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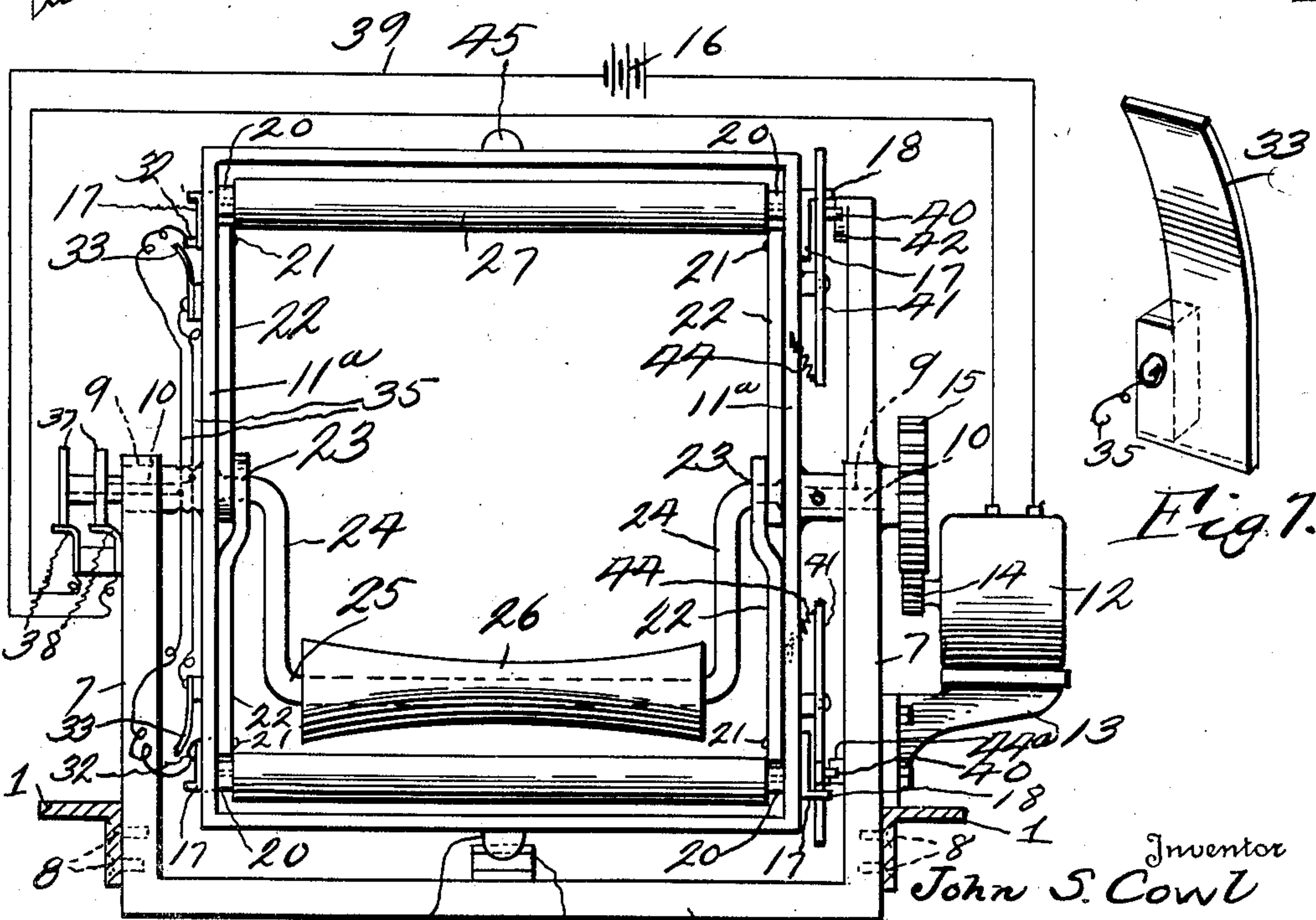
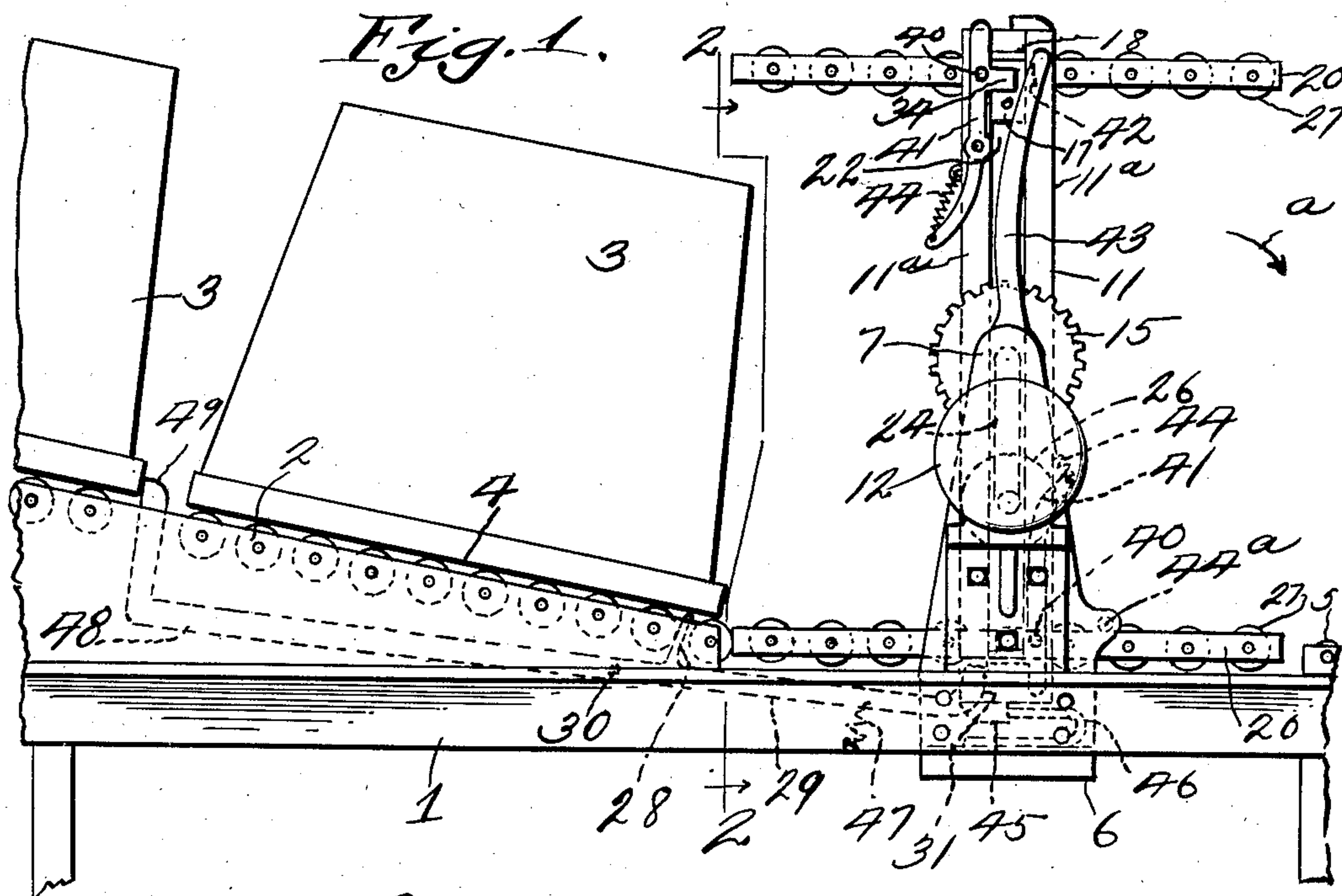
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2,125,548

PACKAGE INVERTING DEVICE

Filed Jan. 15, 1937

2 Sheets-Sheet 1



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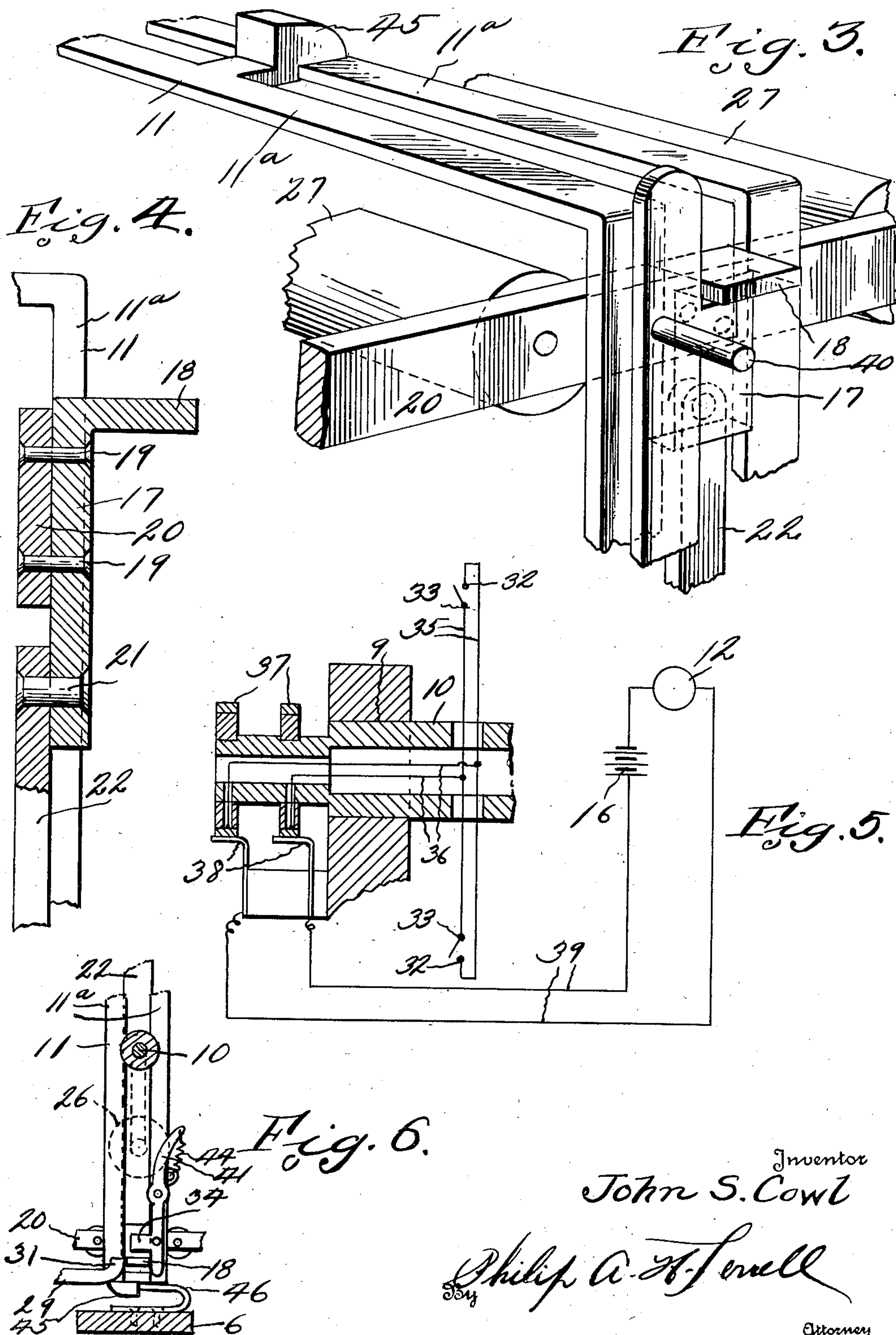
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2 Sheets-Sheet 2



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PACKAGE INVERTING DEVICE

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13 Claims. (Cl. 214—130)

The invention relates to package inverting devices and particularly to a machine for turning or inverting fruit baskets during the packing operation.

5 A further object is to provide a package inverting or turning device comprising a rotatable frame having slidably mounted therein gripping platforms between which the package is gripped during the inserting operation, and means controlled by the gripping members for stopping and starting the rotation of the device as it intermittently rotates one hundred and eighty degrees, thereby releasing the baskets so they may be removed from device.

15 A further object is to provide latch means carried by the ends of the rotatable frame and cooperating with stationary members whereby the upper gripping frame will be allowed to move downwardly for gripping the basket and to hold the basket during the inverting operation and to release the frames when in their lower position for the basket releasing operation.

25 A further object is to provide latching means for holding the rotatable frame in a vertical position and against rotation at the point of loading and unloading of the frame.

30 A further object is to provide links connected to the slidable gripping members and pivoted together and to the arms of a roller carrying crank which is adapted to be engaged by the basket entering the device for imparting the initial downward pull on the upper gripping member and starting the rotation of the rotatable frame.

35 A further object is to provide a basket turning device wherein the device is rotated and controlled entirely by the basket placed thereon.

40 With the above and other objects in view the invention resides in the combination and arrangement of parts as hereinafter set forth, shown in the drawings, described and claimed, it being understood that changes in the precise embodiment of the invention may be made within the scope of what is claimed without departing from the spirit of the invention.

45 In the drawings:

Figure 1 is a side elevation of the basket turning machine.

Figure 2 is a vertical transverse sectional view taken on line 2—2 of Figure 1.

50 Figure 3 is an enlarged perspective view of the upper corner of the rotatable frame showing the slidable mounting for one of the gripping frames.

Figure 4 is a vertical transverse sectional view through the upper corner of the rotatable frame, showing the slide connection.

Figure 5 is a vertical longitudinal sectional view through one of the rotatable frame bearings, showing the electric motor control circuit.

Figure 6 is a side elevation of the lower portion of the rotatable frame.

Figure 7 is a perspective view of one of the control switches.

Referring to the drawings, the numeral 1 designates the side bars of a conventional form of supporting frame or table, which may be of any construction. The side bars 1 support a conventional form of inclined roller conveyor 2, down which the inverted baskets 3 move by gravity to the turning device. It is to be understood that the baskets have their usual form in the open ends thereof, in which the top layer forming disc is disposed, and the baskets are reversed so that their open ends 4 are upwardly disposed by the turning device, and after leaving the turning device, move outwardly over a conveyor 5 to any suitable point of discharge, for placing the final top on the basket.

The turning device comprises a U-shaped frame 6 having vertical side bars 7 secured at 8 to the side bars 1 of the frame. Rotatably mounted in bearings 9 of the vertical arms 7 are the pintles 10 of a rectangular shaped rotatable frame 11, as clearly shown in Figure 2. During the basket turning operation the frame 11 makes a half revolution of substantially 180 degrees for each basket, and there is a pause at the end of each turning operation to allow the operator to remove the basket and to automatically start the device by placing the following basket within the turning device.

35 The frame 11 is rotated by means of a motor 12 mounted on a bracket 13 carried by the upwardly extending arm 7, and which motor is provided with a drive pinion 14, which meshes with a gear 15 carried by the frame pintle 10, whereby it will be seen that when the motor 12 is energized through the battery 16, the frame 11 will rotate.

40 Slidably mounted between the spaced bars 11a forming the frame 11 are angular shaped bars 17 having their arms 18 extending outwardly from the sides of the rotatable frame 11. Secured to the brackets 17 by means of rivets 19 are roller frames 20, which are pulled downwardly when in upper position for a basket gripping operation during the basket turning operation. The lower frame 20 is held against upward movement during this operation by the lower latch arm 18. Pivotal-ly connected at 21 to the angular brackets 17 are inwardly extending links 22, the inner ends of which are pivotally connected at 23 to the arms 55

24 of the crank 25. As the crank is forced outwardly in the direction of travel of the basket 3 by the engagement of the basket with the roller 26, the initial movement of the crank is a pivotal one, thereby allowing the basket to assume a position on the lower frame 20. The final movement of the crank 25 pulls the pivotal point 23 between the crank and links 22 outwardly in the direction of travel of the basket, and as the circuit is closed at the starting of this final link movement the latch 41 will snap past the upper arm 18 when the pin 40 engages the arm 43, thereby allowing the upper frame 20 to be pulled downwardly for gripping the upper end of the inverted basket 3. The lower frame 20 can not move upwardly as it is held against upward movement by the arm 18 below the lower latch nose 34. This structure is clearly shown in Figures 3 and 6. The crank 25 is provided with a roller 26, which is engaged by the basket 3 when it is moved onto the lower gripping frame 20. Frames 20 are provided with rollers 27 for allowing easy movement of the basket onto and from the frames when in their lower position as shown in Figure 1.

In operation, the basket 3 is moved downwardly over the conveyor 2, onto the lower frame 20. In its movement it passes over an arm 28, which depresses a lever 29 which is pivotally mounted at 30. As the lever 29 is depressed its nose 31 is moved out of the path of the arm 18, which is downwardly disposed. As the basket moves onto the lower frame 20, it engages the roller 26 and swings the crank 25 outwardly. The initial movement of the crank pulls downwardly on the upper gripping frame 20 and closes a circuit through contacts 32 and 33 to battery 16 and motor 12; that is the contacts which are upwardly disposed. The circuits are hereinafter described in full. It will be noted that the lower gripping frame arm 18 is below the latch nose 34 of the lower latch 41, whereby the lower gripping frame will be held against upward movement, however the upper frame 20 will move downwardly.

As the inner ends of the links 22 are forced outwardly by the crank 25, the upper bracket arm 18 moves downwardly slightly, incident to the clearance between the same and the upper latch nose 34. This gives sufficient time for the closing of the circuit through the upper contacts 32 and 33, and through the wires 35 which extend into the pintle 10 and have connected thereto outwardly extending wires 36, which are connected to conductor rings 37 carried by the pintle 10, and which have a wiping contact with spring conductor arms 38. The circuit 39 to the battery 16 and motor 12 is connected to the spring wiper contact arms 38, whereby it will be seen, immediately upon the closing of the circuit by the upwardly disposed contacts 32 and 33, the motor is energized and the frame is rotated in the direction of the arrow *a*, Figure 1. As the frame 11 starts its rotation the pin 40, carried by the upwardly disposed latch 41 engages the lug 42 carried by the stationary arm 43, and forces the latch to open positions against the action of the spring 44. This allows the continued downward movement of the frame 20 as the turning device rotates in the direction of the arrow *a*, however after the latch passes the lug 42, it springs again to normal position but with the nose 34 on the outer side of the arm 18, thereby allowing the continued gripping of the bottom of the basket, which is upwardly disposed during the turning operation. It will be noted that the side of the

basket, that is the lead side, will also be in engagement with the roller 26, for maintaining the basket in the turning device during the turning operation. As the frame 11 continues its rotation under the influence of the motor 12 the open side of the basket 4 will be brought to upper position and the lower gripping frame 20 will be upwardly disposed.

Continuing the reversing operation, with the upper frame 20 moving downwardly in the direction of the arrow *a*, Figure 1, the lug 40 of the upper latching device 41 comes into engagement with a tripping lug 44a, carried by the frame arm 7, and moves the latch nose 34 out of the path of the bracket arm 18, thereby allowing the gripping frame, which is in lowered position, to assume a position outside of the nose as shown in Figure 6, for another basket turning operation. As soon as this happens the circuit is broken at 32 and 33, thereby stopping the turning operation, as the device reaches its reversed position. It will be noted the device is double ended, consequently there could be a continuous intermittent operation upon each half turn of the device. The contact members 33 are preferably elongated so as to maintain a closed circuit for the entire period of the downward movement of the gripping frame. It is to be understood however that any other form of switch may be used, for instance a yieldable contact.

To prevent a rebound of the frame when it reaches the ends of its periods of operation, the frame 11 is provided with lugs 45, preferably centrally thereof at its opposite ends, and which lugs are adapted to spring over a U-shaped spring detent 46 carried by the U-shaped frame 6, as clearly shown in Figure 6, whereby a rebound in reverse direction to the turning direction is prevented, when the lower bracket arm 18 engages the nose 31 of the basket controlling lever 29, therefore it will be seen that a positive holding of the frame at the end of the turning operation is provided.

The lever 29 is forced downwardly by the basket 3 approaching the turning device as clearly shown in Figure 1 against the action of an expansion spring 47. When this happens the end 48 of the lever 29 moves upwardly and forces an arm 49 upwardly into the path of the oncoming basket 3 on the conveyor 2, therefore it will be seen that the on-coming basket will not interfere with the turning operation, which is an exceedingly quick one, and is accomplished before the on-coming basket can interfere with the operation.

From the above it will be seen that a basket turning device is provided which is simple in construction, operated by power and one wherein the operator will only have to guide the basket from the conveyor 2 into the turning device, and the basket will cooperate with mechanism of the turning device which will close a circuit, start the power rotation of the device and will automatically stop the rotation after the inverting operation so that the operator can move the basket from the turning device and guide a following basket into the same.

The invention having been set forth what is claimed as new and useful is:

1. A basket turning device comprising a support, a rotatable frame within said support, said frame being in a vertical plane and adapted to receive therein a basket to be inverted, gripping frames slidably mounted in the ends of the rotatable frame, basket control means for moving

the gripping members inwardly when either gripping member is in upper position, latching means for maintaining the gripping members in outer position when the rotatable frame is in a vertical position, the gripping members when in upper position being held raised by latching means, and members cooperating with the latching means whereby upon initial rotation of the frame the upper gripping member will be allowed to move inwardly under control of the basket and upon continued rotation of the frame will be latched in outward position.

2. The combination with a basket turning machine comprising a rotatable frame, slidable basket gripping frames mounted in the rotatable frame and adapted to grip opposite ends of the basket, links carried by the gripping frames and extending inwardly, a basket engaging crank carried by the links and to which they are pivoted at their inner ends, said basket engaging crank forming control means for moving the upper gripping frame to gripping position.

3. A basket turning machine comprising a support, a rectangular shaped frame rotatably mounted in said support on a horizontal axis, upper and lower basket gripping frames slidably mounted in the ends of the rectangular shaped frame, means cooperating with the basket gripping frames and controlled by engagement with a basket for moving the upper gripping frame into engagement with the upper end of the basket according to which gripping frame is upwardly disposed, latching means carried by the rectangular shaped frame and cooperating with the gripping frame for normally maintaining the gripping frames outwardly disposed, means for rotating the rectangular shaped frame and means controlled by the upwardly disposed gripping frame for actuating the rotating means.

4. A device as set forth in claim 3 including means cooperating with the upwardly disposed latching means for releasing the upper gripping frame upon initial rotation of the rectangular frame and means cooperating with the gripping frames as they approach lower position for actuating the latching means and allowing outward and downward movement of the gripping frames at lower position.

5. A basket turning machine comprising a support, a rotatable frame within the support, means for rotating the frame intermittently one half revolution, said frame having at its ends inwardly and outwardly slidable basket gripping members, latch means carried by the frame and cooperating with the gripping frame and normally maintaining the same in outer positions, basket control means carried by the rotatable frame for imparting pulls inwardly on the basket gripping frame and moving the upper frame inwardly, said upper frame controlling the means for rotating the frame and means cooperating with the upper latching means upon initial movement for allowing the upper gripping frame to move downwardly and inwardly for a basket gripping operation and means cooperating with said last named latching means as it reaches its lowered position for allowing its adjacent frame to move downwardly and outwardly to its outward latched position.

6. A device as set forth in claim 5 including detent means cooperating with the rotatable frame for holding the same in inoperative position between the cycles of operation.

7. A device as set forth in claim 5 including detent means cooperating with lugs carried by

opposite sides of the frame for holding the frame in inoperative position and against rebound in either direction at the stopping position.

8. A device as set forth in claim 5 including bevelled detent lugs carried by opposite sides of the frame, a spring detent carried by the support and over which the lugs spring when the frame is in its stopped position and preventing retrograde movement of the rotatable frame and latching means cooperating with the rotatable frame for preventing continued rotation of the frame beyond its stopped position.

9. A basket tuning device comprising a support, a rotatable frame mounted in the support, means for rotating the frame, inwardly and outwardly movable basket gripping frames within the rotatable frame, one of said gripping frames controlling the cycles of operation of the rotatable frame upon its inward movement at upper starting position, said inward movement of the upper gripping frame being controlled by lever means controlled by a basket placed upon the device.

10. A device as set forth in claim 9 wherein the lever means comprises links carried by the basket gripping frames and extending towards each other and a basket engaging member connected to said links and forming means whereby the connected ends of the links are forced outwardly when the basket is moved onto the lower gripping member.

11. The combination with a basket turning device comprising a support, a rotatable frame within the support and adapted to receive therein a basket, means for rotating the rotatable frame, inwardly and outwardly movable basket gripping frames within the rotatable frame, means whereby a basket when placed in the device will move the gripping frame which is upwardly disposed into gripping engagement with the upper portion of the basket, means for holding the gripping frame, which is in lower position, against upward movement during the gripping operation, means controlled by the gripping frames when in upper position and when they move downwardly for starting the rotating means and means whereby when the gripping frames approach their lower position they will be allowed to move downwardly by gravity and release the receptacle and stop the rotating means.

12. A device as set forth in claim 11 wherein the gripping frame controlling means comprises latches carried by the rotatable frame, stops carried by the gripping frames and with which the latches cooperate, said latches cooperating with opposite sides of the stops for holding the gripping frames against inward or outward movement according to their upper or lower positions and lugs cooperating with said latches for unlatching the upper gripping frame at the starting of a turning operation and allowing the same to move inwardly to basket gripping position and to allow said last named gripping frame to move outwardly when it reaches its lower position.

13. The combination with a rotatable basket turning device, of means for gripping a basket in said device, said means comprising slidable gripping members carried by the device and movable towards the opposite ends of a basket, link members carried by said gripping members and extending towards each other, a basket engaging crank, said crank being pivotally connected to the inner ends of the link members.

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