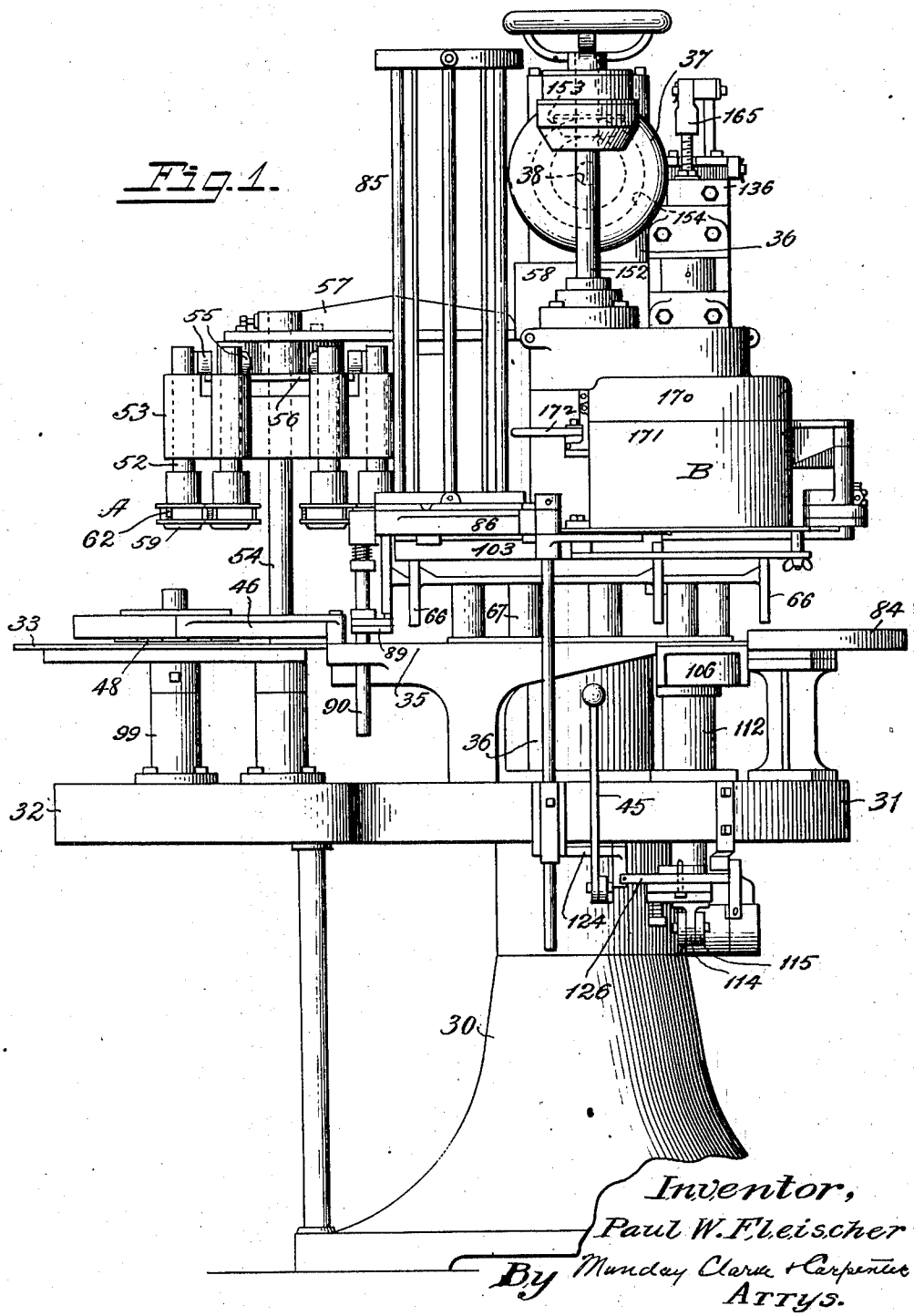
June 12, 1928. 1,673,236

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TOPPING MECHANISM FOR FILLED CAN CLOSING MACHINES

Original Filed Nov. 28, 1913 2 Sheets-Sheet 1

Fig. 1.



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Fig. 2.

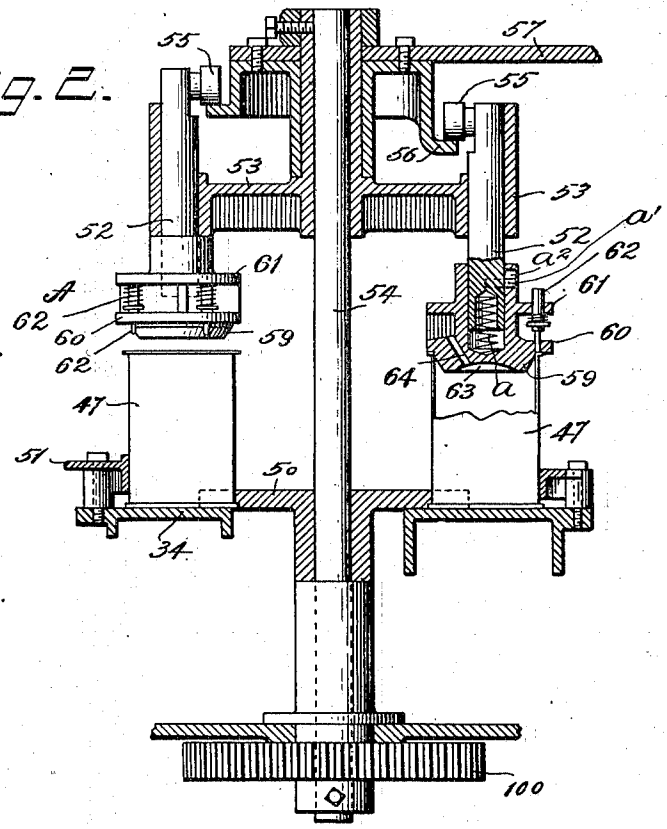
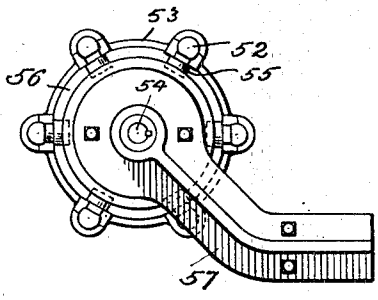


Fig. 3.



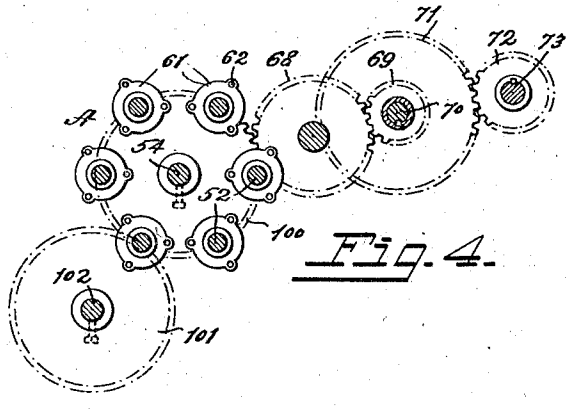


Fig. 4.

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Patented June 12, 1928. 1,673,236

UNITED STATES PATENT OFFICE.

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TOPPING MECHANISM FOR FILLED-CAN-CLOSING MACHINES.

Original application filed November 28, 1913, Serial No. 803,406. Divided and this application filed January 9, 1922. Serial No. 528,027.

This invention relates to improvements in filled can closing machines, the present application being a division of my application Serial Number 803,406, filed November 28, 1913.

A principal object of the invention is the provision, in an apparatus of the character described in my application above referred to, of topping devices for gauging the contents of filled cans in order to provide a uniform space in the top of the cans before the covers are applied and seamed thereto.

Another important object of the invention is the provision of devices of this character which serve also to true up the can bodies and flanges prior to the application of the closures so that said bodies are accurately brought to proper form to receive the closures and be subjected to the seaming operation.

Still another object of the invention is the provision of mechanism of this character co-operating with the feeding and spacing elements employed in this type of machine in such manner that the topping devices operate in proper timed relationship with said elements and in no way interfere with their functioning.

A further object of the invention is the provision of mechanism of the type and for the purpose stated which is operated through the regular power means employed to operate other parts of the machine and by a simple operative connection.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawings, discloses a preferred embodiment thereof.

Referring to the drawings,

Figure 1 is a front elevation of a machine in which my invention is embodied;

Fig. 2 is an enlarged vertical sectional view showing the topping devices in detail;

Fig. 3 is a top plan view of said topping devices and the bracket by which they are sustained; and

Fig. 4 is a diagrammatic plan view of the gearing by which the various operating mechanisms are driven.

Upon the drawings which illustrate the invention I have shown the various mechanisms supported upon a suitable base or standard 30, the latter being provided with a main bed plate 31 and an offset auxiliary bed plate 32, said bed plate supporting a rotatable table 33 and stationary tables 34 and 35 over which the cans are fed to the various operating devices. Through the center of the table 35 is a vertical cylindrical standard 36 to the top of which is secured a horizontal bracket 37 in which is rotatably mounted a drive shaft 38 which is driven through suitable connections (not shown) with a source of power.

The open top filled cans are first placed by hand or otherwise on the rotary table 33 and are guided thereon by a removable arcuate guard 46. As said cans are carried around by the table 33 they are properly spaced and timed by a disk 48 rotatable in unison with the table 33, said disk 48 delivering the cans in uniform spaced relationship to a rotary star wheel 50 located above the table 34. A detachable arcuate guard 51 is provided about the table 34 to guide the cans, which are indicated by the reference character 47, as they are being moved by said star wheel 50.

While the cans are being rotated by the star wheel 50 they are operated upon by the topping devices A which are illustrated most clearly in Fig. 2. Said topping devices A correspond in number to the number of pockets in said star wheel 50 and are aligned therewith, each topping device being yieldably and slidably mounted on the lower end of a reciprocating plunger 52, said plunger being slidably mounted in a spider 53 secured to a rotatable shaft 54, said shaft 54 being the same as that to which the star wheel 50 is also secured. Each plunger 52 at its upper end is provided with a roller 55 which engages a stationary cam track 56 secured to a bracket 57, the latter being fixed to a split sleeve 58 slidably and adjustably mounted on the standard 36.

Each topping device A comprises a die-shaped head having a tapered lower portion 59 adapted to enter the mouths of the cans and true the same circumferentially, a flange 60 adapted to engage and true the can body

seaming flanges, and another flange 61 in which are slidably mounted a plurality of spring controlled ejecting pins 62 spaced around the peripheries of the flanges 60 and 61 and adapted to disengage the cans from the topping devices when the latter are raised from the cans by the cam 56. The under face of the portion 59 of each topping device is concave, as shown at 63, and one or more vent holes 64 are provided so that not only do the topping devices true up the can bodies and flanges, but they serve the further function of uniformly gauging the contents of each can so as to thereby leave a uniform space in the top of the cans before the covers are applied and seamed thereto.

Each topping device A is provided with a spring *a* interposed between it and its reciprocating plunger 52, whereby the pressing action of the device may be more gradual than the movement of its plunger, and cans of different heights may be operated on without vertical adjustments of the plungers. The heads of the topping devices are held from detachment from the plungers by pins *a'* which pass through slots a^2 in the topping heads and are fixed in the plungers 52, said slots allowing the vertical yielding of the heads.

After the cans have been operated upon by the topping devices they are transferred to a guideway on the table 35 where they are successively engaged by propelling arms or flights 66, each of which is pivotally mounted on a continuously and uniformly rotatable carrier member 67. A magazine 85 for can ends or covers is detachably mounted on a bracket 86, and it will be understood that during the passage of the cans from the topping devices to the seaming mechanism, to be hereinafter referred to, the ends are suitably positioned upon the bodies by means which need not be here described in detail. A can-controlled lever 89 fixed to an oscillatable vertical rod 90 is provided to control the operation of can end feeding devices employed to feed ends from the magazine 85 when, and only when, cans are in position to receive them. Supporting ledges 103 are provided to direct the ends in alignment with the can bodies to points adjacent the seaming mechanism generally indicated by the reference character B, where the bodies and ends are brought to rest in position to be operated upon by said seaming mechanism. The seaming mechanism need not be particularly described since it forms no part of the present invention, and is illustrated in detail in my original application, above identified. It may be noted, however, that the cans are lifted to the seaming mechanism by a vertically reciprocating non-rotatable chuck or lifter 106 which is reciprocated through supporting means moving in a fixed bearing 112. Reciprocating mechanism including a link 114 and a bell crank 115, suitably connected with the power shaft at the top of the machine, is employed, and means including a lever 124 and a latch 126 are provided to prevent reciprocation of the chuck when no can end is present to be seamed to the body resting upon said chuck. The seaming heads are rotated through a vertical shaft 152 driven by beveled gears 153 and 154, the latter being fixed to the inner end of the shaft 38. Suitable assembling mechanism, generally indicated by the reference character 136, and ejecting mechanism, indicated by the numeral 165, are provided together with suitable cams and connections (not shown) for their operation. The seaming heads and co-operating parts are enclosed in a suitable case 170, the latter being provided with a hinged section 171 adapted to be locked in closed position by a latch 172. The seamed cans are engaged by the propelling arms 66 and ejected from the machine through a chute 84.

By adjustment of the split sleeve 58 the various operating mechanisms including the topping devices, which are secured to said sleeve, may be moved up and down to adapt them for operating upon cans of different heights, and means are of course provided to adjust the power transmitting connections vertically to accommodate the change in position. The machine is also adjustable for operation upon different diameter cans and the topping devices, being interchangeable and removable, may be readily exchanged for others of different size.

The rotation of the shaft 54, and therewith the star wheel 50 and the topping devices A, is accomplished through suitable gear connection with the operating mechanism for other parts of the machine. A gear 100 is secured to the lower end of said shaft and meshes with a gear 68 through which the rotatable carrier member 67 is driven, this gear 68 in turn meshing with a pinion 69 secured to the upper end of a vertical shaft 70 having a gear 71 at the bottom thereof meshing with another gear 72 fixed to the lower end of a vertical shaft 73, driven through suitable gearing by the horizontal shaft 38. The table 33 is rotated by a gear 101 meshing with the gear 100 and secured to a short shaft 102 upon which said table is mounted, said shaft having bearings in a fixed bearing member 99. The transmission of power is controlled by a hand lever 45 suitably connected at the front of the machine.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or

sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A topping device comprising a tapered and flanged head adapted to enter the mouth of a can, said head being provided with vent holes to permit excess contents of the can to escape, an ejector mounted on said head, and a reciprocating plunger on which said head is yieldingly mounted, substantially as specified.

2. In a can closing machine, in combination, a horizontally rotating carrier for the cans to be closed, a horizontally rotating can topping carrier arranged at one side of said can closing carrier, gearing connecting said carriers to rotate in proper relative time, a series of vertically movable can topping devices, means whereby said devices are carried around over the can topping carrier so as to be in line above the cans to be topped, and can ejectors arranged eccentrically on said topping devices, and engageable with the edges of the cans.

3. In a machine of the character described, a topping device comprising a tapered and flanged head adapted to enter the mouth of a can, said head being provided with a vent hole to permit air and excess contents of the can to escape, and an ejector eccentrically arranged in said head and passing below the same to engage the edge of the can, substantially as specified.

4. The combination of a topping device having vertically reciprocable elements each comprising a head having a tapered bottom portion adapted to enter the mouth of a can, said head being provided also with a circumferentially extending flange adapted to true the seaming flange of the can body, means for feeding the cans, means for operating the topping elements, and ejectors carried by the topping elements and arranged to engage the top edges of the cans.

5. A mechanism for topping filled cans, comprising a tapered and circumferentially continuous portion shaped to descend within the can, and can ejecting means combined therewith for holding the can down when the tapered portion is lifted.

PAUL W. FLEISCHER.