T. B. LUNDIN.

PACKAGE FILLING MACHINE.

APPLICATION FILED JUNE 17, 1912.

1,067,994. Patented July 22, 1913.

2 SHEETS—SHEET 1.

FIG. 1.

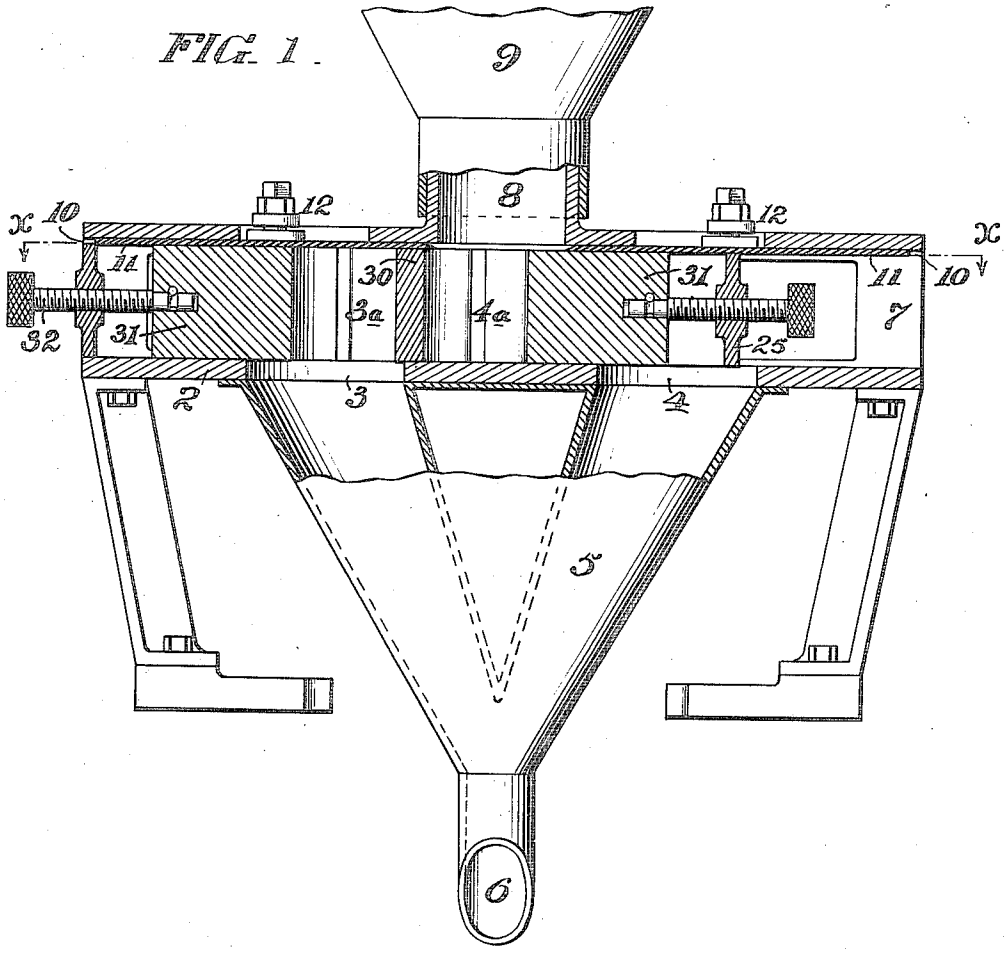
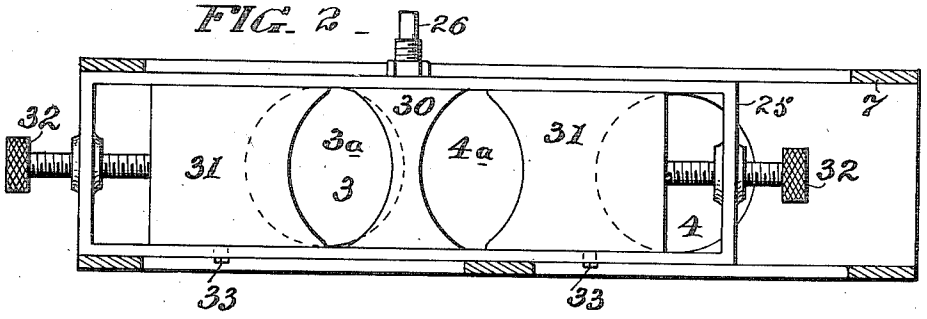


FIG. 2.



WITNESSES

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2 SHEETS—SHEET 2.

FIG. 3.

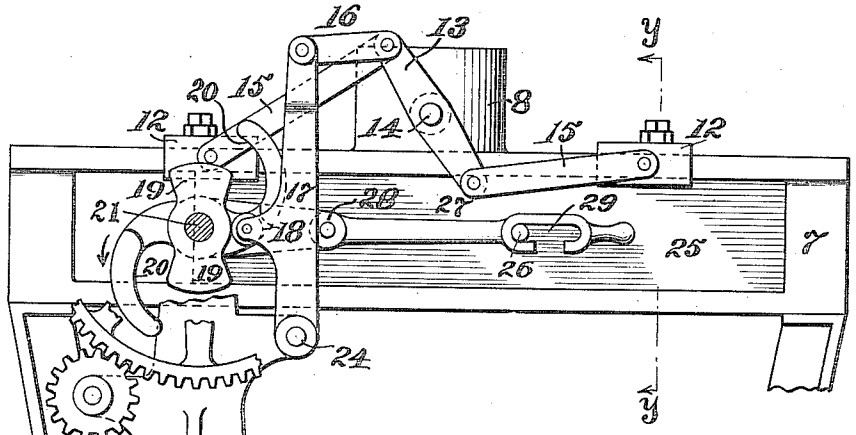


FIG. 5.

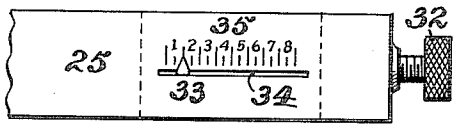
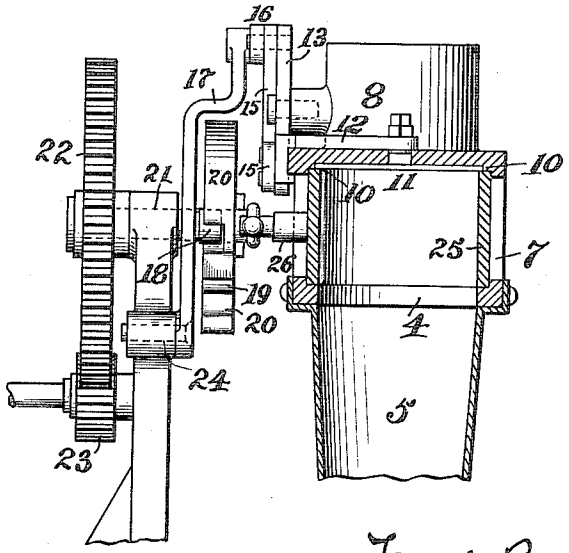


FIG. 4.



WITNESSES

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PACKAGE-FILLING MACHINE.

1,067,994. Specification of Letters Patent. **Patented July 22, 1913.**

Application filed June 17, 1912. Serial No. 704,034.

To all whom it may concern:

Be it known that I, TRUED B. LUNDIN, citizen of the United States, and resident of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented an Improvement in Package-Filling Machines, of which the following is a specification.

My invention has reference to package filling machines and consists of certain improvements which are fully set forth in the following specification and shown in the accompanying drawings which form a part thereof.

The object of my invention is to subdivide a mass of material capable of being fed through a hopper, into a plurality of smaller quantities in reasonably rapid succession and deliver the said subdivided portions from a hopper for packaging.

My object is also to provide in such machine capacity for varying the quantity of the portions into which the material is subdivided, so that packages of greater or less quantity may be secured by the use of the same machine.

My invention consists of a frame having a feeding aperture at the top through which the materials to be subdivided are fed, and two apertures at the bottom through which the material in the measured or subdivided form may be discharged, the latter preferably delivering the material through a common delivery chute, reciprocating knife mechanism adapted to slice off the material which may extend downward through the feeding aperture, and reciprocating receivers which receive the material thus cut off from the main body and deliver it alternately into the discharging apertures; further, in providing means for adjusting the capacity of the receiver chambers to regulate the quantity of material which is to be thus cut off and discharged at each reciprocation; further, in the mechanism above specified when the reciprocating knife mechanism is composed of two oppositely moving blades and the receiver is provided with two receiving chambers and operating mechanism for operating the cutting blades and receiver, and in which the cutting blades are oppositely reciprocated twice as often as the receiver is reciprocated.

My invention also comprehends other details of construction which, together with those above specified, will be better understood by reference to the drawings, in which:—

Figure 1 is a sectional elevation of a package filling machine embodying my invention; Fig. 2 is a sectional plan view of the same on line x—x of Fig. 1; Fig. 3 is a side elevation of my improved machine more particularly showing the operating mechanism for the cutter blades and receiver; Fig. 4 is a transverse section of my improved machine taken on line y—y of Fig. 3; and Fig. 5 is a detail showing the adjusting gage on the receiver.

2 is the main frame of the machine and is provided with a longitudinal rectangular guideway 7 provided at the top with a feeding inlet 8 through which the material from the hopper 9 may be supplied. This main frame is also provided below the longitudinal guideway 7 with discharging apertures 3 and 4 opening through the floor of the said passage 7 and discharging into a suitable hopper 5 terminating in a chute 6 from which the materials may be delivered to the bags or packages. The two discharge passages 3 and 4 are arranged out of vertical alinement with the feeding passage 8, but all of the said passages 3, 4 and 8 are preferably in the same vertical plane in the direction of the length of the guiding passage 7. The floor of the passage 7 directly below the feeding aperture 8 is flat and continuous, so that any material which passes through the said feeding aperture will be supported upon the floor between the two discharging apertures 3 and 4.

Arranged at each side of the feeding aperture 8 and guided in the horizontal guide slots 10 at the upper part of the guideway 7 are the cutter blades 11, said blades being arranged to be reciprocated simultaneously in opposite directions for the purpose of cutting off the material which has passed through the feeding aperture 8 and is resting upon the floor below, from the mass of material in the hopper 9 which is to be subdivided. Arranged in the longitudinal guide passage 7 and filling the same in vertical and transverse directions is a receiver frame 25 which is like the sides of a box without top or bottom, and this frame is provided with a laterally extending stud 26 by which it may be reciprocated. Arranged transversely across the middle of this receiver frame is a filling piece 30 which is prefer-

ably curved on its opposite faces. Adjustably arranged within the receiver frame 25 and between the filling piece 30 and the ends of the frame are the blocks 31, and the ends of said blocks directed toward the filling piece 30 are preferably curved so that when said blocks are adjusted a maximum distance away from the filling piece 30, the receiver apertures 3^a and 4^a will approximate a tubular compartment substantially equal in cross sectional area to that of the feeding aperture 8. When, however, the blocks 31 are adjusted toward each other and toward the filling piece 30, as indicated in Fig. 2, said receiving chambers 3^a and 4^a will have a cross sectional area less than that of the feeding aperture 8, and consequently the amount of material received at each operation will be less than in the first instance. These blocks 31 may be adjusted by adjusting screws 32, the inner ends of which are attached to the blocks while the screw threaded portions work through the ends of the receiver frame 25. Any other suitable manner of adjusting the blocks 31 within the receiver frame may be employed in lieu of that shown.

By reference to Fig. 1, it will be seen that the receiver chambers 3^a and 4^a are at a distance apart substantially equal to the lateral distance apart of the feeding aperture 8 and the discharging apertures 3 and 4, so that when one of these receiver chambers is over one of the discharging apertures, the other receiving chamber is over the solid floor and immediately beneath the feeding aperture 8. The blocks 31 may be provided with pointers 33 which extend through slots 34 in the receiver frame 25, and may indicate their adjustment by the employment of scales 35 on the receiver frames over which the pointers may be adjusted, as clearly indicated in Figs. 2 and 5. In this way, the two blocks 31 may be adjusted to an equal degree by merely examining the respective pointers and scales while operating the adjusting screws 32.

The operating mechanism for reciprocating the cutter blades 11 and the receiver devices is more fully shown in Figs. 3 and 4, to which reference will now be made. Each of the cutter blades is secured to a sliding frame 12, and said sliding frames 12 are connected by links 15 to the opposite ends of a rocker arm 13 which is pivoted intermediate of its ends at 14. This rocker arm 13 is rocked by a link 16 and a lever 17 pivoted at 24 and having a roller 18 which coöperates with cam mechanism for rocking the lever 17 alternately in opposite directions. The cam mechanism is secured upon a cam shaft 21, said shaft being provided with a supporting gear 22 which may be driven by a pinion 23 to which the general power for operating the machine is applied. The cam mechanism shown by way of example for rocking the lever 17 consists of the cam portions 19 for moving the lever 17 in one direction, and the curved cam portions 20 for moving the lever 17 in the opposite direction. It will also be seen that this mechanism is one in which there is a dwell in the reciprocating of the cutter blades in opposite directions, that is to say when they have approached each other to cut off the material, they remain in that position for a period of time substantially sufficient to enable the receiver chamber which has been filled to be shifted to the discharging position, and the other or empty receiver chamber brought into alinement with the feeding aperture. Similarly, there is a dwell when the blades are farthest apart, as in Fig. 1, to insure the proper filling of the receiver chamber.

I do not restrict myself to the particular shape of the cams shown, as they may be made in other forms if so desired, and in fact the operation of the cutter blades may be accomplished in any suitable manner. The inner end of the cam shaft 21 is provided with a crank 28 to which a rod 27 is hinged, said rod having at its free end a longitudinal slot 29 into which the stud 26 extends, said stud being, as heretofore stated, on and secured to the receiver frame 25. By the rotation of the crank 28, the receiver frame will be reciprocated, and by reason of the elongated slot 29 the receiver will be permitted to have a dwell or remain stationary for an interval of time at the end of each single reciprocating, so that the receiver chambers 3^a and 4^a will have opportunity of being filled with the material to be measured. It is evident that this provision for dwell in the reciprocating receiver may be accomplished in any other suitable manner, but it will be seen that the reciprocations of the cutter blades are twice as frequent as the reciprocations of the receiver. The advantage of this particular relation in the number of reciprocations is to enable the receiver to be moved more slowly and remain stationary long enough to insure being filled in the one case and emptied in the other. It will be understood, however, that more broadly considered my improvements would be embodied in the machine although perhaps in a less degree, if only one of the receiving chambers 3^a and 4^a were employed. I prefer, however, that two such receiving chambers shall be employed as the capacity of the machine is thereby doubled.

As it will at times be necessary to control the discharge of the machine, and as it is preferable to do so without stopping the power mechanism thereof, I have provided the slotted portion 29 of the rod 27 with a transverse aperture at the bottom, so that when desired, this rod 27 may be lifted out

of engagement with the stud 26 of the receiver frame, and the operation of the crank 28 will draw said rod 27 forward clear of the stud. The rod may then be allowed to hang down until it is desired to again put the machine into operation, when by a reverse manipulation, the stud 26 may again be put into engagement with the slot 29. This means also provides for releasing the receiver frame 25, so that it may be withdrawn from the guideway 7 of the main frame for purposes of washing and cleaning.

The operation of the machine may be briefly stated as follows:—Assuming the parts to be in the condition shown in Fig. 1, the material from the hopper 9 passes through the aperture 8 and into the receiver 4^a, filling the same; the cutter blades 11 are then moved toward each other to cut off the material which fills the receiver 4^a from that in the hopper; the receiver is then shifted to the right, so that the chamber 4^a is brought above the discharge aperture 4 to permit the contents to be discharged into the hopper 5 while this operation is taking place, the receiver chamber 3^a is brought under the feeding aperture 8 and beneath the blades; the cutter blades 11 are then moved in the opposite direction, to the position shown in Fig. 1, and the material from the hopper 9 is fed into the receiving chamber 3^a; the cutter blades 11 are then moved toward each other to cut off the material within the receiver chamber 3^a, and then the receiver is moved bodily to the left to discharge the contents from the chamber 3^a into the hopper 5, and to bring the chamber 4^a into receiving position below the feeding aperture 8; the blades 11 are then moved apart and the material descends into the chamber 4^a. These various operations are repeated as long as the machine is allowed to run.

While I have shown the construction of the machine in the form which I have preferred in commercial practice thereof, I do not restrict myself to the details, as these may be varied without departing from the spirit of the invention.

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

1. In a package filling machine, the combination of a frame having a guideway provided with a feeding passage at the top and two discharging passages at the bottom out of alinement with the feeding passage, a reciprocating receiver having two receiving chambers so arranged that when one of the receiving chambers is in line with the feeding passage the other receiving chamber is in line with one of the discharging passages, cutter mechanism arranged between the receiver and the feeding passage for cutting off the portion of the material which has passed into the receiving chamber from the main body of the material, and means for operating the cutter mechanism and also the reciprocating receiver by which the cutter mechanism is operated twice as frequently as the receiver.

2. In a package filling machine, the combination of a frame having a guideway provided with a feeding passage at the top and two discharging passages at the bottom out of alinement with the feeding passage, a reciprocating receiver having two receiving chambers so arranged that when one of the receiving chambers is in line with the feeding passage the other receiving chamber is in line with one of the discharging passages, cutter mechanism arranged between the receiver and the feeding passage for cutting off the portion of the material which has passed into the receiving chamber from the main body of the material, and means for operating the cutter mechanism and also the reciprocating receiver by which the cutter mechanism is operated twice as frequently as the receiver said means arranged to cause a dwell at the end of each single reciprocation of the receiver and a dwell with each cutting off operation of the cutter mechanism.

3. In a package filling machine, the combination of a frame having a guideway provided with a feeding passage at the top and two discharging passages at the bottom out of alinement with the feeding passage, a reciprocating receiver having two receiving chambers so arranged that when one of the receiving chambers is in line with the feeding passage the other receiving chamber is in line with one of the discharging passages, means for adjusting the cubical capacity of the receiving chambers to vary the quantity of material in each subdivision, cutter mechanism arranged between the receiver and the feeding passage for cutting off the portion of the material which has passed into the receiving chamber from the main body of the material, and means for operating the cutter mechanism and also the reciprocating receiver by which the cutter mechanism is operated twice as frequently as the receiver.

4. In a package filling machine, the combination of a frame having a guideway provided with a feeding passage at the top and two discharging passages at the bottom out of alinement with the feeding passage, a reciprocating receiver having two receiving chambers so arranged that when one of the receiving chambers is in line with the feeding passage the other receiving chamber is in line with one of the discharging passages the receiver being provided with adjustable sides to the receiver chambers, means carried by the receiver for adjusting the adjust-

able sides of the receiving chambers, indicator mechanism for each of the adjustable sides of the receiving chambers for indicating the extent of the adjustment, cutter mechanism arranged between the receiver and the feeding passage for cutting off the portion of the material which has passed into the receiving chamber from the main body of the material, and means for operating the cutter mechanism and also the reciprocating receiver by which the cutter mechanism is operated twice as frequently as the receiver.

5. In a package filling machine, a main frame having a longitudinal guideway provided with a feeding passage at the top and two discharge passages through the bottom the latter being out of alinement with the feeding passage, a reciprocating receiver structure comprising a box-like frame having a transverse partition and two adjustable blocks within the box-like frame and adjustable toward or from the transverse partition to provide receiving chambers of adjustable capacity, and adjusting screws carried by the box-like frame for adjusting the blocks therein, a hopper device for receiving the discharge from the discharge passages and delivering it through a common chute, oppositely reciprocating cutter blades arranged between the receiver and the feeding passage, and power mechanism for reciprocating the cutter blades and the receiver structure but in which the reciprocations of the cutter blades are twice as frequent as the reciprocations of the receiver mechanism.

6. In a package filling machine, a main frame having a longitudinal guideway provided with a feeding passage at the top and two discharge passages through the bottom the latter being out of alinement with the feeding passage, a reciprocating receiver structure comprising a box-like frame having a transverse partition and two adjustable blocks within the box-like frame and adjustable toward or from the transverse partition to provide receiving chambers of adjustable capacity, and adjusting screws carried by the box-like frame for adjusting the blocks therein, a hopper device for receiving the discharge from the discharge passages and delivering it through a common chute, oppositely reciprocating cutter blades arranged between the receiver and the feeding passage, operating means for reciprocating the cutter blades and the receiver structure but in which the reciprocations of the cutter blades are twice as frequent as the reciprocations of the receiver structure, said receiver structure being connected to the operating means therefor so as to be readily detached therefrom without interfering with the operation of the cutter blades.

7. In a package filling machine, the combination of a frame having a guideway provided with a feeding passage at the top and two discharging passages at the bottom out of alinement with the feeding passage, a reciprocating receiver having two receiving chambers so arranged that when one of the receiving chambers is in line with the feeding passage the other receiving chamber is in line with one of the discharging passages, cutter mechanism arranged between the receiver and the feeding passage for cutting off the portion of the material which has passed into the receiving chamber from the main body of the material, means for operating the cutter mechanism and also the reciprocating receiver by which the cutter mechanism is operated twice as frequently as the receiver, said receiver structure being connected to the operating means so as to be readily detached therefrom without interfering with the operation of the cutter mechanism.

8. In a package filling machine, the combination of the frame having a longitudinal guideway provided with a feeding aperture at the top, a solid floor below the feeding aperture and a discharge aperture to one side of the floor and out of alinement with the feeding aperture, a reciprocating receiver device having a receiving chamber and arranged in the guideway and movable to bring the receiving chamber alternately in alinement with the feeding aperture and with the discharging aperture, cutter mechanism between the receiver device and the feeding aperture, and operating means for operating the cutter mechanism and reciprocating the receiver device but in which the operation of the cutter mechanism is twice as frequent as the reciprocating of the receiver device.

9. In a package filling machine, the combination of the frame having a longitudinal guideway provided with a feeding aperture at the top, a solid floor below the feeding aperture and having a discharge aperture to one side of the floor and out of vertical alinement with the feeding aperture, a reciprocating receiver device having a receiving chamber and arranged in the guideway and movable to bring the receiving chamber alternately in alinement with the feeding aperture and with the discharging aperture, cutter mechanism between the receiver device and the feeding aperture, and operating means for operating the cutter mechanism and reciprocating the receiver device but in which the operation of the cutter mechanism is twice as frequent as the reciprocating of the receiver device and in which the cutter mechanism and receiver device are given a period of dwell with each operation.

10. In a package filling machine, the combination of the frame having a longitudinal

guideway provided with a feeding aperture at the top, a solid floor below the feeding aperture and having a discharge aperture to one side of the floor and out of alinement with the feeding aperture, a reciprocating receiver device having a receiving chamber and arranged in the guideway and movable to bring the receiving chamber alternately in alinement with the feeding aperture and with the discharging aperture, means for adjusting the cubical capacity of the receiver chamber, cutter mechanism between the receiver device and the feeding aperture, and operating means for operating the cutter mechanism and reciprocating the receiver device but in which the operation of the cutter mechanism is twice as frequent as the reciprocations of the receiver device.

In testimony of which invention, I hereunto set my hand.

TRUED B. LUNDIN.

Witnesses:
WM. C. C. MATHEWS,
ELIZABETH GUNN.