

- [54] **CRIMPING TOOL**
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- [51] Int. Cl.**B21d 11/20**
- [58] Field of Search.....72/211, 210, 179, 182, 176; 93/36.5, 39.1; 53/329, 333; 29/243.5, 243.58; 113/54

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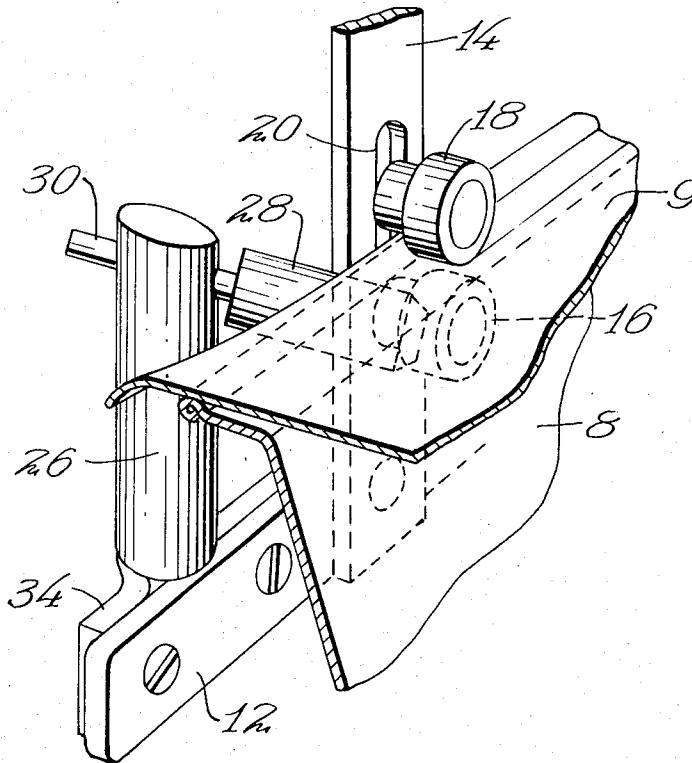
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[57] **ABSTRACT**

A hand tool for rolling over and crimping the edge of an aluminum foil cover about the edge of an aluminum foil container such as used in the food industry. A bending roller on the tool bends the edge of the cover into position between a pair of rollers which are slideably carried on the tool so that they can be initially separated to permit insertion of the edge of the container and the aluminum foil cover therebetween.

8 Claims, 7 Drawing Figures



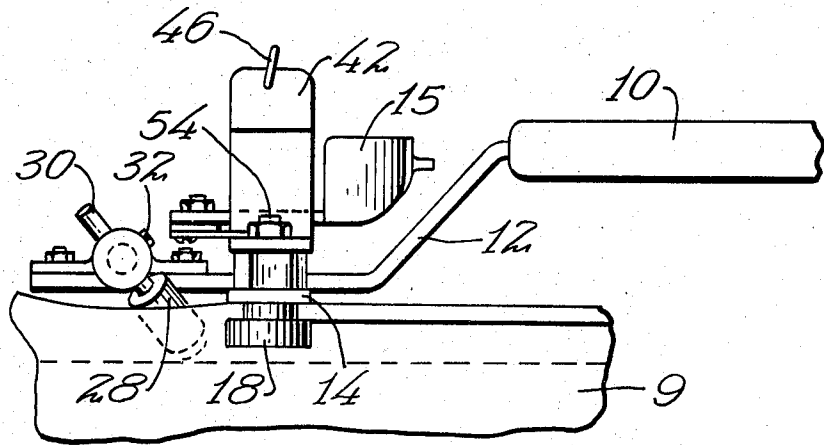


FIG. 7

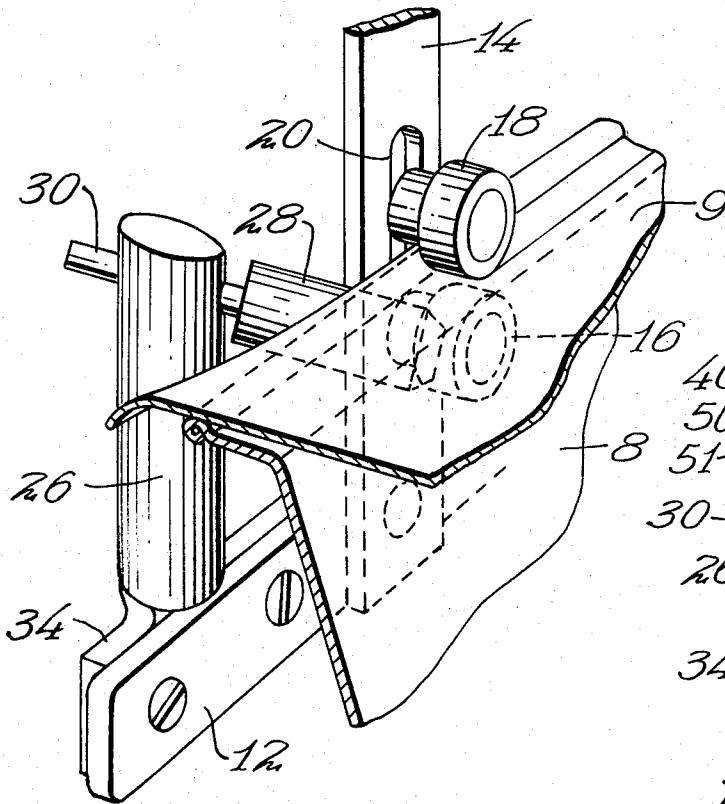


FIG. 5

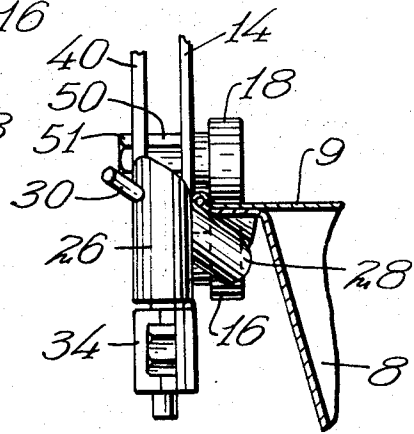
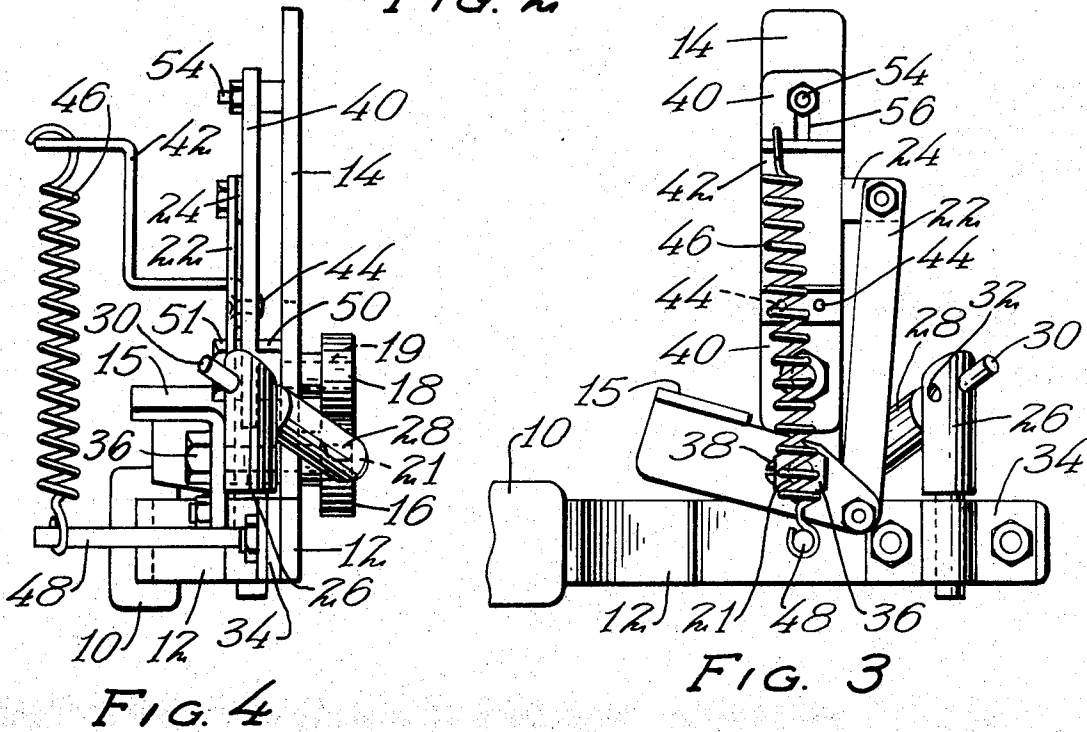
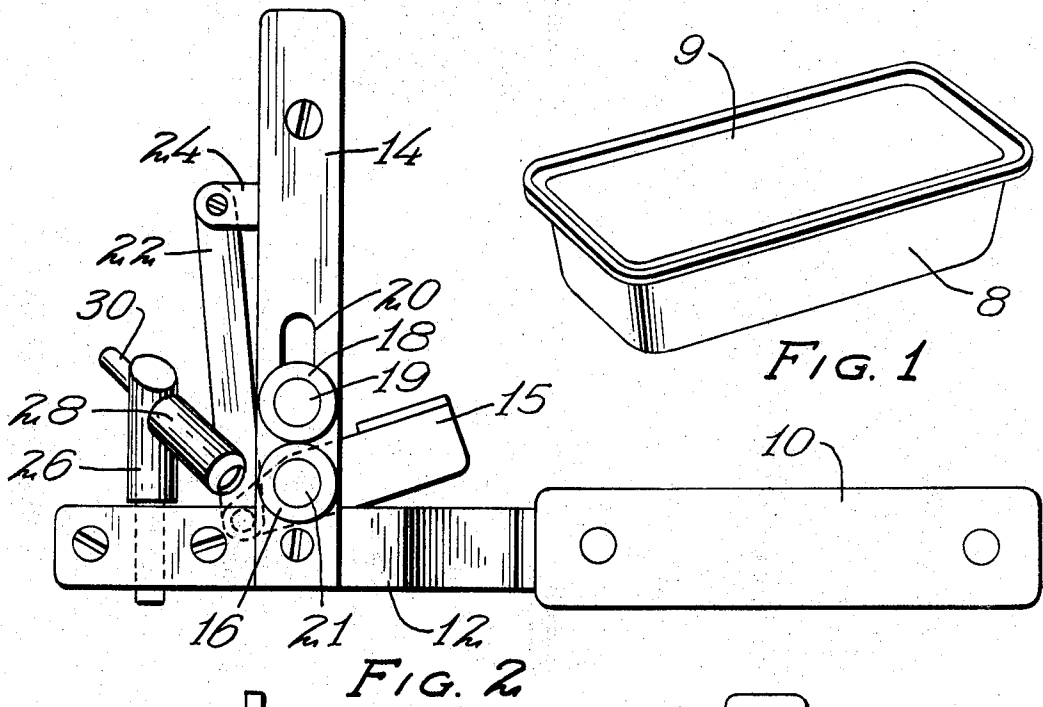


FIG. 6

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CRIMPING TOOL**BACKGROUND OF THE INVENTION**

In the food industry a very popular form of container is formed from aluminum foil having a beaded edge. To seal these containers, an aluminum foil cover is generally placed over them and wrapped around the beaded edge in a sealing relationship herewith. Although the prior art does include some machines for doing this they are generally very large, expensive, and complicated and therefore too expensive to be used except in large scale operations. Smaller businesses must therefore resort to bending over the edges of the aluminum covers by hand which process is not only slow and inefficient but highly dangerous due to the sharp edges on the aluminum foil. A need is therefore present in the art for a simple hand tool to bridge the gap between large expensive machines and the hand operation. However, such a tool has not been available since the bending, folding, and crimping operation contemplated is relatively complicated and any apparatus to perform this operation would at first thought appear to be much too cumbersome to be effected by hand. The present invention overcomes these difficulties, however, and provides a lightweight, relatively inexpensive tool which can be manipulated with one hand and efficiently fold over and crimp the edge of the aluminum foil containers.

SUMMARY OF THE INVENTION

Briefly, my invention contemplates a hand holdable lightweight steel frame which incorporates a fixed roller and a sliding roller. A thumb actuated lever on the frame permits the sliding roller to be moved away from the fixed roller so that the edge of the container and the cover therefore may be inserted between the two rollers. As the frame member is moved along the edge of the container the rollers crimp the aluminum foil together about the beaded edge of the container. The edge of the foil cover is moved into position by a bending roller positioned just ahead of the fixed and sliding rollers which engages the edge of the foil cover and guides it between the rollers. It may therefore be seen that it is an object of my invention to provide an improved foil container sealing tool for crimping covers onto containers. It is a further object of my invention to provide a crimping tool which can fold the edges of containers over the beaded edge on a cover. Further objects and advantages will become apparent from the following description and drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a typical container which is sealed by the present invention.

FIG. 2 is a front elevation of my crimping tool showing most of the major components of the present invention.

FIG. 3 is a rear elevation drawing of my crimping tool showing additionally the spring for holding the rollers together.

FIG. 4 is an end view of the crimping roller showing the configuration of the sliding member carrying the sliding roller and the spring bracket.

FIG. 5 is a perspective view of just the major components of my invention showing how in their rolling

action they bend over and crimp a typical foil cover onto the edge of an aluminum foil container.

FIG. 6 is an end view demonstrating the position of the major components during the bending and crimping operation.

FIG. 7 is a top view of my crimping tool showing the position of the major components during the bending and crimping operation.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In FIG. 1 a typical aluminum foil container 8 is shown with an aluminum foil cover 9 positioned thereon and folded over the edge of container 8. Containers such as these are well known in the food packaging and related industries. Variations include the use of foil or cardboard covers which do not fold about the edge of container 8 but rather terminate at the edge. With these type of containers the container is folded over the edge of the cover 9. It should be understood that the present invention is equally useful with either type of container. My crimping tool can be used to bend the edge of the container over the edge of the cover or vice versa simply by repositioning the lead bending roller either above or below the edge of the container.

The invention is initially best understood by reference to FIG. 2 in which a horizontal S-shaped frame member portion 12 is shown connected to a vertical frame member 14. Frame member 12 connects to a handle portion 10 so that the entire tool may be hand carried easily and conveniently. The extended portion 12 has a slight bend in it (more easily seen in FIG. 7) so as to permit the operator to easily engage a thumb lever 15 with his thumb while holding handle 10 in his right hand. It should be understood, of course, that this is only the version shown in the drawings and a left handed model would be equally easy to construct by reversing the various components. Carried on vertical member 14 are a pair of crimping rollers 16 and 18. Roller 16 is mounted for rotation about a threaded shaft 21 in a fixed position on vertical member 14 while roller 18 rotates about a threaded shaft 19 which slides in a slot 20 in vertical member 14. Shaft 19 extends through slot 20 to a sliding member 40 behind vertical member 14. Sliding member 40 is discussed with respect to FIG. 4 later on. Continuing with FIG. 3 it should be noted that the shaft 21, which carries fixed roller 16, also serves as a pivoting support for thumb lever 15 which engages a lever 22. Lever 22 extends up to an extension arm 24 which is connected to sliding member 40. Also supported on frame extension portion 12 is an adjustable bending roller support 26 carried within a bracket 34 on the back side of extension portion 12. Support 26 holds a bending roller 28 which rotates freely about a shaft 30 extending through support member 26. Shaft 30 is held in position by a set screw 32. Thumb lever 15 pivots about bolt 21 extending through from vertical member 14 and fixed roller 16. It can be noted in FIG. 3 that thumb lever 15 is secured on bolt 21 by a nut 36 and a set screw 38. The sliding member 40 heretofore mentioned is partly visible in FIG. 3. Sliding member 40 has a bracket 42 riveted to it by a pair of rivets 44. A spring 46 is connected at the upper end of bracket 42 and extends

down to a bolt 48 which is mounted to frame extension portion 12. The exact configuration of the spring bracket 42 and the spring are more easily seen in the end view of FIG. 4.

In FIG. 4 it may be seen that bracket 42 extends outward to spring 46 which extends to bolt 48. Spring 46 has a tension selected to hold sliding roller 18 tightly against fixed roller 16. As can be seen in FIG. 4 roller 18 is carried on shaft 19 which extends through slot 20 in vertical member 14 into sliding member 40. Shaft 19 is held securely to sliding member 40 by a pair of nuts 50 and 51. Thus, when thumb lever 15 is depressed it pivots about shaft 21 raising lever 22 and member 24 so as to lift sliding member 40 upwards carrying shaft 19 and sliding roller 18 away from fixed roller 16 against the action of spring 46. When the thumb lever is released spring 46 pulls roller 18 into tight engagement with roller 16 once again. The tension on the rollers serves to crimp the aluminum foil cover to the container since the container and cover are inserted between the two rollers when they are spread apart. In FIG. 4 it can be seen that sliding member 40 has a guide bolt 54 extending from the rear of the vertical member 14 through a slot 56 in sliding member 40 which provides additional alignment for sliding member 40.

FIG. 5 is a perspective view of the major components of my invention showing the manner of its use. As described earlier sliding roller 18 can be separated from the lower fixed roller 16 so as to permit the insertion of both the cover 9 and the beaded edge of container 8 therebetween. Thumb lever 15 is then released to allow spring 46 to pull rollers 16 and 18 tightly together into the position shown in FIG. 5. It should be noticed that bending roller 28 is inclined downward and somewhat to the rear toward the rollers so as to bend the edge of the aluminum foil cover 9 underneath the beaded edge of container 8. Set screw 32 and bracket 34 may be loosened to adjust the exact position of bending roller 28. Different size containers will of course necessitate slightly different positions for bending roller 28 and, thus, the adjustable mounts are provided.

Bending roller 28 may be simply adjusted to handle a different type of cover wherein the container is folded over the cover member. This is done by pulling bending roller 28 and supporting shaft 30 out of the support 26 and reinserting them from the opposite side, rotating support 26 180° so that bending roller 28 is inclined upwards over the top edge of the foil cover 9.

Simultaneous reference should be had to FIGS. 6 and 7 which show respectively end and top views of my invention in the operating position being described. The bending and crimping operation is effected by simply

using the handle 10 to move the tool along the edge of the container. As the two crimping rollers advance, bending roller 28 guides the foil cover 9 around and under the edge of container 8. Crimping rollers 18 and 16 then, under the tension of spring 46, compress the aluminum foil about the bead on container 8, so as to bend it to sealing contact therewith. Spring 46 of course may be changed so as to effect exactly the right amount of tension for the right amount of thickness of foil being compressed.

I claim:

1. A tool for crimping foil covers over the edge of a container comprising in combination:

a frame adapted to be comfortably hand carried along the edge of the container;

a first roller mounted on said frame operable to be rolled along a first side of said edge;

a second roller mounted on said frame operable to be rolled along the second side of said edge opposite to said first side;

means on said frame for separating said first and second rollers to permit insertion of said edge therebetween;

spring means connected to urge said first and second rollers together, and

a bending guide on said frame positioned to bend the foil about said edge ahead of said rollers as they are rolled along the edge.

2. The tool of claim 1 in which said means for separating comprises a sliding member on said frame, said first roller being affixed to and sliding with said sliding member.

3. The tool of claim 2 in which said sliding member is moved by a thumb lever which pivots on said frame.

4. The tool of claim 3 in which said spring means is connected between said frame and said sliding member.

5. The tool of claim 4 in which said frame comprises a handle portion, an extended portion extending from the handle portion, and a roller carrying portion extending generally perpendicular from said extended portion.

6. The tool of claim 5 in which said second roller, said thumb lever, and said sliding member are mounted on said roller carrying portion of said frame.

7. The tool of claim 6 in which said bending guide comprises a bending roller mounted on a shaft which shaft is adjustably mounted on said extended portion of said frame.

8. The tool of claim 7 in which said first roller is mounted for rotation on a shaft extending from said sliding member through a guide slot in said roller carrying portion of the frame.

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