

April 29, 1930.

W. H. PAULSON

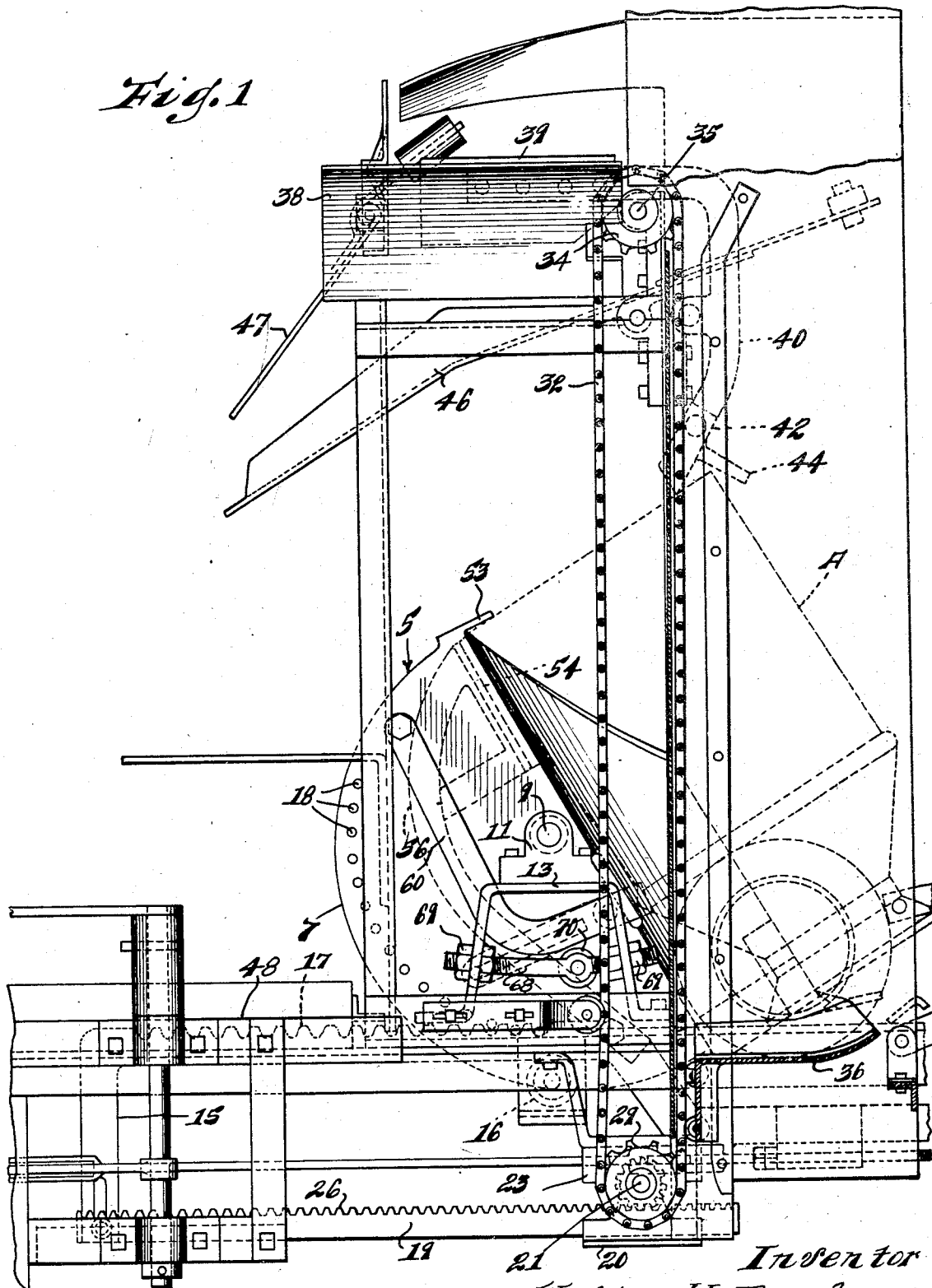
1,756,522

CAN EJECTING MECHANISM

Filed July 16, 1928

3 Sheets-Sheet 1

Fig. 1



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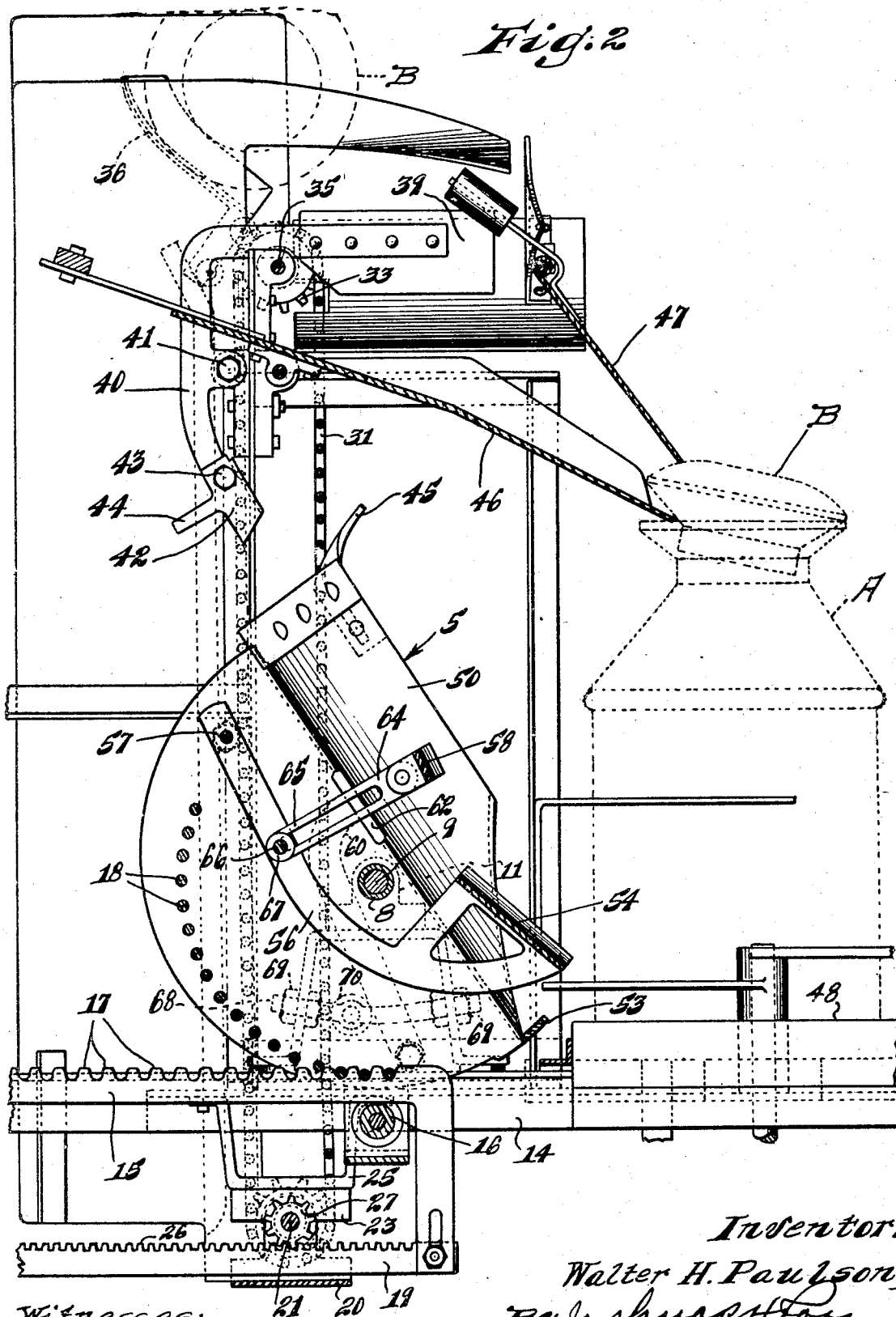
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3 Sheets-Sheet 2

Fig. 2



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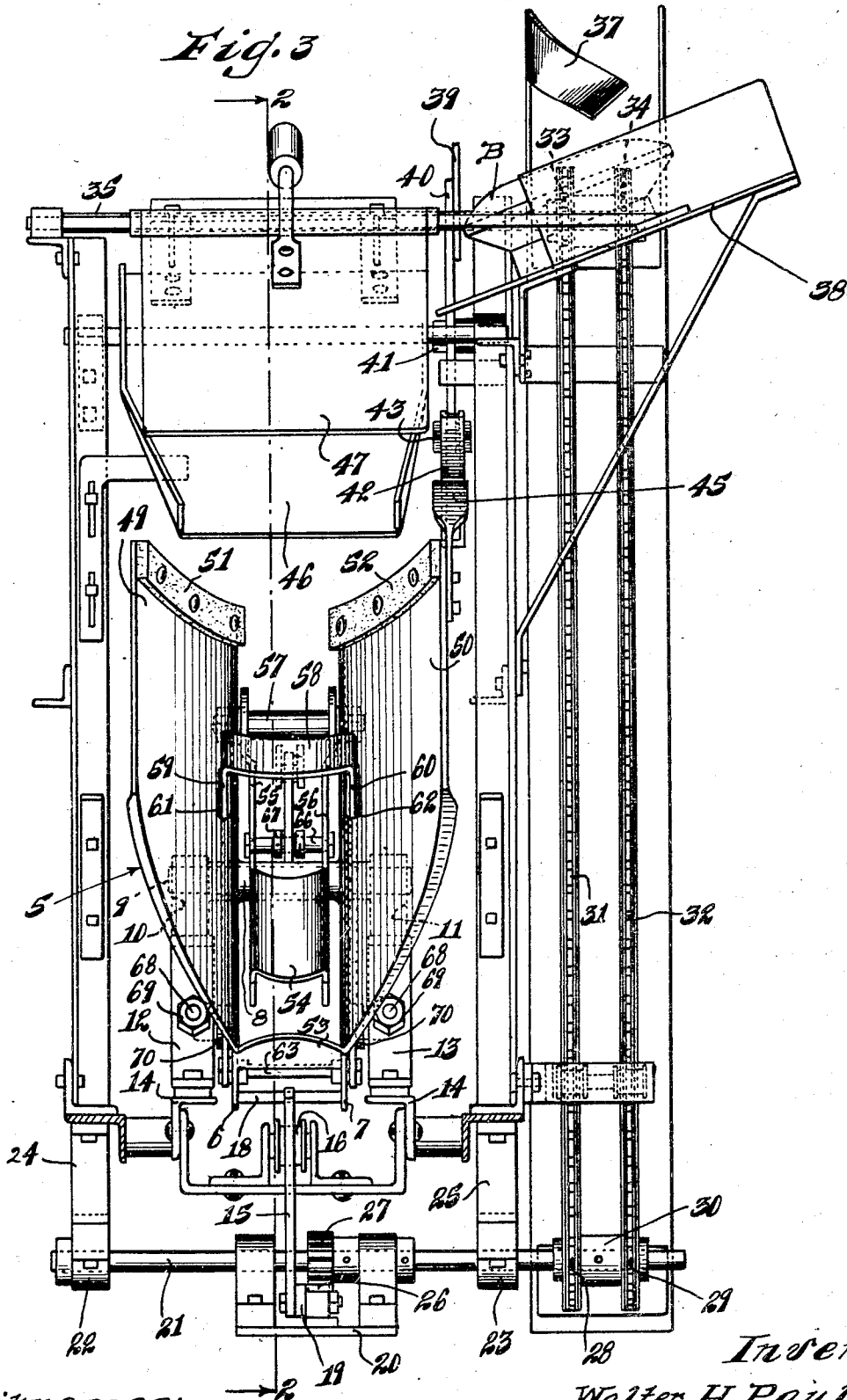
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CAN EJECTING MECHANISM

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE.

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CAN-EJECTING MECHANISM

Application filed July 16, 1928. Serial No. 293,018.

This invention relates to can ejecting mechanism and has particular applicability in connection with a reversing cradle such as is generally employed in can washing machines for the purpose of reversing cans from the inverted position in which they are fed through the machine to an upright position preparatory to discharge at the delivery end of the machine.

10 An object of the invention is the provision of mechanism insuring the positive ejection of a can from the reversing cradle upon completion of a can reversing operation, and in certain types of can washing machines to insure placing of the can in position to receive a cover and to prevent the can from remaining in the reversing cradle and being carried through the return reverse movement of the cradle as sometimes occurred in previous constructions. Heretofore it has been the practice to depend upon the momentum of the can in delivery from the reversing cradle to the discharge platform which necessarily involved variation in the speed with which the transfer was made and would result in inaccurate timing with respect to cooperating cover applying mechanism.

Other objects will appear hereinafter.

30 The invention consists in the combinations and arrangements of parts hereinafter described and claimed.

35 The invention will be best understood by reference to the accompanying drawings forming a part of this specification, and in which:

40 Fig. 1 is a side elevational view taken at the left side of the delivery end of a can washing machine, showing the construction of the present invention incorporated in a can reversing cradle, the parts being in normal position to receive a can in inverted position;

45 Fig. 2 is a vertical sectional view taken on the line 2-2 of Fig. 3, showing the reversing cradle and can ejecting mechanism of the present invention in positions assumed immediately following a can reversing and ejecting operation; and

50 Fig. 3 is a front elevational view taken at the delivery end of the machine, showing the

can reversing and ejecting mechanism in the relative positions shown in Fig. 2.

The preferred embodiment of the invention is illustrated in association with a reversing cradle 5 provided with parallel semi-circular plates 6 and 7 which are joined by a sleeve member 8 adapted to fit upon shaft 9 which is journaled in bearings 10 and 11 supported by brackets 12 and 13, respectively, secured to stationary machine frame members 14. 55 For the purpose of reversing a can from an inverted to an upright position, cradle 5 is adapted to rotate upon the shaft 9 from the position shown in Fig. 1 to the position shown in Fig. 2, and this oscillatory rotation of reversing cradle 5 is imparted by means of a horizontally reciprocating rack 15 supported by roller 16, and provided with teeth 17 which are adapted to engage transverse rods 18, which extend between plates 6 and 7 and are arranged circularly about pivotal shaft 9 as a center. 65

For purposes of illustration the preferred embodiment of the invention is shown in conjunction with can delivering and cover applying mechanism as covered by the joint application of the present applicant and Harry D. Lathrop, filed concurrently herewith on July 16, 1928, Serial No. 293,078, inasmuch as the device of the present invention may be advantageously employed in connection with machines of the type disclosed in said co-pending application. Reciprocatory motion may be imparted to rack 15 by any suitable power means, the forward limit of reciprocation being shown in Fig. 1 and the reverse limit in Fig. 2. Disposed beneath rack 15 and adapted to reciprocate in unison therewith is a second rack 19, maintained in alignment by hanging bracket 20 which is carried by transversely extending shaft 21 journaled in bearings 22 and 23, which in turn is supported by brackets 24 and 25, respectively. Teeth 26 of rack 19 mesh with pinion 27 secured to shaft 21 for the purpose of driving sprockets 28 and 29 which are joined by hub 30 keyed to shaft 21, and which propel sprocket chains 31 and 32, the upper runs of which travel over sprockets 33 and 34, respectively, mounted for idle rotation upon shaft 35. A 100

cover elevating platform 36 is pivotally mounted upon chains 31 and 32 and is adapted to reciprocate vertically between the lowermost position shown in Fig. 1, and the uppermost tilted position shown in Fig. 2, the construction and arrangement being such that the upward reciprocating travel takes place during a can reversing rotation of cradle 5, and the downward travel of platform 36 takes place during the return reverse rotation of cradle 5.

Fig. 2 shows the momentary position of a can cover when platform 36 has reached its uppermost limit of travel after which the cover rolls in contact with guiding horn 37 and drops upon incline platform 38 as shown in Fig. 3, where it is held by a stop plate 39, mounted upon an L-shaped bracket 40, pivoted to the frame of the machine at 41, and provided with a shoe 42 pivoted at 43 and having a counterweight 44. As cradle 5 rotates clockwise in the position shown in Fig. 2, projection 45 engages shoe 42, thus raising stop plate 39 which allows the cover to drop upon inclined chute 46 which cooperates with pivoted plate 47 to guide the cover in application to a can simultaneously deposited upon discharged platform 48, as shown in Fig. 2. During the reverse rotation of cradle 5 engagement of projection 45 with shoe 42 causes the latter to swing upon pivotal connection 43.

For the purpose of effectively engaging a can, cradle 5 is preferably composed of two semi-cylindrical members 49 and 50 provided with strips of rubber or other composition 51 and 52 to prevent slippage of the can following engagement, and the opposite end of cradle 5 is provided with a ledge member 53 adapted to engage the bottom of a can as shown in Fig. 1. From the foregoing description, it will be noted that it is necessary for a can A to be rapidly ejected from cradle 5 in position on discharged platform 48 in order that cover B will be deposited in position as shown in Fig. 2 upon being released by the raising of stop plate 39, and for this purpose an ejecting mechanism is provided which consists of a member having a cylindrical portion 54 disposed between plates 49 and 50 to complete the semi-cylindrical contour of the latter. Member 54 is provided with two curved arm members 55 and 56, the ends of which are pivotally mounted upon rod 57 which extends between plates 6 and 7, and is suitably bolted in place. Centrally disposed between members 49 and 50 is a second curved member 58 constructed to follow the cylindrical curvature of members 49 and 50, and which is similarly provided with two curved arm members 59 and 60, which, however, extend through slots 61 and 62, respectively, whereby to normally maintain member 58 in position. The ends of arms 59 and 60 are pivotally mounted upon rod 63 which extends between plates 6 and 7.

Pivotally secured to the central portion of member 58 is a link 64 provided with a slot 65 which is adapted to have sliding engagement with transverse rod 66 which extends between arms 55 and 56, and which is provided with guiding collars 67. As shown in Fig. 3, slots 61 and 62 extend into plates 6 and 7 whereby to allow member 58 to normally lie flush with the surface of members 49 and 50, and the arrangement of the link connection 64 is such that in this position member 54 is likewise maintained flush with the surface of members 49 and 50. Extending between the sides of each of the brackets 12 and 13 is a curved rod 68 threaded at both ends for the reception of adjusting nuts 69 and provided intermediate the threaded portion with a roller 70. When reversing cradle 5 is in the initial can engaging position shown in Fig. 1, members 54 and 58 rest by gravity with their surfaces flush with the cylindrical surfaces of members 49 and 50, permitting complete engagement of the cradle with the can to be reversed. These relative positions remain the same during the major portion of the can reversing rotation of reversing cradle 5, but as the cradle nears the end of its reversing rotation, each roller 70 engages the rear edge of the adjacent arms 59 and 60, forcing member 58 outwardly, and simultaneously, by means of link connection 64, member 54 is carried outwardly. This operation takes place quite rapidly during the final stage of the can reversing rotation and contact of members 54 and 58 with the can surface to eject the can from the cradle to the upright position shown in Fig. 2. Undoubtedly the operation will be understood from the foregoing description. Cradle 52 is adapted to continuously oscillate and reverse a can from an inverted to an upright position during each forward rotation. Simultaneously covers are elevated by vertical reciprocating platform 36. It will be obvious that cover applying mechanism is not an essential part nor necessarily required in connection with the operation of a device of the present invention, although the invention is particularly adapted to use in combination with cover applying mechanism.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

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

1. The combination in a can washing machine of a pivotally mounted can reversing

cradle adapted to be rotated for reversing a can from inverted to upright position; a can ejecting member pivotally mounted upon said cradle and adapted upon actuation to project outwardly from the can engaging surface of said cradle; and means for actuating said can ejecting member during the final stage of each can reversing operation, substantially as described.

cradle; a second can ejecting member connected by a link to said first mentioned member; and means mounted upon said frame of the machine for actuating said members during the final stage of each can reversing operation, substantially as described.

8. The combination with a can washing machine of a pivotally mounted can reversing cradle having a semi-cylindrical can engaging surface; a can ejecting member having a face portion normally disposed in the plane of said cradle can engaging surface; said can ejecting member provided with an arm portion pivotally mounted upon said cradle; and means for actuating said can ejecting member during the final stage of each can reversing operation, substantially as described.

9. The combination with a can washing machine of a pivotally mounted can reversing cradle having a semi-cylindrical can engaging surface; a can ejecting member having a face portion normally disposed in the plane of said cradle can engaging surface; said can ejecting member provided with an arm portion pivotally mounted upon said cradle; and means mounted upon the frame of the machine for actuating said can ejecting member during the final stage of each can reversing operation, substantially as described.

10. The combination with a can washing machine of a pivotally mounted can reversing cradle having a semi-cylindrical can engaging surface; a can ejecting member having a face portion normally disposed in the plane of said cradle can engaging surface; said can ejecting member provided with an arm portion pivotally mounted upon said cradle; and a roller mounted upon the frame of the machine and adapted to actuate said can ejecting member during the final stage of each can reversing operation, substantially as described.

11. The combination with a can washing machine of a pivotally mounted can reversing cradle having a semi-cylindrical can engaging surface; a can ejecting member having a face portion normally disposed in the plane of said cradle can engaging surface; said can ejecting member provided with an arm portion pivotally mounted upon said cradle; a second can ejecting member operatively connected to said first mentioned member; and means for actuating said can ejecting members during the final stage of each can reversing operation, substantially as described.

12. The combination with a can washing machine of a pivotally mounted can reversing cradle having a semi-cylindrical can engaging surface; a can ejecting member having a face portion normally disposed in the plane of said cradle can engaging surface; said can ejecting member provided with an

2. The combination in a can washing machine of a pivotally mounted can reversing cradle adapted to be rotated for reversing a can from inverted to upright position; a can ejecting member pivotally mounted upon said cradle and adapted upon actuation to project outwardly from the can engaging surface of said cradle; and means mounted upon the frame of the machine for actuating said can ejecting member during the final stage of each can reversing operation, substantially as described.

3. The combination in a can washing machine of a pivotally mounted can reversing cradle adapted to be rotated for reversing a can from inverted to upright position; a can ejecting member pivotally mounted upon said cradle and adapted upon actuation to project outwardly from the can engaging surface of said cradle; and a roller mounted upon the frame of the machine and adapted to actuate said can ejecting member during the final stage of each can reversing operation, substantially as described.

4. The combination in a can washing machine of a pivotally mounted can reversing cradle; a can ejecting member pivotally mounted upon said cradle; a second can ejecting member operatively connected to said first mentioned member; and means for actuating said members during the final stage of each can reversing operation, substantially as described.

5. The combination in a can washing machine of a pivotally mounted can reversing cradle; a can ejecting member pivotally mounted upon said cradle; a second can ejecting member connected by a link to said first mentioned member; and means for actuating said members during the final stage of each can reversing operation, substantially as described.

6. The combination in a can washing machine of a can discharge frame; a pivotally mounted can reversing cradle; a can ejecting member pivotally mounted upon said cradle; a second can ejecting member operatively connected to said first mentioned member; and means mounted upon said frame of the machine for actuating said members during the final stage of each can reversing operation, substantially as described.

7. The combination in a can washing machine of a can discharge frame; a pivotally mounted can reversing cradle; a can ejecting member pivotally mounted upon said

arm portion pivotally mounted upon said cradle; a second can ejecting member operatively connected to said first mentioned member; and means mounted upon the frame of the machine for actuating said can ejecting members during the final stage of each can reversing operation, substantially as described.

13. The combination with a can washing machine of a pivotally mounted can reversing cradle having a semi-cylindrical can engaging surface; a can ejecting member having a face portion normally disposed in the plane of said cradle can engaging surface; said can ejecting member provided with an arm portion pivotally mounted upon said cradle; a second can ejecting member operatively connected to said first mentioned member; and a roller mounted upon the frame of the machine and adapted to actuate said can ejecting members during the final stage of each can reversing operation, substantially as described.

In testimony whereof I have signed my name to this specification.

WALTER H. PAULSON.

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