

1,300,758.

A. V. NEAL.
FILLING MACHINE.
APPLICATION FILED SEPT. 25, 1918.

Patented Apr. 15, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

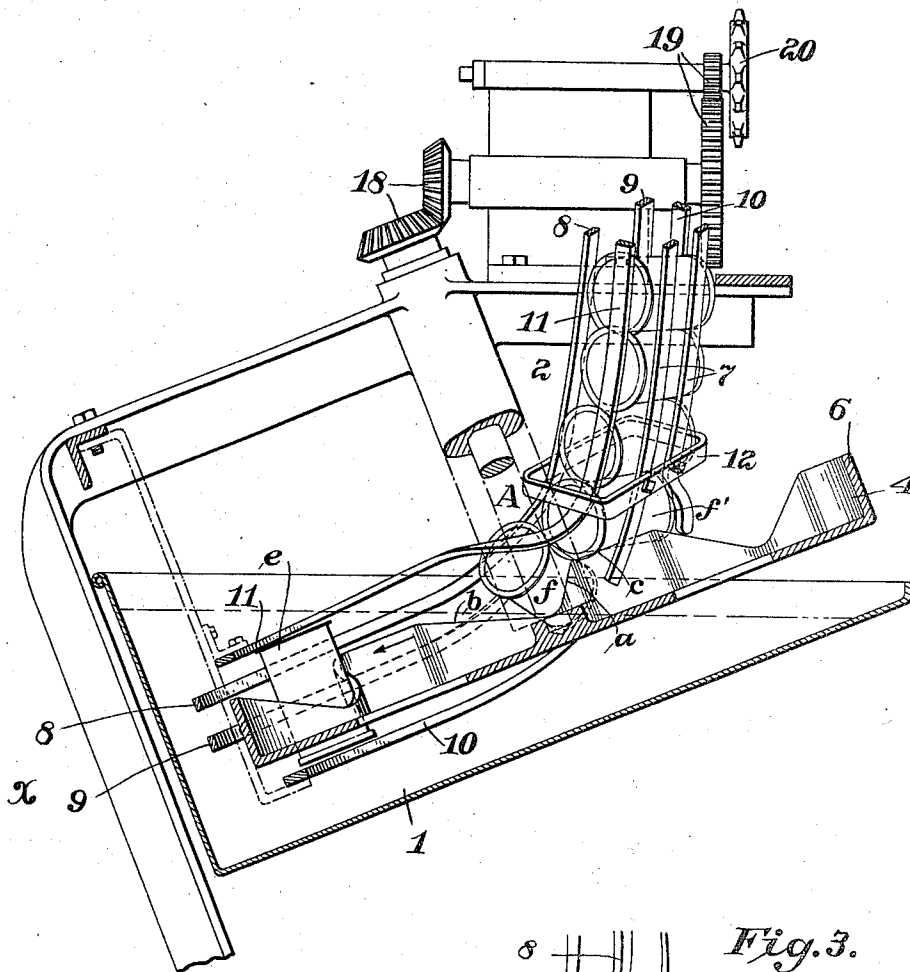
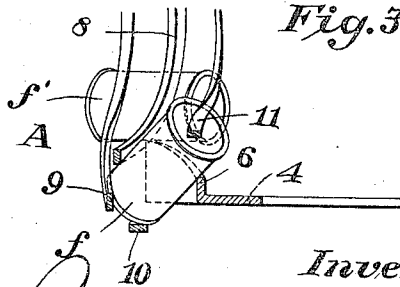


Fig. 3.



Inventor:

Alton Victor Neal,

by Spear, Middleton, & Macaluso, Attys.

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2 SHEETS—SHEET 2.

Fig. 2.

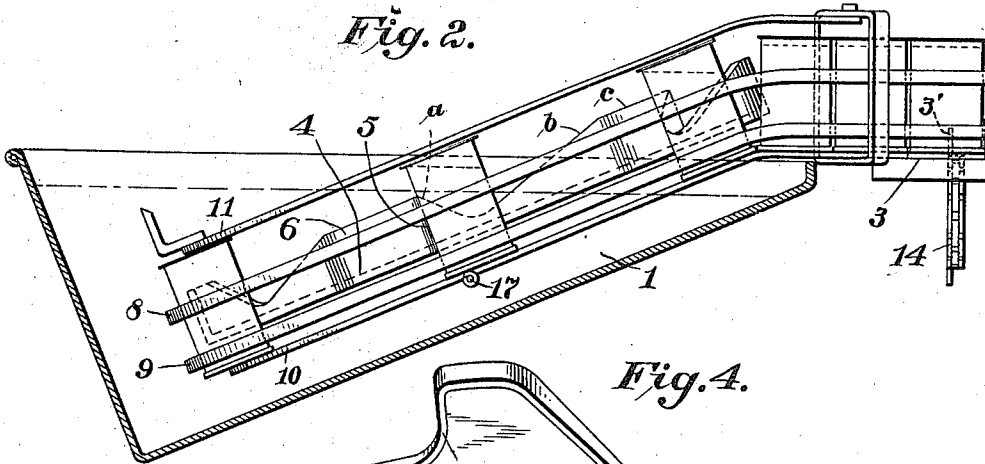


Fig. 4.

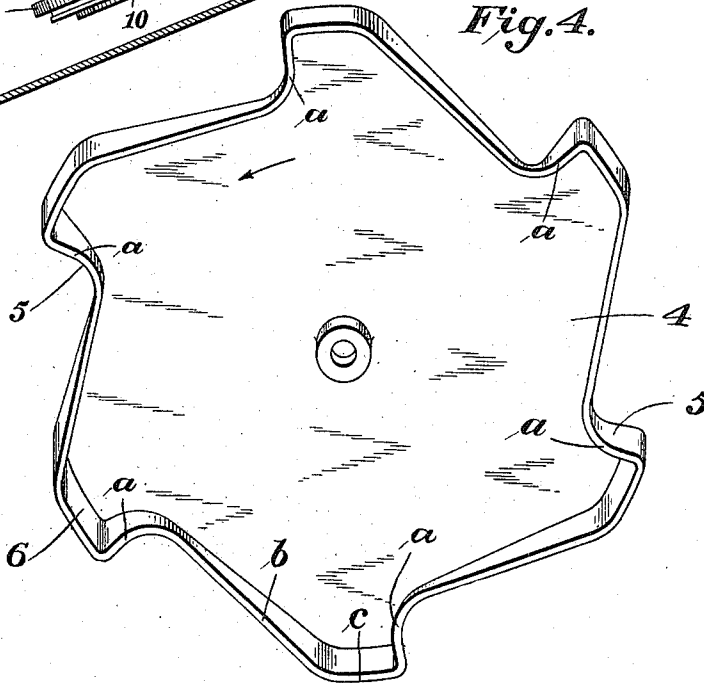
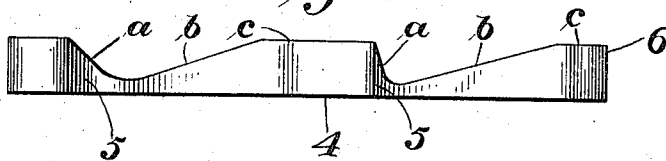


Fig. 5.



Inventor:

Alton Victor Neal,
by Spear, Middleton, Donaldson & Spear
Attys.

UNITED STATES PATENT OFFICE.

ALTON VICTOR NEAL, OF HURLOCK, MARYLAND.

FILLING-MACHINE.

1,300,758.

Specification of Letters Patent.

Patented Apr. 15, 1919.

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To all whom it may concern:

Be it known that I, ALTON VICTOR NEAL, a citizen of the United States, and resident of Hurlock, Maryland, have invented certain new and useful Improvements in Filling-Machines, of which the following is a specification.

My object is to provide a machine for filling receptacles with pulp with practically no waste of the material and with certainty of a uniform fill.

The invention relates to that form of apparatus heretofore proposed in which the cans are passed into a tank, submerged in their course of travel therethrough to receive the pulp and are then withdrawn and passed onto a point of delivery, the whole action being performed automatically.

The invention consists in the features and combination and arrangement of parts hereinafter described and particularly pointed out in the appended claims.

In the accompanying drawings,

Figure 1 is a vertical sectional view of an organization embodying my invention.

Fig. 2 is a side view looking from the same point that the view of Fig. 1 is taken from.

Fig. 3 is a detail sectional view looking from the point *a* in Fig. 1 this view showing a part of the feed wheel in section and the action of tipping the cans, the view also including a part of the tracks which cooperate with the feed wheel in tipping the can bodies.

Fig. 4 is a view of the feed wheel in inclined position to perform its action in connection with the can bodies.

Fig. 5 is a side view of the feed wheel.

The invention involves introducing the cans into a bath 1 and filling them in their passage through the same. The can bodies are fed down by a track or way 2, from a suitable elevated supply, one after another and in a horizontal position and just before they reach the bath they are turned up on end and fed through the tank, being submerged with their open end uppermost. As the cans rise from the bath they will have received the proper supply of the soup or

material and they are then fed along a track 3 to the closing machine by a suitable sprocket chain, one of the dogs of which is indicated at 3'. The amount of fill is determined by the incline of the track, or way, at the point where the can emerges from the bath.

The tipping of the can body at the point where it enters the bath is due to the shape of the track 2 along which the cans are propelled by a wheel 4. This wheel has propelling means or fingers 5, 5 on its outer side to receive and feed the can bodies along when they are turned upward, and it has a cam rib or flange 6 on its upper face which is inclined downwardly at a sharp angle at the points *a* in the direction in which the wheel rotates. This rib inclines at a low angle at the points *b*, and at the points *c*, the rib at its upper edge is in a plane parallel with the plane in which the wheel rotates.

The track or chute for the can bodies consists of a number of metal strips or rods, two of which are at the rear, as at 7, two at the front as at 8 and 9, against which the cylindrical side of the can body contacts to be guided thereby as it falls from an elevated source of supply. There is also a rod or bar 10 to furnish a guide for the bottom of the can body and another rod 11 to furnish a guide for the top of the can body. A rectangular open frame is disposed at 12 to tie the bars together and hold them in their prescribed relations.

At the point indicated generally at A Figs. 1 and 3 the bars or rods 8, 9, 10, 11 are bent or twisted so that the can bodies passing at this point will be turned up from a horizontal position to an inclined position, such as indicated at *e*. A can body is also indicated at *f* in the act of turning from its substantially horizontal position to its inclined position ready to be submerged in the tank with its open top uppermost.

For propelling the can bodies along the track or way, which does the turning thereof, as just mentioned, I employ the wheel or disk referred to above. This is

set in an inclined position with its lower end below the level of the liquid in the tank.

As the can bodies move down the chute they position themselves in front of the sharply inclined or curved edges *a* of the wheel flange 6 and are propelled onward by the motion of the wheel in the direction of the arrow in Fig. 1 and in their onward movement they are caused to tip by the rails of the track or chute, as indicated at *f* and when completely tipped they rest with their bottoms on the rail 10 and are engaged by the walls of the recesses or pockets in the outer periphery of the wheel, which now take up the propelling action to force the can bodies around through the bath with their open top submerged, resulting in the pulp or liquid flowing thereinto, and effecting a fill.

The guide rails 8, 9, 10 and 11 are continued around the wheel concentric therewith to properly guide the can bodies, the rail 11 still serving as a guide for the top of the can body while the other rails 8 and 9 serve as guides by bearing on the cylindrical side. The guides continue around the wheel a sufficient distance to maintain control of the can bodies until they emerge from the bath and are delivered onto a suitable track, platform or rail 3, which is elevated in respect to the tank level and when deposited here the filled can bodies are in upright position and can be taken away by any suitable feeding device which conveys them to the cover applying and closing machine. I have indicated conventionally at 14 such a conveyor consisting of a sprocket chain having dogs 3' to engage and propel the can bodies.

The top edge portions *c* of the wheel act as means for cutting off the downward feed of the column of can bodies in the vertical or nearly vertical portion of the chute while a can body, such as at *f* is being propelled onward by the pushing wheel and tipped, as above described, by the bend in the chute. In Fig. 1 the can body at *f*' is stopped in its downward movement by the cut-off action of the cam rib at the point *c* while the previous can body *f* is being tipped and spaced apart from the following can *f*'. The low inclined portion *b* of the rib or flange will allow the can bodies to move down in front of the propelling portion *a* but will prevent two can bodies from getting in front of the same propelling portion *a* at the same time.

The inclined section of the track bar, which guides the can bodies as they emerge from the tank, may be adjustable as to inclination to vary the height to which the can bodies may be filled. This adjustment may be effected by hinging the track rail for the bottom of the can body at 17 and adjusting the platform 3 vertically to which the end of the rail is suitably attached.

The propelling wheel is driven by gearing at 18, 19 from a sprocket wheel 20. All of this driving mechanism with the supports therefor are located above the tank 1 in which the cans are submerged and they are thus kept free from the material in the tank which might tend to corrode them.

The track or chute may be made of flat strips of metal capable of being bent and twisted or round wire rods may be employed.

The can bodies when first introduced into the bath will float but the upper rail 11 will control their position, as shown at position *e*.

In associating this filling apparatus with a can cover seaming or closing machine the can bodies as they leave the apparatus are fed directly to the closing machine by the feed chain 14. No additional spacing or timing means is required, the wheel 4 pushing the can bodies into line with the dogs 3' of the sprocket chain so that no empty spaces occur here and the closing machine will be fed to work to its highest capacity.

Timing or spacing devices have been used heretofore between the filling machine and the closing or seaming machine which applies the covers to the cans, but these do not always work satisfactorily and thus there will be a vacancy at the closing machine where a can body with its contents should be and as a result one operation or cycle of the cover applying mechanism will be lost. In a day's run this will aggregate a considerable loss of product from the closing machine, representing a decided money loss. With my machine this loss is prevented, each pocket of the pushing wheel being supplied with certainty and therefore each dog on the feed chain leading to the closing machine will be filled and the full capacity of the closing machine thus will be secured. The closing machine may be of any desired type. In some forms of machines the cans with their contents are brought to a seaming station where the covers are applied and double seamed and for perfect operation the can bodies should be fed in proper time and properly spaced apart to this station, so that at each operation of the seaming mechanism a can cover will be applied, but with some timing mechanism as used heretofore the supply of can bodies to the seaming mechanism is irregular and hence the loss in product and hence, also the advantage exists in my filling apparatus—namely, that it serves not only to fill the can bodies but to time and space them to be delivered in regular order and without missing to the seaming head.

It will be understood that I have shown only one embodiment of my invention and that this is to be considered in an illustrative and not in a restrictive sense, the scope of my invention being defined by the appended claims.

What I claim is:

1. In a receptacle filling machine the combination of a tank, a track or chute extending into the tank and having a bend therein intermediate of its length for turning the receptacles, from a horizontal to an inclined position to be submerged and filled, said chute having its discharge end elevated above the tank to deliver the can bodies in upright position and a wheel, for propelling the can bodies along the chute, having means to engage and initiate the propulsion of the can bodies in advance of the point where they are turned by the chute and having also means for cutting off the stack of cans from the one being propelled, substantially as described.

2. In a receptacle filling machine the combination of a tank, a track or chute extending into the same and having a bend therein for turning the receptacles from a horizontal to an inclined position to be submerged and filled, and a propelling wheel having can body engaging and propelling means on its upper side, and can body engaging and propelling means on its outer periphery for propelling the can bodies first in one position and then another, substantially as described.

3. In combination in a receptacle filling machine, a tank, a can body propelling wheel arranged in inclined position in the tank, means for tipping the can bodies in relation to the wheel from a substantially horizontal position to a position with their open ends uppermost, said wheel having means for engaging and propelling the can bodies in their horizontal positions, their various inclined position while tipping and their substantially upright positions, substantially as described.

4. In combination with a bath, means for delivering can bodies substantially at the surface of the bath in a substantially horizontal position and means for tipping the can bodies to a position with their open ends uppermost, passing the same through the bath for filling and delivering the filled can bodies in a substantially upright position, substantially as described.

5. In combination a bath, a track for can bodies extending into the same, and a propelling wheel having upwardly directed can spacing and engaging portions and having also means at its periphery for engaging and propelling the can bodies, substantially as described.

6. In combination with a tank and runway for can bodies, an inclined propelling wheel having an upstanding flange of cam shape presenting portions to engage and propel the can bodies while said bodies are in one position and having means on its periphery for propelling the can bodies while said

bodies are in another position, substantially as described.

7. In combination with a tank and runway for can bodies, an inclined propelling wheel having an upstanding flange, of a shape along its upper edge to provide can body engaging portions for propelling the can bodies in their initial position and of a shape laterally to form peripheral fingers, to engage the can bodies when tipped to a position with their open ends uppermost, substantially as described.

8. In combination with a tank and runway for can bodies, an inclined propelling wheel having an upstanding flange of a shape along its upper edge to provide a low incline, a steep can propelling incline and an upper edge substantially parallel with the plane of rotation of the wheel, the latter acting as a cutoff for the feed of the can bodies to the wheel and the low incline serving to prevent two bodies being propelled by the same propelling incline and of a contour laterally to form peripheral fingers to receive the can bodies when tipped to a position with their open ends uppermost for filling.

9. In combination with a chute or way having a portion receiving can bodies in a substantially horizontal position and another portion for delivering them in a substantially upright position, and an intermediate bent portion for turning the can bodies from one position to the other, a propelling wheel having means on its upper face to receive the can bodies in substantially horizontal position and to permit the can bodies to be tipped in relation to the wheel, and having means on its periphery for propelling the can body when so tipped, and a tank through which the can bodies are propelled and from which they are delivered by said wheel and chute, said cans being filled as a result of their passage through the tank.

10. In combination, a tank, a chute or track having a portion to direct can bodies to roll on their sides and a portion to turn the can bodies to a position with their open ends uppermost for immersion in the tank to receive their contents and having also a portion to deliver the can bodies from the tank, a pusher device for moving the can bodies along the track to be turned, immersed and withdrawn from the tank and conveyer means to receive the can bodies as spaced and timed by the said pusher device and directly from said device, to be fed by said conveyer without subsequent spacing and timing to the closing machine, substantially as described.

11. In combination, a tank, means to guide and tip can bodies from a substantially horizontal position to a position with

their open ends uppermost, an inclined propelling wheel in the tank having means to receive and propel the can bodies with their axes substantially horizontal and means to
5 receive and propel the can bodies with their open ends uppermost, said two means being arranged in juxtaposition and both acting on the can body to propel the same during

its transition from one position to the other, means for delivering a supply of can bodies 10 in close order to the wheel, said wheel having means for cutting off the supply from the can body being propelled, substantially as described.

In testimony whereof, I affix my signature. 15

ALTON VICTOR NEAL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents
Washington, D. C."