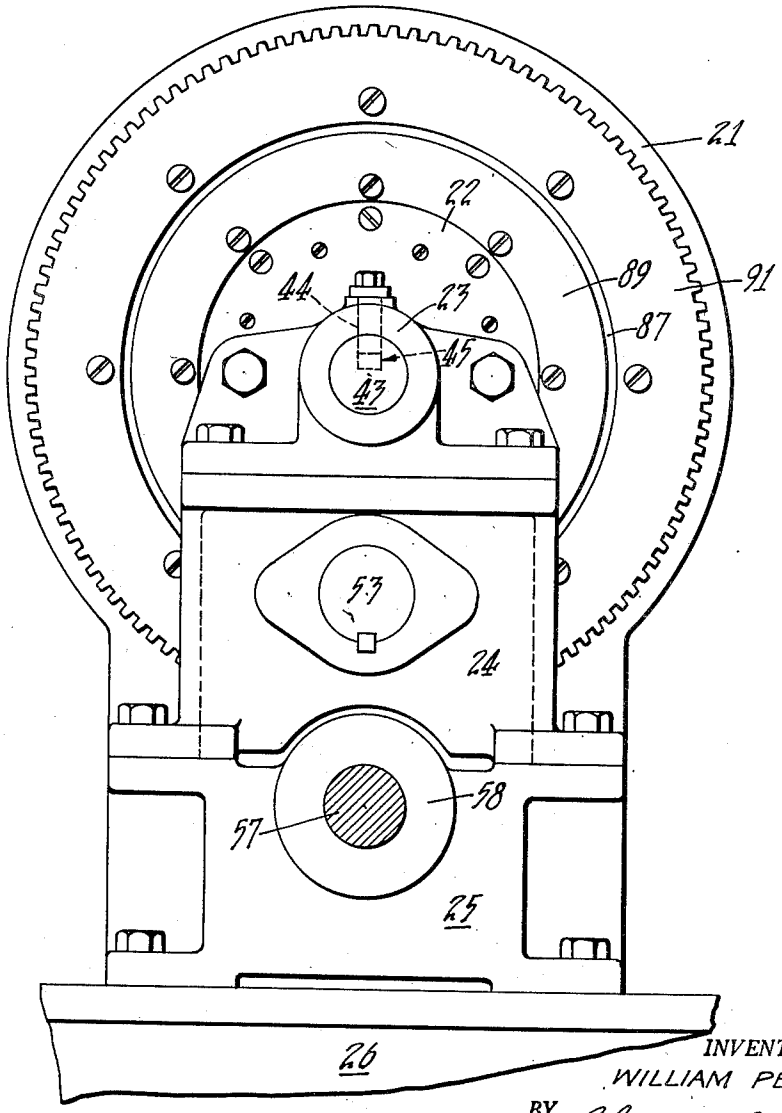
Nov. 10, 1953 W. PECHY 2,658,549

CONTAINER REDUCING MECHANISM WITH CONTINUOUS JAW FACES

Filed April 19, 1951 6 Sheets-Sheet 1

Fig. 1



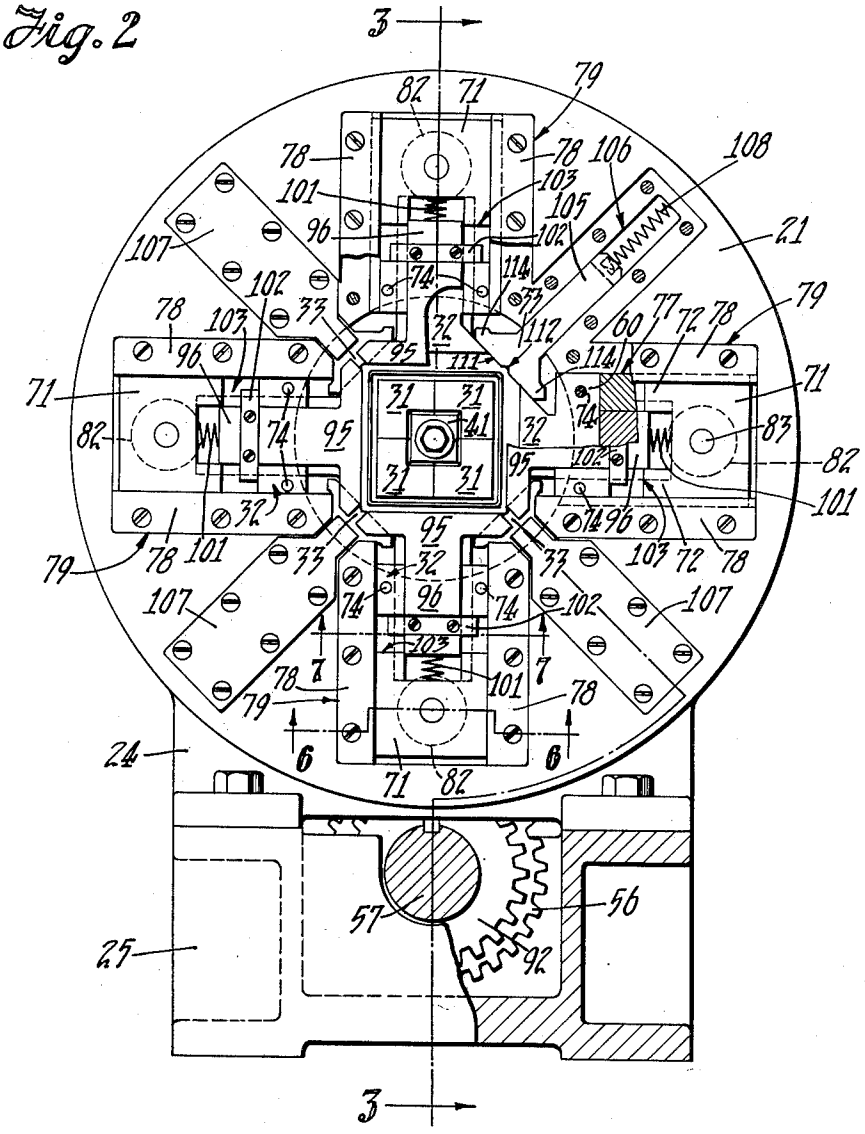
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CONTAINER REDUCING MECHANISM WITH CONTINUOUS JAW FACES

Filed April 19, 1951 6 Sheets-Sheet 2

Fig. 2



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CONTAINER REDUCING MECHANISM WITH CONTINUOUS JAW FACES

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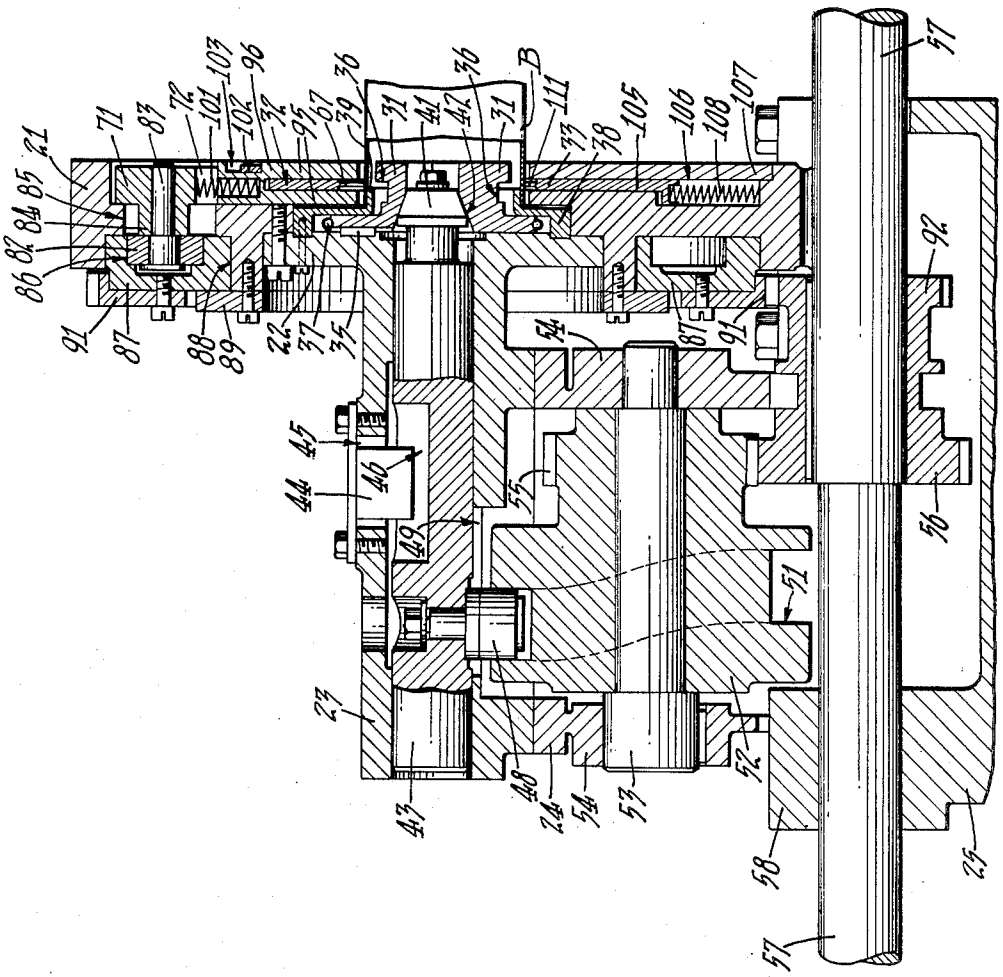


Fig. 3

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CONTAINER REDUCING MECHANISM WITH CONTINUOUS JAW FACES

Filed April 19, 1951 6 Sheets-Sheet 4

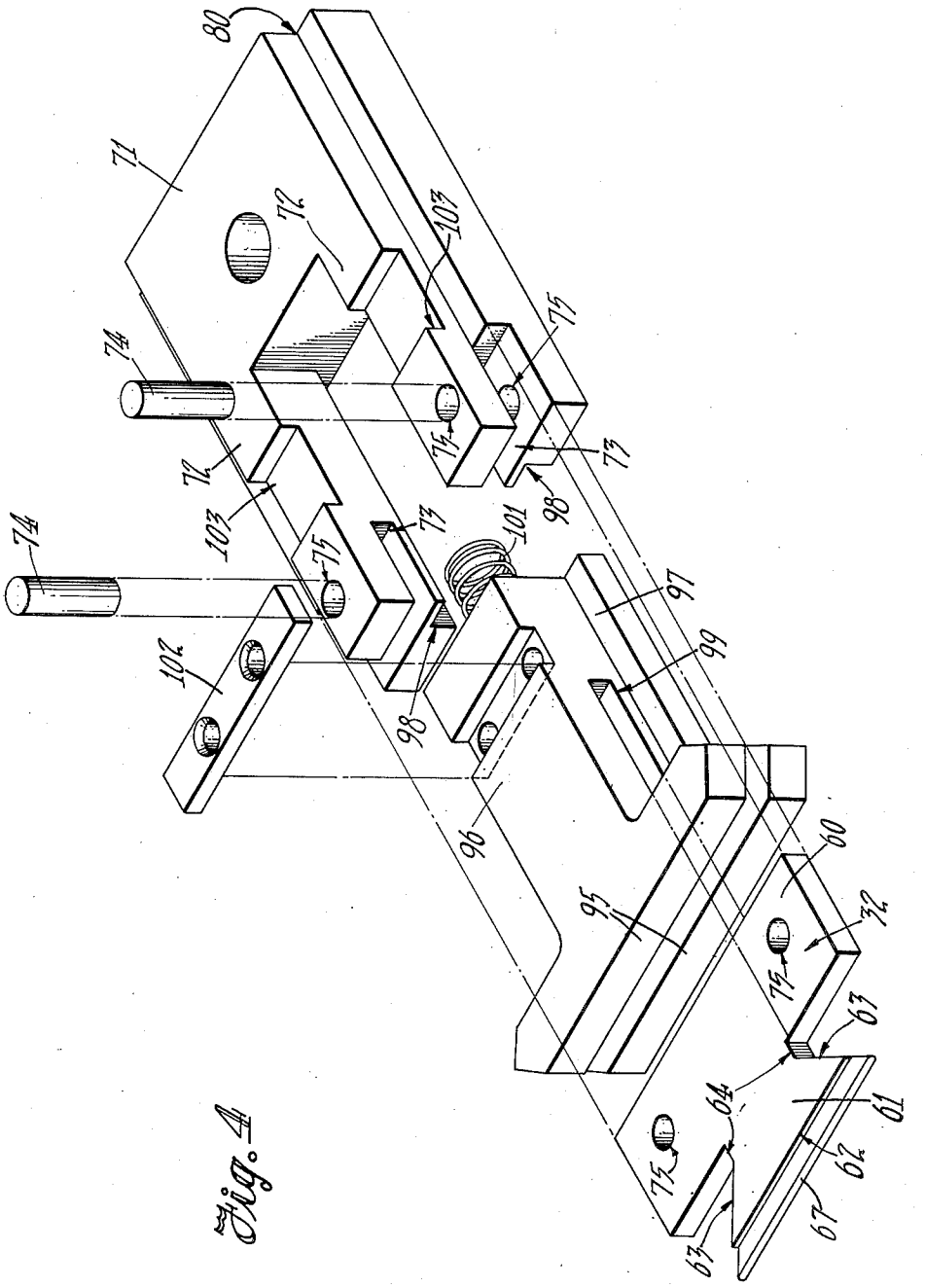


Fig. 4

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CONTAINER REDUCING MECHANISM WITH CONTINUOUS JAW FACES

Filed April 19, 1951 6 Sheets-Sheet 5

Fig. 6

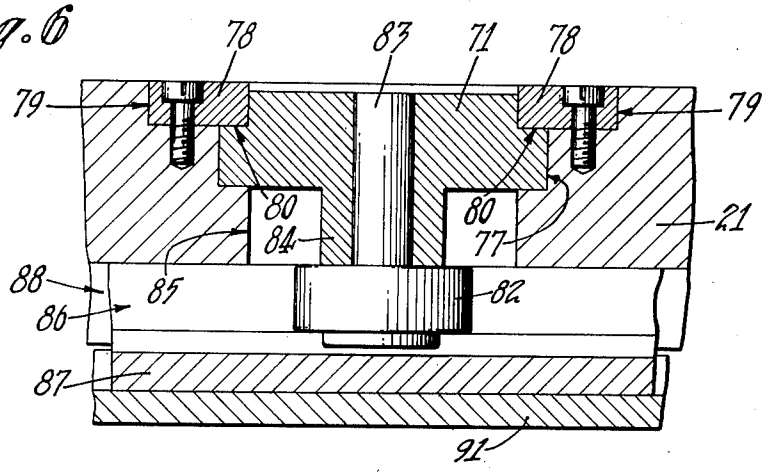


Fig. 7

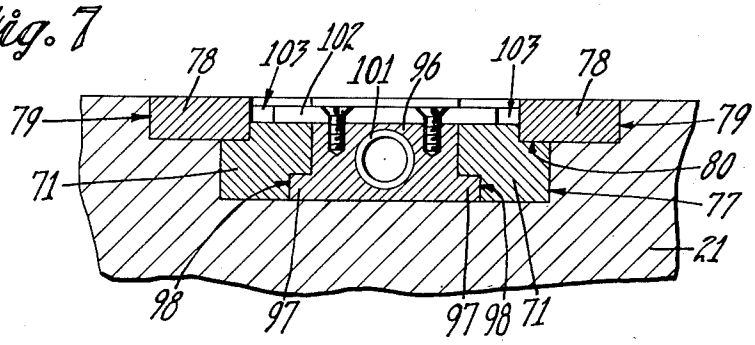
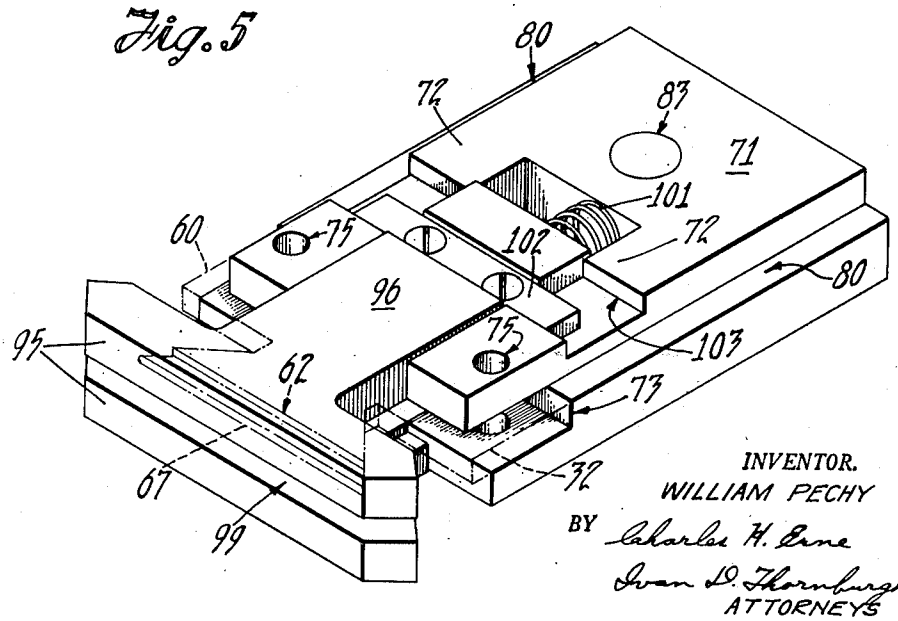


Fig. 5



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CONTAINER REDUCING MECHANISM WITH CONTINUOUS JAW FACES

Filed April 19, 1951 6 Sheets-Sheet 6

Fig. 8

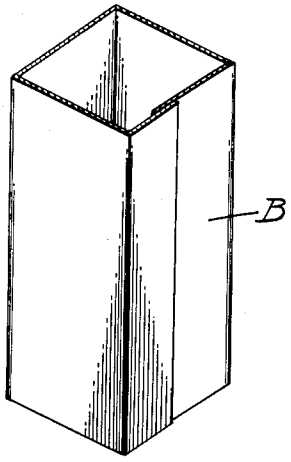


Fig. 9

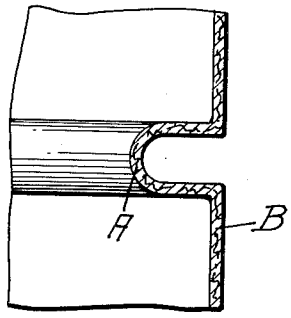


Fig. 10

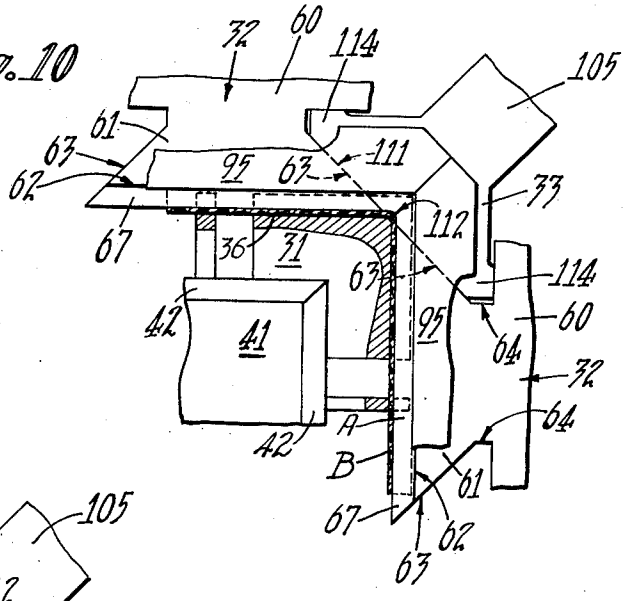
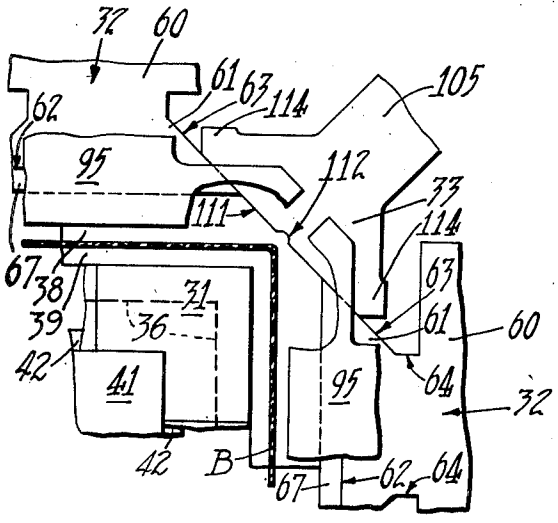


Fig. 11



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2,658,549

UNITED STATES PATENT OFFICE

2,658,549

CONTAINER REDUCING MECHANISM WITH CONTINUOUS JAW FACES

William Pechy, Belmar, N. J., assignor to American Can Company, New York, N. Y., a corporation of New Jersey

Application April 19, 1951, Serial No. 221,863

10 Claims. (Cl. 153—48)

1

The present invention relates to a mechanism for shaping tubular articles such as can or container bodies and has particular reference to the shaping, reducing or reforming of the periphery of tubular articles, especially the forming of necked-in sections or beads in square or rectangular can bodies.

In the forming, for example, of necked-in sections or internal beads in container bodies, a reduction of the cross-sectional dimensions takes place with a corresponding change in the circumference or perimeter of a body. This creates surplus or excess material which in square or rectangular bodies usually is crowded into the corners or corner portions of the bodies. The reduction or reforming of the bodies usually is effected by contractible and expansible jaws which present a broken or interrupted surface while closing. Hence the material of the bodies sometimes buckles at the broken surface and becomes pinched between the ends of the closing jaws and is often fractured, thereby rendering the finished body unfit for use.

The instant invention contemplates overcoming these difficulties by providing jaws having continuity of engagement with the work thereby avoiding pinching the material of the work such as container bodies.

An object of the invention is the provision of a container body shaping mechanism of the multiple jaw type wherein the shape and arrangement of the jaws is such as to provide at all times a continuous, smooth forming surface so that while the jaws are opening and closing there are no openings or breaks between the jaws which would admit and pinch any of the material of the body.

Another object is the provision of such a mechanism wherein a separate or additional forming operation is effected on the corners of the bodies so that the material of the bodies at the corners is definitely guided into proper position to produce a desired reformed corner structure.

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 drawings, discloses a preferred embodiment thereof.

Referring to the drawings:

Figure 1 is a rear end elevation of a mechanism embodying the instant invention, with parts broken away;

Fig. 2 is a front end elevation of the mechanism shown in Fig. 1, with parts broken away and parts shown in section;

2

Fig. 3 is a longitudinal vertical section taken substantially along the broken line 3—3 in Fig. 2, with parts broken away;

Fig. 4 is an enlarged exploded view of the parts comprising one of the forming jaws used in the mechanism;

Fig. 5 is an assembled view of the exploded parts shown in Fig. 4; with one of the hidden jaw parts shown in dot and dash lines;

Figs. 6 and 7 are enlarged horizontal sectional views taken substantially along the lines 6—6, 7—7 in Fig. 2, with parts broken away;

Fig. 8 is a perspective view of a fibre container body as an example of an article upon which a necking-in or beading operation is to be performed;

Fig. 9 is an enlarged sectional detail of a portion of the container body shown in Fig. 8, the view showing an internal bead formed in the body by way of an example of a forming operation; and

Figs. 10 and 11 are schematic views showing a corner portion of a container body and its relation to forming jaws used in the mechanism, the two views showing the movable jaws in different positions as an incident to performing a forming operation.

As a preferred or exemplary embodiment of the invention the drawings illustrate a mechanism for forming an internal bead A (Fig. 9) in a fibre tubular container body B (Fig. 8) of the type commonly used for square milk containers and disclosed in United States Patent 2,524,766, issued October 10, 1950, to J. P. Carroll on Container. The mechanism is part of a more elaborate machine used for assembling end members to the container bodies and is disclosed in United States Patent 2,200,276, issued May 14, 1940, to J. M. Hothersall et al., on Can End Assembling Machine.

The bead forming or necking-in operation is performed preferably by a stationary forming head 21 (Figs. 1, 2 and 3) into which one end of a container body B is inserted, in any suitable manner, such as by the mechanism disclosed in the above mentioned Hothersall patent, for the performance of the reforming operation. The forming head 21 preferably is a circular member mounted on a vertical flange 22 (Fig. 3) of a horizontally disposed bearing block 23 (see also Fig. 1). The bearing block 23 is secured to a cam housing 24 mounted on a bed 25 fastened to a frame 26 which may be the frame of a more elaborate machine such as that disclosed in the above mentioned Hothersall patent.

The forming head 21 is provided with a plurality of expansible internal backing-up jaws 31 (Figs. 2 and 3), external forming jaws 32, and external side corner forming jaws 33 arranged around the axis of the head for effecting the container body reforming operation. The backing-up jaws 31 are located for expansion within a container body B inserted into the head, for backing up the interior surface of the body during the reforming operation. For this purpose, the backing-up jaws 31 are disposed against and slide on the outer face of the head. For a square container body there are four of the backing-up jaws 31 arranged symmetrically around the axis of the head for expansion into the corners of the body. Diagonally disposed keys 35 (Fig. 3) extending from the axis of the head toward the corners of the container guide the jaws during expansion and contraction.

Adjacent their outer edges, the jaws 31 are formed with clearance grooves or recesses 36 (Fig. 3) to receive the material of the container body and to assist in shaping the material pressed therein during the forming operation as will be more fully explained hereinafter. Adjacent their inner ends the jaws 31 are held together yieldably by a continuous coiled spring 37 which extends around the outer peripheries of the four jaws. A centering ring 38 secured to the head and surrounding and overlapping the inner ends of the jaws holds them in position against the head. This ring 38 is formed with an outwardly extending flange 39 of square contour and of dimensions to fit within a container body B received in the head to centralize the body relative to the jaws.

Expansion of the backing-up jaws 31 is effected preferably by a tapered wedge 41 (Fig. 3) which is disposed at the axis of the head 21 and which engages against similarly tapered inner faces 42 of the jaws. The wedge 41 is secured to one end of an actuating rod 43 mounted for reciprocation in the bearing block 23. A key 44 secured to the bearing block 23 extends through an opening 45 in the block and projects into a deep keyway 46 in the actuating rod 43 to retain the rod in position against rotation in the bearing block.

The actuating rod 43 is reciprocated in the bearing block 23 by a cam roller 48 which is carried on the rod and which projects through an opening 49 in the bottom of the block. The roller 48 operates in a cam groove 51 of a barrel cam 52 located in the cam housing 24. The cam is freely mounted for rotation on a short shaft 53 carried in bosses 54 formed in the ends of the housing 24. The cam is rotated through its cycle of operation by a gear 55 which is formed on the cam and which meshes with a driving pinion 56 keyed to a main driving shaft 57 journaled in bearings 58 formed in the bed 25. The shaft 57 may be rotated in any suitable manner.

Hence as the drive shaft 57 rotates, it rotates the gear 56, gear 55 and cam 52 and thus through the cam groove 51 reciprocates the actuating rod 43 and its attached wedge 41 through a jaw expanding stroke (toward the right as viewed in Fig. 3) and thence through a return stroke (toward the left as viewed in Fig. 3) for each full revolution of the cam. On the expanding stroke of the actuating rod 43 the wedge 41 pushes against the tapered faces 42 of the backing-up jaws 31 and thus expands the jaws to their full extent, within a container body B inserted into the head, so that the jaws engage the inner surfaces of the walls of the body and thus support these walls. The jaws remain in this expanded position until the reforming operation is completed on the body. Upon completion of this operation the wedge 41 is withdrawn by the return stroke of the actuating rod 43 and the spring 37 thereupon contracts the backing-up jaws into their original position to permit removal of the reformed container body B from the head 21.

The external side forming jaws 32 which perform the reforming of the container body side walls, are arranged in a square around the internal backing-up jaws 31 in radially spaced relation thereto. There are four of these forming jaws 32, one for each side of the container body as shown in Fig. 2. Each forming jaw 32 (Figs. 2, 4, 5, 10 and 11) preferably is formed as a rectangular member or plate 60 provided with a dove-tail shaped projecting portion 61 (Fig. 4) having a straight forming edge 62 and preferably two 45 degree angle tapered edges 63. The tapered edges 63 terminate at short straight and parallel stop edges 64. For the purpose of forming the bead A (Fig. 9) in the container body B, the straight forming edge 62 is formed with a projecting bead 67 of a thickness and depth corresponding to the dimensions of the bead A to be produced in the container body B. The bead 67 extends the full length of the forming edge 62 and continues beyond this edge to provide at its ends a continuation of the tapered edges 63 to preserve the full contour of the dove-tail structure.

Each of the side forming jaws 32 is carried in a horizontal position in a U-shaped slide member 71, having a pair of inwardly extending spaced and parallel legs 72 (Fig. 4). For this purpose the rectangular plate portion 60 of the jaw is disposed in a horizontal seat or slot 73 formed in and extending across the inner ends of the legs 72 of the U-shaped slide member 71. Pins 74 extending through tight fitting holes 75 in the legs 72 and in the plate portion 60 of the jaw 32 hold the jaw in place and provide for ready removal of the jaw for replacement or substitution if required. The dove-tail structure of the jaw projects forwardly or beyond the slide 71 as shown in Figs. 2, 4 and 5.

There are four slide members 71, one for each side of the square container body B and they are disposed in slideways 77 (Figs. 2, 6 and 7) formed in the forming head 21 and extending radially from the axis of the head. The slides are disposed at right angles to each other, and are also located at right angles to the flat sides of a container body B inserted in the head. Gibs 78 retain the slides 71 in their slideways 77. These gibs are seated flush with the outer face of the head, in recesses 79 in the head and in grooves 80 in the tops of the slides.

The slides 71 are reciprocated simultaneously toward and away from the axis of the forming head 21 by cam rollers 82 (see Figs. 2, 3, and 6) carried on pins 83 secured in bosses 84 which project from the slides 71 into clearance openings 85 in the back of the forming head 21. The cam rollers 82 operate in a cam groove 86 of a ring cam 87 disposed and rotating in a wide groove 88 formed in the back of the head concentric with the axis of the head. The ring cam 87 is retained in the head groove 88 by a ring gib 89 secured to the head.

The ring cam 87 is rotated in its head groove 88 by a ring gear 91 which is secured to the back of the cam. This gear meshes with and is ro-

tated by a pinion 92 formed integrally with the gear 56 and is thus rotated by the drive shaft 57 to effect operation of the ring cam 87 in timed relation to the reciprocation of the wedge actuating rod 43. Thus the wedge 41 and the slides 71 are operated in synchronism to effect a properly timed relation between the operation of the backing-up jaws 31 and the forming jaws 32.

Hence as the ring cam 87 rotates in the forming head 21 in time with the reciprocation of the wedge actuating rod 43, it moves all of the slides 71 simultaneously toward the axis of the head and thus forces the forming jaws 32 against the outside of the container body B inserted in the head as shown in Fig. 10. This action of the forming jaws presses the forming beads 67 on the edges 62 of the jaws, into the body side walls and thus forces the body side walls inwardly into the clearance recesses 36 in the expanded backing-up jaws 31 with the result that the internal bead A is formed in the walls of the body. In forming this bead, the outer shoulder of the recess 36 in the backing-up jaws 31 and the outer edge of the centering ring 38, provide confining guide members spaced apart the desired width of the bead A and thus confine the material of the body wall to shape the bead A to the contour of the forming bead 67.

During this bead forming operation, the outer wall of the container body B adjacent the bead being formed is held in a slip grip to provide just sufficient tension on the body material to produce a properly formed bead A. This slip grip is provided by external pressure jaws 95 (Figs. 2, 3, 4, 5 and 10) which are yieldably mounted in the slides 71. There are two pressure jaws 95 for each forming jaw 32 and they are formed on a pressure slide 96 which is disposed in the space between the two legs 72 of the slide 71. Tongues 97 (see Figs. 4 and 7) formed on the bottom of the pressure slide 96 engage and operate in runways 98 in the legs 72 of the slide 71 to provide for longitudinal sliding movement of the pressure slide relative to the slide 71.

The jaw end of the pressure slide 96 is provided with a transverse clearance slot 99 for the forming jaw 32. This slot sets off the pressure jaws 95 as two spaced and parallel jaws with the forming jaw 32 interposed between them as best shown in Figs. 3 and 5. These pressure jaws 95 are straight and of a length which extends the full width of the side of the container body B. The ends of each of said pressure jaws are beveled as illustrated so as to provide stop faces thereon for abutting engagement with cooperating stop faces on the ends of adjacent pressure jaws when the jaws are in closed position and thus provide stops for limiting the inward travel of the jaws toward the axis of the forming head 21 (Fig. 10). When the four sets of pressure jaws 95 are in end-to-end engagement they form a square of substantially the same size as the container body B so that they can hold the body walls against the inner backing-up jaws 31 in a slip grip without deforming the body.

The pressure jaws 95 are maintained under spring pressure to yieldably hold them in extended position relative to the slides 71 with the pressure jaws just beyond the forming jaws 32 when the slides 71 are retracted from the axis of the forming head 21 so that the pressure jaws will engage the container body slightly in advance of the forming jaws 32. For this purpose a compression spring 101 is interposed between the outer end of the pressure slide 96 and the adjacent portion of the slide 71. A key 102 secured in the top of the pressure slide 96 limits the travel of the pressure slide relative to the slide 71 and holds the two slides together as a unitary structure. This key is disposed transversely of the pressure slide with its ends extending beyond the slide and operating in travel restricting notches 103 formed in the top of the slide 71.

The corner forming jaws 33 which shape the corner portions of the bead A being formed in the container body B, are located between adjacent pairs of the side forming jaws 32 and are disposed at an angle of 45 degrees to the latter for action against the corners of a container body B received in the forming head 21. Each of the corner jaws 33 is formed on the inner end of a shank 105 (Figs. 2 and 3) disposed in a slideway 106 formed in the forming head 21 and retained against displacement by a top plate 107 which covers the shank and is secured to the head. A compression spring 108 interposed between the outer end of the shank and the adjacent end of the slideway maintains the corner jaws under pressure and urges them inwardly toward the axis of the head.

The corner forming jaws 33 preferably are of substantially triangular configuration and each jaw is provided with a straight edge 111 (Figs. 2, 3, 10 and 11) which is held by its spring 108 in engagement with the two adjacent tapered edges 63 of the two adjacent side forming jaws 32. Thus the straight edge or surface 111 of the corner jaws 33 provides a 45 degree, angularly disposed continuation of the forming edges 67 of the side forming jaws 32 and results in an unbroken or continuous interengaging structure between the several external jaws 32, 33 which co-operate to form the bead A in the body (Figs. 10 and 11) B. In this manner of jaw construction no openings are provided which could pinch the body material. Hence no pinching occurs. The springs 108 keep the corner jaws 33 firmly pressed against the forming jaws 32 and as the latter move in toward the container body B to perform the beading operation, the corner jaws 33 follow inwardly with them and thus keep the forming edges of the jaws continuous.

During this inward travel of the corner forming jaws 33, their respective faces 111 press the material of the container body wall inwardly in time with the bead forming operations of the forming jaws 32 and thus produce the four corner portions of the bead simultaneously with the formation of the straight portions of the bead. This forming of the corners in the body wall requires a crowding inwardly of excess material present at the corner of the body and to facilitate this crowding action and to definitely guide the excess material into a neatly formed and well balanced corner structure, the straight edge 111 of the corner jaws are provided with a material guiding and reforming notch 112 (Figs. 10 and 11) which is disposed in alignment with the axis of the head 21 and the corner of a body B received in the head. At the completion of the corner forming operation, the notches 112 partially surround the corners of the bead as best shown in Fig. 10 and thus compress the body material against the corners of the inner backing-up jaws 31 to produce the desired corner structure as outlined above.

At the completion of the bead forming operation, the corner jaws 33 interlock with the forming jaws 32 to stop any further inward travel of

the jaws so as to prevent distortion of the bead or the container body B. For this purpose, the outer ends of the triangular shaped corner jaws 33, adjacent the ends of the straight forming edge 111, are formed with stop bosses 114 which jam against the inner edges of the plate members 60 of the forming jaws 32 and thus clamp all of the external jaws together so that they are prevented from effecting any further inward travel. This interlocking of the jaws terminates the bead forming operation and insures of the stopping of the jaws in a predetermined position relative to the container body centralizing or centering ring 38 with the result that the bead A formed in the container body B is of a uniform depth throughout its entire extent.

Upon retraction of the forming jaws 32 to permit removal of the beaded container body, the jaws 32 push the corner jaws 33 outwardly against the force of their springs 108, always maintaining a continuous and unbroken forming surface between the forming jaws and the corner jaws.

It is to be understood that the dimension and shape of the bead 61 and forming edge 62 of the forming jaws 32 and of the straight edge and reforming notch 112 of the corner jaws 33 may be varied to perform a number of different beading, shaping or necking-in operations.

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 form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A mechanism for reforming the periphery of rectangular tubular articles without undue pinching of the material of the articles, comprising in combination a set of expansible internal backing-up jaws, means for expanding said internal jaws into the corner portions of a said article to back-up and support the corners and the adjacent side walls of a said article, external side forming jaws disposed adjacent and surrounding said internal jaws, said side forming jaws having forming faces extending along the sides of a said article supported by said internal jaws, external corner forming jaws disposed between adjacent ends of adjoining side forming jaws and adjacent the corners of said article, said corner forming jaws having faces for reforming the corner portions of said article, means for moving said side and corner forming jaws toward said internal jaws and against the side walls of said article for reforming said walls including the corner portions thereof, said corner jaw faces providing with said side jaw forming faces an uninterrupted surface completely surrounding said article to prevent portions of the article from being pinched during the reforming operation.

2. A mechanism for reforming the periphery of rectangular tubular articles without undue pinching of the material of the articles, comprising in combination a set of expansible internal backing-up jaws, means for expanding said internal jaws into the corner portions of a said article to back-up and support the corners and the adjacent side walls of a said article, external side forming jaws disposed adjacent and surrounding said internal jaws, said side forming jaws having forming faces extending along the sides of a said article supported by said internal jaws, pressure jaws disposed adjacent said side forming jaws and extending along the sides of said supported article, means for yieldably pressing said pressure jaws toward said internal and external jaws and against the external side wall surfaces of said article for holding said side walls in a slip grip during the reforming operation, external corner forming jaws disposed between adjacent ends of adjoining side forming jaws and adjacent the corners of said article, said corner forming jaws having forming faces for reforming the corner portions of said article, and means for moving said side and corner forming jaws toward said internal jaws and against the side walls of said article for reforming said walls including the corner portions thereof.

3. A mechanism for reforming the periphery of rectangular tubular articles without undue pinching of the material of the articles, comprising in combination a set of expansible internal backing-up jaws, means for expanding said internal jaws into the corner portions of a said article to back-up and support the corners and the adjacent side walls of a said article, external side forming jaws disposed adjacent and surrounding said internal jaws, said side forming jaws having forming faces extending along the sides of a said article supported by said internal jaws, pressure jaws disposed adjacent said forming jaws and extending along the sides of said supported article, means for yieldably pressing said pressure jaws toward said internal jaws and against the side walls of said article for holding said side walls in a slip grip during the reforming operation by said side forming jaws, external corner forming jaws disposed between adjacent ends of adjoining side forming jaws and adjacent the corners of said article, said corner forming jaws having faces thereon for reforming the corner portions of said article, said corner jaw faces providing with said side jaw forming faces an uninterrupted surface completely surrounding said article to prevent the material of the article from being pinched during the reforming operation, and means for moving said side and corner forming jaws toward said internal jaws and against the side walls of said article for reforming said walls including the corner portions thereof.

4. A mechanism for reforming the periphery of rectangular tubular articles without undue pinching of the material of the articles, comprising in combination a set of expansible internal backing-up jaws, means for expanding said internal jaws into the corner portions of a said article to back-up and support the corners and the adjacent side walls of a said article, external side forming jaws disposed adjacent and surrounding said internal jaws, said side forming jaws having forming faces extending along the sides of a said article supported by said internal jaws, pressure jaws disposed adjacent said side forming jaws and extending along the sides of said supported article, means for yieldably pressing said pressure jaws toward said internal jaws and against the side walls of said article for holding said side walls in a slip grip during the reforming operation, stop faces formed on said pressure jaws, adjacent stop faces on adjoining pressure jaws engaging in abutting relation to limit the inward travel of said pressure jaws to control the slip grip of said jaws on said article, external corner forming jaws disposed between

adjacent ends of adjoining side forming jaws and adjacent the corners of said article, said corner forming jaws having forming faces thereon for reforming the corner portions of said article, and means for moving said side and corner forming jaws toward said internal jaws and against the side walls of said article for reforming said walls including the corner portions thereof.

5. A mechanism for reforming the periphery of rectangular tubular articles without undue pinching of the material of the articles, comprising in combination a set of expansible internal backing-up jaws, means for expanding said internal jaws into the corner portions of a said article to back-up and support the corners and the adjacent side walls of a said article, external side forming jaws disposed adjacent and surrounding said internal jaws, said side forming jaws having forming faces extending along the sides of a said article supported by said internal jaws, external corner forming jaws disposed between adjacent ends of adjoining side forming jaws adjacent the corners of said article, said corner forming jaws having forming faces thereon for reforming the corner portions of said article, means for maintaining said corner jaws in engagement with said side forming jaws, said corner jaw forming faces providing with said side jaw forming faces an uninterrupted surface completely surrounding said article to prevent the material of the article from being pinched during the reforming operation, and means for moving said side and corner forming jaws toward said internal jaws and against the side walls of said article for reforming said walls including the corner portions thereof.

6. A mechanism for reforming the periphery of rectangular tubular articles without undue pinching of the material of the articles, comprising in combination a set of expansible internal backing-up jaws, means for expanding said internal jaws into the corner portions of a said article to back-up and support the corners and the adjacent side walls of a said article, external side forming jaws disposed adjacent and surrounding said internal jaws, said side forming jaws having forming faces extending along the sides of a said article supported by said internal jaws, external corner forming jaws disposed between adjacent ends of adjoining side forming jaws adjacent the corners of said article, said corner forming jaws having forming faces thereon for reforming the corner portions of said article, the face of each corner jaw having a notch disposed therein in alignment with the corners of said supported article for surrounding and shaping the adjacent corner portion of said article, said corner jaw forming faces constituting with said side jaw forming faces an uninterrupted surface completely surrounding said article to prevent the material of the article from being pinched during the reforming operation and means for moving said side and corner forming jaws toward said internal jaws and against the side walls of said article for reforming said walls including the corner portions thereof.

7. A mechanism for reforming the periphery of rectangular tubular articles without undue pinching of the material of the articles, comprising in combination a set of expansible internal backing-up jaws, means for expanding said internal jaws into the corner portions of a said article to back-up and support the corners and

the adjacent side walls of a said article, external side forming jaws disposed adjacent and surrounding said internal jaws, said side forming jaws having forming faces extending along the sides of a said article supported by said internal jaws, external corner forming jaws disposed between adjacent ends of adjoining side forming jaws adjacent the corners of said article, said corner forming jaws having faces for reforming the corner portions of said article, said side and corner jaw faces together constituting an uninterrupted surface completely surrounding said article to prevent the material of the article from being pinched during the reforming operation, said side and corner forming jaws having cooperating interengageable stop means thereon for limiting the inward travel of said side and corner forming jaws to control the reforming of the periphery of said article, and means for moving said side and corner jaws toward said internal jaws and against the side walls of said article for reforming said walls including the corner portions thereof.

8. A mechanism for reforming the periphery of rectangular tubular articles without undue pinching of the material of the articles, comprising in combination a set of expansible internal backing-up jaws, means for expanding said internal jaws into the corner portions of a said article to back-up and support the corners and the adjacent side walls of a said article, external side forming jaws disposed adjacent and surrounding said internal jaws, said side forming jaws having forming faces extending along the sides of a said article supported by said internal jaws, said side forming jaws also having outwardly extending tapered sides, external corner forming jaws disposed between adjacent ends of adjoining side forming jaws and adjacent the corners of said article and engaging said corner forming jaws sliding on the tapered sides of said side forming jaws during movement of said jaws, said corner jaws having faces thereon for reforming the corner portions of said article, said side and corner jaw faces together constituting an uninterrupted surface completely surrounding said article to prevent the material of the article from being pinched during the reforming operation, pressure means for maintaining said corner jaws in engagement with the tapered sides of said side forming jaws, and means for moving said side and corner forming jaws toward said internal jaws and against the side walls of said article for reforming said walls including the corner portions thereof.

9. A mechanism for reforming the periphery of rectangular tubular articles without undue pinching of the material of the articles, comprising in combination a head member, a set of expansible internal backing-up jaws mounted on said head member disposed around an axis of said member, means for expanding said internal jaws into the corner portions of a said article to back-up and support the corners and the adjacent side walls of a said article supported by said internal jaws, a plurality of slideways on said head member extending radially from its axis and disposed one adjacent each side of the article, a forming slide member disposed in each slideway, an external side forming jaw carried by each of said slide members, said side forming jaws having forming faces thereon extending along the sides of said supported article, a pressure member slideably disposed adjacent each

side forming slide member, yieldable means interposed between said pressure and forming slide members for effecting movement of said slide members in unison, corner slideways in said head member extending radially from its axis between said forming slideways and aligning with the corners of said supported article, external corner forming jaws having shanks disposed in said corner slideways, pressure means adjacent said shanks for pressing said corner jaws inwardly against adjacent pairs of said side forming jaws to provide unitary movement of said side and corner jaws, said corner jaws having faces for reforming the corner portions of said article, said corner jaw faces constituting with said side jaws forming faces an uninterrupted surface completely surrounding said article to prevent the material of the article from being pinched during the reforming operation, and means for moving said slides and said side and corner forming jaws toward the axis of said head and against the side walls of said supported article for reforming said walls including the corner portions thereof.

10. A mechanism for forming an internal bead in the periphery of a rectangular tubular container body without undue pinching of the material of the body, comprising in combination a head member having a centrally located axis, a centralizing ring mounted on said head at its axis and having a contour for supporting and centralizing a container body inserted into said

head, the outer edge of said centralizing ring defining a wall of a bead forming recess, a set of expansible internal backing-up jaws mounted on said head member around its axis and adjacent said centralizing ring, said jaws having a peripheral clearance recess having a wall defining with the outer edge of said centralizing ring a space of a width equal to the inside width of said bead, means for expanding said internal jaws into the corner portions of a said article to back-up and support the corners and the adjacent side walls of a body supported on said ring, external forming jaws disposed adjacent and surrounding said internal jaws, said forming jaws having forming faces extending along the sides of a said body supported by said ring, means for moving said forming jaws toward said internal jaws and against the side walls of said body for pressing said side walls into the clearance space between said ring and the peripheral recess wall of said internal jaws to form said bead in said body.

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