

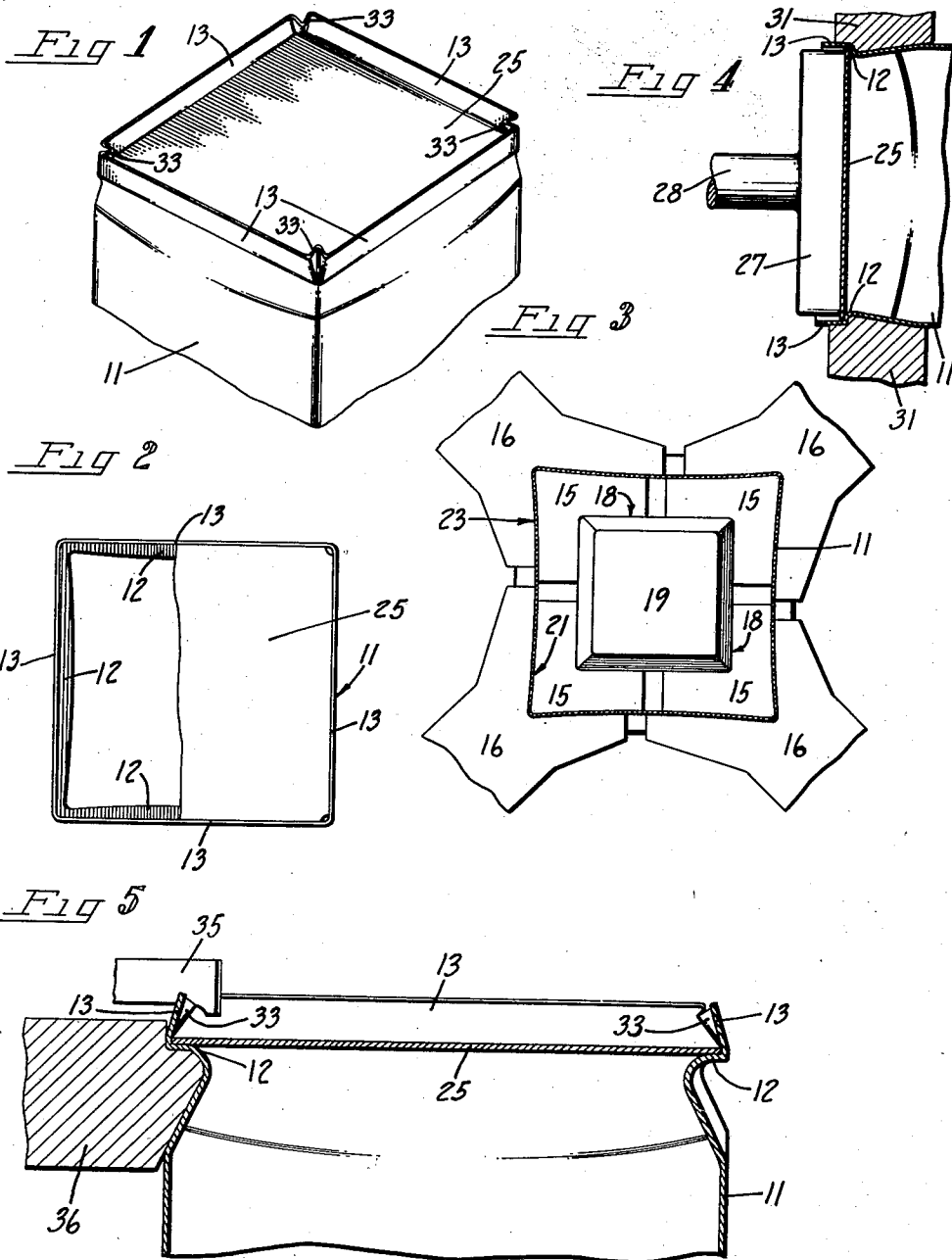
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METHOD OF MAKING CONTAINER BODIES

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METHOD OF MAKING CONTAINER BODIES

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The present invention relates to a method of making rectangular tubular fibre container bodies for the reception of end members and of assembling the end members with the bodies and has particular reference to forming stop shoulders in the bodies to locate and hold the end members in a predetermined position irrespective of the position of the body side walls when the end members are inserted into the bodies.

In the manufacture of fibre containers having inserted end members the bodies of the containers are sometimes formed with inwardly extending beads or shoulders which serve as stops for locating the end member when it is inserted into the open end of the body. It has been found that the fibre stock from which such containers are usually made has an inherent springy nature and when a bead is formed in the body in a dry state the formed bead tends to spring back into a flat condition and thereby leaves a rounded smaller bead than that which should be expected. This same condition obtains at the corners of the body where the stock is creased and this often permits the body side walls to bow outwardly so that the body assumes a more rounded shape than a rectangular shape.

Hence when the end member is inserted into place in the open end of the body, the bead sometimes does not function as a stop and the end member sometimes is pushed past the bead and into the body proper. This causes considerable difficulty in securing the end member in place in a subsequent operation, especially when such operations are effected on continuous operation machines.

Since the fibre material of the body cannot be stretched and since there is not sufficient material at the corners of the body to make the shoulder uniformly deeper the instant invention contemplates overcoming this difficulty by a method of forming a bowed bead or shoulder in the container bodies which has its middle portion extending inwardly a greater distance than the portions adjacent the corners of the body so that the shoulder will be stiffened and will have at least its center position extending inwardly of a line joining adjacent corners of the body irrespective of the position of the body side walls, to prevent an end member from being pushed past it when the end member is being inserted into the container.

An object therefore of the invention is the provision of a method of making rectangular tubular fibre container bodies for the reception of end members and of assembling the end mem-

bers with the bodies wherein each side wall of a body is formed with a bowed inwardly extending bead or shoulder by pressing in the middle parts of the walls which are between the corners of the body and this stiffens or reenforces and provides a shoulder in each wall which will always have at least its center portion extending inwardly of a line joining adjacent corners of the body irrespective of the position of the body side walls thus preventing an end member from being pushed past it when the end member is inserted into the container.

Another object of the invention is the provision of such a method wherein flange parts are set off in the body by the forming of the shoulder, an end member is inserted into the open end of the body, and the flange parts then are bent inwardly toward the inserted end member to hold it in assembled position.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawing, discloses a preferred embodiment thereof.

Referring to the drawing:

Figure 1 is a perspective view of a portion of a fibre container produced in accordance with the steps of the instant method invention;

Fig. 2 is a top plan view of the container shown in Fig. 1, with parts broken away;

Fig. 3 is a plan view showing squeezing jaws for carrying out the beading step on a container body and illustrating a container body in place in the jaws;

Fig. 4 is a sectional view showing the step of inserting an end member into a beaded container body with sufficient apparatus for carrying out the operation, parts being broken away; and

Fig. 5 is an enlarged vertical sectional view illustrating the container flange tucking-in operation and showing apparatus for effecting such a step.

As a preferred embodiment of the invention the drawing illustrates a method of beading a tubular and rectangular shaped fibre container body and of assembling an end member therewith to produce a container of the character disclosed in United States Patent 2,085,979, issued July 6, 1937, to J. M. Hothersall.

In such a method the straight side walls of the preformed rectangular body (indicated by the numeral 11) are first beaded near the open ends of the body, by pressing the middle portion of each side wall inwardly a distance greater

than the parts adjacent the corners of the body. This provides bowed stop shoulders or beads 12 (Figs. 2, 4 and 5). These stop shoulders have their center portions projected inside of imaginary lines joining adjacent corners of the body irrespective of any sprung or partially bowed condition of the body wall. The shoulders being formed near the end of the body each sets off an extended and continuous straight flange 13, which surrounds the beaded end of the body.

The beading of the container body 11 is preferably brought about by movable inner and outer jaws 15, 16 (Fig. 3) which may be a part of a conventional squeezer head. The drawing shows four inner jaws 15 as being located one in each corner of the container body. The inner surfaces of the inner jaws are cut away to form corner recesses 18 having tapered edges. These tapered edges collectively are adapted to be engaged by a tapered movable plug 19 which moves inwardly against the jaws in a conventional manner. This action expands the inner jaws outwardly against the inner surface of the body side walls. The engaging surfaces of the inner jaws are preferably curved inwardly or in other words, slightly concave, as indicated by the numeral 21 in Fig. 3.

The outer jaws 16 surround the container body 11. There are preferably four of these jaws located one adjacent each corner of the container body. The inner surfaces of the outer jaws are convexly curved as indicated by the numeral 23.

The outer jaws 16 are movable laterally of the container body in any suitable manner and when moved into engagement with the container side walls press the latter inwardly against the inner jaws 15. It is this squeezing action that forms the bead 12 in the container body.

After forming the bead 12 in the container body, a rectangular end member 25 is inserted in the open end of the container and is pushed back into engagement with the bead 12. This locates the end member in place within the body.

Insertion of the end member 25 may be effected in any suitable manner. One form of apparatus for doing this is shown in Fig. 4 and includes a pusher head 27 which is carried on one end of a movable rod 28. During such an inserting operation, the shoulders 12 of the body are preferably backed up or supported by container holding elements or outside movable jaws 31.

To hold the inserted end member 25 in place within the container body 11 and against the shoulders 12 for their operations, the corners of the extended flange 13 are tucked in, as shown in Fig. 5. Such a tucking operation forms an inwardly extending V-shaped fold or tuck 33 at each corner of the body flange and this tuck overhangs and engages against the end member thus holding it in place in the container body.

Forming of each corner tuck 33 in the body flange 13 is preferably effected by a movable dull edged blade 37. This blade may be a part of a conventional tucking head which when moved toward the end of the container presses the blade against the body flange and thus folds it inwardly to produce the tuck. During this tucking operation the shoulders 12 are preferably supported by movable outside fingers 35. These fingers may be a part of the tucking head and are moved laterally of the container body. This tucking operation completes the operations of beading the body and of assembling the end member as contemplated in the present description.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the steps of the process described and their order of accomplishment without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the process hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A method of making a rectangular tubular fibre container body for the reception of a flat end member and of assembling such an end member with the body, which comprises beading the side walls of the tubular container body inwardly by pressing the middle part of each wall a distance greater than the parts adjacent to the corners of the body to provide bowed stop shoulders having their center portions inside of the lines joining adjacent corners of the body irrespective of the position of the body wall, supporting the interior of said tubular container body during the inward beading operation, and inserting a flat rectangular end member in the adjacent open end of said beaded body into engagement with said stop shoulders, said shoulders preventing the end member from springing past during the inserting operation.

2. A method of making a rectangular tubular fibre container body for the reception of a flat end member and of assembling such an end member with the body, which comprises forming inwardly extending bowed stop shoulders in the side walls of the tubular container body adjacent an open end thereof to provide extended flanges adjacent the shoulders, the middle portion of the shoulder in each side wall extending inwardly a greater distance than the portions adjacent the corners of the body to reinforce the shoulder and to maintain its middle portion inside of a line joining adjacent corners of the body, supporting the interior of said tubular container body against collapse during the stop shoulder forming operation, inserting a flat rectangular end member in the open end of the body into engagement with the stop shoulders, said shoulders preventing the end member from springing past during the inserting operation, and then bending portions of the extended flanges inwardly toward the inserted end member to hold the latter in assembled position.

3. A method of making a rectangular tubular fibre container body for the reception of a flat end member and assembling such an end member with the body, which comprises inwardly beading the side walls of said tubular container body adjacent an open end by pressing inwardly the middle part of each wall a distance greater than the parts adjacent to the corners of the body to provide inwardly bowed stop shoulders having their center portions inside of the lines joining adjacent corners of the body and leaving extended flanges adjacent the shoulders, supporting the interior of said tubular container body during the inward beading operation, inserting a flat rectangular end member in the open end of the body into engagement with said stop shoulders, said shoulders preventing the end member from springing past during the inserting operation, and then tucking in the extended flanges of the body at the corners thereof to hold the end member in assembled position.

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