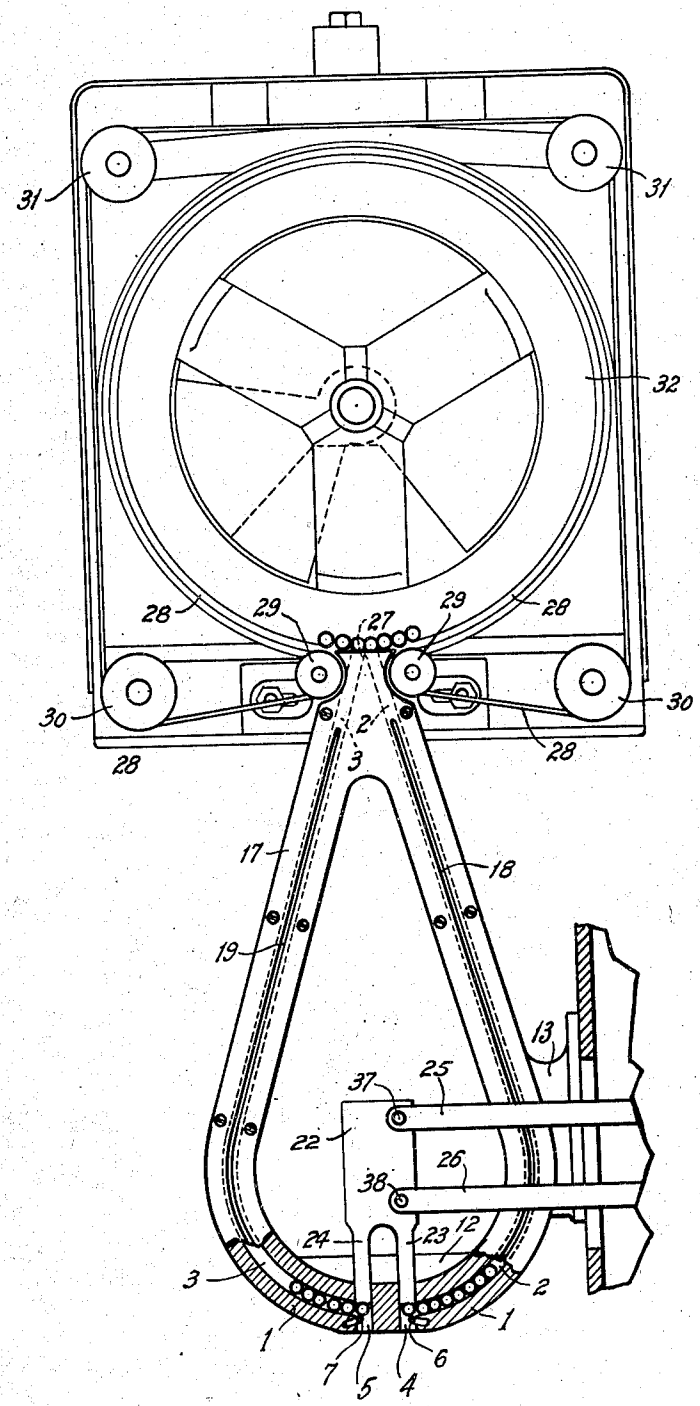
Dec. 28, 1937. L. L. SALFISBERG 2,103,387

ARTICLE FEEDING CONSTRUCTION

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Fig. 1



INVENTOR.
Leroy L. Salfisberg
BY Pardow & Scheidell
ATTORNEY.

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Fig. 2

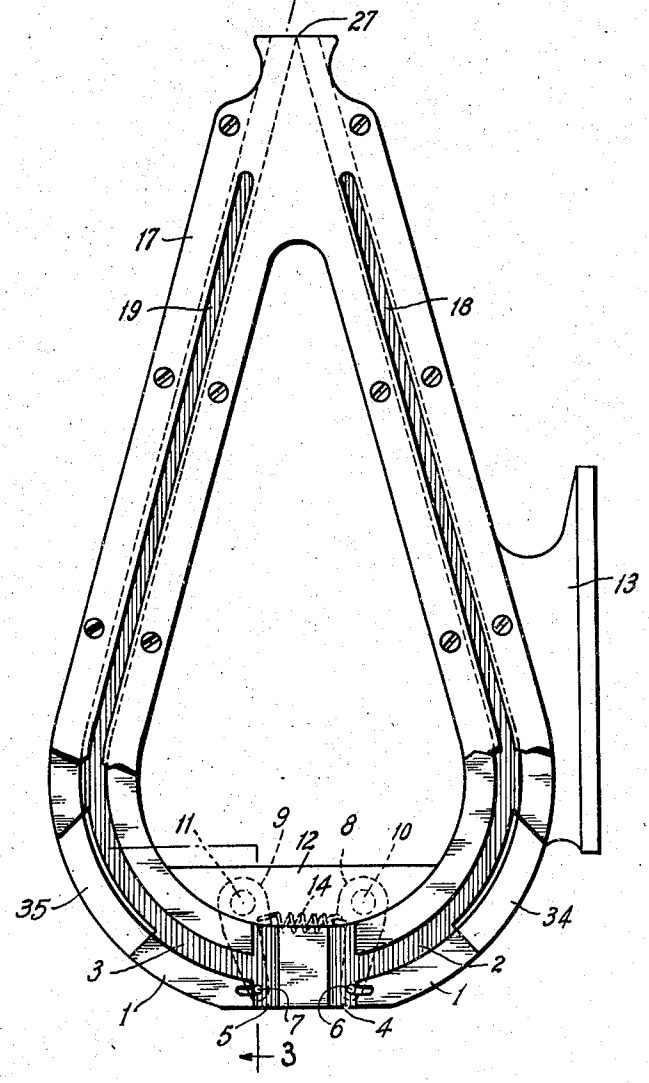


Fig. 3

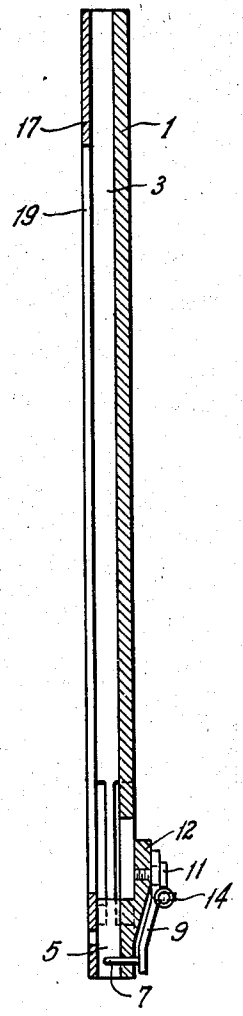
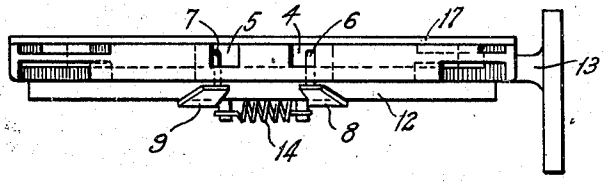


Fig. 4



INVENTOR.
Leroy L. Salfisberg
BY Jordon B Scheidell
ATTORNEY.

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UNITED STATES PATENT OFFICE

2,103,387

ARTICLE FEEDING CONSTRUCTION

Leroy L. Salfisberg, South Orange, N. J., assignor to Ivers-Lee Company, Newark, N. J., a corporation of Delaware

Application October 5, 1935, Serial No. 43,705

8 Claims. (Cl. 226—2)

This invention relates to an improvement in methods of and apparatus for feeding articles to be packaged in machines, more particularly of the type designed to package articles of small configuration such as pellets, medicinal pills and tablets, and the like.

One object of the invention is to provide an apparatus to accurately control the feeding and distribution of small articles as they are withdrawn from a hopper.

Another object is to provide in the feeding device, a dual delivery system to present to opposed layers of packaging strips, articles in predetermined positions and evenly spaced to form plural package formations.

One embodiment of this invention is illustrated in the drawings accompanying the present specification in which like numerals designate similar parts and in which:

Fig. 1 is a front elevation, partially sectioned, of apparatus constructed in accordance with the invention;

Fig. 2 is also an elevation, partially sectioned, illustrating a portion of the apparatus shown in Fig. 1;

Fig. 3 is a vertical sectional view on the line 3—3 of Fig. 2; and

Fig. 4 is a cross sectional view of the lower discharging end of Fig. 2.

Considerable difficulty has heretofore been encountered in presenting at a given point and at a suitable high rate of speed, a succession of articles in a uniform predetermined position, particularly where such articles are withdrawn from a hopper where they have been placed without regard to their individual or relative positions. This invention contemplates employing a feeding machine provided with plural chutes through which articles taken from a hopper descend by gravity to a discharging end where trap members retain the bottommost articles. These bottommost articles are then subjected to expulsion by the action of a bifurcated plunger which, in expelling the articles through the discharge openings, releases the trap members holding the articles, thereby insuring a rapid and continuous feeding of articles in a predetermined position and spacing in plural package fabrication. The apparatus of this invention is particularly adapted to the feeding of spherical and round shaped articles, although it is not to be limited thereto.

Referring to the drawings in detail and particularly to Fig. 1, there is provided a "lyre" shaped mounting frame 1 with a projecting boss 13 having two channels 2 and 3, provided in and positioned upon opposite sides of the frame 1. Covering the channels 2 and 3 there is provided a top cover plate 17 provided with slot openings 18 and 19 to afford visibility to the contents of the channels 2 and 3 and afford means of access in an emergency to correct any tendency of the articles to jam in the channels. At the terminal ends of the channels 2 and 3 there are provided two discharge chambers or chutes 4 and 5, channeled in the frame 1. As the articles descend through the channels 2 and 3 into the discharge chutes 4 and 5, they are held in check by two trap members 6 and 7 which are secured to platens 8 and 9. These platens have pivots 10 and 11 secured to a boss 12. The trap member platens 8 and 9 are joined together and actuated by a spring 14, so that when the trap members 6 and 7 are caused to release the articles from the discharge chambers 4 and 5, the platens 8 and 9 are rotated about their pivots 10 and 11 and away from each other.

When the articles in the discharge chambers 4 and 5 are expelled, the spring 14 causes the trap members 6 and 7 to resume their previous position, so as to trap and arrest the succeeding articles.

Upon the frame 1, in Fig. 1, there is provided a bifurcated plunger member 22, the two legs 23 and 24 of which fit and pass through the discharge chambers 4 and 5 to expel the articles held by the trap members 6 and 7. The plunger 22 is actuated in a rectilinear reciprocal movement through the action of the two bars 25 and 26 pivoted to the plunger at 37 and 38. The downward movement of the plunger 22 causes the two legs 23 and 24 to engage the articles held by the trap members 6 and 7, the resulting pressure on the articles causing the trap members to release the articles so held, so that the legs of the plunger expel the articles through the discharge openings, thus acting to properly position and space the articles in plural formation between opposed layers of packaging material, in timed relationship, in a suitable packaging mechanism.

After expelling the articles, the plunger 22 in an upward movement returns to its normal position and as the legs of the plunger pass up through the discharging chambers past the trap members, the tension of the spring 14 causes these trap members to resume their original positions. Thus it will be seen there is a repeating cycle of operations in the article feeding mechanism, which results in rapid accurately posi-

tioned and spaced article feeding from the storage hopper to the packaging equipment.

A hopper arrangement that can be conveniently used to provide articles for the feeding device herein described is disclosed in detail in Patent No. 1,476,222. For purposes of illustration, this hopper arrangement includes a drum 32 (Fig. 1) with its axis so inclined that, when the drum is rotated, the articles will flow by gravity to the inlet opening in the throat 27 of the channel feeding tubes 2 and 3. To keep the articles in motion so the feeding may be uninterrupted by any congestion at this point, an endless belt 28 is provided, passing over rollers 29 which are positioned on either side and adjacent to the opening 27 of the feeding channels 2 and 3, mounted on frame 1. This belt is driven to cause rotation of the drum 32 which causes the articles contained therein to be propelled into the opening 27 of the feeding channels 2 and 3.

As shown in Fig. 2, there are provided cut-out sections 34 and 35 in the frame 1 which form slot openings somewhat narrower than the openings in the channel tubes. These cut-out sections allow dust and any broken fragments of articles to sift out, as the articles pass the cut-out openings, and thereby further avoid any tendency of the articles to jam or congest in the discharging chambers.

From the foregoing description, it will be clear that this invention provides a feeding mechanism that is capable of continuous operation at a high speed and at uniform rate to form packages of plural formation in strip form.

Although the foregoing discloses one form of article feeding means of my invention, it will be understood that various changes can be made without departing from the scope of the invention.

I do not, therefore, desire to limit myself to the foregoing except as may be pointed out in the appended claims.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. Article feeding means comprising, a feeding structure having a plurality of spaced channels each for storing articles in file formation to feed towards each other to a limited position, a chamber arrangement into which said channels feed, and into which said articles move, said chamber arrangement including chutes leading respectively from said channels for accommodating the articles from different channels in definite spatial relationship with respect to each other, and commonly actuated means for releasing said articles in said spaced relationship from said individual chutes, said last mentioned means being operable in the space between said channels.

2. Article feeding means in accordance with claim 1 in which said releasing means includes a plurality of trap members each disposed in said chamber arrangement for controlling the articles fed from a particular one of said chutes.

3. Article feeding means in accordance with claim 1 in which said releasing means includes a plurality of trap members each disposed in said chamber arrangement for respectively controlling the articles feeding from said chutes, and plunger means operable through said chutes for actuating said trap members and releasing said articles from said channels.

4. Article feeding means comprising, a feeding structure having a plurality of channels for storing articles in converging file formation, chute openings in said structure extending substantially at right angles from said channels, said channels extending in the form of a lyre from an upper article supply source, movable closure means for normally obstructing said openings, and means operable internally of said lyre formation and slidable through said openings for removing a plural number of articles from said channels and forcing the same through said openings while actuating said closure means normally positioned therein.

5. Article feeding means in accordance with claim 4 in which said openings comprise slots and in which said slidable means comprises a bifurcated plunger rectilinearly movable through said slots.

6. Article feeding means in accordance with claim 4 in which said channels are provided with closure members having openings therein for permitting inspection of said articles in said channels, said openings being coextensive with said channels.

7. Article feeding means comprising, a structure having substantially vertical article feeding chutes, said structure also having channels in the form of a lyre with the opposed arms thereof leading into the sides of said chutes for supplying articles thereto in file formation from an upper supply source, trap means for said chutes, and plunger means reciprocatively operable through said chutes for discharging articles therethrough.

8. Article feeding means comprising, a structure having a plurality of spaced vertical chutes, a plurality of converging channels leading into the sides of said chutes from a supply source immediately above said chutes for supplying articles thereto in file formation, trap means for holding articles in said chutes, and a multiple plunger operable between said channels and through said chutes to eject articles therefrom in spaced relationship.

LEROY L. SALFISBERG.