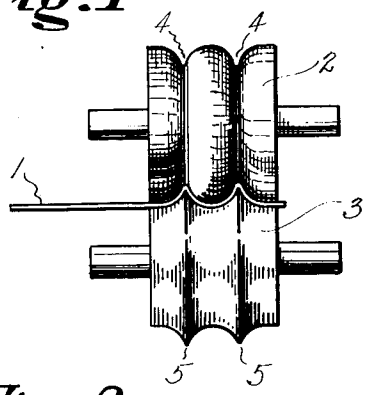
Oct. 10, 1933. W. E. BURNS 1,929,771

METHOD OF FORMING TEARING STRIPS IN CAN BODIES

Filed Oct. 11, 1930

Fig. 1



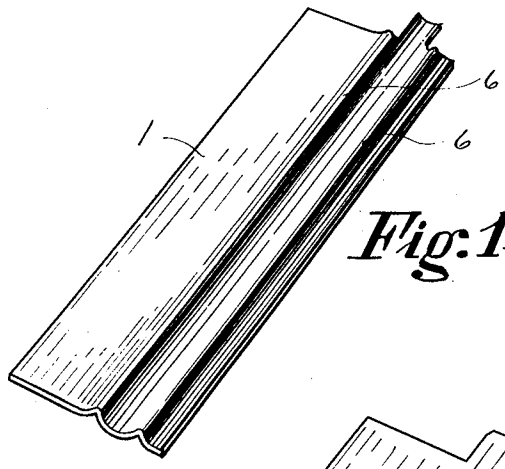
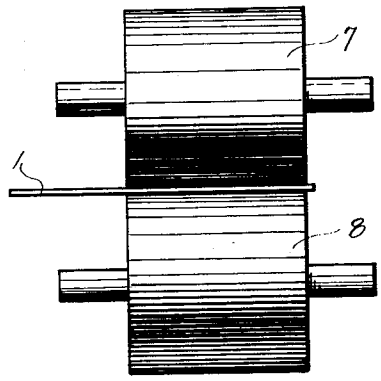


Fig. 1-A

Fig. 2



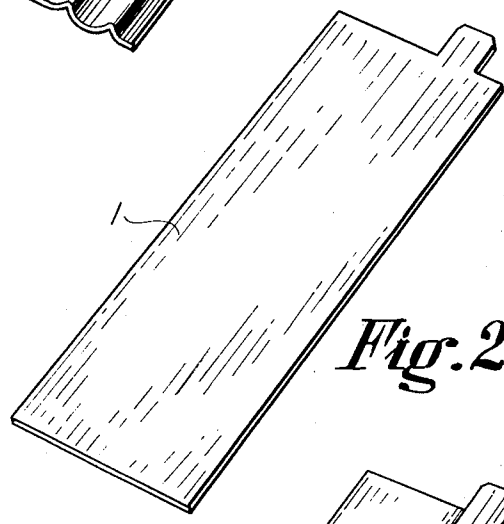
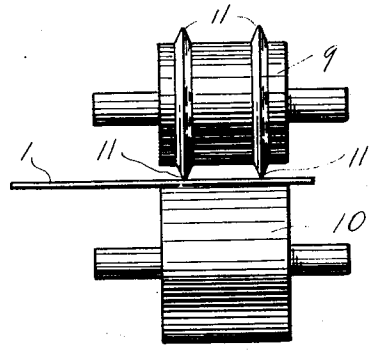


Fig. 2-A

Fig. 3



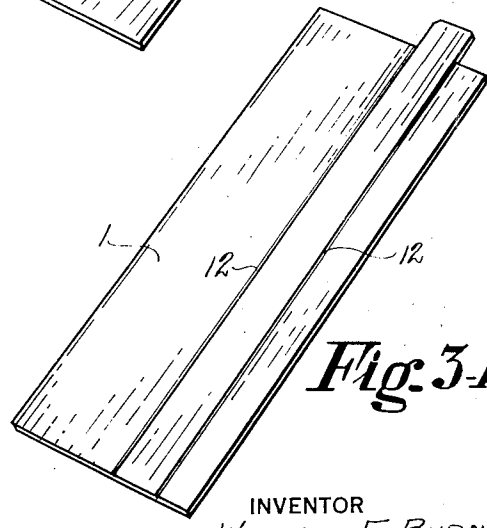


Fig. 3-A

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METHOD OF FORMING TEARING STRIPS IN CAN BODIES

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Application October 11, 1930. Serial No. 488,006

2 Claims. (Cl. 113—120)

This invention relates to the manufacture of cans, or containers, and it has reference particularly to cans of that character in which the body portion has a tearing strip, or rip strip, removable therefrom for the purpose of opening the can and which, as a general rule, is torn out by applying a key to a tongue at one end of the strip and then winding the strip upon the key.

It is common practise in can manufacturing to define such tearing strips in the can bodies by parallel lines of scoring which, in order to be effective, must have a depth equal, at least, to one-half the thickness of the body metal. If the scoring goes beyond its depth, it is very apt to so weaken the metal that it will separate under the pressure of the scoring rolls. It happens frequently in scoring the ordinary can body, that hard spots in the metal are encountered which cause the scoring rolls to jump and thus to cause irregularity in the scoring depth with the result that when the strip is torn out, the tear is very apt to leave the scoring line and cause the strip to break. Such breaking of the tearing strip during removal has been eliminated to an appreciable extent by use of what is known as "herring-bone" scoring between the parallel score lines, which leads any tear within the strip back into the score lines. However, the herring-bone scoring does not prevent the tear leaving the score line, but acts only to bring it back.

It is the principal object of the present invention to provide a method of preparing a tearing strip which will eliminate all tendency of the tear to leave the line of scoring with the resultant breaking of the strip, and which will not require the use of the present day herring-bone scoring, or other scoring for this purpose.

More specifically stated, the present invention resides in a method of forming tearing strips in can bodies which includes certain manipulation of the body blank whereby the metal is considerably weakened along the score lines so that in removing the strip, the tears will readily follow therealong and all tendency to break away from the lines of scoring is overcome regardless of irregularities in depth due to hard spots or jumping of the scoring rolls.

In carrying out the invention, I have provided the improved method, the various steps of which are illustrated in the accompanying drawing, wherein—

Fig. 1 is a view illustrating the operation of manipulating the metal body blank to define the tearing strip by passing the blank between co-acting rolls, which forms two parallel ridges therein.

Fig. 2 is a view illustrating the following operation, which consists of again flattening the blank.

Fig. 3 is a view illustrating the scoring of the blank along the areas weakened by the bending and flattening carried out in the first and second operations.

Figs. 1*a*, 2*a* and 3*a*, are perspective views of the blanks as prepared by various operations thereon as illustrated in Figs. 1, 2 and 3 respectively.

Referring more in detail to the drawing—

The metal body blank 1 preparatory to its being provided with the tearing strip, as a general rule, would come to the preparing machine as a flat sheet. The first operation on the blank, as shown in Fig. 1, consists of passing it lengthwise between two complemental rolls 2 and 3; the roll 2 being provided with two encircling grooves 4—4, and the roll 3 having two corresponding shaped ridges 5—5 cooperatively arranged with the said grooves so that by passing the blank between the two rolls, it is formed with two parallel ridges, as at 6—6 in Fig. 1*a*. These ridges, or creases define the tearing strip area and, incident to their formation the grain of the metal of the blank across the tops of the ridges is stretched and weakened. It is not necessary that the ridges be sharply bent, but only that they be sufficiently abrupt to stretch the metal to a substantial degree. As shown, they are slightly rounded and this prevents breaking the grain.

In the second operation, as shown in Fig. 2, the metal blanks after being creased as disclosed by the first operation, are passed between two flattening rolls, 7—8 whereby the creases are ironed down flat. In this flattening operation, the metal along the undersides of the ridges 6—6 is stretched and weakened by reason of its being drawn out to a flattened condition.

The third operation, as shown in Fig. 3, consists of passing the flattened blanks between scoring rolls 9 and 10; the roll 9 having the usual encircling sharpened beads 11 of wedge-like cross section for cutting the score lines 12—12 in the blank. These beads 11 are spaced apart a distance equal to the spacing of the weakened lines in the blanks and are caused to follow along these weakened lines by use of suitable guides associated with the rolls, or by other means.

Assuming a can body to be prepared with a tearing strip according to the above method, when it is removed by the key, or otherwise, the

tears will readily follow along the score lines by reason of the weakened condition of the metal adjacent thereto; it being readily apparent that a tear will follow the line of least resistance and that by weakening the tin plate along the lines where the scoring is to take place and along a narrow margin at either side thereof, the tear will not jump from the score line into the stronger metal.

It is to be understood that various methods, other than illustrated, might be employed to effect the weakening of the metal along the score lines, such as by bending first in one direction then in another, or any other manipulation, and the scoring could be done at the time of flattening the blanks. Therefore, it is not desired that the claims confine the method only to the steps as specifically recited, but that they be given an interpretation commensurate with the scope of the invention.

By this method, the herring-bone scoring is not required, and the parallel score lines may be made sufficiently shallow as to preclude any possibility of their breaking through the tin plate, or they might in some instances be eliminated altogether.

Having thus described my invention, what I claim as new therein and desire to secure by Letters-Patent, is:

1. The method of forming tearing strips in can body blanks which consists of bending the blank along lines defining the tearing strip to weaken the grain thereof, and scoring the blank along the weakened areas.

2. The method of forming tearing strips in can body blanks, consisting of bending the blank to form strip-defining creases, and whereby the grain of the blank is weakened over the outside of said creases, then subsequently flattening the creases to weaken the grain at the inside thereof, thence scoring the blank along the weakened areas.

WILFRED E. BURNS.