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H. SEBELL

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MACHINE FOR SEALING CANS

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Fig.1.

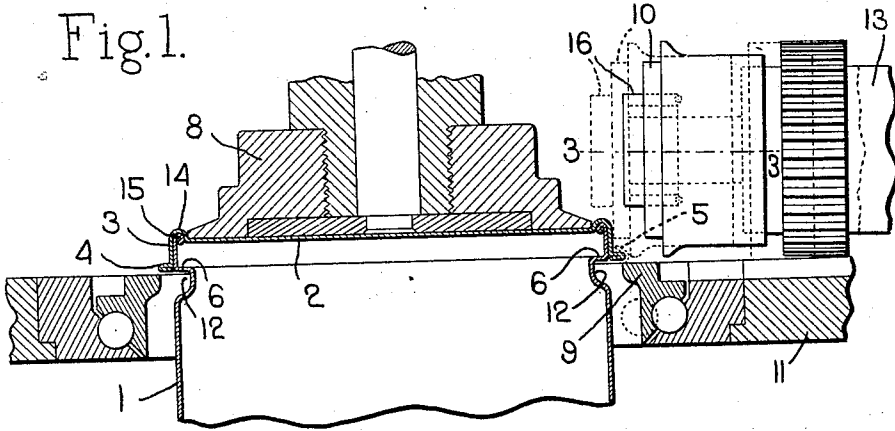


Fig.2.

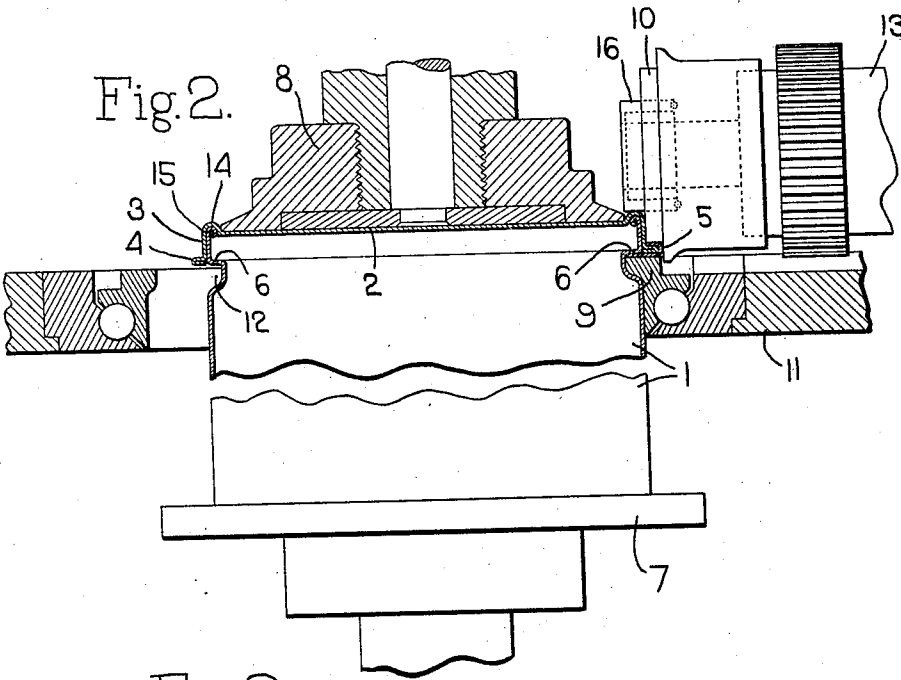
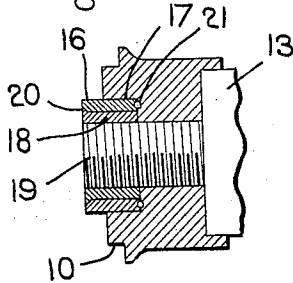


Fig.3.



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UNITED STATES PATENT OFFICE

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MACHINE FOR SEALING CANS

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This invention relates to a can-sealing machine and particularly to a sealing machine of the type adapted to seal a can with a U-shaped sealing strip which embraces a flange 5 on the can cover and engages the can body. The invention is particularly applicable to sealing a can of this type which has a so-called "slip-on" cover, that is, a cover which is provided with a depending skirt that embraces the top portion of the can body.

An object of the invention is to provide a novel can-sealing machine which is constructed so that a pressure will be applied to the portion of the can cover which overlies the upper edge of the can body simultaneously with the application of the pressure to the sealing strip to seal the can. With this arrangement the cover will be subjected to a progressive pressure which will cause it to conform to the upper edge of the can body thereby producing a better seal.

In order to give an understanding of the invention I have illustrated in the drawing a selected embodiment thereof which will now be described after which the novel features will be pointed out in the appended claims.

Fig. 1 is a fragmentary sectional view of the sealing elements of a can-sealing machine embodying my invention and showing the parts in inoperative position;

Fig. 2 is a similar view showing the operation of sealing the can;

Fig. 3 is a fragmentary section on the line 3-3, Fig. 1.

The invention is herein shown as applied to a can-sealing machine of the type shown in my Patents No. 1,605,147, dated November 2, 1926 and 1,773,758, dated August 26, 1930, and inasmuch as the invention relates to the means for applying pressure to the portion of the can cover which overlies the top edge of the can while the sealing strip is being sealed to the can, I have not thought it necessary to illustrate the complete machine but have shown only so much thereof as is required to enable the invention to be understood.

The can to be sealed is indicated at 1 and 2 is the can cover, this being of the "slip-on"

variety in that it is provided with a skirt portion 3 which encircles the upper end of the can. The can cover is provided with a sealing flange 4 and said cover is sealed to the can through the medium of a U-shaped sealing strip 5 which embraces the sealing flange 4 of the cover and which underlies an annular sealing shoulder 6 with which the can body is provided.

During the application of the U-shaped sealing strip to the can for sealing the latter the can body 1 is supported on a rotary platform 7 and the can cover is held in position by a rotary head 8, the can and cover being held between said platform 7 and head 8. It will be understood that the platform and head 8 are movable toward and from each other to permit the can to be inserted or removed.

The sealing of the sealing strip to the can cover and can is accomplished through the medium of a freely rotatable sealing ring 9 co-operating with a driven sealing wheel 10 as shown and described in my above-mentioned patents.

The rotatable ring 9 is mounted in a frame portion 11 and is freely rotatable therein. The inner edge thereof is shaped to fit the annular groove 12 formed in the exterior of the can body and by which the sealing shoulder 6 is formed and the opening through the ring is of large enough diameter to permit the can to be moved upwardly therethrough into the position shown in Fig. 1 as the platform 7 is raised.

The sealing wheel 10 is carried by a driven shaft 13 which is not only rotatable but which can move vertically, and normally the sealing wheel is in its raised position with relation to the sealing ring 9 shown in Fig. 1.

In the operation of applying the sealing strip 5 a can is placed on the platform 7 and the latter then rises to carry the can up through the opening in the ring 9 at which time a can cover 2 is applied to the can and the assembled can cover and can body are held between the platform 7 and head 8 as shown in Fig. 2. At this time the frame 11 and the shaft 13 move laterally into the

dotted line position shown in Fig. 1 to bring one side of the ring 9 into the groove 12 and this movement also brings the sealing wheel 10 over the sealing flange 4 of the cover. At this time one end of the U-shaped sealing strip 5 is presented to the assembled can and cover in a position to embrace the sealing flange of the cover and at a point beneath the sealing wheel 10. The sealing strip may be thus presented either manually or by means of any suitable feed mechanism. At this time the shaft 13 is moved downwardly to bring the sealing wheel into its operative position shown in full lines Fig. 2 and in this position said sealing wheel co-operates with the sealing ring 9 to clamp the sealing strip 5 firmly about the sealing flange 4.

The shaft 13 is positively driven and since the sealing wheel 10 is fast on the shaft 13 said sealing wheel will thus be positively rotated. During this rotation the can and the sealing ring 9 will be turned about their respective axes and the sealing strip will be clamped to the sealing flange 4 and firmly against the shoulder 6.

In sealing a can of this type which has a so-called "slip-on" cover it is desirable that the portion 14 of the cover which overlies the top edge 15 of the can body should conform closely to the shape of the top edge and should be compressed firmly thereagainst.

In order to accomplish this I have provided a presser roller which is associated with the sealing wheel and which applies pressure to the can cover along the portion 14 thereof as the strip is sealed to the can, this operation resulting in causing the portion 14 of the can cover to conform accurately to the top edge of the can. This presser roll is indicated at 16 and is in the nature of a roll situated axially of the sealing roll 10 but freely rotatable relative thereto.

As herein shown the sealing roll 10 is formed with an axial recess 17 in which the presser roll 16 is received, said presser roll being in the form of a sleeve. The presser roll is retained in position by means of a retaining sleeve 18 which is screw threaded to the reduced end 19 of the shaft 13. The sleeve 18 has the head portion 20 which engages the end of the roll 16 and retains it in place. If desired, a ball or thrust bearing 21 may be interposed between the rear end of the presser roll 16 and the bottom of the recess 17.

When the device is in operation the presser roll 16 will engage the portion 14 of the can cover at the same time that the sealing roll 10 is acting on the sealing strip 5 and as the can is rotated the roll 16 will press the portion 14 of the can cover firmly against the top edge 15 of the can thereby causing this portion of the can cover to con-

form accurately to the top edge of the can body.

Where an hermetic seal is desired it is customary to place some sealing compound either on the top edge 15 of the can body or in the groove of the can cover which fits against the top edge of the can body and the pressure of the presser roll 16 against the can cover serves to compress the sealing compound firmly between the can cover and the top edge of the can body.

Since the sealing of the U-shaped sealing strip to the sealing flange 4 of the cover occurs simultaneously with the application of pressure on the portion 14 of the cover and since this pressure is carried progressively around the can cover as the sealing strip is sealed to the flange 4 the can cover will be caused to conform accurately to the can body and a perfect seal will result.

In actual practice I propose to make the sealing wheel 10 and the presser roll 16 of such relative sizes that the radial distance between the periphery of the presser roll and sealing wheel will be no greater than, and preferably very slightly less than, the distance between the sealing flange 4 and the portion 14 of the cover so that when the sealing wheel 10 is pressing firmly against the upper leg of the sealing strip 5 the presser roll 16 will be bearing with considerable pressure against the portion 14 of the cover. Because of this relationship the portion 14 of the cover will not only be pressed firmly against and caused to conform to the top edge 15 of the can body but the longer leg of the sealing strip 5 will be caused to engage firmly against the shoulder 6 thereby making a very effective seal.

I claim.

1. In a can-sealing machine for sealing a can cover to a can body with a U-shaped sealing strip, the combination with two rotatable sealing members between which the U-shaped sealing strip passes and by which said sealing strip is applied to the can cover and can body, one of said sealing members being in the form of a wheel, of a presser roll situated axially of the sealing wheel and rotatable relative thereto and arranged to act on the portion of the can cover which overlies the edge of the can body.

2. In a can-sealing machine for sealing a can cover to a can body by means of a U-shaped sealing strip, the combination with two rotatable sealing members between which the sealing strip passes and which co-operate to apply the strip to the can cover and can body, one of said members being in the form of a wheel and adapted to act on the upper leg of the sealing strip, of a presser roll freely rotatable relative to the wheel and situated coaxially with said wheel and adapted to act on and apply pressure to the portion of the can cover which

overlies the top edge of the can as the sealing strip is applied.

form to and be pressed tightly against said top edge.

In testimony whereof, I have signed my name to this specification.

HARRY SEBELL. 70

3. In a can-sealing machine for sealing a can cover to a can body by means of a U-shaped sealing strip, the combination with two rotatable sealing members between which the sealing strip passes and which cooperate to apply the strip to the can cover and can body, one of said members being in the form of a wheel and adapted to act on the upper leg of the sealing strip, of a freely-rotatable presser roll carried by the sealing wheel and situated axially thereof and capable of free rotation with respect thereto, said presser roll being arranged to apply pressure to the portion of the cover overlying the edge of the can as the sealing strip is applied. 75
4. In a can-sealing machine for sealing to a can body a can cover provided with a skirt which fits over the top portion of the can and has a laterally-extending sealing flange at the lower edge of the skirt and at a distance below the top edge of the can body, the combination with two rotatable sealing members for applying a U-shaped sealing strip to the flange of the cover and to the can body, of a rotatable presser member having a rotative movement independent of that of the sealing members for applying pressure to the portion of the can cover which overlies the top edge of the can simultaneously with the operation of the sealing members in applying the sealing strip. 80 85 90
5. In a can-sealing machine for sealing to a can body a can cover provided with a skirt which fits over the top portion of the can, and a laterally-extending sealing flange below the top of the can, the combination with two rotatable sealing members for applying a U-shaped sealing strip to the flange of the cover, one of said members being in the form of a sealing roll which acts on the upper leg of the sealing strip, of a presser roll situated co-axially with the sealing roll and adapted to act on the portion of the can cover which overlies the top edge of the can thereby to cause said portion to conform to the top edge of the can. 95 100 105 110
6. In a can-sealing machine for sealing to a can body a can cover provided with a skirt which fits over the top portion of the can and a laterally-extending sealing flange, the combination with two rotatable sealing members for applying a U-shaped sealing strip to the flange of the cover, one of said members being in the form of a sealing roll which acts on the upper leg of the sealing strip, of a presser roll carried by the sealing roll and freely rotatable with respect thereto and adapted to act on the portion of the can cover which overlies the top edge of the can body thereby to cause the same to conform to and be pressed tightly against said top edge. 115 120 125 130