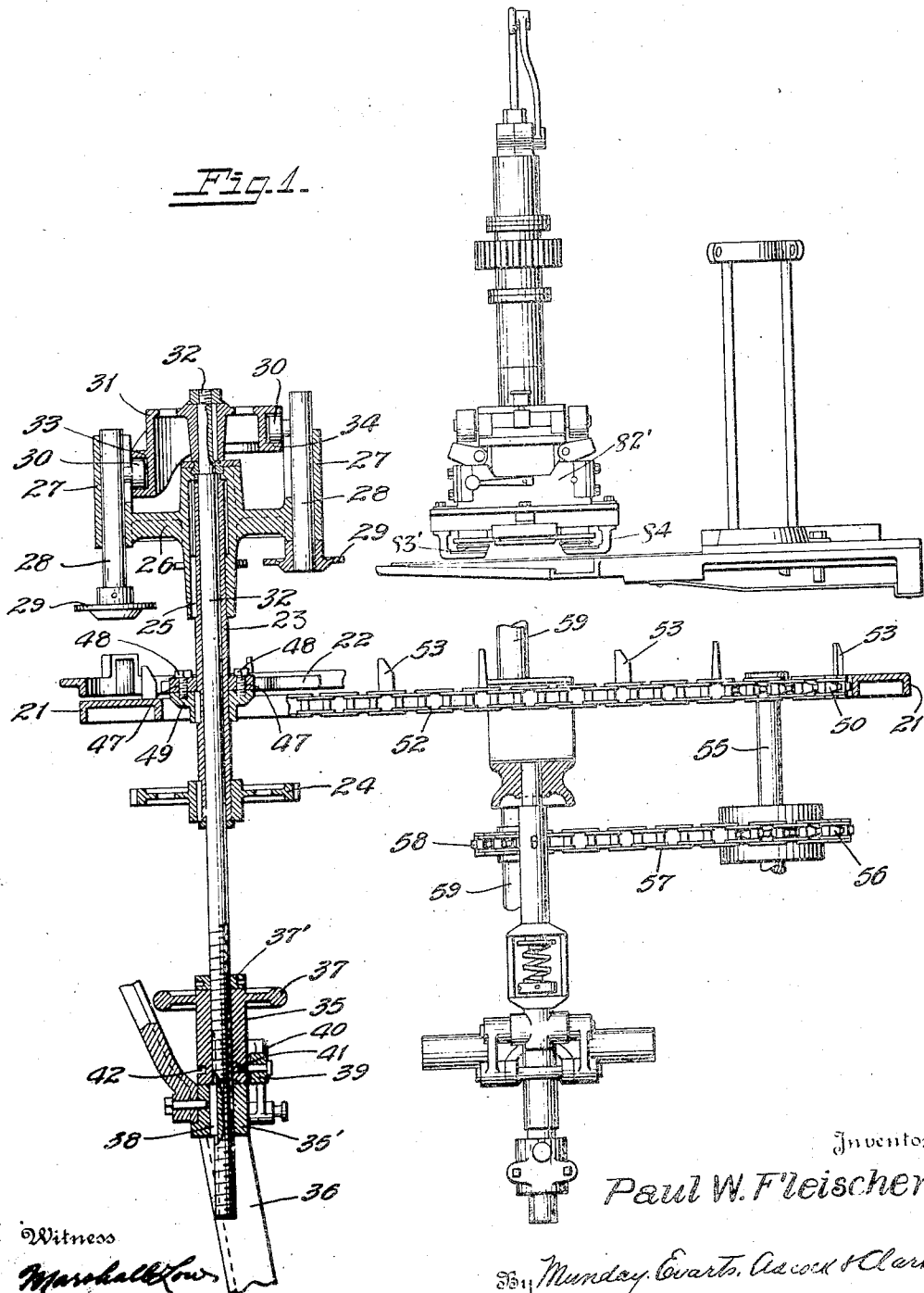


P. W. FLEISCHER.
CAN TOPPING MACHINE.
APPLICATION FILED DEC. 7, 1915.

1,320,749.

Patented Nov. 4, 1919.
2 SHEETS—SHEET 1.

Fig. 1.

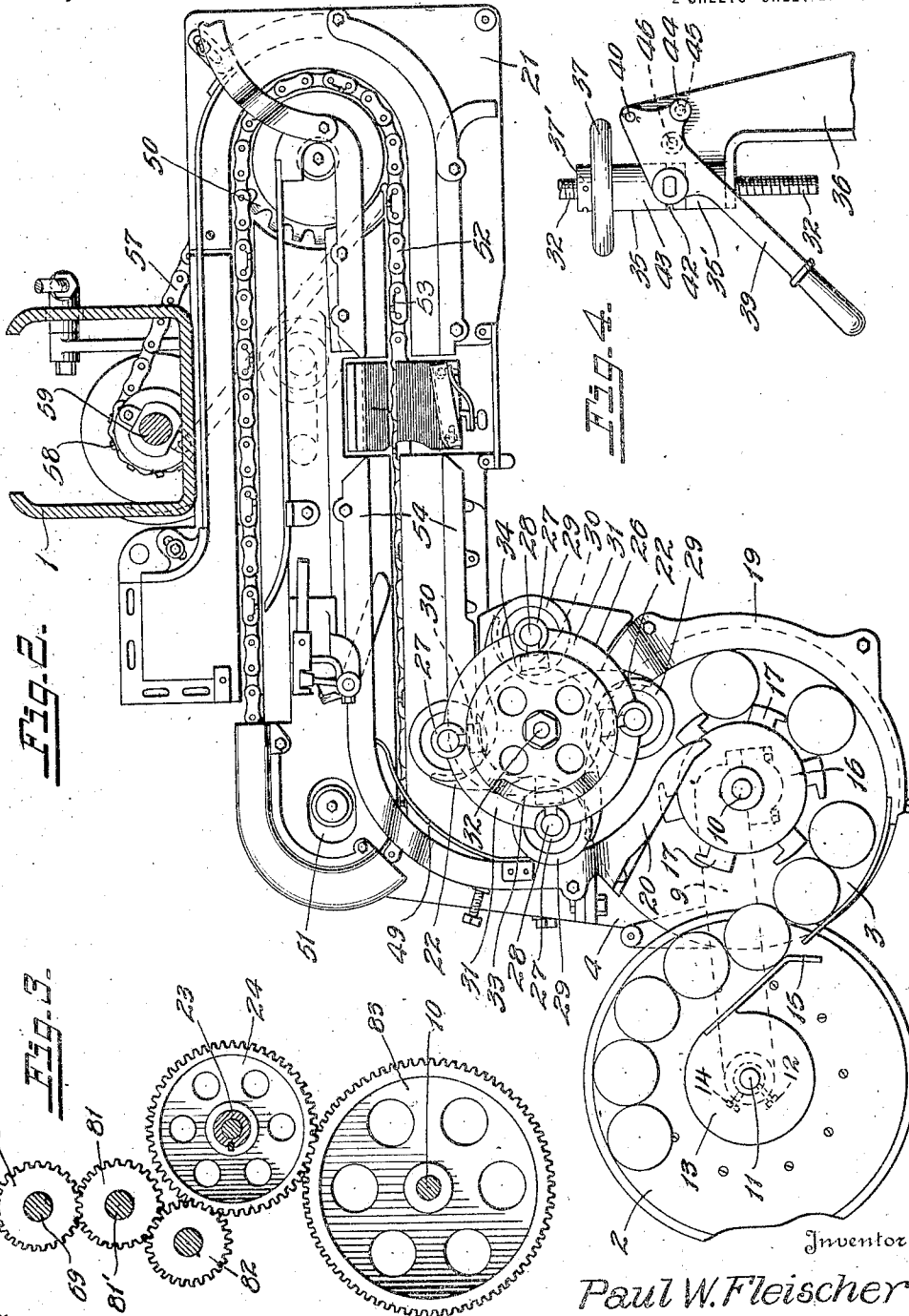


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Witness

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UNITED STATES PATENT OFFICE.

PAUL W. FLEISCHER, OF NEW YORK, N. Y., ASSIGNOR TO AMERICAN CAN COMPANY, A CORPORATION OF NEW JERSEY.

CAN-TOPPING MACHINE.

1,320,749.

Specification of Letters Patent.

Patented Nov. 4, 1919.

Original application filed December 1, 1915, Serial No. 64,494. Divided and this application filed December 7, 1915. Serial No. 65,511.

To all whom it may concern:

Be it known that I, PAUL W. FLEISCHER, a citizen of the United States, residing in New York, in the county of New York and State of New York, have invented a new and useful Improvement in Can-Topping Machines, of which the following is a specification.

The invention relates to can topping machines, whereby the contents of the cans may be pressed down as the cans are fed to the closing mechanism and before they reach the same, so that such contents will not interfere with a hermetic closing of the cans, and a proper space left between the top of the contents and the under side of the can end or top.

The principal objects of the invention are to provide for a proper feed of the cans to and from the topping device, and while they are being operated on by the same; to enable the device to be readily adjusted for different sizes of cans; and to provide for readily throwing the topping device out of operation when it is not required without changing its adjustments.

With such objects in view, as well as the attainment of all other features of usefulness and advantage which are inherent in the improved can closing machine, the invention consists in the parts and combinations thereof hereinafter set forth and claimed.

In order to make the invention more clearly understood there are shown in the accompanying drawings means for carrying the same into practical effect, without limiting the improvements, in their useful applications, to the particular construction which, for the purpose of example, has been made the subject of illustration. In the said drawings:—

Figure 1 is a front view, partly in vertical section, of a can topping machine embodying the invention.

Fig. 2 is a plan view of the topping device and related can feeding means.

Fig. 3 is a plan view illustrating the actuating gearing.

Fig. 4 is a rear elevation of the means for adjusting and lifting the plungers of the topping device.

Referring to the drawings, the main fixed

framework of the machine is indicated at 1. The filled cans without tops are fed either by hand or automatically upon a rotating receiving and feed table 2. This table overlaps the margin of a second rotating table 3, which may be called the can spacing table, and which is supported by a bracket of the frame 1, and frictionally drives the table 2.

The feed table 2 is supported and adjustable around the can spacing table 3 by a swinging arm 9 mounted upon a fixed hub surrounding the shaft 10 of the said spacing table 3. This arm 9 carries at its outer end a stud shaft 11 which is adjustably held in the arm by a set screw 12 and upon the upper end of which the receiving table 2 may rotate. Mounted upon the upper end of the stud shaft 11 and above the receiving table is a stationary disk 13, which serves to keep the cans upon the outer margin of the receiving table 2. The disk 13 is adjustably held in place on the shaft 11 by a set screw 14 and carries an arm 15 which engages the cans as the table 2 rotates about the shaft 11 and deflects them onto the can spacing table 3 at the desired point.

Located in the center of the can spacing table 3 is a housing 16 which rotates with the said table 3, and in which are radially slidably mounted a plurality of can spacing shoes 17, which are yieldingly pressed outwardly by coiled springs in a known manner. As the cans are delivered from the receiving table 2 upon the can spacing table 3, and are carried around by the same, they are caught between the shoes 17 and a fixed arcuate guide rail 19 mounted on the bracket 4 and adjacent the outer margin of the said spacing table. If the cans so caught do not immediately register with the spaces between the shoes 17, they will be rolled along the rail 19 by the said shoes until they register with and work into such spaces. The cans will then be carried around the table 3 in spaced positions proper for successive and timed delivery to the further feeding devices.

When the cans have traveled about one half a revolution of the table 3, they engage a second deflecting guide rail 20 which projects outwardly from the main fixed table 1 of the machine and across the path of the

moving cans. When the cans encounter the rail 20 their course is so deflected as to deliver them successively between the arms of a rotating star wheel 22 which delivers the
5 cans from the can spacing table 3 on to the main table 21.

The star wheel 22 is adjustably mounted, the reason for which will be explained later, about a vertical hollow shaft 23 which projects downwardly therefrom and carries
10 near the lower end thereof a gear wheel 24. This gear wheel is one of a train of gears by which the feed tables 2 and 3 are rotated, as hereinafter set forth. Slidably mounted
15 upon the upper end of the hollow shaft 23 by means of a feather key 25, is a topper carrier 26. This topper carrier is provided with a plurality of vertical bearings 27 corresponding in number to the arms of the
20 star wheel 22 and each of which has mounted therein a vertically sliding plunger rod 28. The plunger rods 28 are provided at their lower ends with topping disks 29 which partly enter the cans and serve to press
25 down their contents and displace surplus contents as they are conveyed on the table 21 beneath the topper by the star wheel 22. The plunger rods 28 are further provided, at their upper ends, with rollers 30 which
30 engage a stationary topper cam 31 which is keyed to the upper end of a non-rotating shaft 32 mounted within the hollow shaft 23.

The low part 33 of the cam 31 is at the point where the topping of the cans is to
35 be effected as they are carried by the star wheel 22, and the high part 34 is at the opposite side of the cam. As the topper carrier 26 rotates with the star wheel it causes the rollers 30 to travel about the stationary
40 cam 31 and as the rollers approach the part 33 of the cam, they will cause the plunger rods 28 and the topping disks 29 to descend successively and press down upon the contents of the cans as they are conveyed be-
45 neath at the same speed by the star wheel 22. This insures that the cans shall be uniformly filled and the closing operation will not be interfered with. As the cans continue their course, under the action of the star
50 wheel 22 the engagement by the rollers 30 with the part 34 of the cam 31 causes the plunger rods 28 and their topping disks to rise from within and out of contact with the cans.

The shaft 32 extends downwardly through
55 the hollow shaft 23 and is adjustably supported at its lower end by an adjusting nut 35 which rests upon a bearing 35' carried by a bracket 36 secured to the base of the
60 machine frame 1. This adjusting nut has fixed thereon a hand wheel 37 by which the same may be easily operated to regulate the topper to its proper height above the cans, according to the vertical dimension
65 of the cans on which the machine is to op-

erate. Threaded upon the shaft 32 and adjacent the adjusting nut 35 is a lock nut 37' which serves to secure the said adjusting nut upon the shaft 32 in its desired position. The shaft 32 is prevented from rotation but
70 permitted to slide vertically in the bearing 35' by means of a feather key 38 (Fig. 1) secured in the latter. In order that the topping device may be thrown upward and
75 entirely out of operative position with respect to the cans, without changing its operative adjustment, there is provided near the lower end of the shaft 32 a hand lever 39 which is pivotally mounted upon the bracket
80 36 as indicated at 40. This lever 39 is provided with a shoe 41 which engages a peripheral groove 42 in the hub 43 of the hand adjusting nut 35. When the lever 39 is raised it will cause the shoe 41 mounted
85 thereon to lift the adjusting nut 35 and the vertical shaft 32, which in turn will raise the topping device as a whole away from the cans, leaving the star wheel 22 in operating position.

In order that the topping device may be
90 securely held in either the operative or inoperative position there is provided a spring controlled pin 44 which is mounted in the lever 39 and may engage either of apertures
45, 46, as the case may be, in the bracket 36,
95 thus positively locking the topper in its lower and upper position.

It is at times necessary to set the star wheel 22 backward or forward about its
100 shaft relative to the point at which the cans are topped to accommodate cans of a greater or less diameter and to insure that the cans will be properly centered beneath the plungers of the topping mechanism. To facilitate this the hub of the star wheel 22 is pro-
105 vided with two diametrically opposed concentric slots 47 through which pass locking bolts 48 which are threaded into a collar 49 keyed to the hollow shaft 23. When it is desired to reset the star wheel, the bolts 48 are
110 loosened permitting the adjustment of the said star wheel about the shaft 23. The center of a larger or smaller can is caused to be perpendicularly under the topping disk at the point of topping by appropriate ar-
115 rangement of the guide rails 19, 20, 54 or by the substitution of other guide rails. 49' is a spring guide forming with one of the rails 54 a yielding throat into which the cans
120 are forced by the star wheel 22 and which holds firm and steadies the cans as they are delivered from the star wheel to the feed chain, so that they are not jarred or their contents spilled as they enter between the
125 rails 54 and are picked up by the chain.

Mounted near the ends of the main table 21 are two sprocket wheels, a drive sprocket 50 and a driven sprocket 51 which carry a sprocket chain 52. This chain, which will
be referred to as the feed chain, carries at 130

spaced intervals, a plurality of upwardly projecting can feed fingers 53 which engage the cans successively as they are delivered on to the table 21 by the star wheel 22 and which carry them along the table, between guide rails 54 removably fixed thereon, to the seaming station.

The drive sprocket wheel 50 is fixed on a shaft 55 which extends vertically downward and carries near the lower end thereof a driven sprocket wheel 56. This sprocket is driven by a sprocket chain 57 which extends rearwardly and around a sprocket pinion 58 on the vertical shaft 59 of the closing machine.

The shaft 69 carries the gear wheel 80. This gear wheel meshes with and drives an idler pinion 81 mounted upon a shaft or pivot 81' at the under side of the bracket 4, which pinion meshes with a second idler 82 and the latter in turn drives the larger gear wheel 24 clamped to the hollow shaft 23 that carries the star wheel 22 and the topper carrier 26. The gear wheel 24 in turn drives a still larger gear wheel 83 clamped to the shaft 10 of the can spacing table 3. The movements of the table 3 and of the topping device heretofore described are thus effected from the feed chain by this train of gearing. After the operation of the topping devices the can is carried to a suitable seaming head, shown at 82' in Fig. 1, comprising in the present illustration first and second operation rolls 83', 84, by which the cover is double-seamed to the filled and topped can.

By "seaming head" I include various can end attaching means. Such means may be a clencher which crimps the head loosely on to a can, all around the circumference or in spots. Also, when the seaming head is used, only the first operation or curling roll may be put in operation, the complete hermetic seaming by the second operation being done by any suitable means after processing the filled and partly or loosely closed can; and the words "closing machine" are not limited to a machine which hermetically closes the cans.

This application is a division of my application Serial #64,494, filed Dec. 1, 1915.

What is claimed is:

1. In a can closing machine, in combination: a can conveyor; a topping device arranged over the path of the cans; means for adjusting said topping device vertically; and means for elevating the topping device out of range of the cans irrespective of its adjusting means.

2. In a can closing machine, in combination: a can conveyor; a topping device arranged over the path of the cans; a rotary and vertically movable nut for adjusting said topping device vertically; and means for elevating the topping device out of range

of the cans irrespective of its adjusting means.

3. In a can closing machine, in combination: a can conveyor; a topping device arranged over the path of the cans; means for adjusting said topping device vertically; and a hand lever movable to a position for elevating the topping device out of range of the cans irrespective of its adjusting means.

4. In a can closing machine, in combination: a can conveyor; a rotary topping device arranged over the path of the cans and having topper plungers; a non-rotary vertically movable cam for reciprocating said topper plungers; means for adjusting said topping device vertically; and means for elevating the topping device out of range of the cans irrespective of its adjusting means.

5. In a can closing machine in combination: a seaming head; can conveying means to and from said seaming head; a rotating can carrying table; a topping device interposed between said table and conveying means and over the path of the cans; means for vertically adjusting said topping device; means whereby said topping device may be raised out of the range of passing cans without disturbing the adjustment of the same; and means for actuating the said topping device.

6. In a can closing machine, in combination: a seaming head; can conveying means to and from said seaming head; a rotating can carrying table; a topping device interposed between said table and conveying means and over the path of the cans; an adjustable star-wheel turning with the topping device; means for vertically adjusting said topping device; means whereby said topping device may be raised out of the range of passing cans without disturbing the adjustment of the same; and means for actuating the said topping device.

7. In a can closing machine, in combination: a seaming head; can conveying means to and from the said seaming head; a rotating can carrying table; a rotary topping device interposed between said table and conveying means and over the path of the cans; a star wheel turning with the topping device for propelling the cans with the same, said wheel being angularly adjustable around the axis of the topping device; and means for actuating the said topping device.

8. In a can closing machine, in combination: a seaming head; can conveying means to and from said seaming head; a rotating can carrying table; a topping device interposed between said table and conveying means and over the path of the cans; and having separable topper plungers; means for vertically adjusting said topping device; means whereby said topping device may be raised out of the range of passing cans with-

out disturbing the adjustment of the same; and means for actuating the said topping device.

9. In a can closing machine, in combination: a topper carrier; topper plungers vertically reciprocable therein; a hollow shaft on which said topper carrier is slidably keyed; means for supporting and rotating said hollow shaft; a non-rotary shaft slidable vertically within said hollow shaft; a cam fixed to the said non-rotary shaft and having connections for reciprocating said topper plungers; a can propelling means movable with and under the said plungers; a frame bracket at the lower part of said non-rotary shaft and in which the latter is slidably keyed; and adjusting means engaging said non-rotary shaft.

10. In a can closing machine, in combination: a topper carrier; topper plungers vertically reciprocable therein; a hollow shaft on which said topper carrier is slidably keyed; means for supporting and rotating said hollow shaft; a non-rotary shaft slidable vertically within said hollow shaft; a grooved cam fixed to said non-rotary shaft and having connections for reciprocating said topper plungers; a can propelling wheel adjustably mounted on said hollow shaft; a frame bracket at the lower part of said non-rotary shaft and in which the latter is slidably keyed; and adjusting means engaging said non-rotary shaft.

11. In a can closing machine, in combination: a topper carrier; topper plungers vertically reciprocable therein; a hollow shaft on which said topper carrier is slidably keyed; means for supporting and rotating said hollow shaft; a non-rotary shaft slidable vertically within said hollow shaft; a

cam fixed to said non-rotary shaft and having connections for reciprocating said topper plungers; can propelling means movable with and under the said plungers; a frame bracket at the lower part of said non-rotary shaft and in which the latter is slidably keyed; an adjusting nut engaging said shaft by a screw thread and supported by said bracket; and a hand lever for raising and lowering said nut.

12. In a can closing machine, in combination: a topper carrier; topper plungers vertically reciprocable therein; a hollow shaft on which said topper carrier is slidably keyed; means for supporting and rotating said hollow shaft; a non-rotary shaft slidable vertically within said hollow shaft; a grooved cam fixed to said non-rotary shaft and having connections for reciprocating said topper plungers; a can propelling wheel adjustably mounted on said hollow shaft; a frame bracket at the lower part of said non-rotary shaft and in which the latter is slidably keyed; an adjusting nut engaging said shaft by a screw thread and supported by said bracket; and a hand lever for raising and lowering said nut.

13. In a topping apparatus, in combination: a vertical shaft; topping devices mounted thereon and having means for turning them in unison with the movement of cans to be topped; means for reciprocating said topping devices vertically; devices for adjusting said shaft vertically; and means for moving said shaft vertically irrespective of its adjusting means, for throwing the topping devices out of operation.

In testimony whereof I have affixed my signature hereto.

PAUL W. FLEISCHER.