

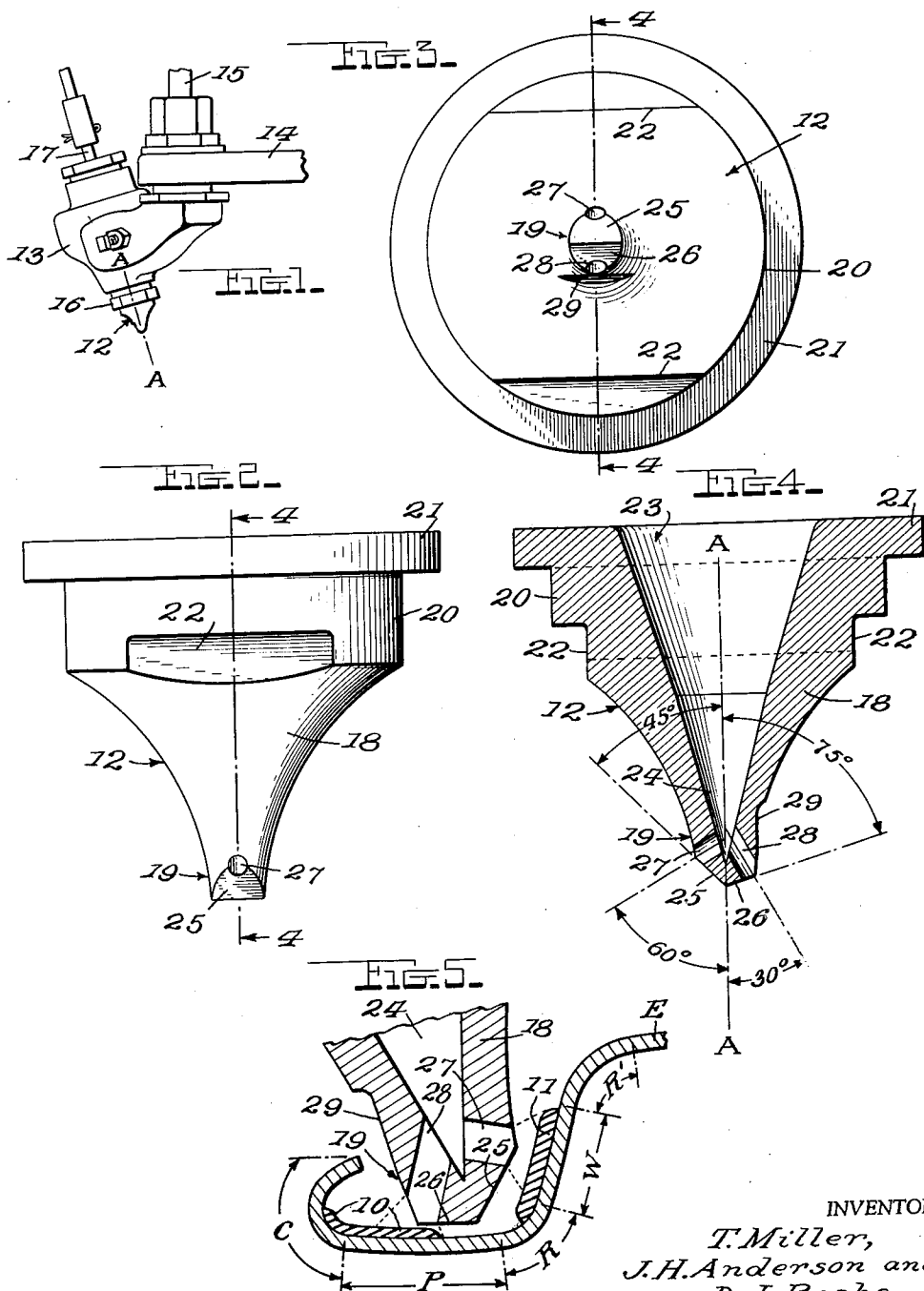
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COATED CAN END AND COATING METHOD

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COATED CAN END AND COATING METHOD

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Metal can ends for double-seaming onto flanged can bodies, are each customarily provided with a channel formation which receives the body flange when the end is dropped onto the body in readiness for seaming. Each channel formation comprises a seaming panel, a curl integral with the outer edge of said seaming panel, a chuck wall at the inner edge of said seaming panel, and a seaming panel radius integrally connecting said chuck wall and said seaming panel.

Prior to dropping the can ends onto the can bodies in readiness for seaming, it is customary to run said ends through a coating machine which coats the channel formation of each end with a plastic sealing compound to not only prevent leakage in the completed seam but to cushion the seaming operation and avoid breaking of any enamel or lacquer coatings which may be employed. In the application of such cushion seals to the can ends, it is customary to coat the entire width of the seaming panel, the curl, the seaming panel radius and about half of the height of the chuck wall.

Experience and extensive experimentation have shown that such conventional coating makes it difficult to form a perfect double seam because of the existing excess of sealing compound. Moreover, in the completed seam, the excess compound tends to cause a void within the body hook radius and it also tends to cause shortened hooks in the seam. Then, too, it frequently causes cans of abnormal height which sometimes bind in runways and conveyors.

The present invention has aimed to overcome these difficulties and at the same time to reduce the consumption of sealing compound by applying this compound to certain restricted areas of the channel formations of the can ends. In attaining this objective, a novel coating method, a novel nozzle for applying the sealing compound, and a resulting improved can end, have been provided.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference to the following detailed description, the appended claims and the several views illustrated in the accompanying drawings.

In the drawings:

FIGURE 1 of the accompanying drawing is a fragmentary side elevation showing the nozzle applied to coating portions of a can end coating machine.

FIGURE 2 is an enlarged side elevation of the nozzle.

FIGURE 3 is a lower end view of the nozzle.

FIGURE 4 is a vertical sectional view as indicated by the lines 4—4 of FIGURES 2 and 3.

FIGURE 5 is a further enlarged detail sectional view looking in the opposite direction from FIGURE 4, showing the nozzle tip operatively related with the channel formation of a can end and disclosing the two separate coatings applied to said channel formation.

In FIGURE 5 of the drawing, a can end E is shown having a conventional channel portion. This channel portion comprises a seaming panel P, a curl C integral with the outer edge of said seaming panel P, a chuck wall W at the inner edge of said seaming panel P, a seaming panel radius R integrally connecting the lower end of said chuck wall W with said seaming panel P, and a chuck wall radius R' integrally joining the upper end of said chuck wall W with the disk portion of the end E.

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According to the present method, one coating 10 is applied to the curl C and to part of the width of the seaming panel P; and a second coating 11 is applied to the chuck wall W and to the contiguous portion of the seaming panel radius R. These two coatings may be applied either successively or simultaneously, preferably the latter.

It is preferable that the one coating 10 be applied to partly cover the curl C and the outer half of the width of the seaming panel P. It is also preferable that the second coating 11 be applied to cover the chuck wall W and the upper half of the seaming panel radius R. It is also preferable that the coating 11 be applied slightly thicker than the coating 10. For both coatings, any suitable sealing compound, such as those commonly used, may be employed.

The method above described produces an improved can end which may be double-seamed onto a can body without the disadvantages above mentioned and it also reduces the amount of coating compound required.

The nozzle 12 shown in the drawing is well adapted for simultaneously applying the two distinct coatings 10 and 11, when used as an element of a conventional can end coating machine. Portions of such a machine are shown in FIGURE 1. In this view, a valve casing 13 is carried by a bracket 14 and receives fluid coating compound from a conduit 15. The nozzle 12 is coupled by a ring nut 16 to the lower end of the valve casing 13; and a conventionally operated needle valve 17 starts and stops discharge of the fluid compound from the nozzle, to apply the coatings 10 and 11 as the can ends are presented and rotated, as usual.

The nozzle 12 comprises a body 18 which is downwardly tapered to a tip 19. The upper end portion 20 of this body is cylindrical and is flanged at 21 for engagement by the ring nut 16. The portion 20 also has two flats 22 for engagement by a wrench to prevent the nozzle from turning with the ring nut during nozzle attachment.

A substantially conical recess 23 is formed in the body 18 and opens through the upper end of said body to receive the fluid sealing compound from the valve casing 13; and the lower end portion 24 of said recess forms a seat for the needle valve 17.

The tip 19 is formed with two downwardly converging end surfaces 25 and 26. The one end surface 25 is preferably disposed at an angle of 45° to the axis A—A of the body 18; and the second end surface 26 is preferably at an angle of 75° to said axis, as shown in FIGURE 4.

The tip 19 is formed with two opposed, downwardly diverging, discharge openings 27 and 28 from its interior to its exterior. The axis of the one opening 27 is preferably at 60° to the body axis A—A; and the axis of the second opening 28 is preferably at 30° to said axis A—A, as shown in FIGURE 4. The one opening 27 preferably opens partly through the one end surface 25; and the second opening 28 preferably opens partly through the second end surface 26. Over the opening 28, a portion of the tip 19 is cut away at 29 for additional clearance with the edge of the curl C.

When the nozzle 12 is attached to the valve casing 13, its axis A—A is at about 15° to the vertical and the end surfaces 25 and 26 will therefore be at about 60° and 0° respectively to the seaming panel P of each of the successively presented can ends. The opening 28 is then properly directed to, with the aid of centrifugal force, apply the coating 10; and the opening 27 is properly directed to, with the aid of gravity, apply the coating 11. The opening 28 is preferably of .028" in diameter and the opening 27 of .035" in diameter to impart slightly different thicknesses to the two coatings 10 and 11, for best results.

From the foregoing, it will be seen that novel and

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advantageous provision has been made for attaining the desired results. However, attention is invited to the possibility of making variations within the scope of the invention as claimed.

We claim:

1. A method of applying a sealing compound to a can end of the type having a seaming panel, a curl integral with the outer edge of said seaming panel, a chuck wall at the inner edge of said seaming panel, and a seaming panel radius integrally joining said chuck wall to said seaming panel; said method comprising the steps of applying one coating to at least part of said curl and part of the width of said seaming panel, and applying a second coating to at least part of said chuck wall and the contiguous portion of said seaming panel radius, said second coating being spaced from said one coating.

2. The method defined in claim 1: said one coating being applied to cover substantially the outer half of said seaming panel, said second coating being applied to cover substantially the upper half of said seaming panel radius.

3. The method defined in claim 1: the operations of applying said one coating and said second coating being performed simultaneously.

4. The method defined in claim 1: the operations of applying said one coating and said second coating being performed simultaneously, said one coating being applied to cover substantially the outer half of said seaming panel, said second coating being applied to cover substantially the upper half of said seaming panel radius.

5. A method of applying a sealing compound to a channeled seaming formation of a can cover; said method comprising application of the sealing compound to at least coat inner and outer wall portions of the channeled formation without coating an intervening area of the channel bottom.

6. In a can end of the type having a seaming panel,

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a curl integral with the outer edge of said seaming panel, a chuck wall at the inner edge of said seaming panel, and a seaming panel radius integrally joining said chuck wall to said seaming panel; one layer of sealing compound on at least part of said curl and part of the width of said seaming panel, and a second layer of sealing material on said chuck wall and a contiguous portion of said seaming panel radius, said second layer of sealing material being spaced from said one layer.

7. A structure as specified in claim 6: in which said one layer covers substantially the outer half of the width of said seaming panel, and in which said second layer covers substantially half the width of said seaming panel radius.

8. A structure as specified in claim 6: said second layer being of slightly greater thickness than said one layer.

9. A structure as specified in claim 6: in which said one layer covers substantially the outer half of the width of said seaming panel, and in which said second layer covers substantially half the width of said seaming panel radius, said second layer being of slightly greater thickness than said one layer.

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