

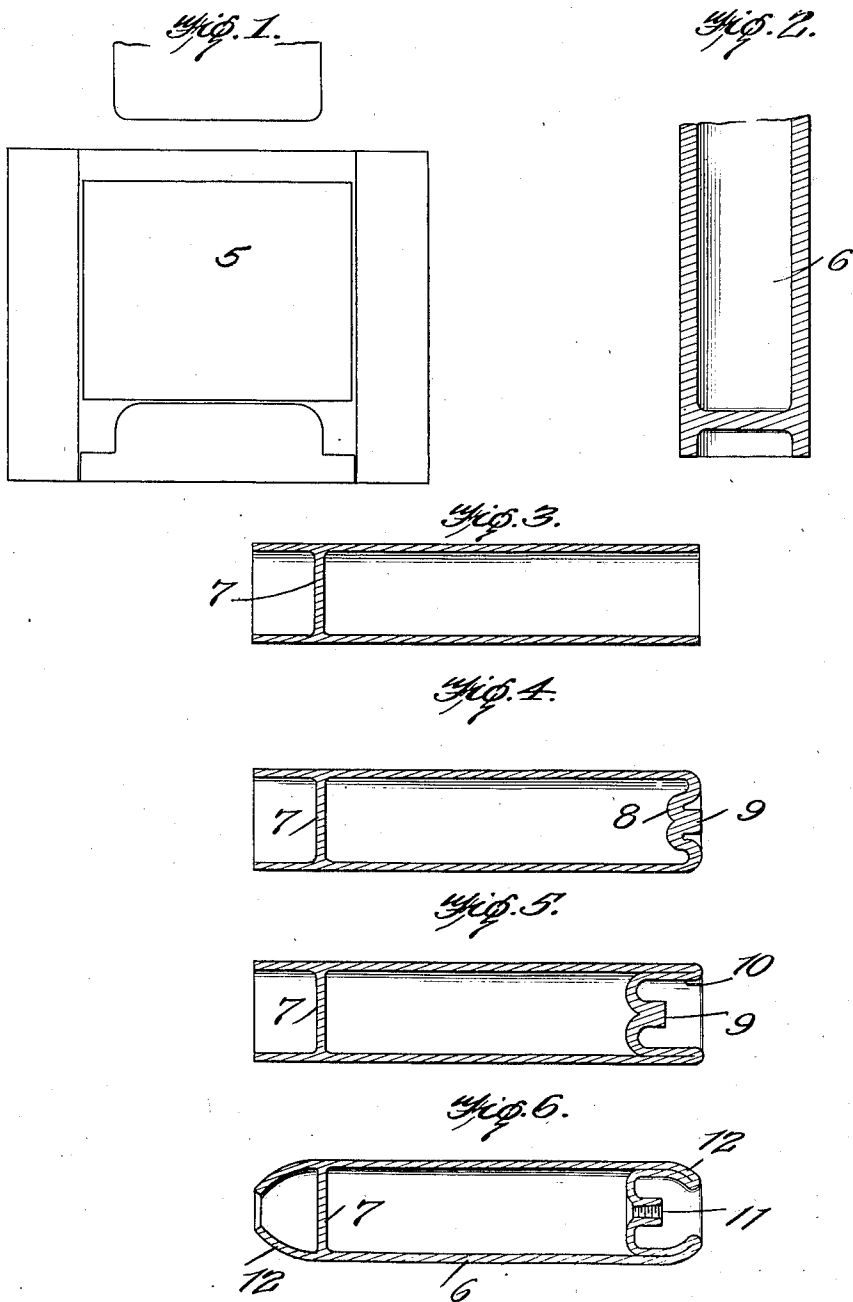
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G. O. CARLSON

METHOD OF FORMING CYLINDRICAL CONTAINERS

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Inventor

GUNARD O. CARLSON,

By *Jack B. Richmond*

Attorney

UNITED STATES PATENT OFFICE.

GUNARD O. CARLSON, OF EASTON, PENNSYLVANIA, ASSIGNOR TO WILLIAM WHARTON, JR. & COMPANY, INCORPORATED, OF EASTON, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

METHOD OF FORMING CYLINDRICAL CONTAINERS.

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My invention relates to metal containers mainly intended for the transport and storage of ammonia and other gases. Heretofore it has been usual to form ammonia cylinders of lap-welded tubing with separate heads welded to place. Welded cylinders are objectionable for a number of reasons aside from the high cost of production.

The nature of my invention consists in forming the cylinder and its heads as a unit constructed of seamless drawn metal, the heads being guarded by end flanges or skirts which are symmetrically inturned or convexed. In achieving this result I may start with a billet or with a section of seamless drawn tubing.

In the accompanying drawings,—

Fig. 1 is a diagrammatic illustration of the relationship of the parts in the initial operation of piercing when starting with a billet,

Fig. 2 is a sectional view of the product of the first operation,

Fig. 3 is a sectional view of the product elongated by drawing,

Fig. 4 illustrates the product after the operation of swaging or necking,

Fig. 5 illustrates the product after continued swaging operation on the necked end to provide the end flange or skirt, and

Fig. 6 is a sectional view of the finished product.

According to my invention, the billet 5 is pierced and extruded to form the cup-shape member 6, as in Fig. 2. It is then elongated by a drawing operation to substantially the form of Fig. 3, in which form the closed end 7 is in its finished state except for the convexing of the flange. The open end of

the structure is then swaged to form a substantially dish-shaped transverse wall or head 8, having a central boss 9, Fig. 4. By continued swaging operation the cylindrical wall is doubled upon itself by a re-entrant portion 10, thereby establishing a flange or skirt corresponding to the flange at the other end of the structure. The boss 9 is then bored and tapped, as at 11, for the reception of the usual valve or other connection. The end flanges are then converged or flared, by swaging, to impart the general dome-shape indicated at 12 in Fig. 6. The converging or flaring end walls not only serve to protect the heads of the cylinder but afford a purchase for grappling hooks.

Having described my invention, I claim:—

1. The method of forming cylindrical containers, which consists in providing a cylindrical blank having a flanged closed end, swaging the other end to close it and to form a re-entrant portion having a neck, and imparting an inward flare to both end flanges.

2. The method of forming cylindrical containers, which consists in providing a seamless drawn cylindrical blank having a flanged closed end, swaging the other end of the blank to form a corresponding flanged closure having a central boss, and boring and tapping the boss.

3. The method of forming cylindrical containers, which consists in providing a cylindrical blank having a flanged closed end, swaging the other end of the blank to form a flanged neck, and swaging both sets of flanges to give them a dome-shape or inwardly directed flare.

In testimony whereof I affix my signature.

GUNARD O. CARLSON.