E. W. MORTER.

RECEPTACLE TRANSFERRING DEVICE.

APPLICATION FILED APR. 15, 1921.

1,420,936.

Patented June 27, 1922.

2 SHEETS—SHEET 1.

FIG. 1

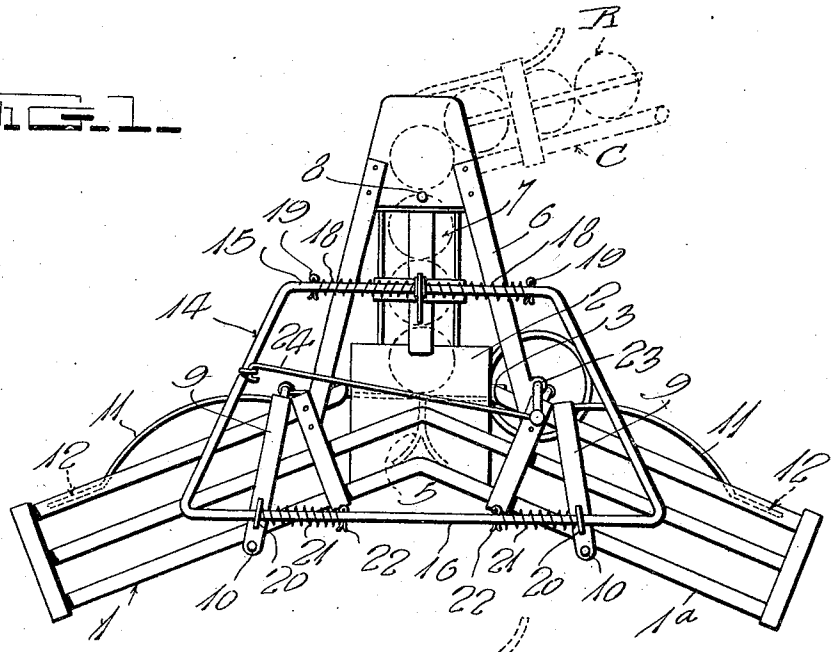
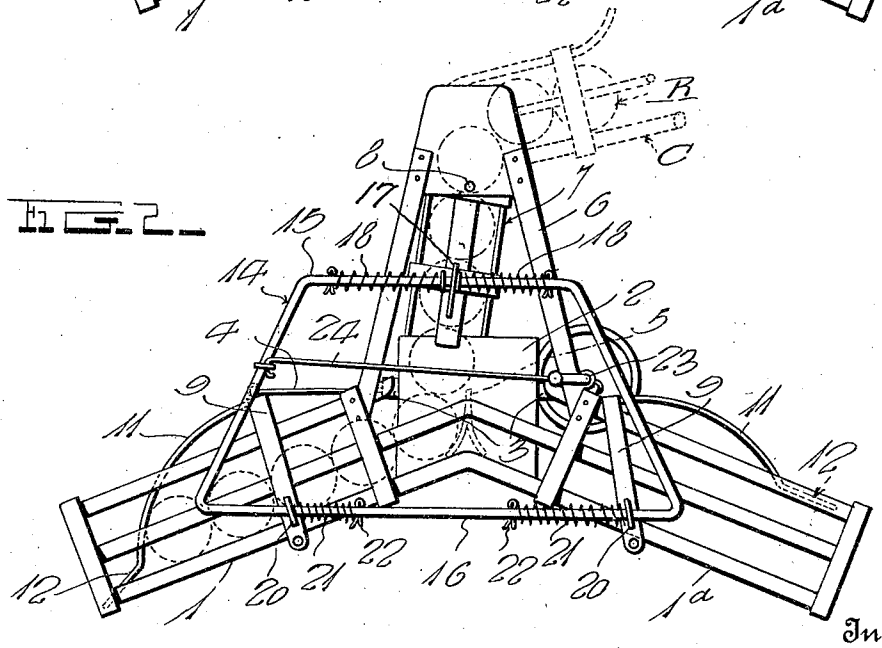


FIG. 2



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2 SHEETS—SHEET 2.

FIG. 3.

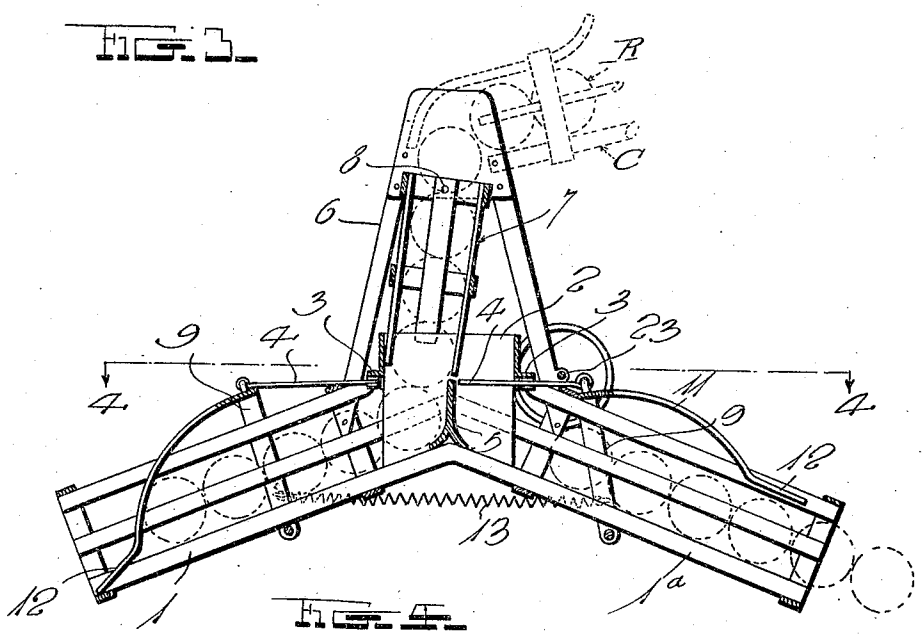


FIG. 4.

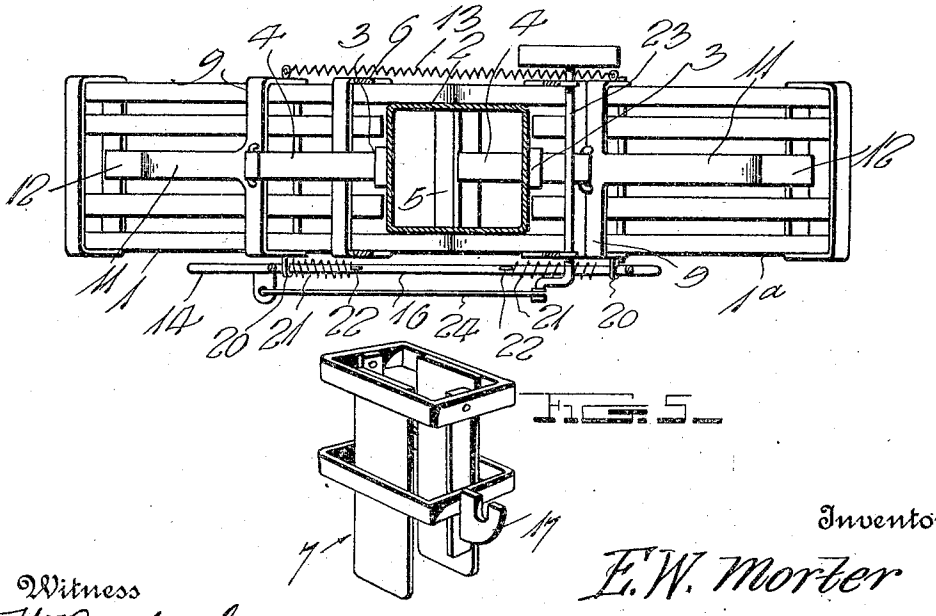


FIG. 5.

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RECEPTACLE-TRANSFERRING DEVICE.

1,420,936. Specification of Letters Patent. Patented June 27, 1922.

Application filed April 15, 1921. Serial No. 461,559.

To all whom it may concern:

Be it known that I, EARL WILBER MORTER, citizen of the United States, residing at Washington Court House, in the county of Fayette and State of Ohio, have invented certain new and useful Improvements in Receptacle-Transferring Devices; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in devices for transferring fruit and vegetable cans or other receptacles to a number of branch chutes, so as to carry them to different machines, for filling or for other purposes.

One object of the invention is to provide a device in which the feed will automatically cease if, for any reason, the receptacles previously discharged into either of the branch chutes, are not removed from said chutes by the time the next feeding operation should take place.

Another object is to provide means for alternately discharging a predetermined number of receptacles into the branch chutes and to provide common means to both check the downward movement of the receptacles in the chutes and for holding the entrance gates of these chutes closed until the receptacles previously delivered have moved a predetermined distance in the chutes.

Further objects are to provide novel means for operating the gates of the branch chutes and for moving the main chute alternately into operative relation with said branch chutes said operating means being of such form as to move idly in case the gates are held against the opening or if a receptacle should jam between the main chute and one of the branch chutes.

While the features above referred to are herein disclosed in connection with a receptacle transferring device which delivers receptacles from a main chute into a pair of branch chutes, certain of these features could well be applied to equal advantage, to receptacle transferring machines of other types. Hence, the present disclosure is to be considered merely as one illustration of the manner of carrying the novel features into practice.

Figure 1 of the accompanying drawings is a side elevation of a receptacle transferring device constructed in accordance with my invention, all parts being shown in the positions which they ordinarily assume when the movable main chute is in neutral position.

Figure 2 is a duplicate of Fig. 1, with the exception that it illustrates the relation of parts, under ordinary circumstances, when the main chute is shifted to operative relation with one of the branch chutes.

Figure 3 is a central vertical sectional view with the several parts in the positions shown in Fig. 2.

Figure 4 is a horizontal sectional view as indicated by line 4—4 of Fig. 3.

Figure 5 is a perspective view of the main delivery chute.

In the drawings above briefly described the numerals 1 and 1ª designate a pair of downwardly diverging branch chutes which are connected at their upper ends and here provided with a box-like entrance throat 2, opposite sides of this throat having guides 3 through which horizontal gates 4 are movable to control the individual entrances of the two chutes, which entrances are separated by a vertical partition 5 which extends across the throat 2.

An appropriate frame 6 rises from the upper ends of the chutes 1 and 1ª and a main vertical chute 7 is pivoted at its upper end to said frame as indicated at 8, so as to swing alternately into operative relation with either of the branch chutes 1 and 1ª.

All of the chutes are preferably, but not necessarily of the open work construction disclosed. The receptacles R are supplied to the main vertical chute 7 by any appropriate means such as a chute C which is shown in dotted lines, so that said chute is constantly filled with these receptacles in readiness to discharge a pre-determined number thereof into first one branch chute and then the other, the gates 4 being synchronized with the chute 7 so as to automatically open at the proper time to prevent the discharge of receptacles from said chute 7 into one or the other of the branch chutes 1—1ª. I make novel provision, however, to hold the gates 4 against opening if, for any reason, the receptacles previously deposited in one or the other of the branch chutes, have not travelled a predetermined distance in said chute. Thus, if the machines to which the chutes 1 and 1ª lead, should be out of order and consequently not handling the receptacles supplied thereto, the supply will auto-

matically cut off so that no damage will take place.

In the present showing, the outer ends of the gate 4 are connected with arched yokes 9, which yokes straddle the chutes 1 and 1ª and are pivoted thereto as indicated at 10. The crown bar of each yoke 9 is provided with an outwardly extending arm 11 which curves downwardly and terminates in a foot 12. The foot 12 of each of the chutes 1—1ª is normally disposed at the upper side thereof as shown in Fig. 1 when the chutes are filled with receptacles and the feet in question will then contact with the receptacles to prevent opening of the gates 4 until these receptacles descend to a predetermined extent. When this occurs, however, the arm 11 may swing downwardly to permit opening of the gates and discharge of additional receptacles. A spring 13 preferably connects the yoke 9 at one side of the machine for moving said yokes inwardly toward each other to close the gates 4.

In addition to serving as means for preventing opening of the gates 4 when the chutes 1 and 1ª are filled with receptacles, the arms 11 perform the function of checking the downward passage of the receptacles in said chutes 1 and 1ª as will be seen by reference to Figs. 2 and 3. The moment one of the gates 4 is opened, the arm 11 connected with said gate swings downwardly across its respective chute. Thus, only a predetermined number of receptacles are permitted to enter this chute from the main chute 7 which then communicates therewith. The moment this main chute moves from communication with the branch chute to which it has just delivered receptacles, the gate 4 of this branch chute closes and the arm 11 consequently rises, thereby releasing the receptacles and permitting them to roll downwardly to the filling or other machine. If, for any reason the receptacles do not travel to the intended extent, the arm 11 will prevent the gate 4 from again opening until the trouble has been rectified.

I have devised a novel means for operating the gate 4 and the chute 7, while permitting these parts to remain at a standstill if conditions require. In the present showing, I have provided a proceeding and receding operating member yieldably connected with the yokes 9 and the chute 7, said member being shown in the form of an open frame 14 having parallel upper and lower rods 15 and 16. The rod 15 passes slidably through a guide 17 secured to the chute 7 and coil springs 18 surround said rod and bear at their inner ends against said guide, the outer ends of said springs re-acting against cotter pins 19 or other appropriate stops held by the rod 15. The stops may if desired be adjustable to vary the tension of the springs 18.

The lower rod 16 of the frame 14 passes slidably through guides 20 on one leg of the yokes 9, coil springs 21 being mounted on said rod and bearing against the inner opposed sides of said guides 20. These springs press against cotter pins or the like 22 carried by the rod 16 and adjustable if desired to vary the tension of said springs.

By means of any appropriate mechanism, I reciprocate the operating member 14, a driven crank shaft 23 and a connecting rod 24 being shown for this purpose. When the frame 14 is forced in one direction, for instance to the left as shown in Fig. 2, one of the springs 18 tilts the main chute 7 to the left, discharging the receptacles into the branch chute 1. At the same time one of the springs 21 forces to the left on the yoke 9 of the chute 1, thereby opening the gate 4 of this chute and simultaneously lowering the arm 11 thereof. The result is that receptacles enter the chute 1 from the main chute 7 and are limited in their downward movement by the arm 11, so that only a predetermined number may enter. Then, as the frame 14 shifts to the right, the chute 7 swings into operative relation with the chute 1ª, the gate 4 of this chute is opened and its arm 11 is lowered. During this movement, however, the previously opened gate is closed under the action of the coiled spring 21 and since this movement raises the arm 11, the receptacles in the chute 1 are released to descend to their destination. If this destination is not reached and some of the receptacles remain under the shoe 12, this shoe will not permit the yoke 9 to move to again open the gate 4 but no injurious result will occur upon the next stroke of the frame 14, due to the yielding connection provided between each yoke and said frame. Furthermore, if, by any chance a receptacle should jam between the partition 5 and the lower end of the chute 7, the springs 18 will permit said chute to remain immovable while the frame 14 continues to reciprocate. Hence, no damage will be done either to the receptacles or to the machine.

From the foregoing, taken in connection with the accompanying drawings, it will be seen that I have provided a simple and inexpensive, yet a highly efficient and reliable machine for performing the required duties. Since excellent results may be obtained with the details disclosed, these details may be followed if desired. I wish it to be understood, however, that within the scope of the invention as claimed, numerous changes may be made both in the general structure of the machine and in the individual features thereof.

I claim:

1. A receptacle transferring device comprising a main chute, a pair of branch chutes, means for relatively shifting said

main and branch chutes to alternately place the former in operative relation with the latter, and means synchronized with said chute shifting means for controlling the entrances of said branch chutes.

2. A receptacle transferring device comprising a pair of fixed branch chutes, a main chute movably mounted, means for moving said main chute alternately into operative relation with said branch chutes, and means synchronized with the movement of said main chute for controlling the entrances of said branch chutes.

3. A receptacle transferring device comprising a main chute, a pair of branch chutes, means for controlling the entrances of said branch chutes, and yieldable operating means for actuating said entrance controlling means and for relatively shifting said main and branch chutes to alternately place the latter in operative relation with the former.

4. A receptacle transferring device comprising a pair of branch chutes, a main chute mounted for movement alternately into operative relation with said branch chutes, gates controlling the entrances of said branch chutes, a proceeding and receding operating member, and yielding operating connections between said operating member and said main chute and gates.

5. A receptacle transferring device comprising a pair of branch chutes, a main chute mounted for movement alternately into operative relation with said branch chutes, gates controlling the entrances of said branch chutes, a proceeding and receding operating member having parallel rods adjacent said main and branch chutes, guides connected with said main chutes and said gates and slidably receiving said rods, and springs mounted on said rods and engaged with said guides, whereby to provide yieldable means for operating said main chute and gates.

6. A receptacle transferring device comprising a pair of branch chutes, means for feeding receptacles alternately into said chutes, gates controlling the entrance of receptacles into said chutes, receptacle checks in said chutes, and means synchronized with said feeding means for actuating the gate and check of each chute to apply the check when the gate is opened and to release said check when the gate is closed.

7. A receptacle transferring device comprising a pair of branch chutes, a main chute for feeding receptacles into said branch chutes, means for relatively moving said main and branch chutes to place said main chute alternately in operative relation with said branch chutes, gates controlling the entrances of said branch chutes, receptacle checks in said branch chutes, and means for actuating the gate and check of each branch chute to apply the check when the gate is opened and to release said check when the gate is closed, said actuating means being synchronized with said chute moving means.

8. A receptacle transferring device comprising a pair of fixed branch chutes, a main chute pivotally mounted, means for swinging said main chute alternately into operative relation with said branch chutes, gates controlling the entrances of said branch chutes, receptacle checks in said branch chutes, and means for actuating the gate and check of each branch chute to apply the check when the gate is opened and to release said check when the gate is closed, said actuating means being synchronized with said chute moving means.

9. A receptacle transferring device comprising a chute, means for intermittently discharging receptacles therein, and automatic means for closing the entrance of said chute until the receptacles last delivered thereto have moved a predetermined distance.

10. A receptacle transferring device comprising a chute, means for intermittently feeding receptacles into said chute, a gate controlling the entrance of said chute, means synchronized with said feeding means for actuating said gate, and means for preventing opening of said gate if the receptacles previously discharged into the chute clog the latter.

11. A receptacle transferring device comprising a chute, means for intermittently feeding receptacles into said chute, a gate controlling the entrance of said chute, yieldable means synchronized with said feeding means for actuating said gate, and a member connected with said gate and movable across said chute when said gate opens, said member being adapted to strike the receptacles if the chute is clogged, thereby preventing opening of the gate and further discharge of receptacles into said chute.

12. A receptacle transferring device comprising a chute, means for intermittently feeding receptacles into said chute, a gate controlling the entrance of said chute, a pivoted member at one side of said chute connected with said gate, yielding means for oscillating said pivoted member to open and close said gate, and an arm extending from said pivoted member and movable across said chute when said gate opens, said arm being adapted to strike the receptacles previously discharged into the chute.

13. A receptacle transferring device comprising a chute, means for intermittently feeding receptacles into said chute, a gate controlling the entrance of said chute, a pivoted member at one side of said chute connected with said gate, an arm extending from said pivoted member and movable across said chute when said gate opens, a

proceeding and receding operating member slidably connected with said pivoted member, and yielding means for operating said pivoted member from said operating member.

14. A receptacle transferring device comprising a fixed chute, a movable chute for intermittent communication with said fixed chute, and yielding means for shifting said movable chute into operative and inoperative relation with said fixed chute.

15. A receptacle transferring device comprising a fixed chute, a movable chute for intermittent communication with said fixed chute, a proceeding and receding operating member slidably connected with said movable chute, and yielding means for operating said movable chute from said operating member.

16. A receptacle transferring device comprising a chute, a receptacle-controlling device movable across said chute, and yieldable operating means for said controlling device.

17. A receptacle transferring device comprising a chute, a receptacle-controlling device movable across said chute, a proceeding and receding operating member and means connecting said receptacle-controlling device with said operating member, including a guide slidably receiving said operating member, and a spring on said operating member engaging said guide.

18. A receptacle transferring device comprising a pair of downwardly diverging branch chutes, a frame rising from said chutes, a vertical main chute pivoted to said frame for movement alternately to the entrances of said branch chutes, sliding gates controlling said entrances, arched yokes pivoted to said gates, said yokes straddling and being pivoted to said branch chutes, receptacle checking arms extending from said yokes into said branch chutes, guides on said yokes and said main chute, a reciprocatory operating frame having horizontal rods slidable in said guides, and springs on said rods engaging said guides.

In testimony whereof I have hereunto set my hand.

EARL WILBER MORTER.