

No. 775,996.

PATENTED NOV. 29, 1904.

C. F. SPARKS.
MACHINE FOR TURNING BAGS.

APPLICATION FILED OCT. 18, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 2.

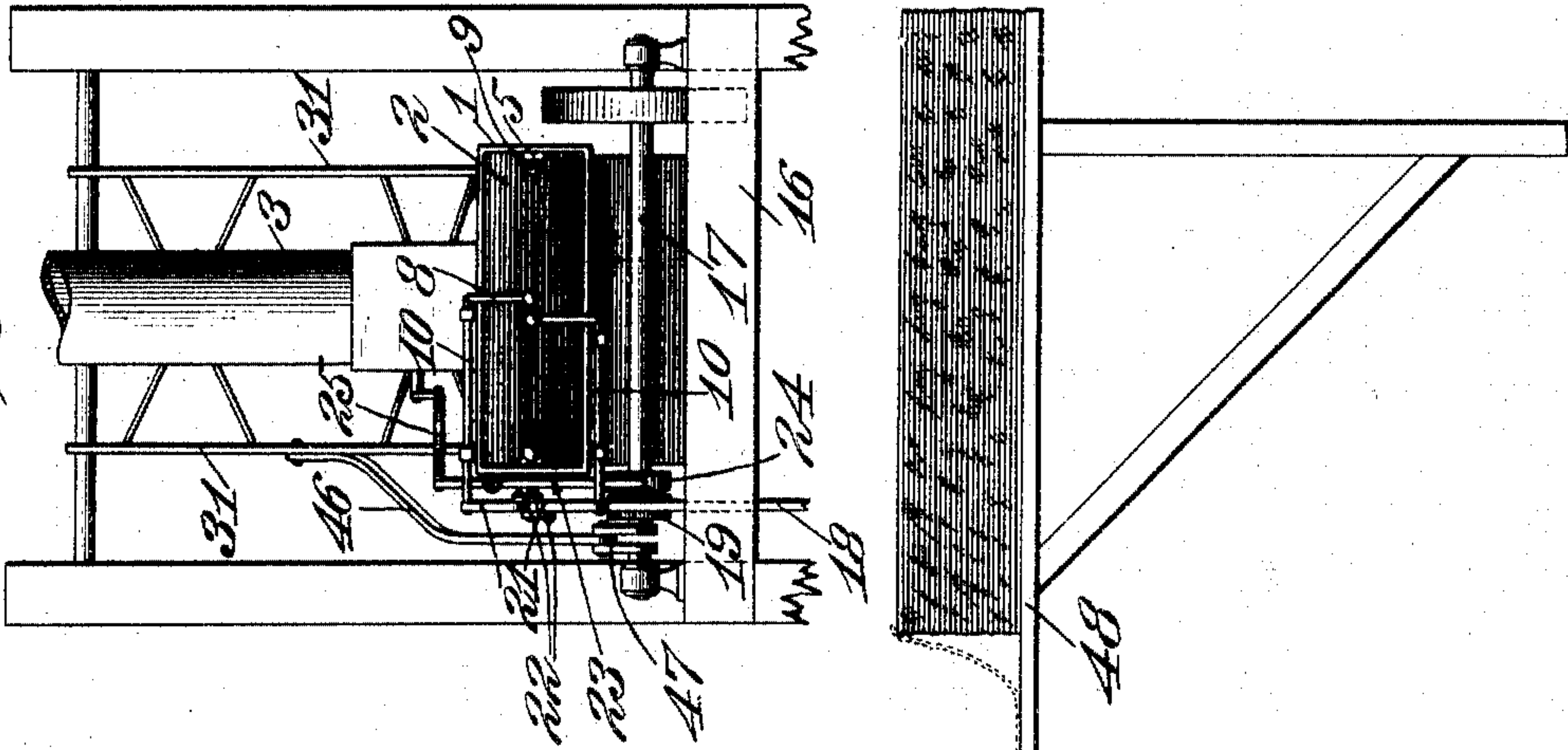
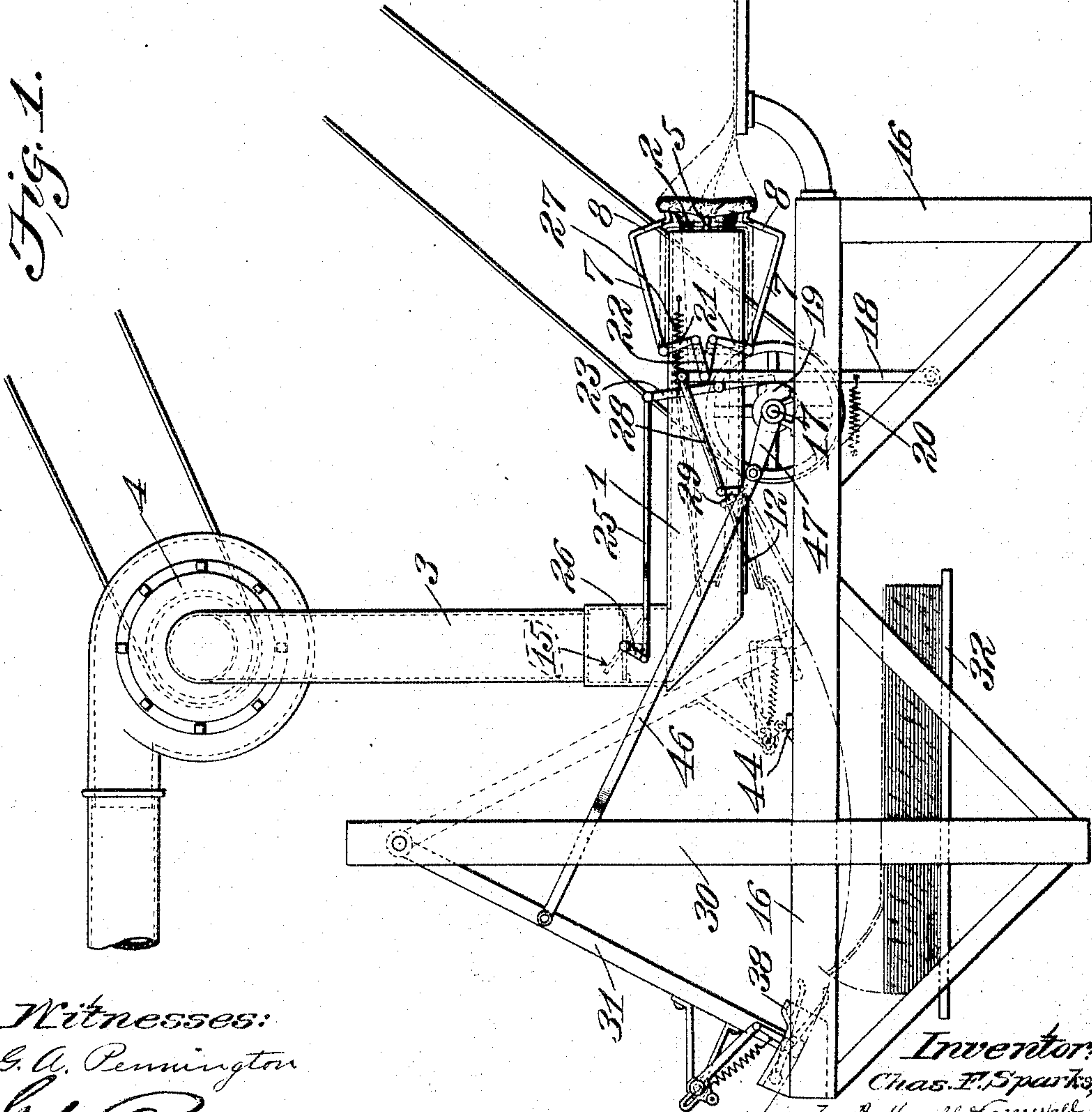


Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 3.

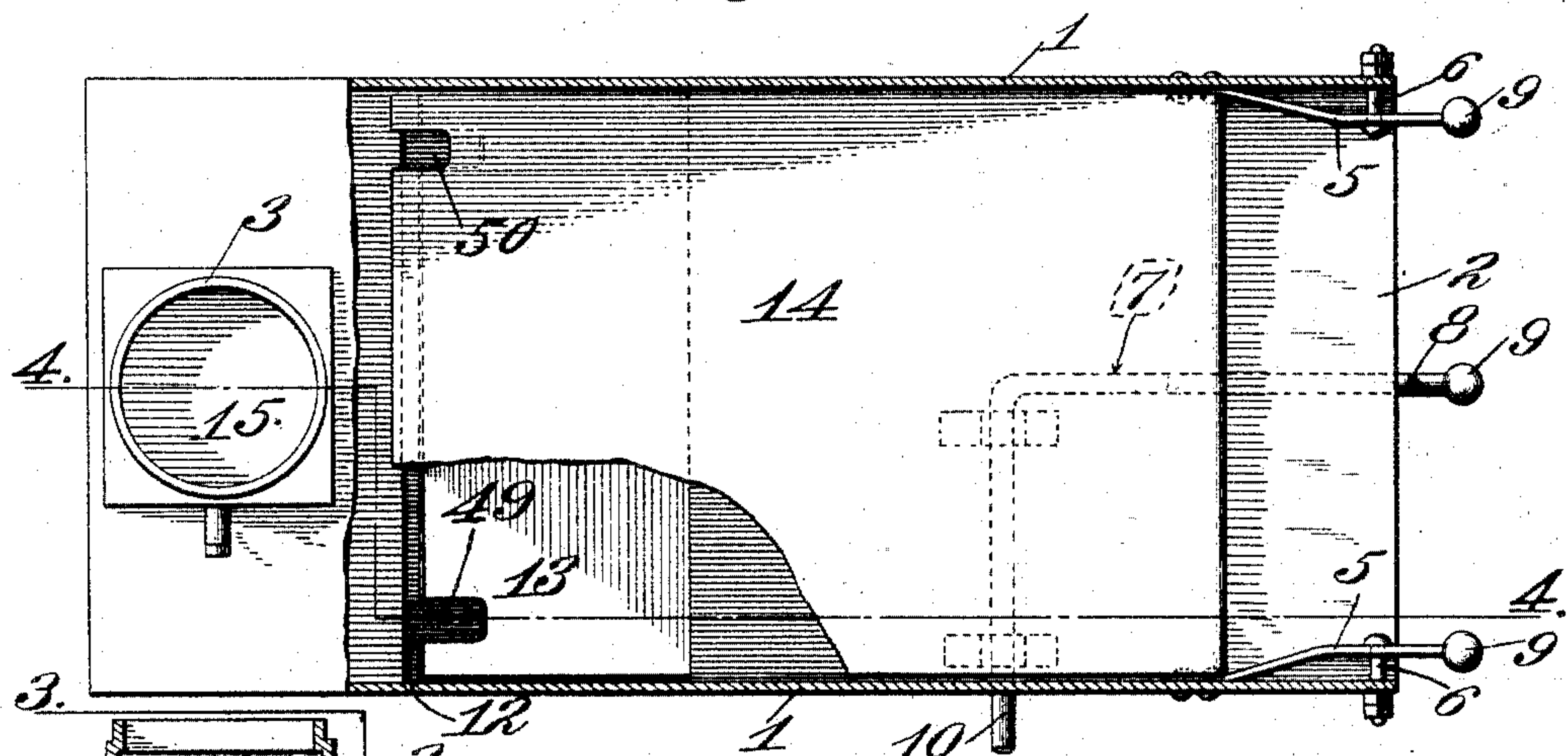


Fig. 4.

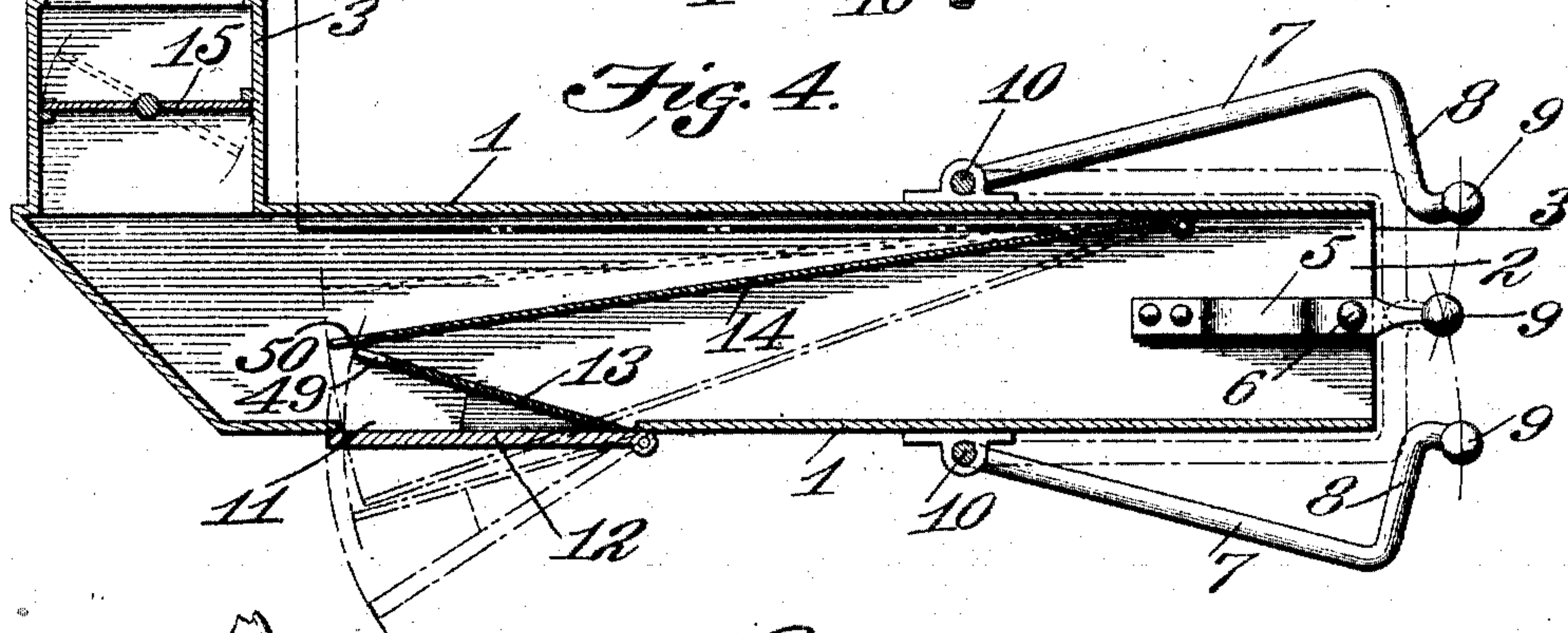


Fig. 6.

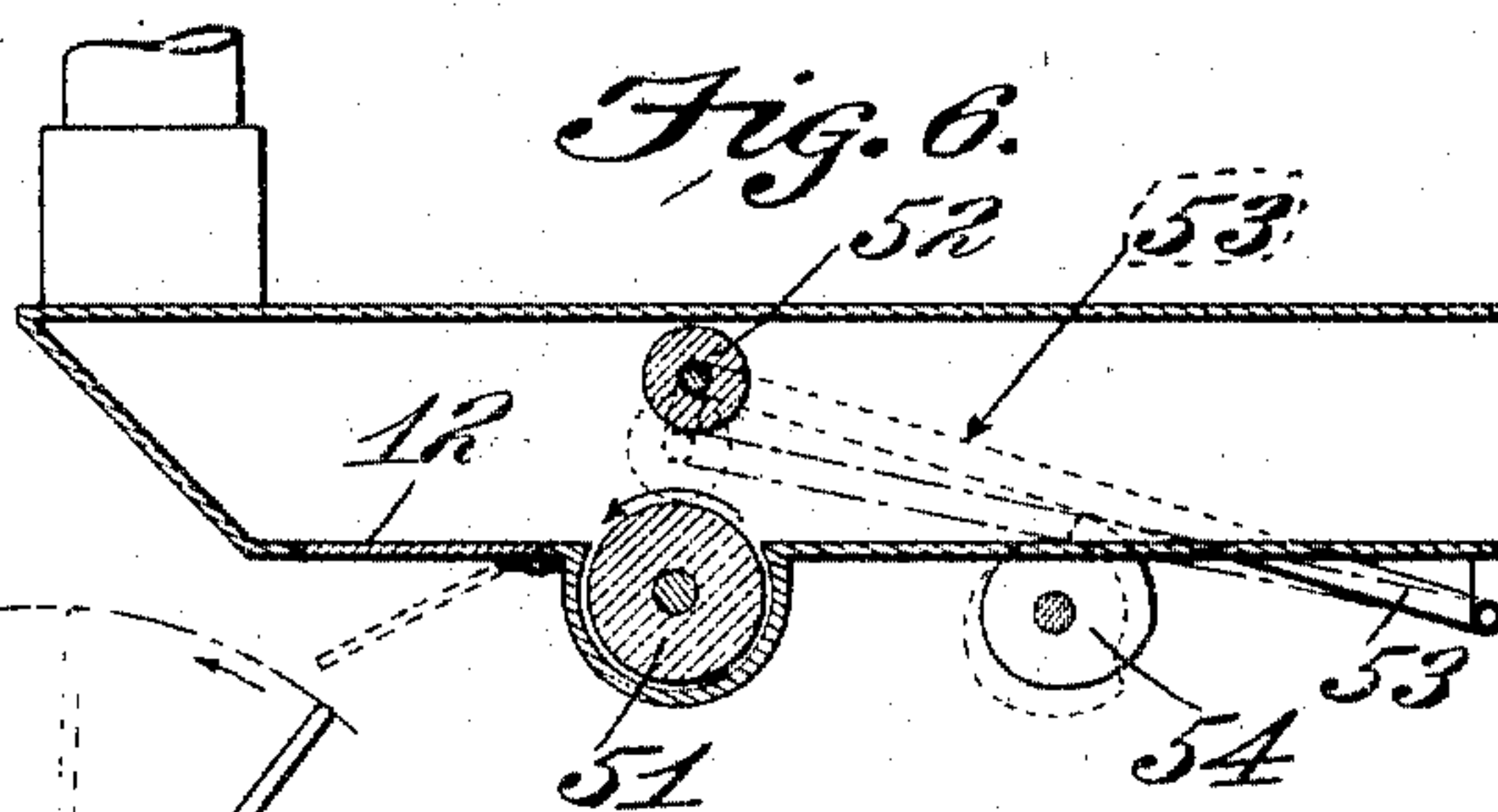
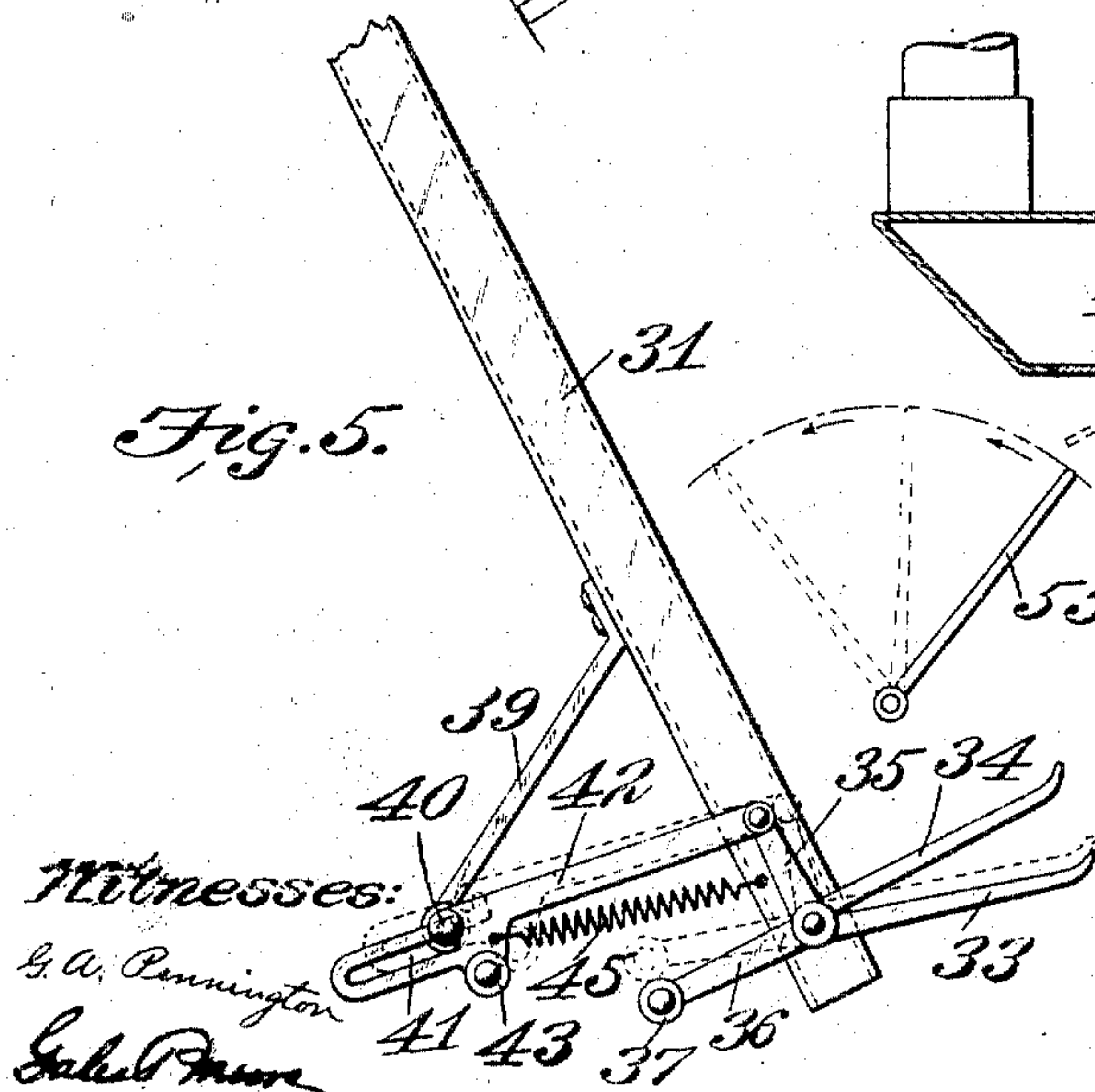


Fig. 5.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR TURNING BAGS.

SPECIFICATION forming part of Letters Patent No. 775,996, dated November 29, 1904.

Application filed October 18, 1902. Serial No. 127,794. (No model.)

To all whom it may concern:

Be it known that I, CHARLES FLETCHER SPARKS, a citizen of the United States, residing at Alton, Madison county, Illinois, have
5 invented a certain new and useful Improvement in Machines for Turning Bags and the Like, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to
10 make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation. Fig. 2 is a front elevation of a portion of the machine.
15 Fig. 3 is a top plan view, partly in section, on the line 3 3 of Fig. 4, certain of the parts being broken away. Fig. 4 is a vertical sectional view on the line 4 4 of Fig. 3. Fig. 5 is a fragmentary detail view illustrating one
20 of the grippers, and Fig. 6 is a sectional elevation illustrating a modification.

My invention relates to improvements in machines for turning bags and the like, the machine being adapted to turn not only bags,
25 but also gloves and many other articles.

My object is to provide a construction which is simple and can be easily operated, the bags being turned with great rapidity.

To these ends and also to improve generally
30 upon devices of the character indicated my invention consists in the various matters hereinafter described and claimed.

Heretofore it has been proposed to turn bags by means of a machine embodying a cylindrical casing open at one end and provided
35 with a reciprocating piston, the bag being stretched over a stationary support at the open end of the cylinder and the piston in its outward stroke operating to rarefy the air in the
40 cylinder, and thus permit the bag to be turned by the external air-pressure. Such a machine is impracticable, however, for in order to operate with any degree of rapidity the cylinder must be of considerable length in order to
45 permit a long rapid stroke of the piston. Furthermore, on the return stroke of the piston the air is forced out of the open end of the cylinder, and thus prevents turning of the bag during such inward stroke.

The present machine embodies a box or casing
50 ing open at one end and connected at its other end to an exhaust-fan or like member for the purpose of creating a draft through the box, so that as soon as the bag is placed upon the supports at the open end of the box such bag
55 is quickly turned. Furthermore, the machine is provided with movable supports, so that the bag can be easily placed upon them and the supports then moved into position to distend the mouth of the bag and hold such bag until
60 the turning action has been completed, when the turned bag can be readily pulled from the supports.

Referring now more particularly to the drawings, 1 represents a box or casing which
65 is of sufficient length to receive the turned bag and has its forward end open, as shown at 2. The rear of the box or casing is provided with a flue 3, which is connected in any suitable manner to an exhaust-fan or like ele-
70 ment 4, suitable means being provided for continuously operating the said fan.

Resilient arms 5 are adjustably secured to the sides of the box and project beyond the front of the machine, the lateral adjustability
75 of the arms being conveniently secured by having the outer portions of the arms spaced from the side walls of the casing, as shown in Fig. 3, and held in proper position by means of bolts 6. Intermediate the said arms 5 are
80 longitudinally-extending arms 7, one of which lies above the casing and the other of which lies below the same, said arms having their outer ends bent toward the vertical center of the open end of the casing and the said arms
85 7 and the arms or plates 5 being provided at their ends with balls or other suitable members 9 for engaging the mouth of a bag. The rear ends of the arms 7 are formed upon or connected to rock-shafts 10, which are suit-
90 ably journaled upon the casing so that as said shafts are rocked the arms 7 are moved away from each other to cause the mouth of the bag to be opened. The various balls or other supporting members 9 lie in substantially hori-
95 zontal alinement across the vertical center of the open end of the casing, the portions 8 of the arms 7 being out of vertical alinement, so

that the balls carried by said portions can lie side by side. The mouth of a bag can be easily opened by the operator sufficiently to place the same over the four supports, and the arms 5 7 are then swung away from each other to cause the mouth of the bag to be stretched, thus fully opening the said mouth and causing the bag to be held open upon the supports sufficiently firmly for the purposes of the operation of the present machine.

It will be observed that the supports for holding the bag adjacent to the inner end of the casing before it is turned comprise two sets of devices—namely, the holders formed of the arms 5, adapted to engage with the folded edges of the bag on the inside, and the intermediate set of arms 7 8, situated between the arms 5 and arranged to open or distend the mouth of the bag. By making the arms 5 adjustable toward and from each other I render it possible to properly support bags of different sizes, while the arms 7 8 provide means for automatically opening the mouth of the bag after it has been placed upon the supports 5 and for holding it in open position until the turning of the bag has been effected.

The lower wall of the casing is provided with an opening 11 of sufficient width to permit the passage of a turned bag in a flattened condition, and this opening is closed by a door 12, which has its forward end pivoted to the casing. Rigidly mounted upon the door to move therewith is an upwardly and rearwardly extending smoothing-plate 13, and pivotally supported in advance of the rear end of said plate 13 is a cooperating smoothing or pressing plate 14, whose rear free portion normally rests by gravity on the rear end of the lower smoothing-plate 13.

The flue 3 is preferably provided with a centrally-pivoted valve 15, by means of which the suction through the casing can be discontinued or regulated.

The box or casing is preferably supported upon a suitable framework 16, and a power-shaft 17 is also supported upon said framework, said power-shaft being driven in any suitable manner. Pivotally mounted upon the framework is a rock-arm 18, which cooperates with a cam 19 upon the power-shaft, the said arm being held against the operative face of the cam by means of a spring 20, the cam serving to throw the said arm forwardly—that is, toward the open end of the casing—and the spring serving to throw the said arm backwardly. Crank-arms 21 extend from the rock-shafts 10 toward the vertical center of the casing, and links 22 connect the said crank-arms with the rock-arm 18. A lever 23, suitably pivoted upon the casing, has one arm in engagement with a cam 24 upon the said power-shaft and its other arm connected by a link 25 with a crank-arm 26 upon the valve 15, a spring 27 tending to normally hold the said lever in such position that the

valve is closed and the said cam 24 acting in opposition to the said spring to open the said valve. The rock-arm 18 is connected by a link 28 with a crank-arm 29 upon the door 12.

Suitable standards 30 extend vertically from the supporting-frame 16 in rear of the said box or casing, and a swinging frame 31 is pivoted at its upper end to the said standards and lies between the same, the lower end of the frame carrying grippers adapted to grip a turned bag and the throw of the said frame being sufficient to carry the grippers into position to engage a bag and to then move backwardly sufficiently to withdraw the bag from the casing and deposit the same upon a suitable support 32.

Manifestly many types of grippers can be employed. I have here shown the swinging frame as provided at or near each side with a stationary gripper-finger 33, a pivotally-supported gripper-finger 34 lying above the said finger 33 and cooperating with the same. An upwardly-extending arm 35 and a rearwardly-extending arm 36 are formed upon or with the said pivoted finger 34, the said arm 36 preferably carrying a roller 37 for cooperating with a cam-plate 38, under which the said roller is thrown as the frame approaches the backward limit of its movement. A suitable bracket-arm 39, supported upon the frame, is provided with a pin 40, which is received in an angular slot 41 in a locking-plate 42, the said locking-plate having its forward end pivotally connected to the upwardly-extending arm 35 and being provided with a projection or roller 43, adapted to ride upon a cam-surface 44 as the swinging frame approaches the forward end of its throw. A spring 45, connected to the pivoted frame and to the said locking-plate, tends to normally throw the locking-plate into its forward position to effect closing of the arms of the gripper. The pivoted frame is reciprocated by means of a pitman 46, pivotally connected at one end to the said frame and at its other end to a crank-arm 47 upon the said power-shaft.

The bags to be turned are supported upon a suitable table, as 48, in advance of the box or casing. The various movable parts and their connections are so proportioned and arranged that when the bag-supports 9 are in horizontal alinement ready to receive a bag the door 12 is closed, the valve 15 is closed, and the swinging frame 31 is at the rear end of its throw. The upper smoothing-plate 14 rests upon the cooperating lower plate 13. The bags to be operated upon being inside out, as is usual, a bag upon the table is grasped by the operator and is pulled forwardly, the operator placing the open end of the bag over the supports 9. The bag has been placed in position while the parts of the apparatus are in the positions last indicated. As the machine continues its operation the bag-supports upon the arm 7 are forced away from each

of the several parts of my device can be made and substituted for those herein shown and described without in the least departing from the nature and principle of my invention.

5 It is obvious from the foregoing portion of the description that the opening of the valve 15 creates within the box a rarification which becomes greater with the continuance of the suction of the fan and the air-current from
10 without enters the box, carrying the bag with it with an initial velocity which is increased as the rarification caused by the suction becomes greater. Until the pressure of this entering air-current is in excess of the atmospheric pressure the bag will be held with
15 mouth distended and the operation of turning will not begin. The first impact of this entering air-current starts the operation of turning, and as the velocity and pressure of the
20 air-current increase the turned bag has its walls fully and completely distended. This upward graduation of the air-current from a low velocity and pressure enables the first inward sliding of the bag-walls to be accomplished without choking the machine or in-
25 juring the bag fabric, both of which results are incident to the use of an air-current of high and uniform velocity and pressure.

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

1. In a bag-turning machine, the combination with a casing having an open end, of means for creating a current of air through said casing to turn the bag; substantially as described.
35

2. In a bag-turning machine, the combination with a casing having an open end, of a mechanism of the character of an exhaust-fan for creating a current of air through said casing to turn the bag; substantially as described.
40

3. In a machine for turning bags, the combination of a casing having an opening, means for supporting the bag in proximity to the casing before it is turned, and means for creating
45 a current of air through the casing to turn the bag, substantially as set forth.

4. In a machine of the character indicated, the combination with a casing having an open end, of means for creating a current of air through said casing, bag-supports, and means
50 for moving said supports to open the bag; substantially as described.

5. In a machine for turning bags, the combination of a casing having an opening, means
55 for creating a current of air within the casing, and adjustable supports for holding the individual bags adjacent to the casing in position to be turned, substantially as set forth.

6. In a machine for turning bags, the combination of a casing having an opening, means
60 for creating a current of air within the casing, supports for the individual bags to be turned, arranged to enter the open mouth of a bag and engage with the opposite edges thereof,
65 and means for adjusting the said supports to-

ward and from each other to adapt them for supporting bags of different sizes, substantially as set forth.

7. In a machine for turning bags, the combination of a casing, means for creating a current of air therethrough to turn the bags, and a valve for controlling said air-current; substantially as described. 70

8. In a machine of the character indicated, the combination of pneumatic means for turning a bag, and means for smoothing the turned bag; substantially as described. 75

9. In a machine of the character indicated, a casing, means for turning a bag and delivering the same into said casing, means for delivering the turned bag from said casing, and means for smoothing the turned bag as it is delivered from said casing; substantially as described. 80

10. In a machine of the character indicated, means for turning a bag, smoothing-plates between which the turned bag is delivered, and means for withdrawing the turned bag between said plates; substantially as described. 85

11. In a machine of the character indicated, means for turning a bag, a smoothing member upon which the turned bag is delivered, and a gravity-operated smoothing-plate cooperating with said smoothing member; substantially as described. 90

12. In a machine of the character indicated, a casing having an open end, means for creating a current of air through said casing to turn a bag, a smoothing-surface upon which the turned bag is delivered, a cooperating loosely-mounted smoothing-plate, and means for controlling the air-current, whereby said smoothing-plate can be lifted by said air-current and then permitted to fall upon the turned bag; substantially as described. 95

13. In a machine of the character indicated, a casing having a bag-receiving opening at one end and a bag-discharging opening at the other, and means for turning a bag and delivering the same into said casing; substantially as described. 100

14. In a machine of the character indicated, the combination of a casing having an opening, means for creating a current of air through the casing, and means for supporting a bag in proximity to the casing before it is turned, the casing being provided with a delivery-passage for the turned bag distant from the supporting means, substantially as set forth. 105

15. In a machine of the character indicated, the combination of a casing, means for creating a current of air through the casing for turning the bag, means for holding the bag adjacent to the casing, and means for delivering the bag from the casing after it has been turned, substantially as set forth. 110

16. In a machine of the character indicated, the combination of a casing, means for creating a current of air through the casing for turning the bag, means for holding the un- 115

other, thus stretching the end of the bag across the open end of the box or casing and holding the bag sufficiently firmly upon its supports. The valve 15 being opened, the fan 5 serves to create suction through the box and the bag floats inwardly upon the strong current of air, the action being rapid and the bag being fully turned. The incoming current of air has served to lift the pressing-plate 14, and 10 the inner end of the turned bag lies between the pressing or smoothing plates 13 and 14. After the bag has been turned the valve 15 is closed, thus permitting the upper pressing-plate 14 to fall upon the inner end of the bag, 15 and the door 12 is opened, whereupon the lower pressing-plate 13 moves downwardly into the position indicated by dotted lines in Figs. 1 and 4, the upper pressing-plate of course following the lower plate into this new 20 position. The grippers, opened, as shown by full lines in Fig. 5, being swung forwardly by the frame 31, the arms 33 and 34 are brought into position above and below the bag end, and the roller 43 then rides upon the 25 cam 44, thus lifting the locking-plate 42 to throw the same into such position that the pin 40 lies in line with the longitudinal portion of the slot 41, whereupon the locking-plate is thrown forwardly by the spring 45, 30 and the upper gripper-arm 34 is brought into gripping position with relation to its cooperating arm 33, the pressing-plates 13 and 14 being provided in their rear portions with slots 49 and 50 to permit the necessary downward movement of the gripper-arm 34 against 35 the bag. The bag having been gripped, the swinging frame moves backwardly, thus pulling the bag between the plates 13 and 14, whereby the bag is smoothed in its turned 40 position, the open end of the bag being readily pulled off the supports 9 by the backward movement of the frame 31. As the said frame approaches the end of its backward throw the roller 37 rides under the cam 38, where- 45 upon the gripping-arm 34 is raised from its gripping position, and the bag is permitted to fall upon the pile on the support 32. Furthermore, as the arm 36 is thrown downwardly it not only raises the arm 34 out of 50 gripping position, but also throws the arm 35 and the locking-plate 42 backwardly against the force of the spring 45, the said locking-plate moving backwardly until the angular portion of the slot 41 is in line with the pin 55 40, when the weight of the locking-plate, assisted by the spring 45, causes the plate to fall, so that the said pin 40 becomes seated in the angular portion of the said slot. The grippers are thus locked in open position ready 60 to engage a new bag when the pivoted frame is again swung forwardly. Manifestly the valve 15 could be dispensed with and the smoothing-plate 14 could be positively operated by a link connected to a suitable crank-

arm or cooperating with a suitable cam upon 65 the power-shaft.

In the modification illustrated in Fig. 6 I have dispensed with the plates 13 and 14 and have shown a pressing or smoothing roller 51 arranged in advance of the opening 11, which 70 is controlled by the door 12, a cooperating smoothing or pressing roller 52 being journaled in pivoted arms 53, which extend at the sides of the casing and are raised by means of a cam 54, carried by the power-shaft. 75 The said arms are raised and the roller 52 thus carried out of engagement with its cooperating roller at such a time that the inner end of the turned bag can be blown between the said rollers when the upper roller is low- 80 ered and the bag is thus gripped between the rollers 51 and 52. The roller 51 is continuously driven, so that as soon as the roller 52 is lowered the bag is fed away from the supports 9, the door 12 opening and permitting 85 the bag to be fed from the casing upon a fly 55, constructed and operating in a manner similar to the fly upon a printing-press.

It will be observed that the mechanism which I have described includes a casing, 90 means for creating a current of air through or within the casing, a holder for the unturned bag adjacent to one end of such casing, and a passage through which the turned bag is delivered from the casing that is relatively re- 95 mote from the holder for the unturned bag. This arrangement is advantageous in that it facilitates the rapid operation of the apparatus, for the moment the bag is turned another bag may be placed upon the holder without wait- 100 ing for the delivery of the bag that has been turned or for the retraction or backward movement of the turning devices, as is the case in apparatus employing mechanical turning means. It will also be observed that in the 105 mechanism which is herein described provision is made for maintaining a continuously-operative pneumatic bag-turning means—that is to say, the mechanism described provides an air-blast that is continuously ready to op- 110 erate to turn a bag, being maintained at a substantially uniform and bag-turning pressure or force. In this respect it differs from devices that have heretofore been proposed for turning bags and of which I am aware in 115 which was incorporated a cylinder over one end of which a bag was to be stretched and a piston arranged to reciprocate within such cylinder in that in such prior arrangements the air-currents were not continuously opera- 120 tive, even though the piston were continuously reciprocated, for on each return stroke of the piston there was necessarily a cessation or stoppage of the air-current, and consequently the device was intermittently opera- 125 tive for pneumatic bag-turning purposes.

I am aware that many minor changes in the construction, arrangement, and combination

turned bag adjacent to one end of the casing, and means for removing the bag from the casing after it has been turned arranged at the end of the casing distant from the bag-holding means, substantially as set forth.

17. In a bag-turning machine, the combination of a casing having an open end and a bag-discharge opening, means for creating a current of air through said casing to turn the bag, and a door controlling said discharge-opening; substantially as described.

18. In a machine of the character indicated, a casing having a bag-receiving opening and a bag-discharging opening, a door controlling said discharge-opening, a smoothing-plate carried by said door and adapted to receive a turned bag, and a movable cooperating smoothing-plate; substantially as described.

19. In a machine of the character indicated, pneumatic means for turning a bag, and means for delivering the turned bag; substantially as described.

20. In a machine of the character indicated, a casing, pneumatic means for turning a bag and delivering the same into said casing, and mechanism for delivering the turned bag from said casing; substantially as described.

21. In a machine of the character indicated, pneumatic means for turning a bag, and a reciprocating delivery mechanism including members adapted to engage a turned bag for the purpose of withdrawing the same as the delivery mechanism moves; substantially as described.

22. In a bag-turning machine, the combination of a casing, means for creating an air-current within the casing, means for supporting a bag adjacent to the casing, and a delivery mechanism including a movable support, a gripper thereon, means for closing the arms of said gripper upon the article to be gripped, and means for opening said arms to release the said article; substantially as described.

23. In a machine for turning bags, the combination of a casing, means for creating a current of air within the casing, means for supporting an unturned bag adjacent to one end of the casing, and a delivery mechanism including a movable support, a gripper-arm thereon, a cooperating gripper-arm thereon, a locking-plate adapted to hold said cooperating arm in inoperative position, means for throwing said plate into inoperative position and for throwing said cooperating arm into operative position, and means for throwing said cooperating arm into inoperative position and for throwing said plate into locking position; substantially as described.

24. In a machine of the character indicated, a delivery mechanism including a movable support, a gripper-arm thereon, a movable, cooperating gripper-arm, a locking-pin upon said support, a locking-plate connected to said cooperating arm and having an angular slot receiving said pin, a cam adapted to engage

said plate to release the same, means for throwing said cooperating arm into operative position when said plate is released, and a cam for engaging said cooperating arm to throw the same into inoperative position and to throw the said plate into locked position; substantially as described.

25. In a machine of the character indicated, the combination of movable bag-supports, pneumatic means for turning a supported bag, and mechanism for moving said supports into bag-supporting position; substantially as described.

26. In a pneumatic bag-turning machine, the combination of a casing having an open end, means for creating a current of air through said casing to turn the bag, a bag-discharge opening from said casing, a door controlling said opening, and means for cutting off said air-current when said door is open; substantially as described.

27. In a machine for turning bags, the combination of a casing having an open end and a flue leading to a mechanism for creating a current of air through said casing to turn the bag, a bag-discharge opening from said casing, a door controlling said opening, a valve controlling said flue, a power mechanism, and connection between said power mechanism and said door and valve whereby said valve is closed when said door is open; substantially as described.

28. In a machine for turning bags, the combination of a casing having an open end, means for creating a current of air through said casing to turn the bag, and means for regulating said air-current; substantially as described.

29. In a device of the class named, a casing having an open end and an end connected with an exhaust-pipe, means for supporting a bag within the casing, and an opening through which the bag may be removed when turned, substantially as described.

30. In a device of the class named, a casing, means for creating an air-current within the casing to turn a bag, and means for holding the bag within the casing while subjected to the air-current, substantially as described.

31. In a device of the class named, a casing having an opening through which the bag may be removed when turned, means for creating an exhaust within the casing to turn the bag, and means for holding the bag within the casing while subjected to the exhaust, substantially as described.

32. A machine for turning bags and the like, consisting of a casing provided with self-contained means for holding a bag during the process of turning and for smoothing the bag after it has been turned, in combination with means for creating an air-current, substantially as described.

33. A machine for turning bags and the like, consisting of an exhaust-fan, a casing connected to the exhaust-fan, means whereby the

mouth of a bag may be held in proximity to the mouth of the casing for the purpose of being turned, and means within the casing whereby the bag may be smoothed after it has
5 been turned, substantially as described.

34. In a machine for turning bags and the like, a casing having a bag-receiving opening and a bag-discharging opening, and means for turning a bag at the receiving-opening and
10 delivering the same through the discharging-opening when turned, substantially as described.

35. In a machine for turning bags and the like, a casing having a bag-receiving opening
15 and a bag-discharging opening, means for turning a bag at the receiving-opening and delivering the same through the discharging-opening when turned, and means intermediate of the openings for smoothing the bag after it
20 has been turned and before it is discharged, substantially as described.

36. In a machine for turning bags and the like, a casing having a bag-receiving opening, a bag-discharging opening and a self-contained
25 smoothing mechanism, and means for actuating the smoothing mechanism and controlling the discharging-opening, substantially as described.

37. In a machine for turning bags and the
30 like, a casing having a bag-receiving opening, a bag-discharging opening and a self-contained smoothing mechanism, means whereby the mouth of a bag may be distended and held at the receiving-opening, and means for actuat-
35 ing the smoothing mechanism and controlling the discharging-opening, substantially as described.

38. In a machine for turning bags and the like, a casing, means for turning a bag and de-
40 livering the same into said casing, means for delivering the turned bag from said casing, and means for smoothing the bag after it has been turned, substantially as described.

39. In a machine for turning bags and the
45 like, pneumatic means for turning a bag, means for smoothing and delivering the turned bag, and connecting means whereby the operations of turning, smoothing and delivering are performed successively, substantially as de-
50 scribed.

40. In a machine for turning bags and the like, a casing, a fan, a flue connecting the fan and the casing, resilient arms adjustably se-
55 cured to the sides of the casing and projecting beyond its front, and rocking arms intermediate the resilient arms, substantially as described.

41. In a machine for turning bags and the like, a casing having an open end and having
60 its other end connected to a fan, resilient arms adjustably secured to the sides of the casing, rocking arms intermediate the resilient arms, and means whereby the rocking arms are moved outwardly to hold a bag and inwardly
65 to release said bag, substantially as described.

42. In a machine for turning bags and the like, a fan, a casing provided with a receiv-
ing-opening and a discharging-opening, and a flue connecting the fan to the casing, sub-
stantially as described. 70

43. In a machine for turning bags and the like, an exhaust-fan, a casing provided with a receiving-opening and a discharge-opening, a flue connecting the exhaust-fan to the cas-
ing, a delivery mechanism including a mov- 75 able support, a gripper-arm thereon, a movable, cooperating gripper-arm, a locking-pin upon said support, a locking-plate connected to said cooperating arm and having an angular slot receiving said pin, a cam adapted to
80 engage said plate to release the same, means for throwing said cooperative arm into operative position when said plate is released, and a cam for engaging said cooperating arm to throw the same into inoperative position and
85 to throw the said plate into locked position, substantially as described.

44. In a machine for turning bags and the like, a casing, an exhaust-fan, a flue connect-
ing the exhaust-fan and the casing, resilient 90 arms adjustably secured to the sides of the casing and projecting beyond its front, rocking arms intermediate the resilient arms, a delivery mechanism including a movable sup-
95 port, a gripper-arm thereon, a movable, cooperating gripper-arm, a locking-pin upon said support, a locking-plate connected to said cooperating arm and having an angular slot receiving said pin, a cam adapted to engage
100 said plate to release the same, means for throw- ing said cooperative arm into operative position when said plate is released, and a cam for engaging said cooperating arm to throw the same into inoperative position and to throw
105 the said plate into locked position, substantially as described.

45. In a machine for turning bags and the like, an exhaust-fan, a casing provided with a receiving-opening and a discharging-opening, a flue connecting the exhaust-fan to the cas-
ing, a delivery mechanism including a mov- 110 able support, a gripper-arm thereon, a movable, cooperating gripper-arm, a locking-pin upon said support, a locking-plate connected to said cooperating arm and having an angular slot receiving said pin, a cam adapted to
115 engage said plate to release the same, means for throwing said cooperating arm into operative position when said plate is released, and a cam for engaging said cooperating arm to
120 throw the same into inoperative position and to throw the said plate into locked position, substantially as described.

46. In a machine for turning bags and the like, a casing, an exhaust-fan, a flue connect-
ing the exhaust-fan and the casing, resilient 125 arms adjustably secured to the sides of the casing and projecting beyond its front, rocking arms intermediate the resilient arms, and a reciprocating delivery mechanism whereby
130

the turned bags may be withdrawn from the casing, substantially as described.

47. In a machine for turning bags and the like, an exhaust-fan, a casing provided with a receiving-opening and a discharge-opening, a flue connecting the exhaust-fan to the casing, and a reciprocating delivery mechanism whereby the turned bags may be withdrawn from the casing, substantially as specified.

48. In a machine for turning bags and the like, an exhaust-fan, a casing provided with a receiving-opening and a discharge-opening, a flue connecting the exhaust-fan to the casing, a delivery mechanism including a movable support, a gripper thereon, means for closing the arms of said gripper upon the article to be gripped, and means for opening said arms to release the said article, substantially as described.

49. In a machine for turning bags and the like, an exhaust-fan, a casing provided with a receiving-opening and a discharge-opening, a flue connecting the exhaust-fan to the casing, a delivery mechanism including a movable support, a gripper-arm thereon, a cooperating gripper-arm thereon, a locking-plate adapted to hold said cooperating arm in inoperative position, means for throwing said plate into inoperative position and for throwing said cooperating arm into operative position, and means for throwing said cooperating arm into inoperative position and for throwing said plate into locking position, substantially as described.

50. In a pneumatic bag-turning machine, a casing provided with an opening through which the turned bag is delivered, and means for creating an air-current through said casing for turning the bag and placing it in position to be delivered, substantially as specified.

51. In a bag-turning machine, a casing provided with an opening through which the turned bag is delivered, means for creating an air-current through said casing for turning the bag and placing it in position to be delivered, and means for controlling said air-current, substantially as specified.

52. A machine for turning bags, comprising a bag-holder for supporting and holding distended the mouth of the bag, an organized mechanism susceptible of continuous operation for producing an air-current, and means for directing said air-current upon the surface of the bag and thereby turning the same, substantially as described.

53. A machine for turning bags, comprising a bag-holder for supporting and holding distended the mouth of the bag, an organized mechanism susceptible of continuous operation for producing an air-current, means for directing said air-current upon the surface of the bag and thereby turning the same, and means for periodically interrupting said air-current, substantially as described.

54. A machine for turning bags, comprising a bag-holder for supporting and holding distended the mouth of the bag, an organized mechanism susceptible of continuous operation for producing an air-current, means for directing said air-current upon the surface of the bag and thereby turning the same, and means for delivering the turned bag from its support, substantially as described.

55. A machine for turning bags, comprising a bag-holder for supporting and holding distended the mouth of the bag, an organized mechanism susceptible of continuous operation for producing an air-current, means for directing said air-current upon the surface of the bag and thereby turning the same, and means for delivering the turned bag from its support in the direction of turning, substantially as described.

56. In a bag-turning machine, the combination with an organized mechanism susceptible of continuously generating an air-current, means for holding the mouth of the bag distended, means for intermittently directing and interrupting the air-current through the space within the bag-support, and means for withdrawing the turned bag from the mouth-support, substantially as described.

57. In a bag-turning machine, the combination with an organized mechanism susceptible of continuously generating an air-current, means for holding the mouth of the bag distended, means for intermittently directing and interrupting an air-current through the space within the bag-support, and means for withdrawing the turned bag from the mouth-support in the direction of turning, substantially as described.

58. In a bag-turning machine, the combination with an organized mechanism susceptible of a continuous generation of air-current, means for holding the mouth of the bag distended and means for directing said air-current through the distended bag-mouth and from that side upon which the inturned bag lies whereby the end of the bag is turned through its mouth, substantially as described.

59. In a pneumatic bag-turning machine, a casing, means for creating a continuous current of air through the casing for turning the bag, substantially as described.

60. In a pneumatic bag-turning machine, a casing, means for creating and controlling a continuous current of air through the casing for turning the bags, substantially as described.

61. In a pneumatic bag-turning machine, an organized mechanism susceptible of generating a constant air-current for turning the bag, and means for periodically interrupting said air-current, substantially as described.

62. In a bag-turning machine, the combination with a casing having an open end, of means for creating and controlling a current of air

through said casing, bag-supports, and means for moving the said supports to open the bag, substantially as described.

63. In a bag-turning machine, the combination with a casing having an open end, of means for creating and controlling a current of air through said casing, bag-supports, means for moving the said supports to open the bag, and means for moving the said supports to release the bag when turned, substantially as described.

64. In a machine for turning bags, the combination of a casing having an opening, means for creating and controlling a current of air within the casing, supports for the individual bags to be turned, arranged to enter the open mouth of a bag and engage with the opposite edges thereof, and means for adjusting the said supports toward and from each other to adapt them for supporting bags of different sizes, substantially as set forth.

65. In a pneumatic bag-turning machine, an organized mechanism for creating a constant and continuous air-current for turning bags, substantially as described.

66. In a machine of the character indicated, means for turning a bag, smoothing-plates between which the turned bag is delivered, and means for withdrawing the turned bag from said plates, substantially as described.

67. In a machine of the character indicated, means for turning a bag, a smoothing member upon which the bag is delivered, and a smoothing-plate cooperating with said smoothing member, substantially as described.

68. In a pneumatic bag-turning machine, an organized mechanism for generating an air-current whose initial velocity is less than its final velocity in the operation of turning the bag, substantially as described.

69. In a pneumatic bag-turning machine, the combination of a casing having an open end, means for creating and controlling a current of air through said casing to turn the bag, a bag-discharge opening from said casing, a door controlling said opening, and means for cutting off said air-current when said door is open, substantially as described.

70. A machine for turning bags, consisting of a casing, means for holding a bag in or upon the casing during the process of turning, means for smoothing the bag after it has been turned, and means for creating and controlling an air-current to turn the bag, substantially as described.

71. In a pneumatic bag-turning machine, an organized mechanism for generating a current of air in excess of the atmospheric pressure for turning a bag, substantially as described.

72. In a pneumatic bag-turning machine, means for operating an air-current of a graduated velocity and pressure for turning the bags, substantially as described.

73. In a bag-turning machine, the combination with a casing having an open end, means

for creating a graduated air-current both as to velocity and pressure through said casing for turning the bags, substantially as described.

74. In a bag-turning machine, the combination with a casing having an open end, means for creating a graduated pressure in excess of the atmospheric pressure through said casing for turning the bags, substantially as described.

75. In a pneumatic bag-turning machine, means for generating an air-current of variable velocity and pressure for turning the bag, and means for holding in the path of said air-current an unturned bag, substantially as specified.

76. An apparatus for turning bags comprising a bag-holder for receiving and holding distended the mouth of the bag, means for producing a continuously-operative current of air, and means for directing said air-current upon the surface of the bag and thereby turning the same, substantially as set forth.

77. An apparatus for turning bags comprising means for supporting such bags by their open ends and holding said ends distended, means for maintaining a continuously-operative pneumatic pressure, means for applying said pressure to the surface of the bag while supported and thereby turning the same, and means for controlling said pressure at predetermined periods, substantially as set forth.

78. In a bag-turning apparatus, the combination with means for holding the mouth of a bag distended, of means for applying an air-current to the surfaces of the bag in a direction toward and through the distended mouth to force the closed end of the bag through its mouth, and means for delivering the turned bag from the mouth-support, substantially as set forth.

79. In a bag-turning machine, the combination with a continuously-operative air-current producer, of means for holding the mouth of a bag distended, means for intermittently directing an air-current through the space within the bag-mouth support, and means for withdrawing the turned bags from the mouth-support in the direction of turning, substantially as set forth.

80. In a bag-machine, the combination with a continuously-operative means for producing an air-current, of means for holding the mouth of a bag distended, and means for directing said air-current through the distended bag-mouth from that side upon which the inturned bag lies, whereby the end of the bag is turned through its mouth, substantially as set forth.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 13th day of September, 1902.

CHARLES FLETCHER SPARKS.

Witnesses:

J. S. BARKER,
GEO. B. PITTS.