

No. 696,112.

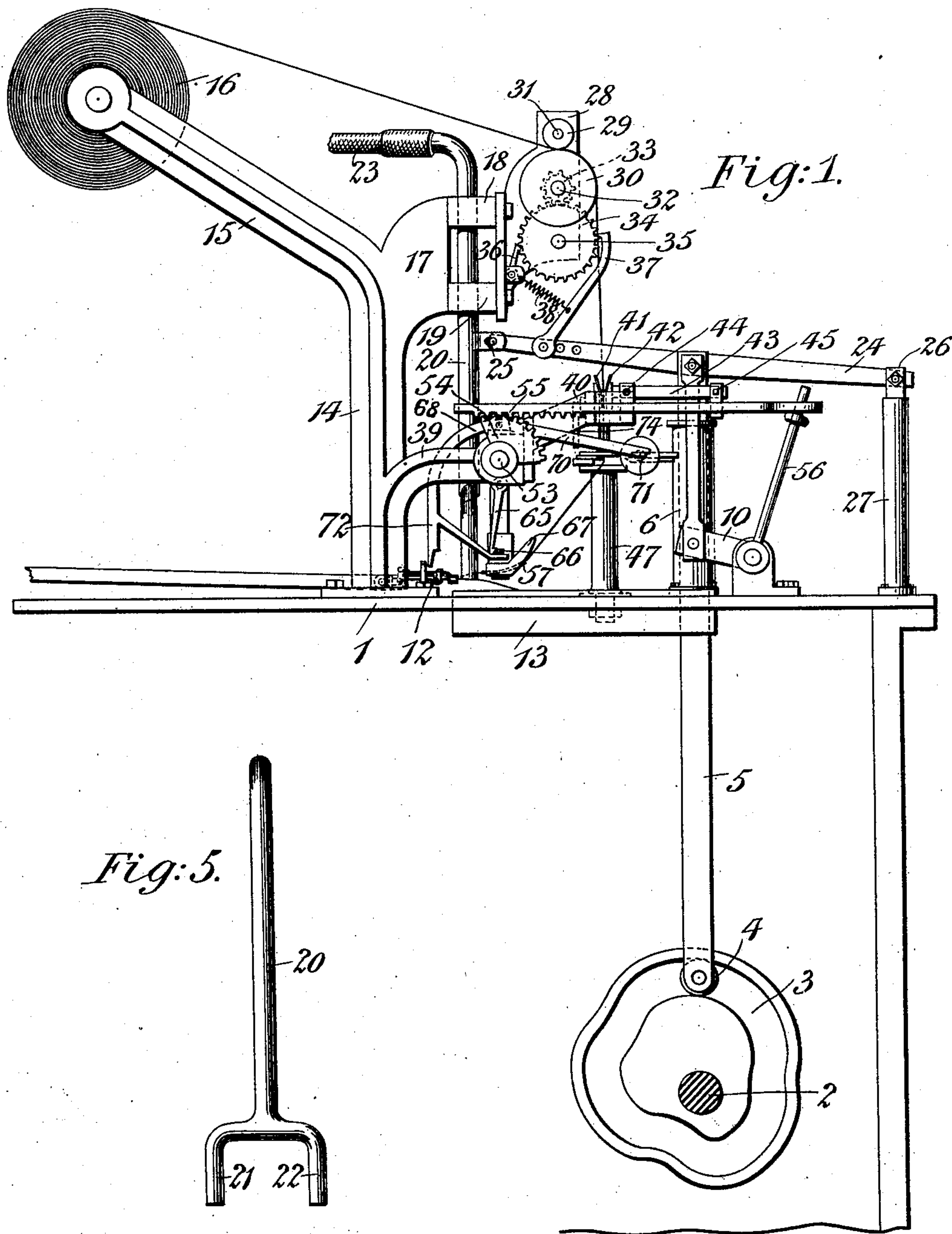
Patented Mar. 25, 1902.

A. STEARNS.
WRAPPING MACHINE.

(Application filed Aug. 8, 1901.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses:
John A. Rennie
George Baugh

Inventor:
Albert Stearns
by attorney
Samuel Howard

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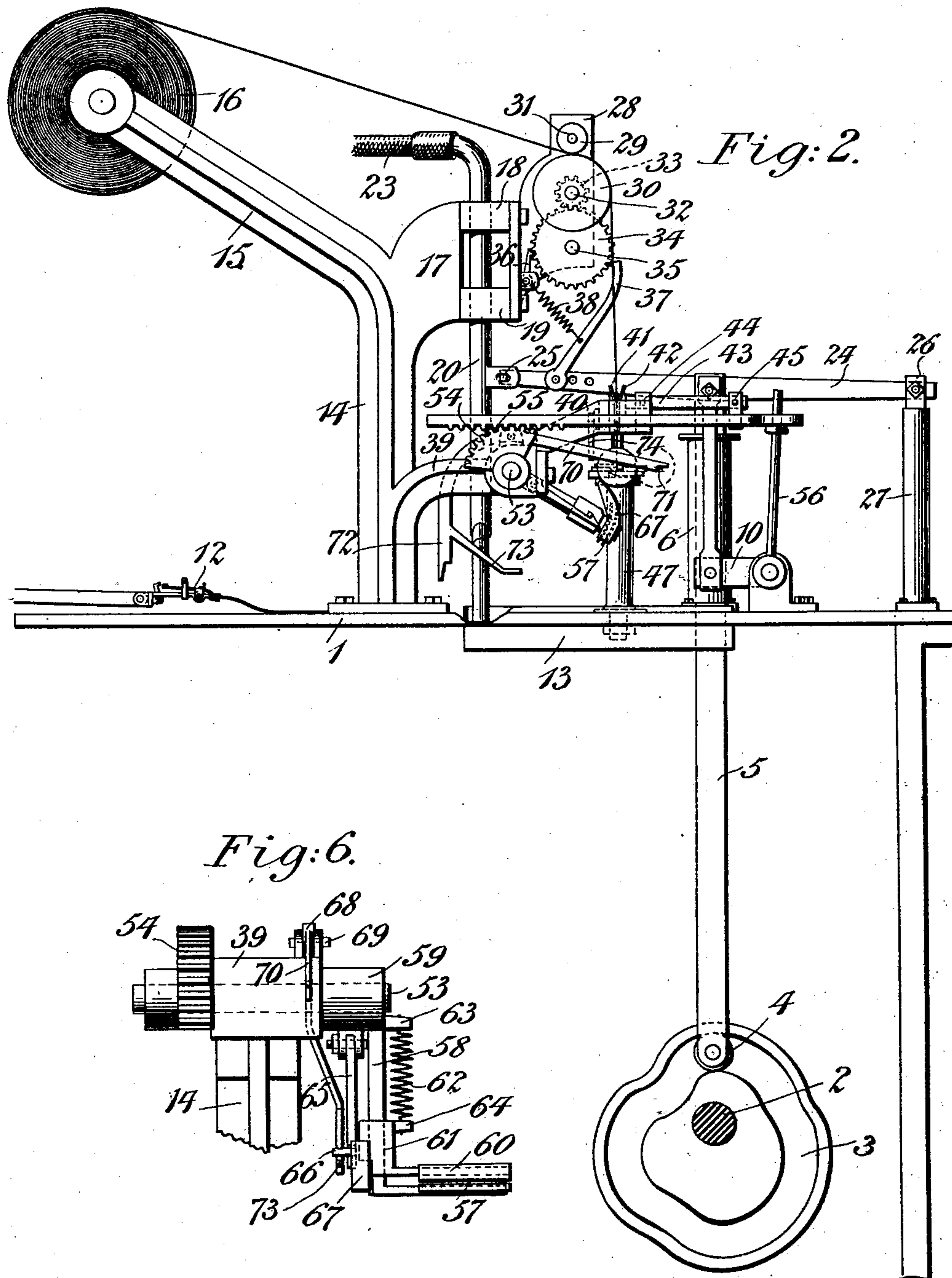
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4 Sheets—Sheet 2.



Witnesses:
John A. Fennie
George Barry

Inventor:
Albert Stearns
by attorney
R. M. L. L. L.

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Fig. 3.

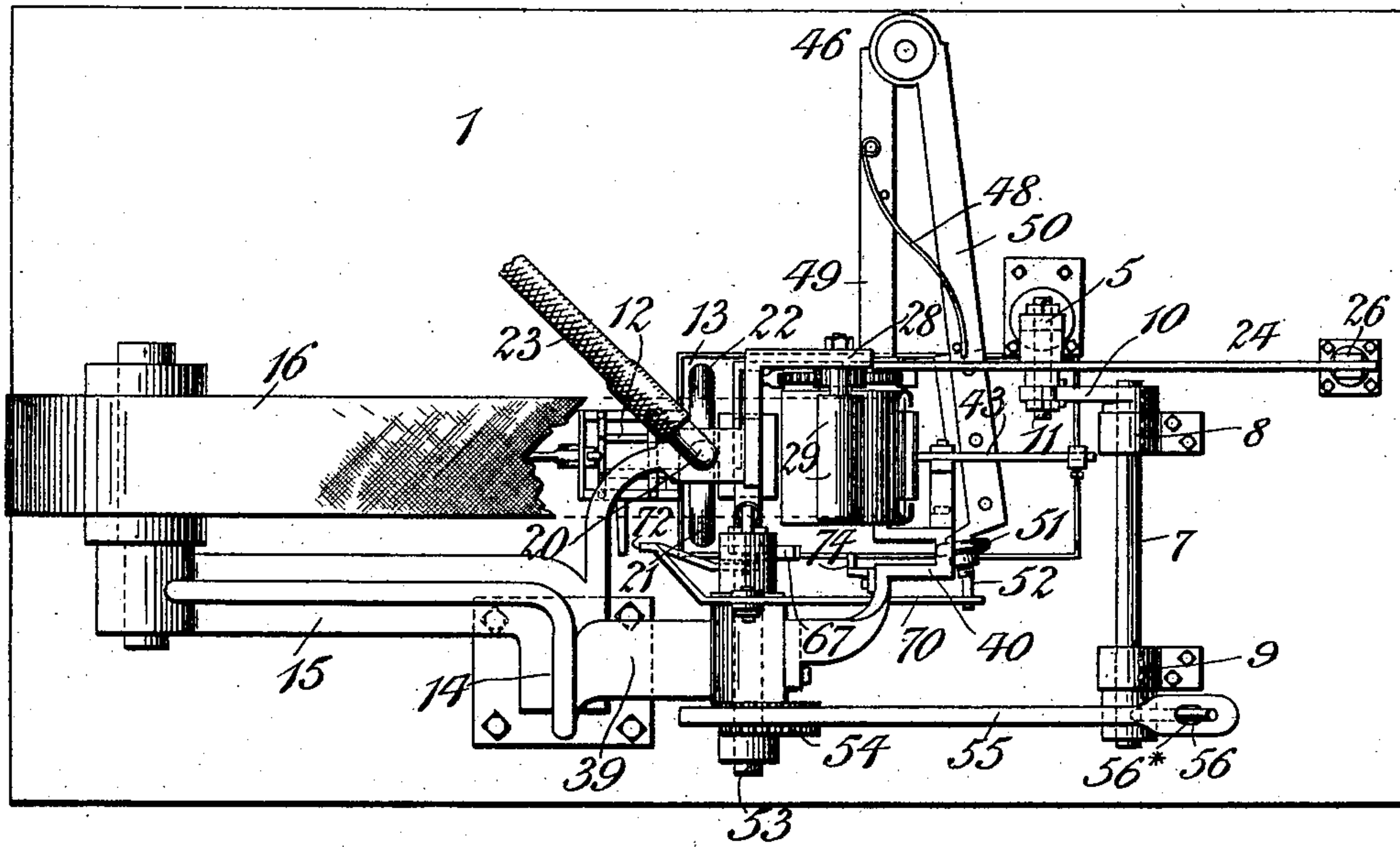
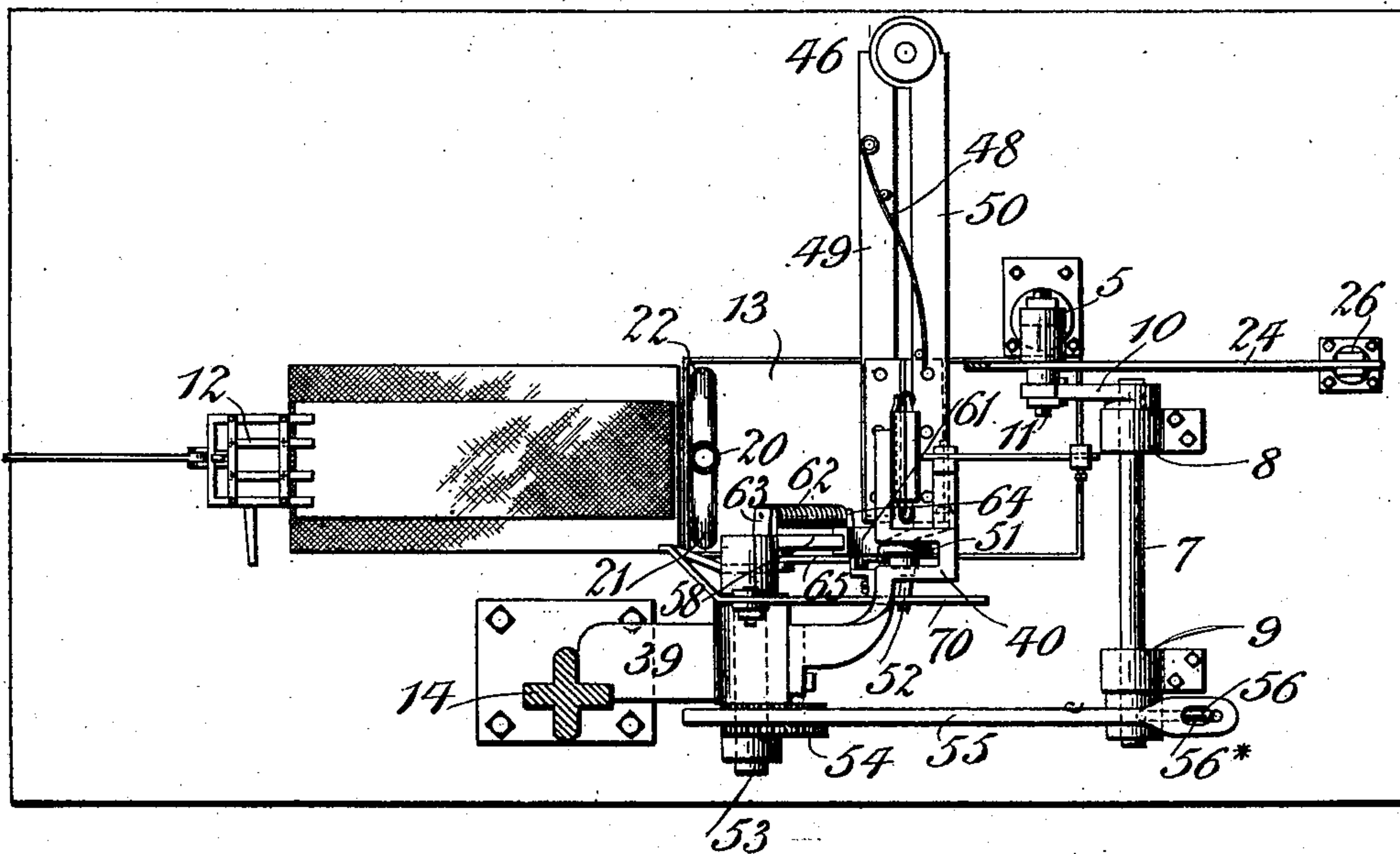


Fig. 4.



Witnesses:
John A. Reimie
George Barry Jr.

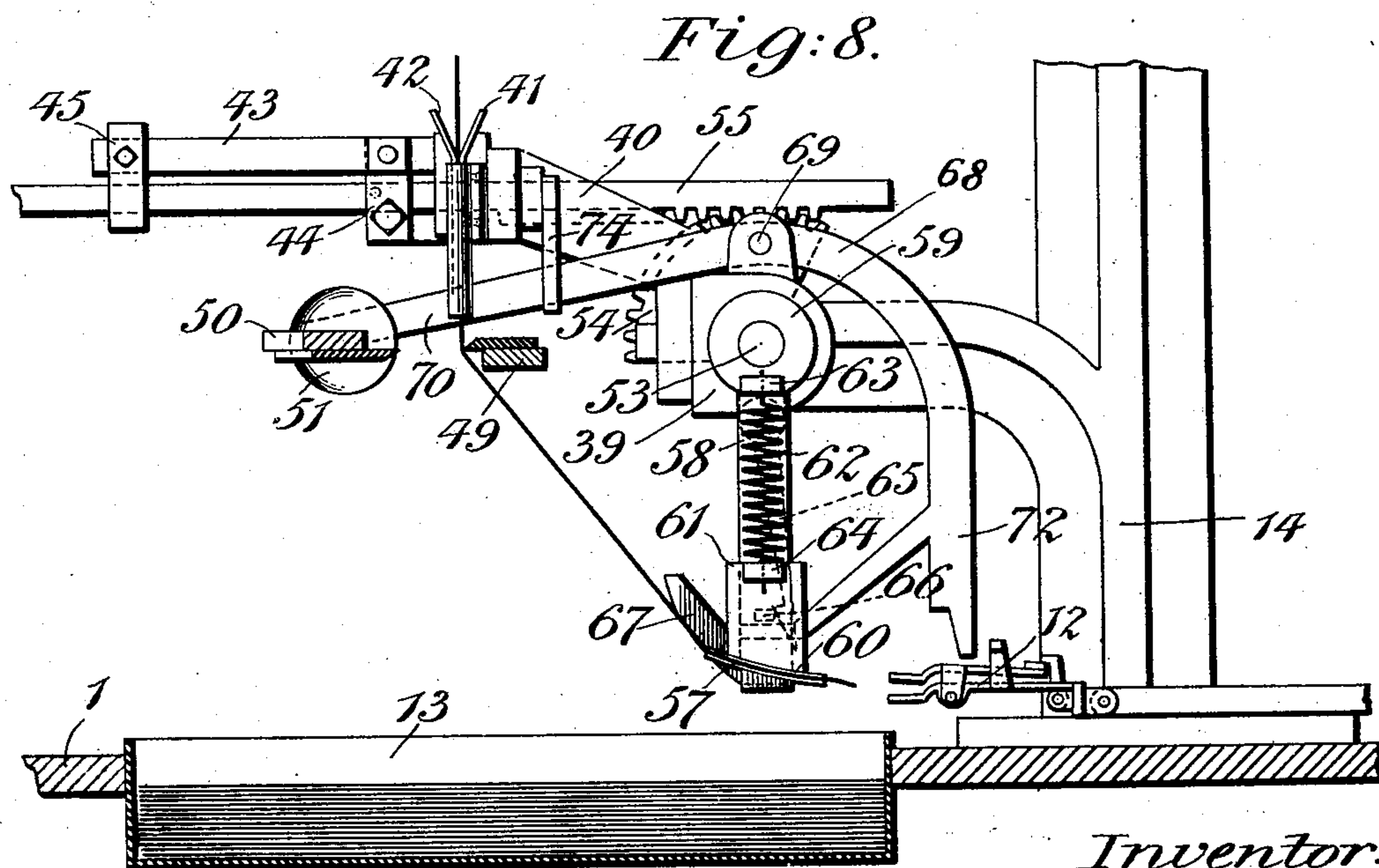
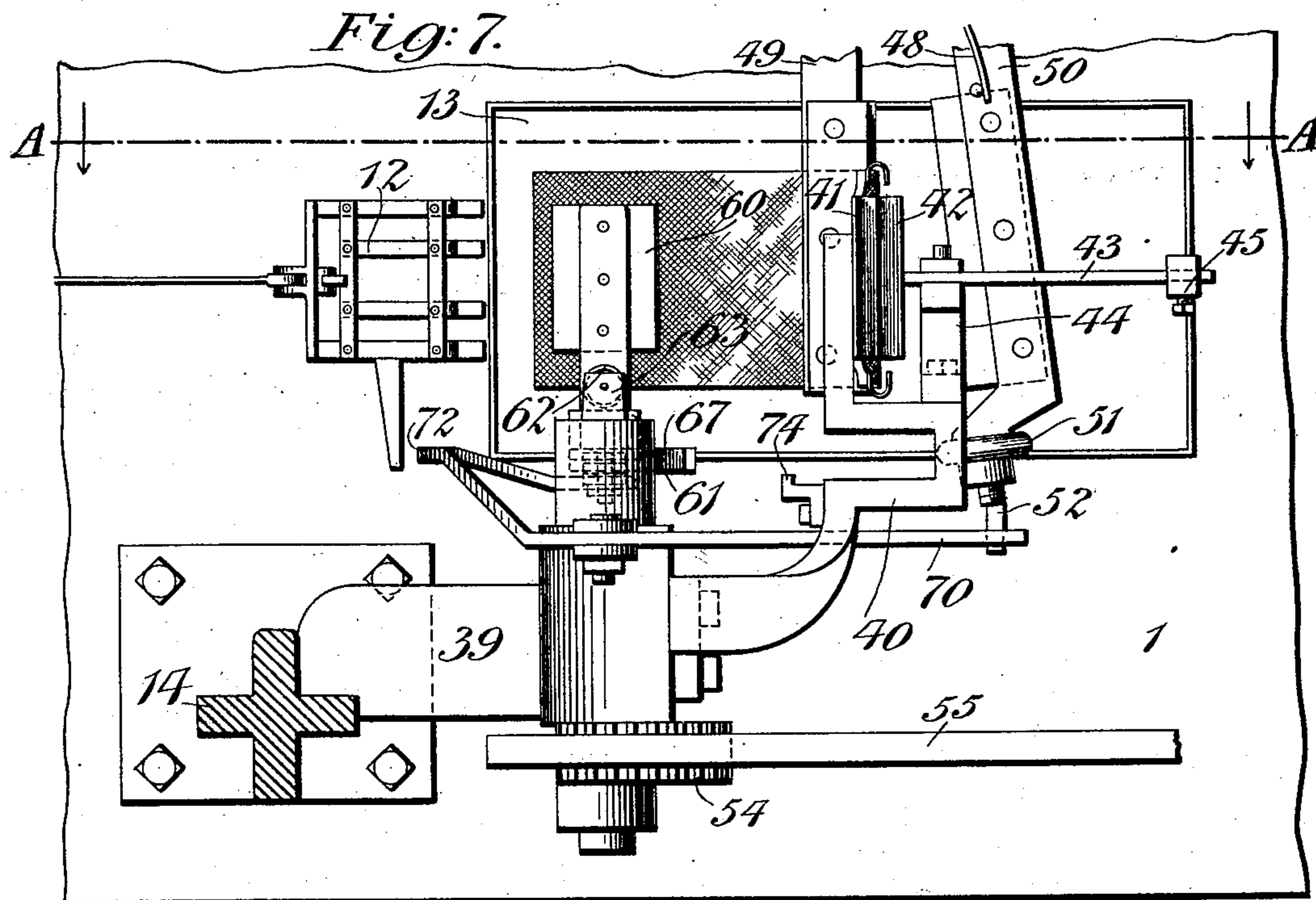
Inventor:
Albert Stearns
by attorney
Montgomery

A. STEARNS.
WRAPPING MACHINE.

(Application filed Aug. 8, 1901.)

(No Model.)

4 Sheets—Sheet 4.



Witnesses:

John A. Rennie
George Barry Jr.Inventor:
Albert Stearns
by his attorney
Mount Ward

UNITED STATES PATENT OFFICE.

ALBERT STEARNS, OF SYRACUSE, NEW YORK.

WRAPPING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 696,112, dated March 25, 1902.

Application filed August 8, 1901. Serial No. 71,310. (No model.)

To all whom it may concern:

Be it known that I, ALBERT STEARNS, a citizen of the United States, and a resident of Syracuse, in the county of Onondaga and State of New York, have invented a new and useful Improvement in Wrapping-Machines, of which the following is a specification.

This invention relates to an improvement in wrapping-machines, and more particularly to an attachment for wrapping-machines in which the paper or other material from which the wrappers are to be formed may be fed from a roll, cut, and delivered automatically to a predetermined point, where the said wrappers may be withdrawn by suitable mechanism for bringing them into position to be wrapped around the articles—such, for instance, as cakes of soap and the like.

A further object is to provide an attachment which is especially adapted for feeding an inner wrapper to machines already in use which apply single wrappers, such a machine being represented in United States Letters Patent No. 522,723, granted July 10, 1894.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is a side view of my improved attachment, the device for withdrawing the inner and outer wrappers from the attachment being near the limit of its inward movement and being about to release the shears and the inner-wrapper gripper to permit the inner wrapper to be removed with the outer wrapper by the wrapper-withdrawing device. Fig. 2 is a side view of my improved attachment with the parts in the position which they assume when the wrapper-withdrawing device has withdrawn the two wrappers from the attachment and the inner-wrapper gripper has been swung toward the limit of its upward movement, about to open the shears to permit the gripper to be brought up into position to grip the advance edge of the strip from which the inner wrapper is cut, the pneumatic outer-wrapper lifter being shown in its position ready to lift the top outer wrapper away from the stack of outer wrappers by suction. Fig. 3 is a top plan view of the attachment, the strip from which the inner wrapper is cut being broken away to

more clearly show the parts beneath the same, the parts being shown in the positions represented in Fig. 1. Fig. 4 is a top plan view showing the parts in the positions represented in Fig. 2, certain of the parts being broken away to more clearly show the operation of the attachment. Fig. 5 is a detail view of the pneumatic outer-wrapper lifter. Fig. 6 is a detail view, on an enlarged scale, of the inner-wrapper gripper and its operating parts. Fig. 7 is an enlarged partial top plan view of the attachment, the pneumatic outer-wrapper lifter and its operating means being removed to more clearly illustrate the remaining coacting devices; and Fig. 8 is a vertical sectional view, taken in the plane of the line A A of Fig. 7, looking in the direction of the arrows.

The bed-plate or table of the wrapping-machine is denoted by 1. The rotary cam-shaft for controlling the movements of the several parts is denoted by 2, and it is provided with a suitable face-cam 3, provided with an irregular groove which engages a stud or roller 4, carried by the lower end of a vertically-reciprocating rod 5, the upper end of the said rod being suitably guided in its reciprocating movements in a box 6, uprising from the table 1. A rock-shaft 7 is mounted in suitable bearings 8 9, secured to the table 1, which rock-shaft is provided at one end with a crank-arm 10, the free end of which is connected to the upper end of the vertically-reciprocating cam-rod 5 by means of a transverse bolt 11.

The device for withdrawing the inner and outer wrapper from the attachment and conveying them to a predetermined point, where they may be wrapped around the article to be covered, is denoted by 12, and it may be made in any well known or approved manner. The movements of the wrapper-withdrawing device 12 may be timed with respect to the other parts of the attachment. I have not shown the mechanism for operating this wrapper-withdrawing device, as it forms no part of my present invention, but have merely indicated the two positions of the same so as to give a clear understanding of my improvements.

The outer-wrapper or label pocket is denoted by 13, and it is located in the table 1 of the machine in position to present the top

wrapper or label of the stack in position to be lifted by the pneumatic lifter at the proper intervals.

A standard 14 uprises from the table 1 and is secured rigidly in the desired position thereon. This standard 14 is provided with an upwardly and outwardly extended arm 15, the free end of which supports a roll of paper or other material 16, from which the inner wrappers are cut. The standard 14 is further provided with an upper inwardly-extended arm 17, having two branches 18 and 19, through which the bifurcated tube 20 of the pneumatic lifter reciprocates. The two branches 21, 22 of the suction-tube are located in position to engage the top outer wrapper upon opposite sides of the inner wrapper when the suction-tube is lowered for raising the forward end of the said outer wrapper into position to be engaged by the wrapper-withdrawing device 12 at a predetermined time. The upper end of the suction-tube is connected with a suitable air-exhausting device (not shown herein) through a tube 23. This suction-tube is raised and lowered at predetermined intervals by means of a rocking lever 24, one end of which has a pin-and-slot connection 25 with the suction-tube and the other end of which is hinged, as shown at 26, to a post 27, uprising from the table 1. This lever is connected to the reciprocating cam-rod 5 by means of the bolt 11, which connects the upper end of the cam-rod 5 with the free end of the arm 10 of the rocking lever 7.

The mechanism which I employ for positively feeding the strip from which the inner wrapper is cut is constructed and arranged as follows: A bracket 28 is secured to the branches 18 and 19 of the upper arm 17 of the standard. The strip from the roll 16 is led between two friction-rollers 29 and 30, mounted on stud-axles 31, 32, carried by the bracket 28. The friction-roll 30 is provided with a small spur-gear 33, which intermeshes with a larger spur-gear 34, mounted on a stud-axle 35, carried by the bracket 28. This large gear 34 also serves as a ratchet for the two pawls 36, 37, the pawl 36 being mounted on the bracket 28 and serving as a stop for preventing the rear movement of the friction-rollers, while the pawl 37 is hinged near the free end of the lever 24, which controls the outer-wrapper lifting device. This pawl is held in engagement with the gear 34 by means of a spring 38, and as the lever 24 is raised to lift the suction device it will cause the pawl to rotate the gear-wheel 34, and thereby the friction-roll 30, in a direction to draw the strip from which the inner wrapper is cut a required length off the roll 16.

The standard 14 is provided with a lower inwardly-extended arm 39, to the free end of which is rigidly secured a bracket 40. This bracket 40 is provided with a clamp formed by a stationary jaw 41 and a swinging jaw 42, between which the strip which is to form the inner wrapper is passed. The swinging jaw

42 is provided with a shank 43, which is hinged at 44 to the bracket 40, the shank being weighted, preferably, by means of an adjustable weight 45 for normally holding the swinging jaw in its gripping position. This arrangement will permit the strip to be drawn downwardly between the jaws 41, 42; but the said jaws will prevent the strip from receding after the required amount has been cut therefrom to form the inner wrapper. These jaws will also serve to hold the free end of the strip in position to be grasped by the inner-wrapper gripper, to be hereinafter described.

The inner wrappers are cut from the strip after it has been drawn through the clamp by the inner-wrapper gripper by means of shears 46, supported by a standard 47, uprising from the table 1. These shears are located a short distance below the clamp, a spring 48 exerting its tension in a direction to close the stationary and movable blades 49 and 50 of the shears. The free end of the movable blade 50 of the shears is provided with a roller 51 and a pin 52.

The inner-wrapper gripper is constructed, arranged, and operated as follows: A rock-shaft 53 is mounted in the lower arm 39 of the standard 14, which rock-shaft has fixed thereto a toothed segment 54, which intermeshes with a rack 55, which rack is reciprocated by an arm 56, carried by the rock-shaft 7, which arm passes through an elongated slot 56* in the rack 55. The gripper proper comprises a stationary jaw 57, having its shank 58 connected to a sleeve 59, fixed to rock with the shaft 53, and a spring-actuated yielding jaw 60, having a sleeve 61 fitted to slide on the shank 58 of the stationary jaw. These two jaws 57 and 60 are normally held in their clamping position by means of an expansion-spring 62 engaging a lug 63 on the stationary jaw and a lug 64 on the movable jaw. The gripper is held open by means of a swinging hook 65, hinged to the stationary jaw, and a pin 66, extending from the sleeve 61 of the movable jaw. A cam 67 is fixed in position to engage the roller 51 on the movable member of the shears 46 as the gripper is swung upwardly for forcing the shears open to permit the gripper to be brought up above the shears into position to grasp the free end of the strip. A rocking lever 68 is hinged at 69 to the lower arm 39 of the standard 14, the said lever being provided with an inwardly-extended arm 70, having a recess 71 in its free end for receiving the pin 52 on the movable member of the shears as the cam 67 forces the shears open to temporarily hold the shears in their open position. This lever 68 is further provided with a downwardly-extended tripping-arm 72 and the lower end of which is arranged in position to be tripped by the wrapper-withdrawing device 12 as it is brought inwardly into position to grasp the inner and outer wrappers. This downwardly-extended arm 72 of the lever 68 is provided with a downwardly and inwardly extended

arm 73, which is fitted to engage the pin 66, carried by the movable jaw 60 of the inner-wrapper gripper, and force the jaw upwardly as the lever is swung inwardly by reason of the inward movement of the double-wrapper gripper 12 until the pin 66 catches over the end of the hook 65, thus temporarily locking the inner-wrapper gripper open. A stop 74 is carried by the bracket 40 in position to release the hook 65 as the inner-wrapper gripper reaches the limit of its upward movement to permit the jaws of the gripper to close upon the advance edge of the strip, so that when the gripper is swung downwardly it will draw the strip along with it.

The operation of my invention is as follows: A roll of paper or other suitable material from which it is intended to cut the inner wrapper is mounted upon the arm 15 of the standard 14, and the end of the strip therefrom is led between the feed-rolls 29 and 30 and from thence between the two retaining-jaws 41 42 of the clamp, and the inner-wrapper gripper is then brought up into position to engage the end of the said strip. As the cam-shaft 2 is rotated it will cause the gripper to swing downwardly and at the same time cause the friction-rolls 29 and 30 to draw the strip from the roll 16. Owing to the elongated slot in the rack 55, where the arm 56 passes therethrough, the gripper is relieved from drawing the strip off the roll, the friction-rolls 29 30 being started just before the gripper is started on its downward movement. As the inner-wrapper gripper reaches the limit of its downward movement the pneumatic lifter or suction device will raise the top outer wrapper from the stack within the pocket, the bifurcated ends 21 22 of the suction-tube 20 being sufficiently far apart to permit the passage of the inner wrapper between the same. As the wrapper-withdrawing device 12 advances into position to grasp the two wrappers it will rock the lever 68 and cause the said lever to open the inner-wrapper gripper and also permit the shears to close for severing the inner wrapper from the strip. As the wrapper-withdrawing device 12 draws the two wrappers out into position to be wrapped around the receptacle by any suitable mechanism the inner-wrapper gripper will be swung up into position to again receive between its jaws the free end of the strip. As the inner-wrapper gripper swings upwardly its cam 67 will engage the wheel 51 on the movable member of the shears and force the movable member outwardly until its pin 52 will be caused to engage the notch 71 in the lever 68. This will permit the gripper to swing upwardly between the members of the shears. As the gripper swings upwardly the stop 74 will release the hook 65, thus permitting the jaws of the gripper to close onto the strip.

While I have described this attachment in connection with a machine for feeding an outside wrapper, it is to be understood that

the said attachment may be used for feeding single wrappers to a wrapping-machine, if so desired.

What I claim is—

1. In combination, a wrapper-withdrawing device, means for supporting a roll of wrapper-supply material, means for presenting the strip leading from the roll, to the wrapper-withdrawing device, a cutter, means for actuating the cutter and means operated by the wrapper-withdrawing device for releasing the cutter-actuating means for severing the strip to form a wrapper, substantially as set forth.

2. In combination, means for supplying outer wrappers, a wrapper-withdrawing device, means for presenting the outer wrappers to the withdrawing device, means for supporting a roll of inner-wrapper-supply material, means for presenting the strip leading from the roll, to the wrapper-withdrawing device, a cutter, means for actuating the cutter and means operated by the wrapper-withdrawing device for releasing the cutter-actuating means for severing the strip to form an inner wrapper, substantially as set forth.

3. In combination, a wrapper-withdrawing device, means for supporting a roll of wrapper-supply material, means for drawing the strip from the roll, independent means for presenting the advance edge of the strip to the wrapper-withdrawing device, an automatically-operated clamp arranged to prevent the reverse movement of the strip and means for severing the strip to form a wrapper, substantially as set forth.

4. In combination, a wrapper-withdrawing device, means for supporting a roll of wrapper-supply material, a positive feeding device for withdrawing the strip of material from the roll, an automatically-operated clamp through which the strip passes, arranged to prevent the reverse movement of the strip, a swinging gripper arranged to engage the advance edge of the strip and present it to the wrapper-withdrawing device, a cutter, means for actuating the cutter and means operated by the wrapper-withdrawing device for releasing the cutter-actuating means for severing the strip to form a wrapper, substantially as set forth.

5. In combination, a wrapper-withdrawing device, means for supporting a roll of wrapper-supply material, a gripper for presenting the advance edge of the strip of material leading from the roll, to the wrapper-withdrawing device, a cutter, means for actuating the cutter, means operated by the said gripper to open the cutter and means operated by the said wrapper-withdrawing device for releasing the cutter for severing the strip to form a wrapper, substantially as set forth.

6. In combination, a wrapper-withdrawing device, means for supporting a roll of wrapper-supply material, a rocking gripper for presenting the strip of material from the roll to the wrapper-withdrawing device, a spring tending to close the jaws of the gripper, means

for engaging the gripper at the limit of its upward movement for releasing the jaws to permit them to close, and means for positively opening the jaws of the gripper when the gripper reaches the limit of its downward movement, the said jaw-opening means being operated by the wrapper-withdrawing device, substantially as set forth.

7. In combination, a stationary support, a wrapper-withdrawing device, means for supporting a roll of wrapper-supply material, a rocking gripper for presenting the strip of material leading from the roll, to the wrapper-withdrawing device, means tending to close the jaws of the gripper, a stop carried by the stationary support for releasing the jaws of the gripper at the limit of its upward movement to cause them to close and means for opening the jaws of the gripper at the limit of its downward movement, and means for automatically locking the jaws open, substantially as set forth.

8. In combination, a wrapper-withdrawing device, means for supporting a roll of wrapper-supply material, a rocking gripper for presenting the strip of material leading from the roll, to the wrapper-withdrawing device, a spring tending to close the jaws of the gripper, means for releasing the jaws of the gripper at the limit of its upward movement to permit them to close and a rocking lever operated by the wrapper-withdrawing device for positively opening the jaws of the gripper at the limit of its downward movement, and means for holding the jaws open, substantially as set forth.

9. In combination, a wrapper-withdrawing device, means for supporting a roll of wrapper-supply material, a cutter, a rocking gripper for presenting the strip of material from the roll, to the wrapper-withdrawing device, a spring for normally closing the jaws of the gripper, means for actuating the cutter, means for opening the cutter as the rocking gripper swings to the limit of its upward movement, means for releasing the jaws of the gripper to permit them to close when the gripper is at the limit of its upward movement, and a rocking lever operated by the wrapper-withdrawing device for simultaneously actuating the cutter-operating means to permit it to close and sever the strip and also open the jaws of the gripper when the gripper is at the limit of its downward movement, substantially as set forth.

10. In combination, a wrapper-withdrawing device, means for supporting a roll of wrap-

per-supply material, a rocking gripper for presenting the strip of material from the roll, to the wrapper-withdrawing device, a cutter, means for actuating the cutter, means controlled by the gripper for opening the cutter as the gripper swings to the limit of its upward movement, a rocking lever arranged to temporarily lock the cutter in its open position, the said lever being operated by the wrapper-withdrawing device for releasing the cutter-actuating means when the gripper is at the limit of its downward movement for severing the strip to form a wrapper, substantially as set forth.

11. In combination, a wrapper-withdrawing device, means for supplying outer wrappers, a pneumatic lifter therefor for feeding the outer wrappers one by one to the wrapper-withdrawing device, means for supporting a roll of inner-wrapper-supply material, a gripper for presenting the strip of material therefrom to the wrapper-withdrawing device, and a rotary cam-shaft for controlling the movements of the pneumatic lifter and the gripper, substantially as set forth.

12. In combination, a wrapper-withdrawing device, means for supplying outer wrappers, a pneumatic lifter therefor for feeding the outer wrappers one by one to the wrapper-withdrawing device, means for supporting a roll of inner-wrapper-supply material, means for positively feeding the strip of material from the roll, a rocking gripper arranged to present the advance edge of the strip to the wrapper-withdrawing device and a rotary cam-shaft for controlling the movements of the pneumatic lifter, the strip-feeding mechanism and the gripper, substantially as set forth.

13. In combination, means for supplying outer wrappers, a pneumatic lifter therefor having a tube provided with branches, means for supporting a roll of inner-wrapper-supply material, a gripper arranged to present the advance edge of the strip of material leading from the roll to a point between the branches of the pneumatic lifter and means for severing the strip to form an inner wrapper, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 3d day of August, 1901.

ALBERT STEARNS.

Witnesses:

PETER H. MACCORQUODALE,
CLARKE R. ALVORD.