Jan. 24, 1950 J. E. SOCKE 2,495,294

METHOD OF PREPARING CONTAINER BLANKS WITH TEAR-STRIP TONGUES

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FIG 2

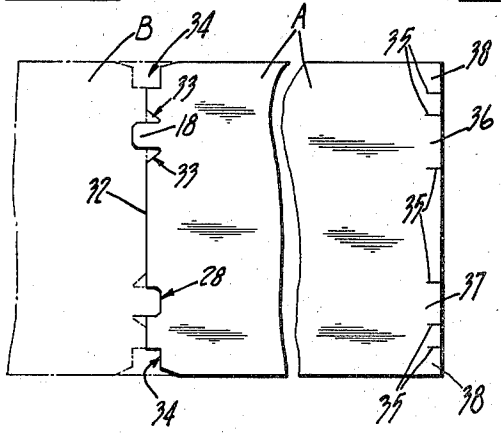


FIG 3

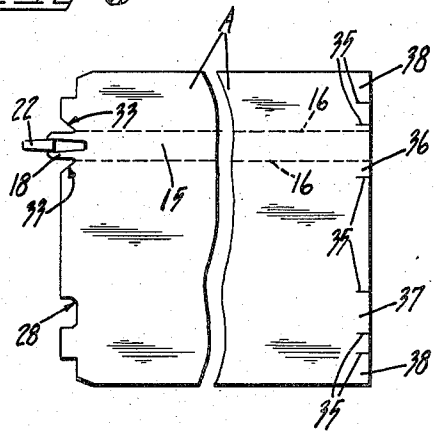


FIG 1

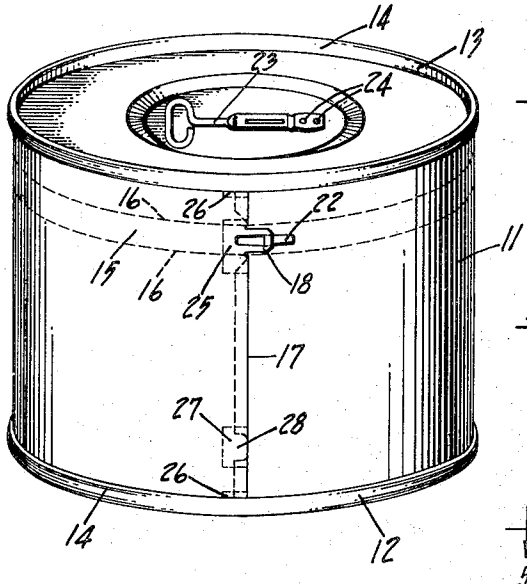


FIG 5

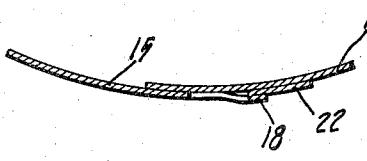
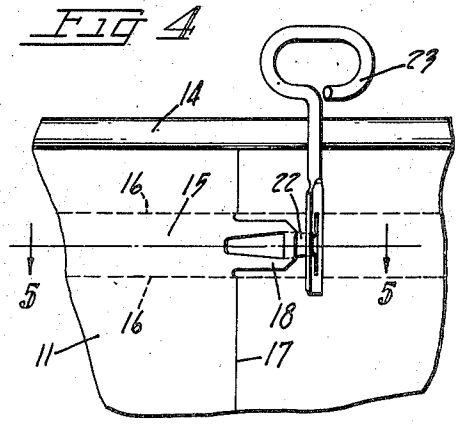


FIG 4



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Fig 6

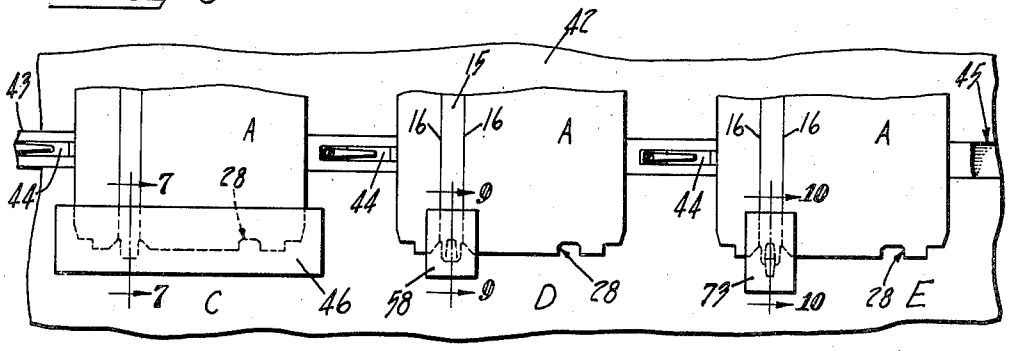


Fig 11

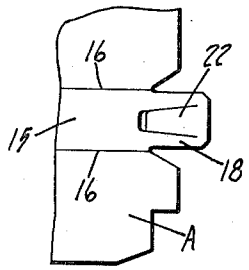


Fig 7

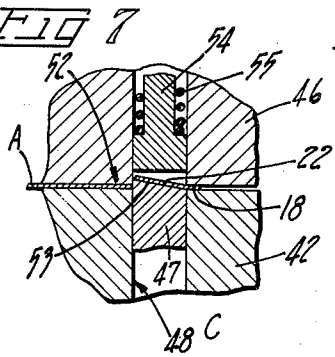


Fig 8

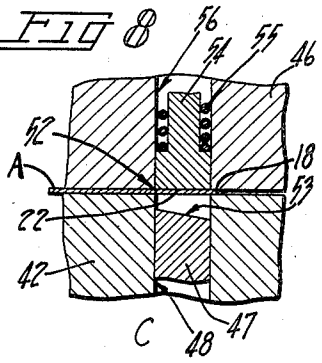


Fig 12

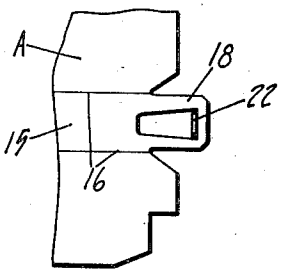


Fig 9

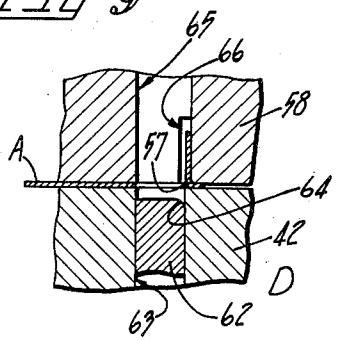


Fig 13

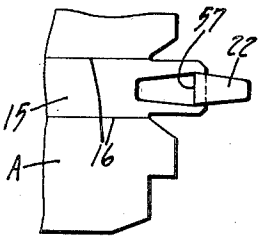
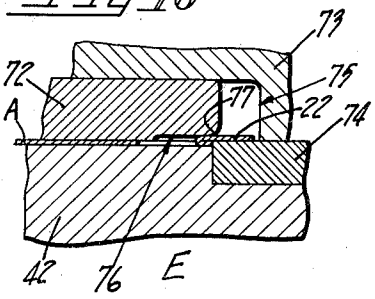


Fig 10



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METHOD OF PREPARING CONTAINER BLANKS WITH TEAR-STRIP TONGUES

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Application December 14, 1944, Serial No. 568,185

2 Claims. (Cl. 113—120)

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This invention relates to tearing strip key opening cans or containers and to the method of preparing body blanks for the same and has particular reference to a tongue extension formed in an abbreviated tongue at one edge of the container body blank as an integral part of the tearing strip.

An object of the invention is the provision of a body blank for a tearing strip can wherein a tongue extension provided for engagement by an opening key is formed inside of a tearing strip and is extended beyond an edge of the body blank.

Another object of the invention is the provision of a body blank for a tearing strip can wherein a tongue extension sufficient in length for the engagement of an opening key is formed in an abbreviated tongue located at one end of a tearing strip and is extended beyond the edge of the abbreviated tongue.

A further object of the invention is the provision of a method of preparing body blanks for tearing strip cans wherein a tongue extension is cut from an abbreviated tongue formed adjacent an end of a tearing strip which is defined by score lines in the body wall, the tongue extension being made effective for engagement of an opening key by folding transversely against the abbreviated tongue and into an extended position beyond the end of and in longitudinal alignment with the latter.

Another object of the invention is the provision of a tearing strip can formed from a body blank of the character described wherein an abbreviated tongue is formed in the overlapped section of the side seam to provide a lapped portion in the side seam and to provide for a tongue extension which upon being folded forward beyond the edge of the abbreviated tongue is sufficient in length for engagement of an opening key.

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 perspective view of a container embodying the present invention;

Fig. 2 is a plan view of a can body blank for preparing the container illustrated in Fig. 1 and showing how two such adjoining can body blanks having a complementary edge may be cut from a strip of stock, part of the can body blank being

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broken away and part of an adjacent blank being shown by dot and dash lines;

Fig. 3 is a view similar to Fig. 2 showing a tongue extension cut from an abbreviated tongue, after the extension has been folded and extended beyond an edge of the tongue along one side of the body blank;

Fig. 4 is an enlarged fragmentary view of the upper portion of the container showing the tongue extension engaged by an opening key;

Fig. 5 is a sectional view taken substantially along the line 5—5 in Fig. 4 showing the tongue extension disposed against the can body;

Fig. 6 is a fragmentary top plan view of one form of apparatus for carrying out the method steps of preparing a container body blank of the present invention, the view illustrating blanks with parts broken away, in different stages of preparation;

Fig. 7 is an enlarged sectional detail of die members used in cutting a central section of an abbreviated tongue to form a tongue extension, the view being taken substantially along the line 7—7 in Fig. 6;

Fig. 8 is a view similar to Fig. 7 showing the die parts in a different position for replacing the cut tongue extension into the plane of the blank;

Fig. 9 is an enlarged sectional detail of a tongue extension bending mechanism, the view being taken substantially along the line 9—9 in Fig. 6;

Fig. 10 is an enlarged sectional detail of a tongue extension folding device, the view being taken substantially along the line 10—10 in Fig. 6; and

Figs. 11, 12 and 13 are corner fragments of a body blank drawn to an enlarged scale, the views illustrating the position of the tongue extension relative to the abbreviated tongue at the end of a tearing strip in three different stages of its formation.

As a preferred embodiment of the present invention the drawings disclose a can body blank and a method of preparing such a blank for a tubular key opening, tearing strip container. This container is provided with a conventional form of tearing strip which surrounds the can body and is formed with an integral key engaging tongue extension which projects beyond the edge of the can side seam. Such a tongue extension may be formed in the tearing strip at a lapped side seam region or in an abbreviated tongue formed in the same region, i. e., at the edge of the can body.

In the instant invention the can comprises a tubular body 11 (Fig. 1) having a bottom end 12 and a top end or cover 13 both of which are secured to the body in suitable end seams 14. A tearing strip 15 is formed as an integral part of the body and is set off by spaced parallel score lines 16 which encircle the body and terminate in overlapped relation in a body side seam 17.

The outer lap of the tearing strip 15 preferably terminates in an abbreviated tongue 18 as shown. Such an abbreviated tongue projects beyond the side seam 17 (as to the right when viewed in Fig. 1). In this preferred embodiment the abbreviated tongue 18 has a central portion thereof cut leaving an outer edge of this tongue intact. The central cut portion upon being bent over the unsevered tongue edge provides a tongue extension 22.

The tongue extension 22 when bent along a transverse line and folded back against the abbreviated tongue projects outwardly beyond the edge of the latter and in alignment with the tearing strip (Figs. 1 and 5). The tongue extension 22 is of a predetermined longitudinal dimension so that when combined with the abbreviated tongue is sufficient in length for engagement of an opening key 23. Fig. 4 of the drawings illustrates such an opening key being brought into engagement with a tongue extension as an incident to opening the container. Key 23 is of the break-off variety, preferably furnished with each such can and secured to the cover by a spot weld 24 in the usual manner.

The overlapped portions of tearing strip 15 at the base of the abbreviated tongue 18 (Fig. 1) are of ample width to provide a suitable lap section 25 of normal width at the side seam 17. Side seam 17 is of the conventional lock and lap form having other lapped sections 26 which enter into the top and bottom end seams 14. Side seam 17 also is interrupted in a lapped section 27 which is provided for securing a notched edge 28 of the body into the side seam and this will be described fully hereinafter.

The body 11 of the can is formed from a blank A (Fig. 2), portions of which are shown in other figures of the drawings. The tongue end of the blank is important as far as the present invention goes. It is to the steps of preparing this portion of the blank that the method phase of the instant invention is particularly directed.

The can body blanks A (Fig. 2) may be cut from a strip of stock B having a width equivalent to the height desired for a can body and of sufficient length to cut a plurality of can body blanks. These body blanks are cut to the desired length by a transverse cut or line of severance 32 which severs adjacent blanks. Such a cut forms complementary edges including notches 28, 33. These outline a pair of the abbreviated tongues 18 being oppositely disposed on the meeting edges of adjacent blanks. Notches 34 at opposite ends are also included in the transverse cut 32 and each such cut completes the separation of adjacent individual blanks A.

By cutting in this manner the edge on one blank is made complementary to the edge of an adjacent blank. A portion of the adjacent blank is illustrated by dot and dash lines in Fig. 2. A substantial saving in material is hereby realized which would otherwise be wasted if each blank was cut from a separate piece of stock such as a sheet large enough to provide for the usual length tongue. Where sheets are used instead of strip stock the same saving can be had by utilizing a

sheet long enough for two blanks as will be obvious.

The opposite edge of the body blank A is slit inwardly at 35 in several places to provide for the desired lap and lock sections along the side seam. A lap section 36 set off by two such slits cooperates with the overlapped portion of the abbreviated tongue to provide the lap section 25 of the side seam 17. Likewise a lap section 37 between two other slits cooperates with the notch 28 to provide the lap section 27. Similarly lap sections 38 set off by end slits 35 cooperate with the notches 34 at the ends of the blank to provide the lapped sections 26.

The body blank A upon being notched and slit now is subjected to a scoring operation. This may be done in any suitable manner to provide the tearing strip 15 as by partially cutting or scoring the blank lengthwise into the spaced and parallel score lines 16 (Fig. 3). These score lines extend to the base of the abbreviated tongue terminating at the vertex of the notches 33 which thus set off said tongue. The tongue extension 22 next is cut and bent to exend beyond the edge of the abbreviated tongue so that it is in longitudinal alignment relative to the tearing strip 15.

The principal parts of one form of apparatus for performing the desired operations is illustrated in Figs. 6, 7, 8, 9 and 10, and includes a horizontal table 42 common to all of the blank forming operations. It is along this table that the flat blanks A are moved horizontally in any suitable manner such as by a reciprocable feed bar 43 having spaced feed dogs 44. The feed bar is carried in a groove 45 formed in the table. Movement of the feed bar in a forward direction (to the right as viewed in Fig. 6) successively advances a blank A first to a tongue extension cutting and resetting station C, then to a tongue extension bending station D, and hence to a tongue extension folding station E, from which the blank may be discharged to any suitable place of deposit.

At the cutting station C a central portion of the abbreviated tongue 18 is severed as illustrated in Fig. 11, this being along three sides, leaving one transverse side unsevered at the base of the tongue extension.

The severing of a tongue extension in an abbreviated tongue 18 or in the end of a tearing strip is effected in any suitable manner as by means of an upper die member 46 and a cooperating lower die member 47 (Fig. 7). The upper die member may be supported on the table 42, the lower die member 47 being operable vertically in an opening 48 in the table. These die members are respectively provided with lower cutting edges 52 and with upper cutting edges 53 which cooperate in cutting through the wall of the blank thus severing the tongue extension along the desired lines.

The cutting operation of the tongue extension now is followed by a resetting operation. This is for the purpose of returning the cut tongue extension 22 back to the plane of the blank and out of the die member 46 so that the body blank is free for advancement to the next station. For this purpose a plunger 54 is moved down by any suitable means as by a spring 55 surrounding the upper part of the plunger and confined in an opening 56 in the upper die member 46 (Fig. 8).

Following this cutting and resetting of the tongue extension 22, the blank A is advanced to the station D (Fig. 9). Here the tongue extension is bent along its transverse uncut side, iden-

tified by the numeral 57, and again out of the plane of the blank. This bending preferably places the tongue extension at substantially right angles to the blank as in a vertical upstanding position (see also Fig. 12).

This positioning of the tongue extension 22 is effected by a suitable bending mechanism which includes a stationary die part 58 and a movable die part 62. The stationary die part 58, like the die member 46, is supported on the table 42. The movable die part 62 is operated vertically in any suitable manner in an opening 63 in the table.

An upper edge of the movable die part 62 is rounded as at 64 so that as the latter part is moved upward into an opening 65 in the stationary die part, the cut tongue extension 22 passes into a vertical position (Fig. 9) as by a wiping action of the movable die part. The tongue extension in a vertical position against a side wall of the opening 65 of the stationary die part 58 must be removed from the stationary die part as the blank is discharged from the bending station. For this purpose a slot 66 is provided to one side of the opening 65, in the stationary die part 58 and the tongue extension 22 may pass along this slot as the blank A moves along the table.

The tongue extension 22 is subjected to further bending in order to fold it against and beyond the marginal edge portion of the abbreviated tongue 18 (Fig. 13). The blank A is moved to the next or tongue folding station E (see also Fig. 10) for this purpose.

The folding of the tongue extension is effected by a suitable folding device which preferably comprises a horizontally movable slide member 72, a stationary slide guide 73 and a projecting guide block 74. The movable slide member 72 is reciprocated in spaced relation over the table 42 and is so positioned as to allow for the passage of a blank A. The movable slide member 72 moves in a clearance recess 75 formed in the stationary slide guide 73. This latter member is supported on the projecting guide block 74 (Fig. 10) which is mounted in any suitable manner on the table 42.

The lower face of the movable slide member 72 at the forward end is cut away as at 76 (as viewed at the right in Fig. 10) so that this forward end of the slide member may pass over the tongue extension during the folding operation. The forward lower corner of the slide member 72 is rounded as at 77 to facilitate the folding action on the tongue. Thus, as the slide member 72 moves forward, the upstanding tongue extension of a blank A, disposed in place on the table with the blank edge of the abbreviated tongue against the projecting block 74, is folded down onto the block in a wiping action. The tongue extension then is in the position illustrated in Figs. 10 and 13. The blank A now is ready for removal from the station E by any suitable means to a convenient place of deposit.

Body blanks A prepared in the manner hereinbefore described, are ready for the conventional form of can body maker, wherein the lock sections of the seam are prepared and interlocked and the body is formed into tubular shape in the further preparation of the completed container, as illustrated in Fig. 1.

By constructing a tongue extension in this manner a great deal of material is saved from the stock between adjacent blanks. It will be understood that the abbreviated tongue may be entirely

inside of the blank edge instead of projecting slightly beyond as shown. In any event the lock and lap seam edge of the body determines the over-all dimensions of the blank. When such an abbreviated tongue is extended beyond the edge of the body at the lap section of the side seam, the abbreviated tongue in the preferred form as described comes out of the notch 28 of the seam section of an adjacent blank. By utilizing this manner of blanking, the same smaller dimensioned blank produces the same size of can as where there is no abbreviated tongue extension beyond the blank edge.

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 and that changes may be made in the steps of the method described and their order of accomplishment 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. The method of preparing body blanks for sheet metal containers, each having a side seam and an integral removable tearing strip having a portion thereof embodied in the side seam, said strip terminating in an abbreviated projecting tongue at its outer end to economize in body blank material, said method comprising transversely cutting a strip of sheet metal stock to divide the strip into a plurality of body blanks having complementary edges at the side seam area including oppositely extending spaced abbreviated tongues with the tongue of one blank extending into the side seam area of the adjacent blank, cutting an integral elongated tongue extension from the abbreviated tongue of a said cut blank and also from the contiguous portion of the tearing strip area of the blank to be embodied in the side seam of the finished container by cutting along a continuous line of severance while leaving an uncut tongue portion between the ends of said line adjacent the outer projecting end of the abbreviated tongue, and then bending said tongue extension on the line of the uncut portion and out of the plane of the tongue to increase the effective length of the abbreviated tongue and provide sufficient material in the composite tongue for non-slipping winding engagement therewith of a slotted container opening key.

2. The method of preparing body blanks for sheet metal containers, each having a side seam and an integral removable tearing strip having a portion thereof embodied in the side seam, said strip terminating in an abbreviated projecting tongue at its outer end to economize in body blank material, said method comprising transversely cutting a strip of sheet metal stock to divide the strip into a plurality of body blanks having complementary edges at the side seam area including oppositely extending spaced abbreviated tongues with the tongue of one blank extending into the side seam area of the adjacent blank, slitting and scoring the blanks to provide side seam lock and lap portions therein and a defined tearing strip disposed in alignment with said abbreviated tongue, cutting an integral elongated tongue extension from the abbreviated tongue of said cut blank and also from the contiguous portion of the tearing strip area of the blank to be embodied in the side seam of the finished container by cutting along a continuous line of sev-

erance while leaving an uncut tongue portion between the ends of said line adjacent the outer projecting end of the abbreviated tongue, bending said tongue extension on the line of the uncut portion and out of the plane of the tongue, and then folding said integral tongue extension outwardly to lie flat against the abbreviated tongue by further bending the tongue extension on the line of said uncut portion to increase the effective length of the abbreviated tongue and provide sufficient material in the composite tongue for non-slipping winding engagement therewith of a slotted container opening key.

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