Oct. 3, 1939. G. A. WALKER 2,175,071

SHEET METAL RECEPTACLE

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Fig. 1

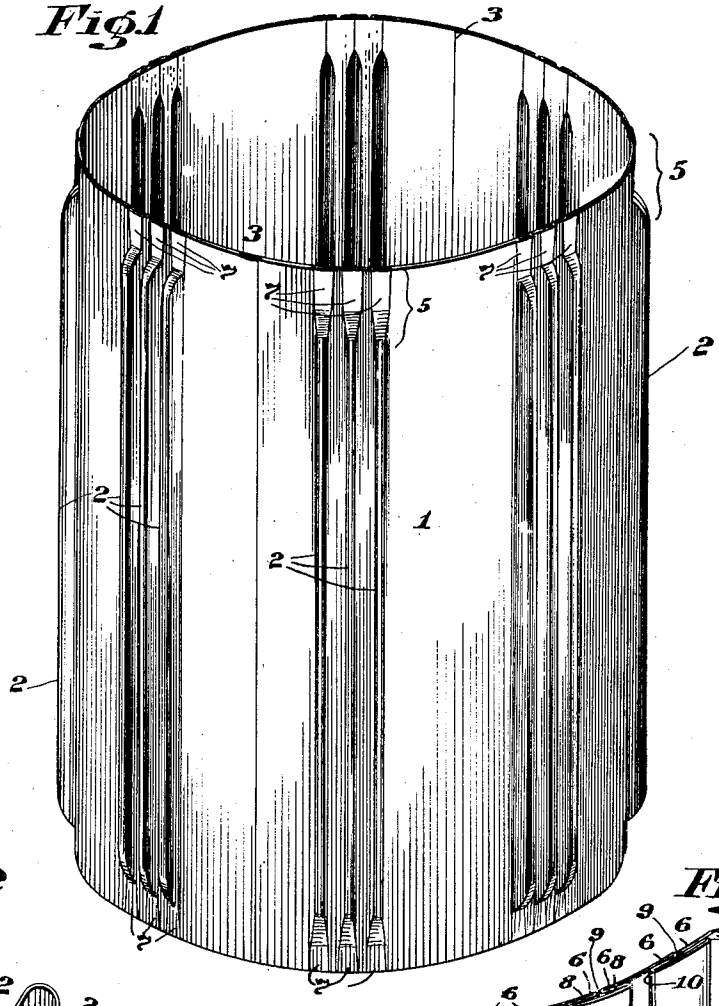


Fig. 2

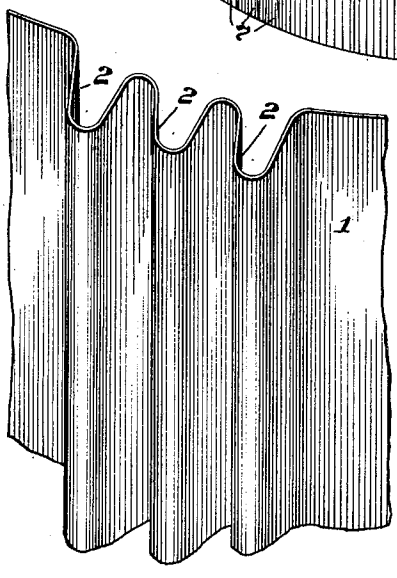
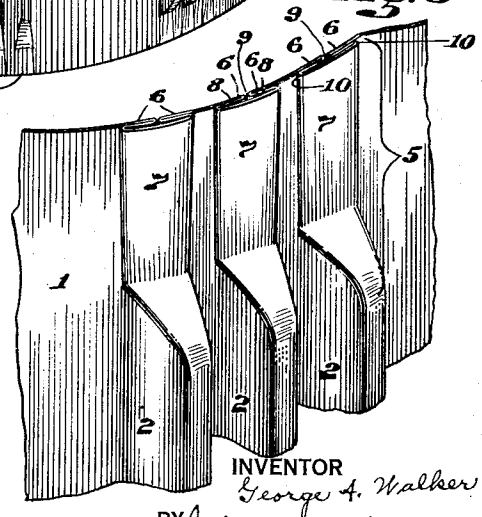


Fig. 3



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Fig. 4

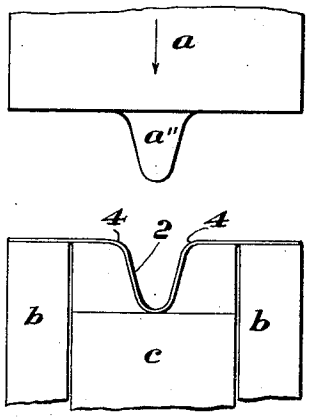


Fig. 5

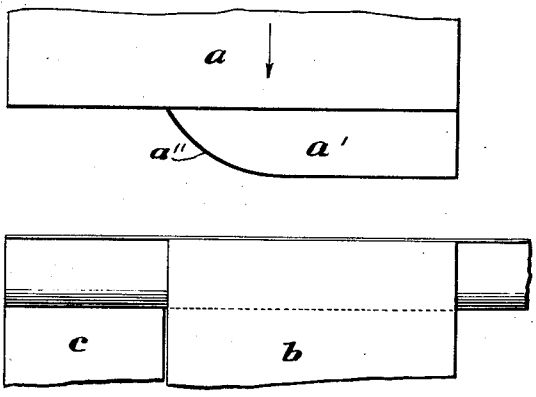


Fig. 6

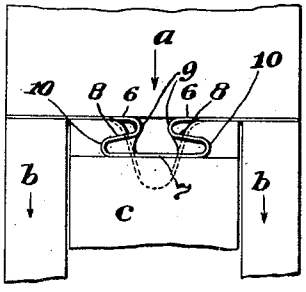


Fig. 7

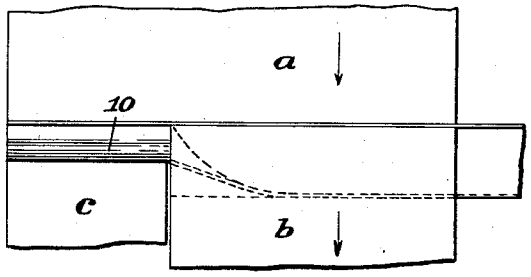
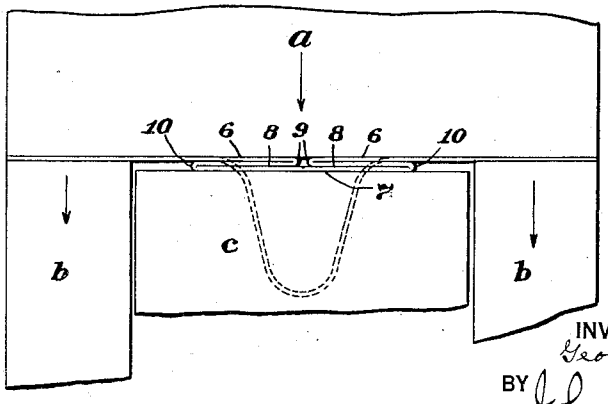


Fig. 8



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Patented Oct. 3, 1939 2,175,071

UNITED STATES PATENT OFFICE

2,175,071

SHEET METAL RECEPTACLE

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Application October 23, 1937, Serial No. 170,607

2 Claims. (Cl. 220—72)

The invention relates to sheet metal receptacles having a wall the body of which is reinforced by one or more hollow projecting ribs.

The object of the invention is to provide an end closure for each rib and leave beyond the closed end of the rib a relatively smooth, finished, and strengthened edge portion lying substantially in plane with the body wall of the receptacle. Especially is it my object to obtain the objective ends above referred to without incising or cutting notches in the edge of the strip or blank from which the receptacle is made, which tends to weaken it at the very point where it should be strengthened; also to obtain the objective ends without the necessity of soldering or welding.

The invention can best be seen and understood by reference to the drawings, in which

Fig. 1 is a perspective of a receptacle embodying the invention.

Fig. 2 is a perspective of a ribbed portion of the receptacle before deformation for closing the ends of the rib, in accordance with the invention.

Fig. 3 is a perspective of the ribbed portion of the receptacle as shown in Fig. 2 after deformation by flattening into a plaited mass for closing the ends of the ribs, in accordance with the invention.

Figs. 4 to 8, inclusive, show diagrammatically the way in which each rib is deformed for closing its end, in accordance with the invention.

Referring to the drawings, 1 represents the body of the receptacle and 2 the hollow projecting ribs. The body of the receptacle and ribs are made of sheet metal, each rib being produced by an integral fold in the metal. The body of the receptacle may be made in one or more parts. As shown in Fig. 1 the receptacle is made in two parts joined together at point 3 by interlocking folds in the metal. Preferably more than one rib is made at a given point or section; as shown in the drawings the ribs are arranged in sets of three.

It will be observed by reference especially to Figs. 2 and 6 that each rib is generally frustro conical in cross section with rounding corners 4 where the metal of the body of the receptacle merges into the sides of the rib. At a point adjacent to but a distance appreciably removed from the edge of the receptacle, or sheet metal blank from which the receptacle is made, the end of each rib is provided with an end closure 5. This closure is formed by deformation of the rib itself. The deformation occurs in that end portion of the rib initially lying within the edge portion of the receptacle wall, and this end portion of the rib is deformed to merge into a flattened plaited mass lying substantially within the plane of the body wall of the receptacle. This mass comprises opposing plate sections 6—6 and 8—8. Extending over these opposing plate sections in overlapping relation thereto is a tongue-like plate section 7. The opposing plate sections 6—6 and 8—8 are each connected, respectively, along an inner marginal edge 9 and are formed by folds in the metal bent in from the opposite sides of the rib, the folds being formed along the marginal edges 9. The overlapping plate 7 connects with the plates 8—8 along marginal edges 10, folds being formed in the metal by the bending down of the plate 7 along these marginal edges. All the plate sections are pressed together to form a tight closure and so that all will lie substantially within the plane of the body wall of the receptacle, and this without expansion of the adjacent edge portions of the receptacle for the flattened plate sections of the plaited mass are formed entirely from the rib, and the inner edges 9—9 of the opposing plate sections 6—6, 8—8 lie rather snugly together, paralleling one another. The end closure of the rib is accomplished primarily from the way in which the rib is formed and unites with or merges into the body wall of the receptacle. As previously described, the rib is frustro conical in cross section and the body wall of the receptacle merges into the sides of the rib by the rounding edges 4. The deformation and end closure of the rib is accomplished as shown in Figs. 4 to 8, inclusive, and reference will now be made to what is shown in these figures.

In Fig. 4 is shown a die a having a die member a^1 with inclined end wall a^{11}. This die is placed within the rib to be deformed in position where that portion of the rib to be deformed will lie beyond the inclined edge a^{11} of the die, as shown in Figs. 6 and 7. In other words, the die provides an inside support for the rib at a point lying back of but immediately adjacent to the place where the rib is to be deformed. At the same time the body wall of the receptacle, or blank from which the receptacle is made, at points immediately adjacent where the deformation is to occur are retained against lateral displacement by dies b, b, in co-operation with the die a. The metal now being retained against displacement all around that portion of the rib to be deformed, pressure is applied by means of a die c to the end portion of the rib then backed by the die a, substantially

as shown in Figs. 6 and 7. The initial application of die *c* will first deform the rib into the form shown in Fig. 6 and, as the pressure is continued, into the form shown in Fig. 8, where there is obtained the plaited mass of flattened plate sections into which the rib merges to obtain the end closure thereof as previously described.

Where there is more than one rib in a set then the dies are made to accommodate the several ribs, the operative principle remaining the same.

I claim:

1. A metal receptacle having a wall formed of plain sheet metal, one or more outwardly projecting hollow ribs formed on the receptacle wall and having the plain sheet metal disposed on opposite sides thereof and constituting the main body of the receptacle with its inner surface of cylindrical form and free of inward projections, an end closure for the rib formed therefrom and comprising opposing plate sections bent in from the opposite sides of the rib, and another plate section bent down from said rib and overlapping said opposing plate sections, all of said sections being pressed together to merge into a flattened plait mass lying at the base of the rib and substantially within the plane of the cylindrical surface of the receptacle body.

2. A metal receptacle having a wall formed of plain sheet metal, one or more outwardly projecting hollow ribs formed on the receptacle wall and having the plain sheet metal disposed on opposite sides thereof and constituting the main body of the receptacle with its inner surface of cylindrical form and free of inward projections, an end closure for the rib formed therefrom and comprising opposing folds in the metal bent in from the opposite sides of said rib, and a plate section pressed down from said rib to overlap said opposing folds, said opposing folds and said overlapping plate section all being pressed together to merge into a flattened plaited mass lying at the base of the rib and substantially within the plane of the cylindrical surface of the receptacle body.

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