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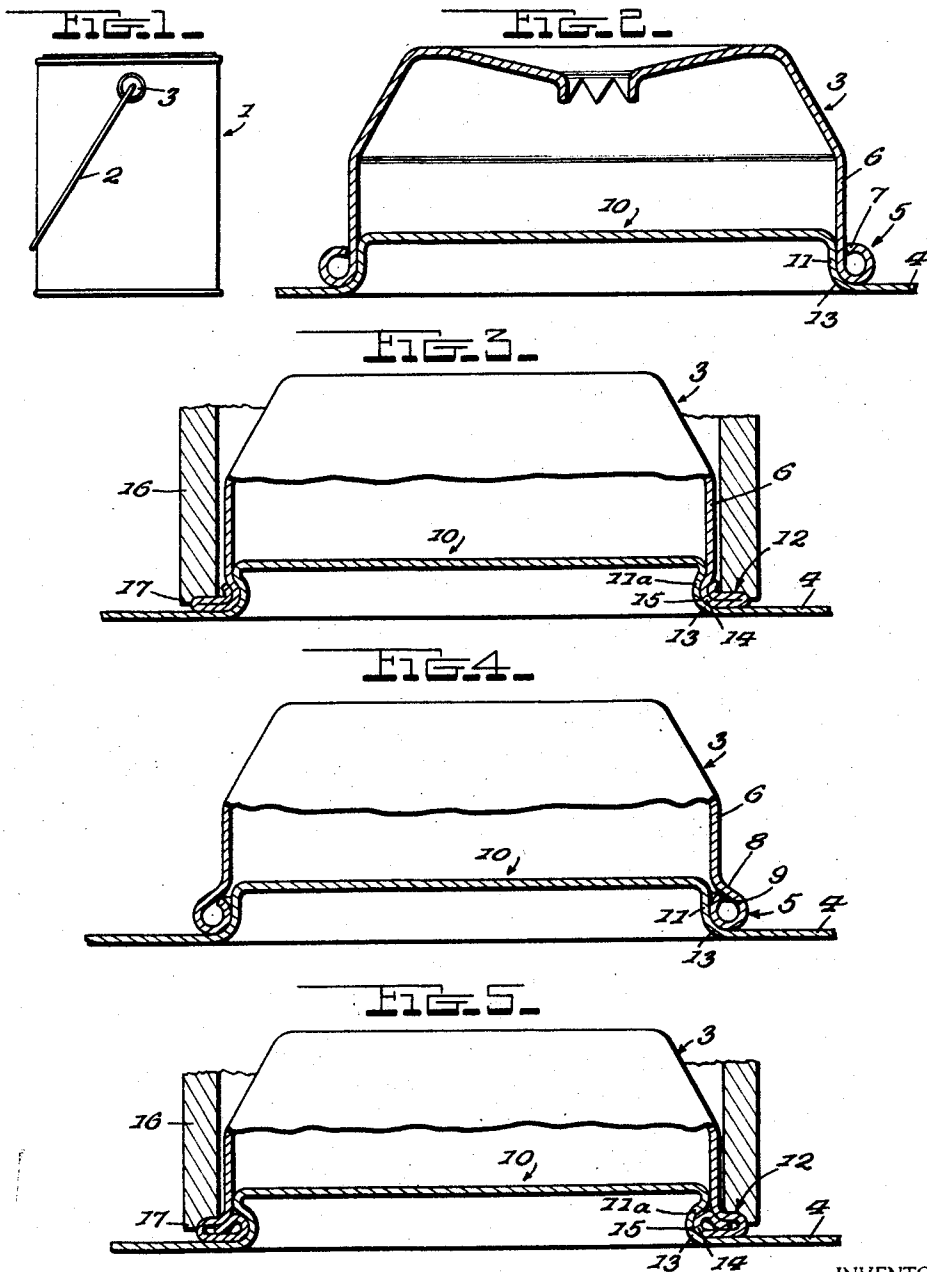
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2,957,600

BAIL EAR AND BODY BLANK ASSEMBLY

Original Filed Nov. 1, 1955

2 Sheets-Sheet 1



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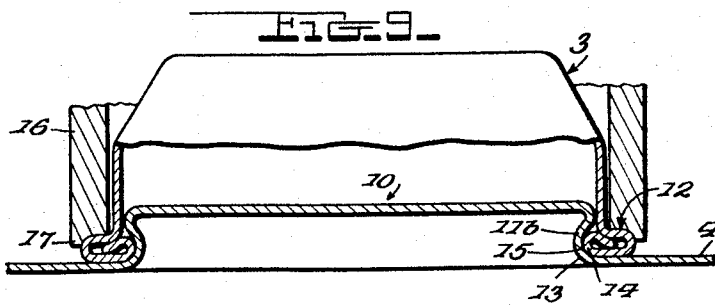
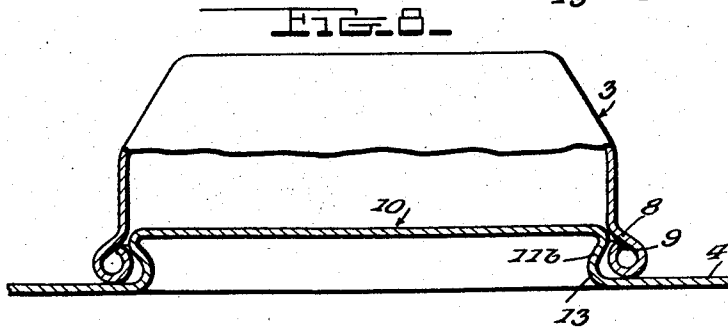
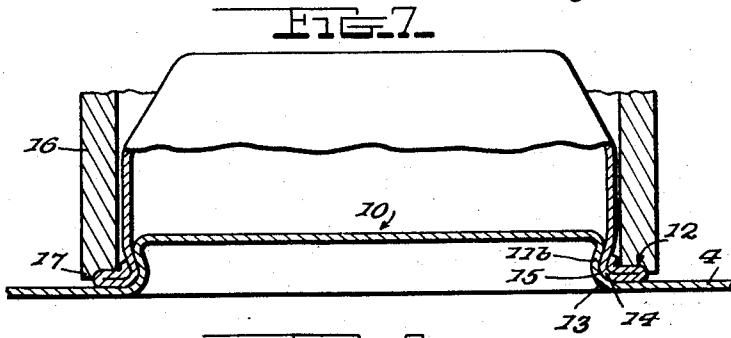
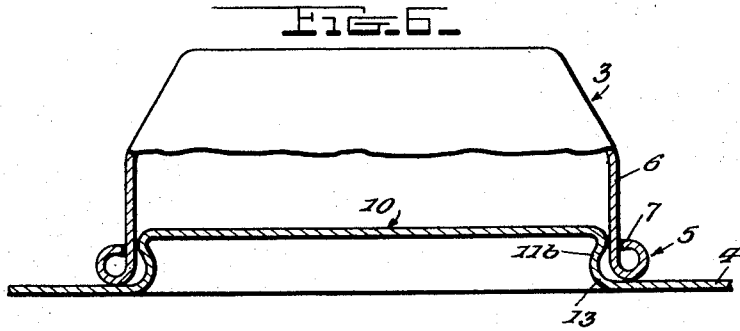
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BAIL EAR AND BODY BLANK ASSEMBLY

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2 Sheets-Sheet 2



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## BAIL EAR AND BODY BLANK ASSEMBLY

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Original application Nov. 1, 1955, Ser. No. 544,151, now Patent No. 2,905,125, dated Sept. 22, 1959. Divided and this application Apr. 13, 1959, Ser. No. 805,847

## 2 Claims. (Cl. 220—91)

The present invention relates to the attachment of ears to paint cans, painters' buckets and other bucket-type containers, for connecting carrying bails to such containers.

This application is a division of my copending application for U.S. Letters Patent Serial Number 544,151, filed November 1, 1955 now Patent No. 2,905,125 and entitled Method of Attaching a Bail Ear, and it covers the body blank and bail ear assembly disclosed in said copending application, whereas said copending application covers the method of attaching a domed sheet metal bail attaching ear to a sheet metal body blank.

The present invention aims to provide a tenacious connection between a domed sheet metal ear and a body blank without the necessity of providing the blank with an external recess to receive the beaded end of the domed ear.

According to the present invention, a portion of the body blank is pressed outwardly to provide the blank with an external boss. The beaded end of the domed ear is placed around this boss when the ear and blank are relatively assembled, and the bead is then flattened. This flattening, so changes the radial dimension of the bead as to force the latter into tight interlocking engagement with the side wall of the aforesaid boss, thereby effectively connecting the ear with the body blank.

In one form of the invention, the side wall of the boss is cylindrical and becomes deformed under the pressure exerted by the bead when the latter is flattened, thereby producing the desired interlock of said wall and the flattened bead. In another form of the invention, the side wall of the boss is preformed in the shape into which the aforesaid cylindrical wall is deformed by the bead pressure, and the bead will then engage the preformed wall when said bead is flattened. In either case, the bead presents a rounded edge to the boss side wall with no danger of injuring the latter.

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 is a side elevation of a paint can or the like provided with bail ears in accordance with the present invention.

Figure 2 is an enlarged sectional view showing one form of the domed and beaded ear initially assembled with the body blank in readiness for bead flattening.

Figure 3 is a similar view showing the bead flattened and the boss side wall deformed into interlocking engagement with the flattened bead.

Figures 4 and 5 are views similar to Figures 2 and 3, respectively, but showing the bead formed by inward instead of outward curling of the base edge of the domed ear.

Figures 6, 7, 8 and 9 correspond to Figures 2, 3, 4 and 5, respectively, but disclose constructions in which the

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side wall of the boss is pre-shaped to engage the flattened bead.

In Figure 1, a conventional paint can or the like 1 has been shown, said can having a carrying bail 2 attached to bail ears on the can, one of the ears being shown at 3. In all other views, a portion of a body blank 4 is shown, from which to form the can side wall, and one of the ears 3 is shown on an enlarged scale.

In all forms of the invention herein disclosed, the base edge of the domed sheet metal ear 3 is formed with a continuous, external tubular head 5, and the side wall 6 of said domed ear is cylindrical. In Figures 2 and 6, the bead 5 is formed by an outward curl 7, whereas in Figures 4 and 8, the metal is first turned outwardly at 8 and then curled inwardly at 9.

The sheet metal body blank 4, in all forms of the invention, is provided with an external boss 10 formed by outwardly pressing a portion of said blank. In Figures 2 and 4, the side wall 11 of the boss 10 is cylindrical but becomes deformed to the flared shape shown at 11<sup>a</sup> in Figures 3 and 5 when the bead 5 is deformed into the flat shape shown at 12. In Figures 6 to 9, however, the boss side wall 11<sup>b</sup> is pre-shaped into the same flared form as that into which the side wall 11 becomes deformed. In either instance, a curved fillet 13 joins the boss side wall to the body blank 4.

In assembling, the beaded lower end of the domed ear 3 is placed around the boss 10 as shown in Figures 2, 4, 6 and 8 and the bead 5 is then flattened as at 12. During such flattening, if the boss side wall be cylindrical as shown at 11 in Figures 2 and 4, the pressure exerted by the bead 5 as its radial dimension is increased will deform said wall 11 into the shape shown at 11<sup>a</sup> in Figures 3 and 5, producing a tight interlock between the ear 3 and the body blank 4. If the boss side wall be pre-shaped into the flared form shown at 11<sup>b</sup> in Figures 6 to 9, the flattened bead 12 will simply engage this wall 11<sup>b</sup> tightly to produce the interlock. In either case, the flattened bead 12 has a curved inner edge 14 tightly received in a peripheral groove 15 and contacting with the fillet 13 with no danger of cutting the boss. Moreover, these curved surfaces may yield slightly upon each other during curving of the body blank 4 into cylindrical shape to form the container side wall. The union of the ear 3 with the body blank 4 will not therefore interfere with this operation and a truly cylindrical shape may thus be imparted to the container side wall.

The bead flattening operation is performed by a suitable press, one member of which is shown at 16. This member is in the form of a die forming sleeve and it may well have a shoulder 17 to surround the bead 5 and restrain outward widening of the latter during the bead flattening operation, thus forcing a greater inward widening of the bead into interlocking engagement with the boss side wall.

While example forms of the invention have been shown for purposes of illustration, it is to be clearly understood that various changes in the details of construction and arrangement of parts may be made without departing from the spirit and scope of the invention as defined in the appended claims.

I claim:

1. In a body blank and bail ear assembly; a sheet metal body blank having an outwardly pressed portion providing it with an external boss; said boss having a continuous side wall joined by a curved fillet to the surrounding portion of the body blank, said boss side wall having an inwardly directed circumferential groove in its outer side; and a sheet metal bail ear having a continuous side wall surrounding said boss; the lower edge of said ear side wall terminating in a flattened bead lying upon said surrounding portion of the body blank; said flattened bead having a transversely curved inner portion immediately adjacent

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said ear side wall, said inner portion being tightly received in said groove and contacting said fillet, a lower generally flat portion adjoining said inner portion and resting on said surrounding portion of the body blank, a reversely turned generally flat upper portion overlying said lower portion, and a terminal edge portion directed upwardly from the inner edge of said upper portion, said terminal edge portion being seated within the recess defined by said transversely curved inner portion.

2. In a body blank and bail ear assembly; a sheet metal body blank having an outwardly pressed portion providing it with an external boss; said boss having a continuous side wall joined by a curved fillet to the surrounding portion of the body blank, said boss side wall having an inwardly directed circumferential groove in its outer side; and a sheet metal bail ear having a continuous side wall surrounding said boss; the lower edge of said ear side wall terminating in a flattened bead lying upon said

surrounding portion of the body blank; said flattened bead having an outwardly directed generally flat upper portion immediately adjacent said bail ear side wall, a reversely turned lower portion underlying said upper portion and being seated on said surrounding portion of said body blank, a transversely curved inner portion extending upwardly from the inner edge of said lower portion, said inner portion being tightly received in said groove and contacting said fillet, and a terminal edge portion directed outwardly from said inner portion and being clamped between said upper portion and said lower portion.

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