March 5, 1935. J. H. MURCH 1,992,962

METHOD OF PRODUCING SCROLL EDGED METAL BLANKS

Original Filed Aug. 10, 1929

Fig. 1

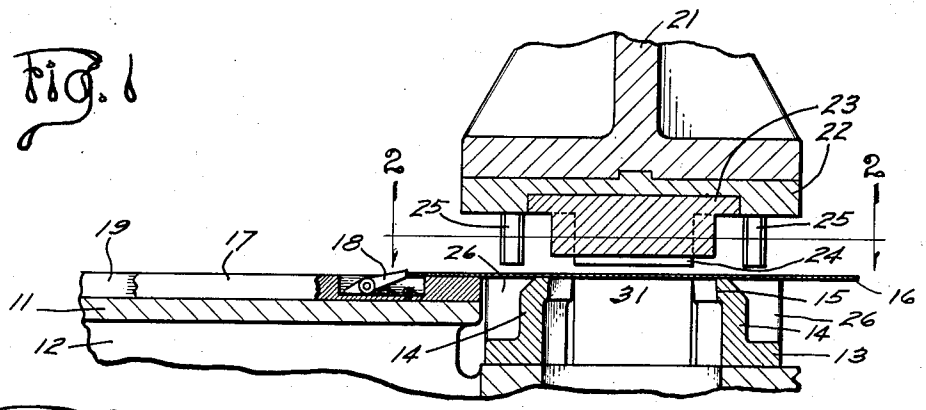


Fig. 2

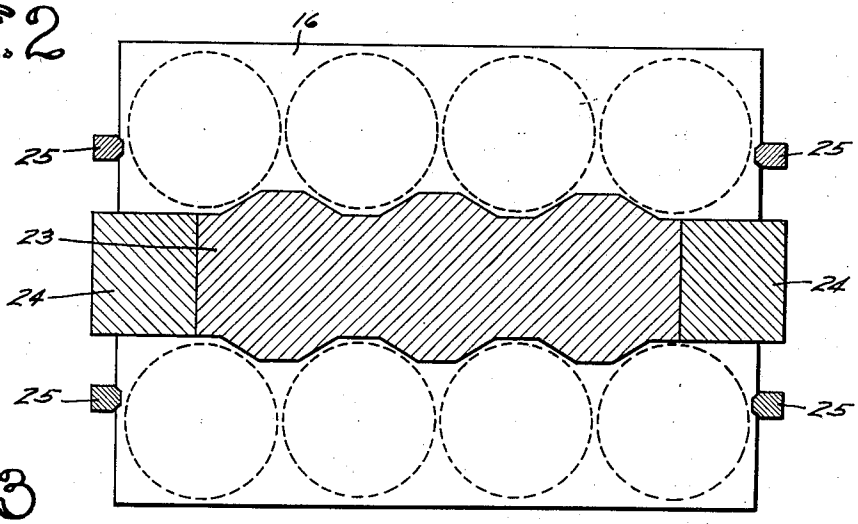
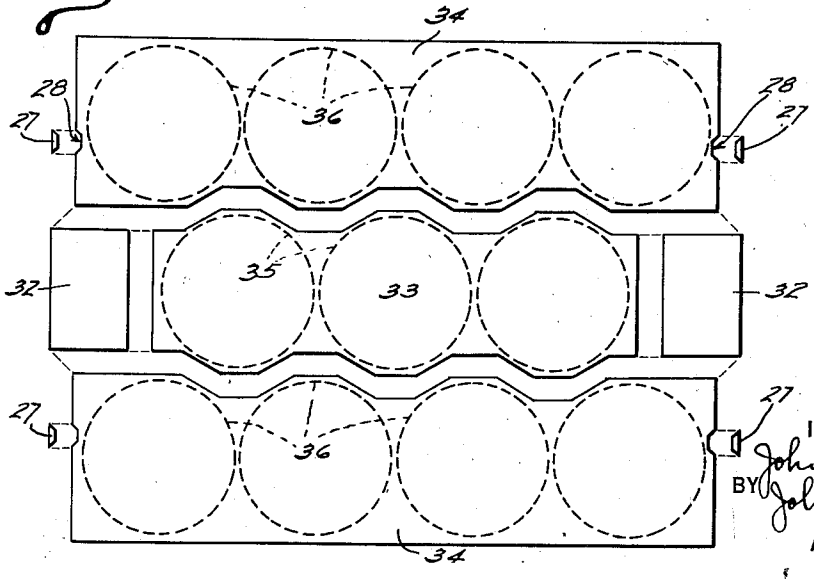


Fig. 3



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METHOD OF PRODUCING SCROLL-EDGED METAL BLANKS

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2 Claims. (Cl. 164—17)

The present invention relates to a method of economically dividing a sheet of metal into blanks containing can end providing spaces.

It is the present custom where automatic machinery is employed in cutting a number of articles from a sheet of tinplate, or the like, to first sever the sheet into blanks by a shearing machine and subsequently to feed the blank so obtained through a press for the cutting of the desired articles. When the articles are of circular configuration such, for example, as can ends, a more economical cutting is obtained in a cutting layout embodying adjacent rows of spaces arranged in stagger relationship.

The present invention contemplates a method of shearing a sheet by a single blanking operation to produce a plurality of blanks embodying can end providing spaces, the improved blank representing the maximum economy of cutting consistent with providing blanks which can be subsequently and efficiently handled in the automatic production of the desired articles.

The principal object of the present invention is the provision of a method of economically dividing a sheet into blanks, each blank containing a single row of can end providing spaces.

Another important object of the invention is the provision of a method of cutting and feeding a sheet to a scroll edged cutting die whereby a series of blanks are produced, each containing can end providing spaces, one of the blanks containing a lesser number of such spaces than the other blanks.

An important object of the invention is the provision of a method of economically dividing a sheet of metal into three blanks containing can end providing spaces, there being removed from the ends of one of the blanks, certain recovery pieces, the operation of forming the blanks and removing the recovery pieces being accomplished in a single operation of the dividing mechanism.

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 fragmentary transverse sectional view of a typical shearing machine for performing the present invention.

Fig. 2 is a sectional plan view of the same, taken substantially along line 2—2 in Fig. 1.

Fig. 3 is a diagrammatic plan view of the divided sheet produced by the operation of the shearing mechanism, the various parts being spread out or separated to more clearly illustrate their shapes.

A machine suitable for performing the steps of the present invention may comprise a table 11 (Fig. 1) carried by a frame 12. A die member 13 is supported by the frame 12 and is positioned in the table 11, this die member comprising spaced walls 14 provided with scroll cutting or shearing edges 15.

A sheet of metal or other suitable material 16 is adapted to be fed over the surface of the table 11 by a feed bar 17 carrying a spring pressed dog 18, the feed bar 17 operating in a suitable groove 19 formed in the table 11.

One position of feeding of the sheet 16 over the table 11 places the same centrally over the die member 13 and while in this position, a punch slide 21 of typical scroll shear construction descends to perform a cutting action. Slide 21 carries a punch block 22 which carries a scroll punch member 23 and end punch members 24 (see also Fig. 2). Block 22, also, carries extending gage punch members 25.

When slide 21 is moved downwardly the punch members 25 engage and press the sheet 16 against gage die members 26 carried by the frame 12. Members 25 cooperate with these die members in a cutting action and remove small pieces 27 from the sheet 16, the removal of these pieces forming gage notches 28 in the sheet.

Simultaneously with this operation, the end punch members 24 engage the sheet 16 and press it against die members 31 positioned at the opposite ends of the scroll die 13 and carried on the frame 12. Members 24 cooperate with these die members in a cutting action and remove recovery pieces 32 (Fig. 3) from the sheet. Continued downward movement of the slide 21 and the parts carried thereby causes the punch member 23 to engage the sheet 16 and press it against the die members 14. Punch member 23 cooperates with these die members in a cutting or blanking action severing a central blank 33 from the sheet 16 and leaving two side blanks 34.

There is thus produced in the single cutting operation of the scroll mechanism the central blank 33 containing a row of can end providing spaces indicated by the dotted circles 35 and the two side blanks 34 each containing a row of can end providing spaces indicated by the dotted lines 36. The side blanks 34, by reason of the staggered relation of the circles 35 and 36 in the original sheet layout, contain one more such

space than the number of spaces in the central blank 33.

The end pieces 32 may be subsequently used for the cutting of smaller articles, this being subsequently done in other machines forming no part of the present invention. The small pieces 27 removed from the side blanks 34 are discarded as being too small for further use.

Central blank 33 being produced in and outlined by the die parts 14 and 31, is cut along predetermined straight end lines and side scroll lines and is, therefore, uniform for every cutting action of the scroll mechanism irrespective of any variations which might exist in the size of the sheet being used. Either end of the blank 33 may subsequently be used as a reference or gage point when the blank is fed through other machines for removing the can ends or other articles.

The gage notches 28 formed on the two ends of each side blank 34 are always in the same relative position to each other and to the scroll edge of the blank and either notch may be used for the subsequent feeding of a blank 34 into a can end cutting machine.

It will be evident that there is produced at a single cutting operation a plurality of blanks suitable for automatic feeding into can end producing machines, this being accomplished with the minimum operating parts and in a highly efficient manner. The blanks so produced are provided with outline edges positioned adjacent the can end providing spaces in the blank and at a minimum distance. This insures a proper subsequent cutting action with a high degree of cutting efficiency and minimum waste of material.

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 for carrying out the method 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 of means suitable for practicing my improved method.

I claim:

1. The method of dividing sheets of metal which sheets are proportioned to form three strips suitable for cutting into can ends, which consists in subjecting each sheet to a single cutting stroke, and thereby forming two outside strips both useful for making can ends of scroll contour on one edge only, and a middle metal strip of scroll contour on both edges, and at the same stroke removing recovery pieces of useful size from the ends of said middle metal strip and forming gage notches in the ends of the two outside strips.

2. The method of dividing sheets of metal, which sheets are proportioned to form three strips of substantially uniform width suitable for cutting into can ends, which consists in subjecting each sheet to a single cutting stroke, and thereby forming two outside strips of scroll contour on one edge only, and a middle metal strip of scroll contour on both edges, and at the same stroke removing recovery pieces of substantial size from the ends of said middle metal strip and forming gage notches in the ends of the two outside strips.

JOHN H. MURCH.