Sept. 6, 1927. 1,641,480

P. W. FLEISCHER

SUCTION TOPPER

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Fig. 1.

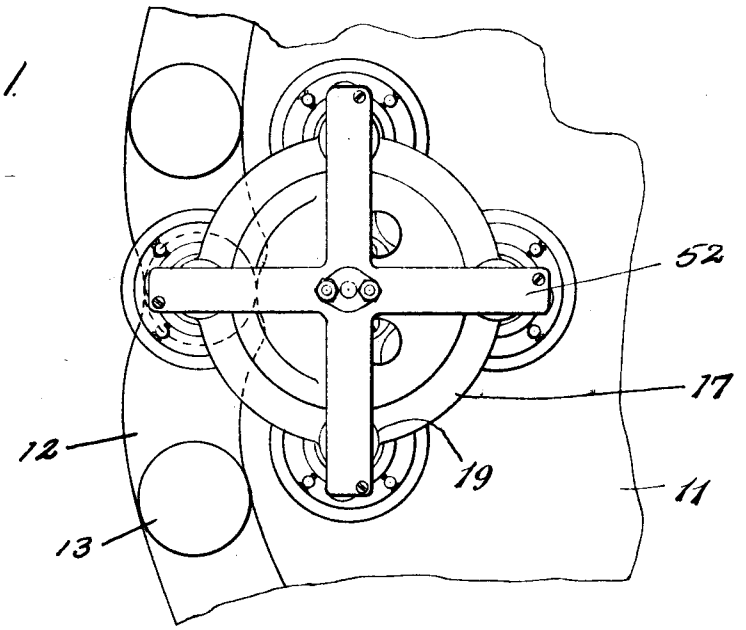
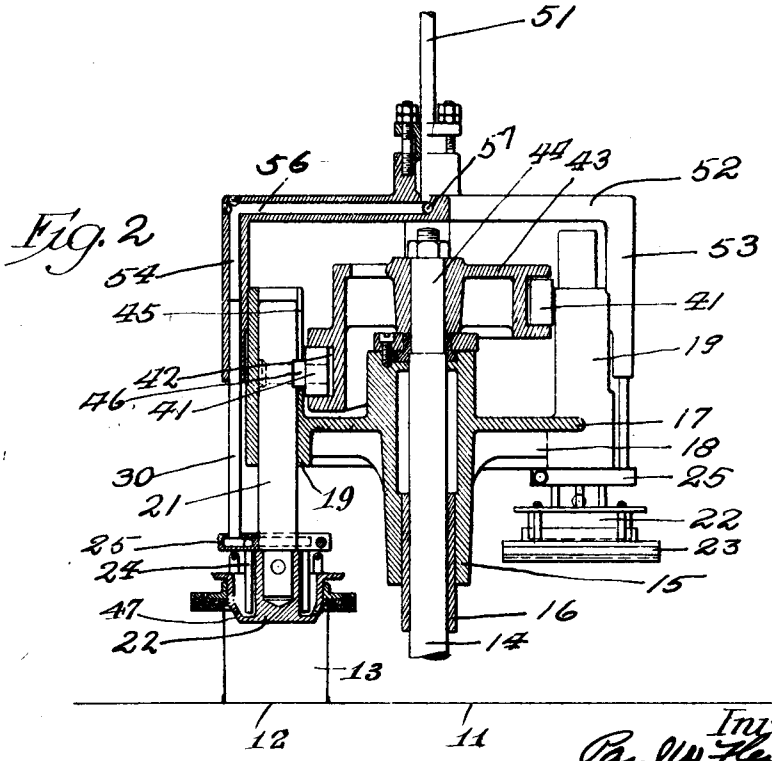


Fig. 2.



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Fig. 3

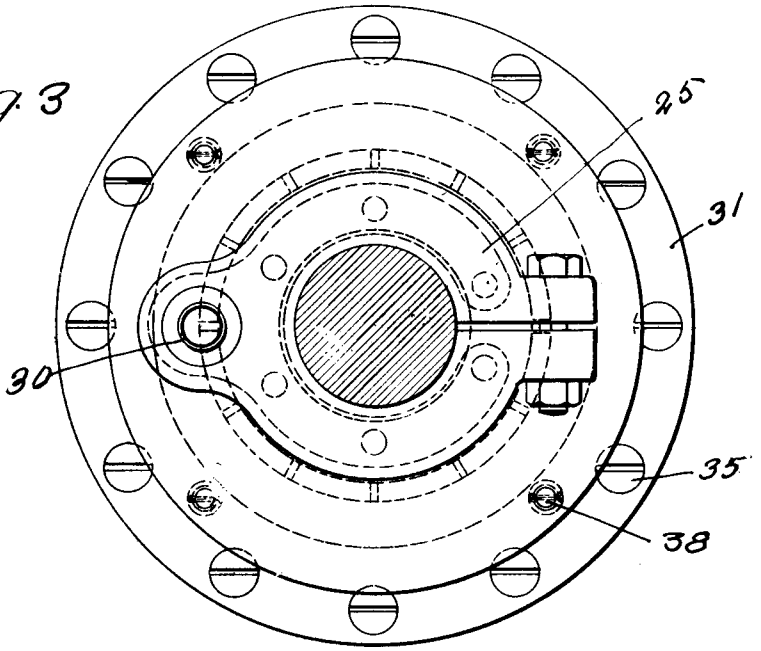
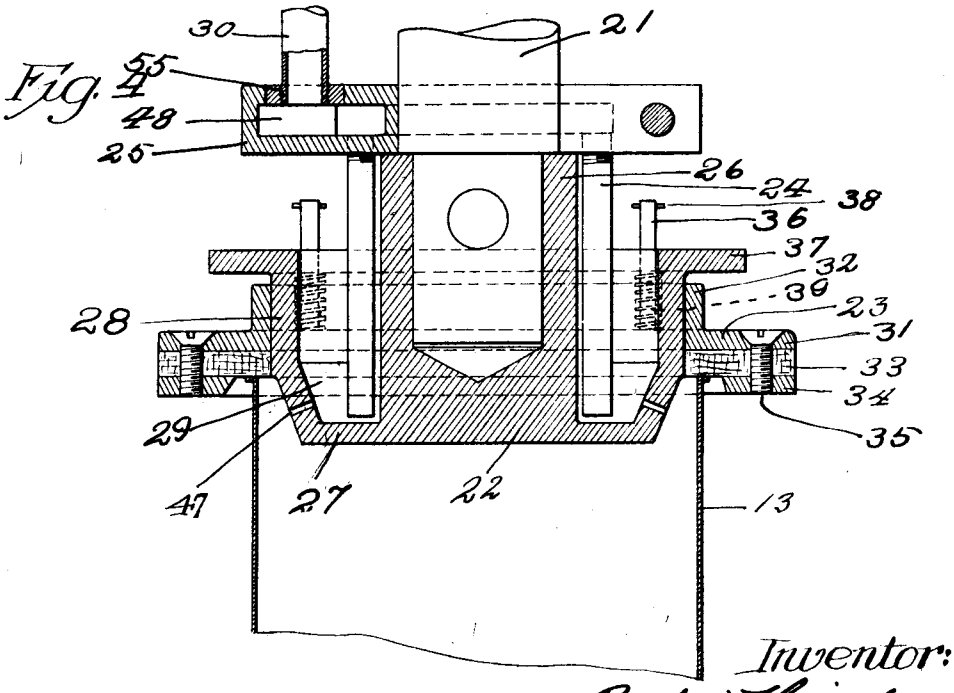


Fig. 4



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UNITED STATES PATENT OFFICE.

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

SUCTION TOPPER.

Application filed September 13, 1919. Serial No. 323,674.

This invention relates in general to the art of filling cans and the like, and has more particular reference to the provision of new and improved apparatus for insuring a predetermined quantity of material within the cans at the time they are received at the mechanism for applying the covers or closures. The invention contemplates a topper for insuring a predetermined amount of contents which will be so arranged that its operation or action may occur in closely related sequence to the action of the closing machine itself, and this without loss of any of the content removed from the cans in topping them. In other words the invention contemplates the provision of a topper which will reduce the contents of the can to a predetermined amount at the time it is received by the closing mechanism, and permit the saving and ready recovery of the material thus removed. The invention further contemplates the provision of a suction topper of new and improved construction and in which the amount of suction will have little or no effect upon the amount of contents removed, the arrangement being such that the excess will be removed to bring the contents to predetermined level, regardless or substantially regardless of the exact degree of suction provided.

Numerous other objects and advantages of the invention will be apparent as the same is better understood from the following description when considered in connection with the accompanying drawing, illustrating an improved embodiment thereof.

Referring to the drawing:

Figure 1 is a top plan view of a suction topper embodying my present invention, showing it in position and in relation to a closing machine which applies the covers.

Figure 2 is a vertical section through said topper.

Figure 3 is a transverse section through the supporting stem of one of the suction heads.

Figure 4 is an enlarged section through one of said heads.

For the purpose of illustrating my invention, I have shown on the drawing a table or support 11 preferably forming a part of the closing machine and along an edge of which at 12 is a path of can travel; the cans 13 filled with their contents move along this path into the closing mechanism. The suction topper is positioned adjacent this path and is carried upon an upwardly extending fixed post 14. Upon this post is mounted a rotatable sleeve 15 to which motion is imparted by drive sleeve 16 about the post which is actuated in any suitable fashion. The sleeve 15 is provided with an outwardly extending integral flange 17 suitably reenforced by ribs 18 and supporting at its outer periphery a number of circumferentially spaced vertical hollow housings 19 within which suction head stems 21 are caused to reciprocate, as will be presently described.

Each of the stems 21 carries at its lower end a suction topper head. This consists of a combined submerger and bailer 22, a can-closing member or annulus 23, suction tubes 24, a material accumulator 25, and an outlet conduit 30. The submerger or bailer 22 comprises an internal or central sleeve 26 fixed upon the lower end of the stem, and having at its lower extremity a flanged part 27 which connects the central portion of the submerger with an upwardly extending part 28 of larger diameter than the sleeve 26 and providing an annular pocket or bailing chamber 29 between itself and the sleeve or central socket part 26. The can closer or annulus 23 comprises a ring 31 having a collar 32 slidable upon the part 28 and closely embracing the same. Beneath this is located a soft ring 33 to close down onto and engage the top of the can body 13, this ring of soft material being held in place by a packing retainer or ring 34 secured by bolts 35, to the ring 31. The can closer 23 is retained in proper position by a number of posts 36 secured at their lower ends in the part 31 and having their upper ends extending slidably through the outwardly extending flange 37, at the upper end of the part 28, pins 38 being provided through the ends of the posts to prevent separation of these parts. Springs 39 embrace the posts between the parts 31 and 37 and serve to press the can closer tightly on to the can permitting it to press firmly thereon when the submerger is pushed down through the can closer in the topping action.

It will be understood that the topping action starts by a descent of the can closer

23 and the submerger and bailer 22 down upon the can when the can arrives in proper position. This action is accomplished through downward movement of the stem 21. This stem is provided with a roller 41 mounted in a cam groove 42 of a stationary cam member 43 fixed against rotation on the upper end 44 of stationary vertical shaft 14. The stem holders 19 are slotted at 45 to permit vertical movement of the post or stub shaft 46 on which the rollers are mounted and which extend into the stem.

The downward movement of the topping head causes the can to be first closed by the closure 23 and then causes the submerger and bailer to be pressed down upon the solids of the can, bringing the solid contents below the level of the liquid or liquor in the can. Perforations or passages 47 are provided through the part 28 of the submerger and above its bottom, and through these excess of material is forced into the bailer, and into the pocket 29. From here it is removed by the suction device. A material accumulator 25 is secured upon each stem 21 and consists of a split-ring which is hollow at 48, throughout a greater part of its circumference. The tubes 24 extend down into the pockets and are fast at their upper ends to the material accumulator, and at these upper ends communicate with the hollow portion or chamber 48. The material is collected from the several accumulators by, or through, passages connecting with a common draw-off pipe 51 which connects with a suitable suction apparatus and recovery tank (neither being shown). The passages mentioned are provided in a spider 52, having a leg 53 extending out and down into engagement with each stem carrier 19. Each of these legs is hollow in its vertical part, as indicated at 54, and in this hollow vertical portion the upper end of a draw-off tube 30 is slidably mounted, the lower end being fastened in any suitable fashion as indicated at 55 in the appropriate accumulator and communicating with its internal chamber 48. The upper or horizontal part of each spider leg is also hollow, as indicated at 56, and this hollow portion communicates both with the hollow part 54 and also with the pipe 51, at 57. The spider, of course, forms a unitary structure with the support for the several topper heads.

Since the contents of the can are exterior to the pocket and the excess of the material is taken from the pocket instead of from the body of the can, the exact amount of suction provided is of less importance and it will also be apparent that the suction devices may operate in removing the excess of material from the pockets for a period of time after the suction head has been removed from the can. The association of the suction topper connected with the can closing machine is an arrangement of peculiar value, since opportunity for spilling the contents with the resulting diminution thereof is lessened and practically eliminated, so that the amount of material within each can is of the certain predetermined amount desired.

It will be understood that the can operated upon and during such operation moves in a path sufficiently coincident with that of the topper which is engaging the can.

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 device for leveling the contents of cans and removing excess of said contents, comprising, in combination, a liquid displacing device adapted to be introduced within the open mouth of a filled can, said displacing device having means for tightly closing the top of the can, and having a chamber for receiving a portion of the contents of the can, and being provided with a passage leading from the interior of the can to said chamber, an accumulating chamber having a conduit through which the material may flow thereinto from the chamber of the displacing device, an exhaust pipe leading from said accumulating chamber, and means for raising and lowering the liquid displacing device relative to a filled can.

2. In a machine wherein filled cans are advanced processionally, the combination of a suction topper for levelling the material in said cans and recovering the excess thereof, said topper having an annular bailing chamber, an accumulating chamber communicating with the interior of the can when the topper is applied thereto, and a suction pipe connected with said chamber.

3. A device for bringing the material in a can to predetermined amount, the same having a part entering the can and displacing a portion of the contents of the can when applied to the latter, and having a seat formed around the displacing part of the device for tightly closing the top of the can, said device having a chamber formed to receive the displaced material, and having an upper chamber wherein displaced material may be accumulated, a conduit connecting said lower chamber with the upper chamber, and a suction pipe connected with the upper chamber.

4. A device for bringing the material in a fluid can to predetermined amount, having a displacing portion insertable within the

can, and provided with a chamber within said displacing portion, which chamber is open at its upper part to the atmosphere into which the displaced material may run by gravity, and an exhaust pipe having means communicating with said chamber for removing the excess of material therein.

5. A device for bringing the material in a filled can to predetermined amount, comprising a can closer and a hollow member open at its upper side to the atmosphere and having its under side formed to displace the excess contents of the can when inserted thereinto, the hollow portion of said member forming a receiving chamber for the displaced contents, said chamber being annular and said device having centrally arranged means whereby the device may be reciprocated to and from the can.

6. A device for bringing the material in a filled can to predetermined amount, comprising a can closer and a hollow member open at its upper side to the atmosphere and having its under side formed to displace the excess contents of the can when inserted thereinto, the hollow portion of said member forming a receiving chamber for the displaced contents, said chamber being annular and said device having centrally arranged means whereby the device may be moved to and from the can, and means for moving said device into and out of the can.

7. A device for bringing the material in a filled can to predetermined amount, comprising a hollow member open at its upper side to the atmosphere and having its under side formed to displace the excess contents of the can when inserted thereinto, the hollow portion of said member forming a receiving chamber for the displaced contents, and combined therewith an upper chamber, a conduit leading from the upper chamber to the said receiving chamber, the lower end of said conduit adapted to be closed to the atmosphere by displaced material in said receiving chamber, and an exhaust pipe connected with the upper chamber.

8. A device for bringing the material in a filled can to predetermined amount, comprising a hollow member open at its upper side to the atmosphere and having its under side formed to displace the excess contents of the can when inserted thereinto, the hollow portion of said member forming a receiving chamber for the displaced contents, said chamber being annular and said device having centrally arranged means whereby the device may be reciprocated to and from the can, and combined therewith an upper chamber, a conduit leading from the upper chamber to the said receiving chamber, the lower end of said conduit adapted to be closed to the atmosphere by displaced material in said receiving chamber, and an exhaust pipe connected with the upper chamber.

9. A device for bringing the material in a filled can to predetermined amount, comprising a can closer and a hollow member open at its upper side to the atmosphere and having its under side formed to displace the excess contents of the can when inserted thereinto, the hollow portion of said member forming a receiving chamber for the displaced contents.

10. An apparatus for bringing the material in filled cans to predetermined amounts, comprising a series of hollow members each open at its upper side to the atmosphere and having its under side formed to displace the excess contents of the can when inserted thereinto, the hollow portion of said member forming a receiving chamber for the displaced contents, suction means leading from said chambers, a rotary head having vertical bearings in which said members are mounted for reciprocation, and means for reciprocating said members.

11. An apparatus for bringing the material in filled cans to predetermined amounts, comprising a series of hollow members each open at its upper side to the atmosphere and having its under side formed to displace the excess contents of the can when inserted thereinto, the hollow portion of said member forming a receiving chamber for the displaced contents, suction means leading from said chambers, a rotary head having vertical bearings in which said members are mounted for reciprocation, and means for reciprocating said members, said suction means being yieldable, while remaining closed to the atmosphere, to permit said reciprocation.

12. A suction topper having a can closer and formed at its under side to displace material in a can when the topper is inserted thereinto, and formed interiorly to receive the displaced material, and suction means connected with said topper for withdrawing the displaced material, said topper being open at its top and leaving exposed to atmospheric pressure the material which has been displaced from the can.

13. In a device for leveling filled containers and recovering excess contents, the combination of a displacing and bailing member, an accumulating chamber, and suction means connecting said bailing member with said chamber.

14. In a device for leveling filled containers to a predetermined height and recovering excess contents, the combination of a displacing portion having a bailing chamber annularly disposed within said displacing portion and suction means for disposing of said excess.

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