed-spout, a reciprocating carriage, means for permitting the carriage to be moved away from the feed-spout against yielding tension, a package-mold secured to the carriage and comprising two separable longitudinal sections, means for stopping the operation of the feeding devices controlled by the movement of the carriage, and means for giving the carriage a further movement away from the feed-spout after the stopping of the operation of the feeding devices and for returning the carriage, substantially as described.

8. The combination of a feed-spout, feeding devices for forcing material through the feed-spout, a reciprocating package-mold under yielding tension to move toward the feed-spout, means for stopping the operation of the feeding devices controlled by the movement of the package-mold, and means for giving the package-mold a further movement away from the feed-spout after the stopping of the operation of the feeding devices and for releasing the package-mold for its return movement, the package-mold being adapted to be opened after the filling of a package and to be closed after its return movement, substantially as described.

9. The combination of a feed-spout, feeding devices for forcing material through the feed-spout, a reciprocating package-mold, means for permitting the mold to be moved away from the feed-spout against yielding tension, said mold having a central opening at the end away from the feed-spout and adapted to be opened longitudinally on lines extending through said opening, means for stopping the operation of the feeding devices, a member for controlling the operation of said means, means for operating said member, and means for adjusting the time of operation of said member with relation to the movement of the mold, substantially as described.

10. The combination of a feed-spout, a wrapper-holder on the feed-spout, feeding devices for forcing material through the feed-spout, and a package-mold supported beyond the end of the feed-spout, substantially as described.

11. The combination of a feed-spout, a wrapper-holder mounted to slide on the feed-spout, and devices for feeding material through the feed-spout, a reciprocating package-carrier, and means for reciprocating the wrapper-holder with the carrier, substantially as described.

12. The combination of a feed-spout, a wrapper-holder mounted to slide on the feed-spout, feeding devices for forcing material through the feed-spout, a reciprocating pack-

age-mold having a movement greater than a package length, and means for reciprocating the wrapper-holder with the mold, the length of the reciprocations of the wrapper-holder being less than the reciprocations of the mold, substantially as described.

13. The combination of a feed-spout, a wrapper-holder mounted to slide on the feed-spout, feeding devices for forcing material through the feed-spout, a reciprocating package-mold under yielding tension to move toward the feed-spout, means for stopping the operation of the feeding devices when the desired quantity of material has been fed from the feed-spout, means for giving the mold a further movement away from the feed-spout after the stopping of the operation of the feeding devices, and connections between the mold and the wrapper-holder for giving the wrapper-holder a reciprocating movement of less length than the total length of the reciprocating movements of the mold, substantially as described.

14. A wrapper-holder comprising an outer expansible member having a cylindrically-arranged series of tapering spring-fingers, and a tubular inner expanding member, substantially as described.

15. The combination of a hopper, a feed-spout extending from the hopper, a feed-auger extending from within the hopper into the feed-spout, and an agitator 27 mounted to rotate around the axis of the feed-auger adjacent to the portion thereof within the hopper, substantially as described.

16. The combination of a feed-spout, means for feeding material through the feed-spout, a reciprocating package-carrier for supporting the packages as they are being filled, and a package-support arranged to reciprocate with the carrier, substantially as described.

17. The combination of the feed-spout 11, reciprocating carriage 41, and package-mold 40 and package-support 55 on the carriage 41, substantially as described.

18. The combination of the feed-spout 11, a reciprocating carriage, and a package-mold 40 formed of two half-cylindrical sections pivoted on the carriage, substantially as described.

19. The combination of the feed-spout 11, a reciprocating carriage, and a package-mold 40 formed of two half-cylindrical sections pivoted on the carriage and having their ends formed to provide a central opening 2 at the end of the mold away from the feed-spout and a larger central opening 3 at the end toward the feed-spout, substantially as described.

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

JAMES CRAWFORD THOM.

Witnesses:

A. L. KENT,

T. F. KEHOE.