Sept. 3, 1946. J. HANSEN 2,406,831

CAN PUNCHING DEVICE

Filed Aug. 9, 1945

FIG. 1.

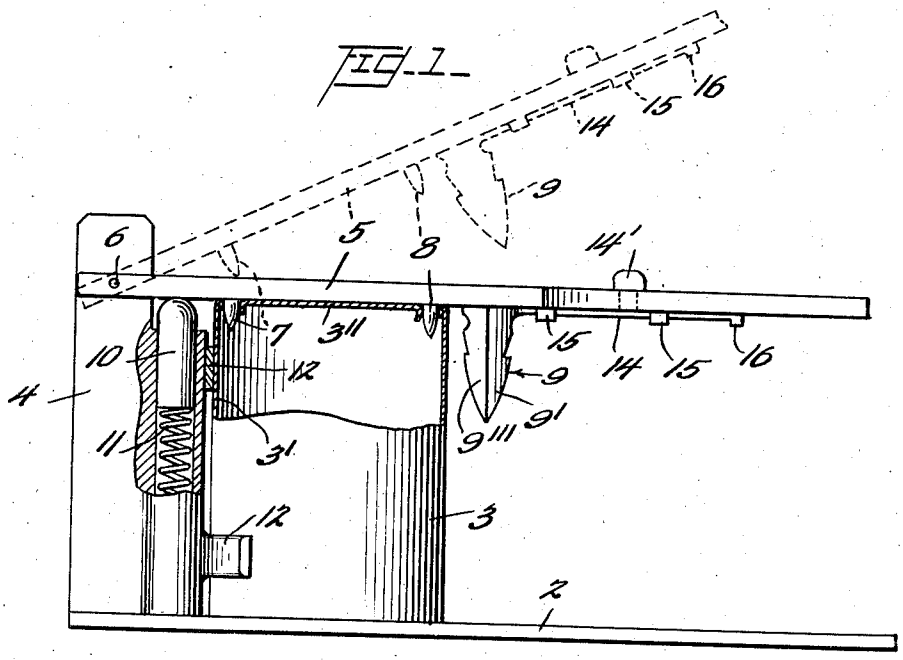


FIG. 2.

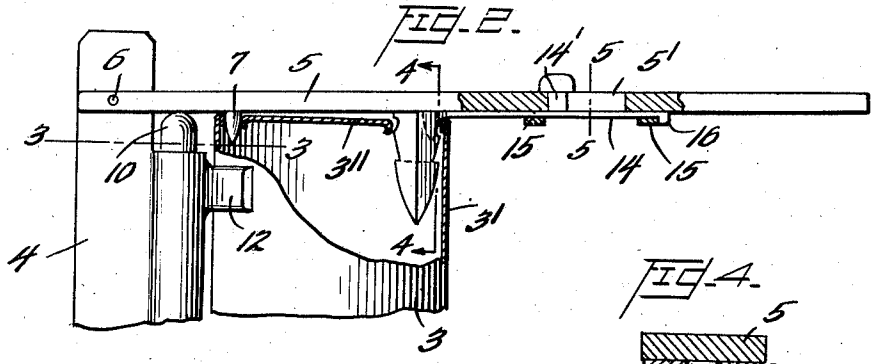


FIG. 3.

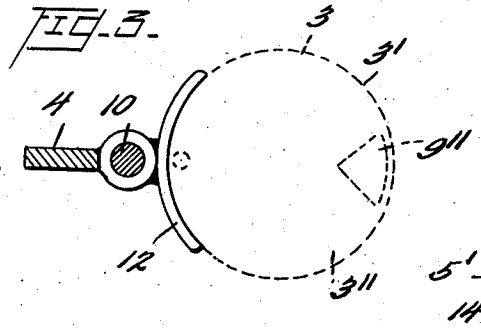
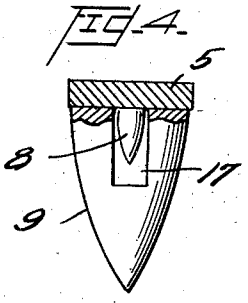


FIG. 4.



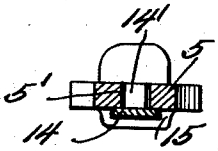


FIG. 5.

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Patented Sept. 3, 1946

2,406,831

UNITED STATES PATENT OFFICE

2,406,831

CAN PUNCHING DEVICE

Jack Hansen, Everett, Wash.

Application August 9, 1945, Serial No. 609,898

5 Claims. (Cl. 30—10)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

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The invention described herein may be manufactured and used by or for the Government of the United States for governmental purposes without the payment to me of any royalty thereon in accordance with the provisions of the act of April 30, 1928 (ch. 460, 45 Stat. L. 467).

This invention relates to can punching devices and has for its object to provide an implement of this class which will expeditiously perforate the head of a can to provide both a venting and a pouring opening therein.

The device has particular application to milk cans of one size, but obviously the dimensions of the device may be enlarged or diminished so as to adopt it for punching the heads of larger or smaller cans.

In dispensing the contents of a can of milk where the milk is to be used in small quantities, such as for table use, it is advantageous to punch the head of the can with a small dispensing aperture and a suitable venting aperture. On the other hand, where the contents of the can are to be dispensed quickly, as when used in baking or cooking, it is advantageous to provide a large pouring aperture in the head of the can as well as a suitable venting aperture.

It is the purpose of this invention to provide a can punching device which, at the option of the operator, will provide in the head of a can either a small or a large pouring aperture and in either case a suitable venting aperture, and it is an object of the invention to position such pouring apertures in the head of the can directly adjacent the side wall thereof so as to leave no substantial part of the head between the apertures and the side wall of the can, in order that no substantial portion of the contents of the can will be trapped in the can when it is desired to empty the same.

With this purpose and object in view, the invention consists of the novel construction of the can punching elements of the device as well as in certain novel combinations of parts, all of which will first be fully described and afterwards specifically pointed out in the appended claims.

Referring to the accompanying drawing:

Figure 1 is a side elevation of the device partly in vertical section illustrating the implement in the position of perforating the head of a milk can with a small pouring aperture and a venting aperture, the punching lever and punches being shown in their raised inoperative position in dotted lines.

Figure 2 is a fragmentary elevation of the device partly in vertical section illustrating the

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implement in the position of perforating the head of a milk can with a large pouring aperture and a venting aperture.

Figure 3 is a horizontal sectional view through the post and lever actuating plunger on line 3—3 of Fig. 2.

Figure 4 is a vertical transverse sectional view through the operating lever on line 4—4 of Fig. 2; and

Figure 5 is a vertical transverse sectional view through the operating lever on line 5—5 of Fig. 2.

Like numerals of reference indicate the same parts throughout the several figures, in which—

1 indicates the device which includes a supporting base 2 to receive a can 3.

4 indicates a vertical post fixed to or integral with the base 2, and 5 indicates the operating lever which is pivoted at 6 to the vertical post 4 and which carries the can punches or cutters 7, 8 and 9.

10 indicates a plunger mounted on the post 4, which plunger is actuated by a spring 11 which urges the plunger against the underside of the actuating lever 5 to raise the same into its normal inoperative position, as shown in dotted lines in Fig. 1.

Provided on the post 4 is a pair of arcuate stops 12 shaped to the contour of the can 3, to position and center the can on the base 2 so as to properly receive the punches or cutters 7, 8 and 9 upon downward movement of the operating lever 5, as will be clearly apparent from an inspection of the accompanying drawing.

Referring specifically to the punches or cutters 7, 8 and 9, it will be seen from Figures 1 and 2 that the venting punch 7 is of pointed cylindrical formation and so positioned and fixed on the lever 5 that it perforates the can 3 close up against the side wall 3' thereof, and it will also be seen that the punch or cutter 8 is of identical pointed cylindrical formation and so positioned and fixed on the lever 5 that it perforates the can 3 close up against the side wall 3' of the can 3 but at a point diametrically opposite to the perforation formed by the venting punch or cutter 7.

When the operating lever 5 is pressed down on the can 3 and the can head 3'' is perforated by the two punches or cutters 7 and 8, either one of the perforations formed in the can head 3'' may be used as the pouring aperture, since there may be no substantial difference either in the size of the perforations or in their position with relation to the side wall 3' of the can 3, and when the contents of the can are to be dispensed in small quantities, these two punches or cutters

7 and 8 are employed to perforate the can-head 3'' as just described.

When, however, it is desired to provide a large pouring aperture in the can-head 3'' so that the can 3 may be quickly emptied of its contents, the large punch or cutter 9 is brought into position for operation.

Referring to Figures 1 and 2, it will be seen that the large punch or cutter 9 is of a pointed and tapered formation; that the side 9' of the cutter, when in operative position and adjacent the side-wall 3' of the can 3 is arcuately shaped substantially equal to the curvature of the can 3 so that the aperture formed in the can-head 3'' conforms substantially to the contour of the wall of the can, as will be seen from the large dotted aperture 9'' in Figure 3. It will also be seen that the side 9''' of the cutter 9 is angular in formation, so as to give to the aperture formed thereby two straight portions which meet at a point or apex, as is also shown at the perforation 9'' in Figure 3. This precise cross-sectional form of the large cutter 9 is not important, though the form shown in the drawing and herein described has been found to be highly effective in properly displacing the metal of the can-head 3'' for providing an effective, fast-pouring aperture. The large cutter may or may not be serrated as that is unimportant though it is thought that the form shown in the drawing assists in folding back the tin adjacent the pouring perforation 9'' which is formed by the large cutter 9.

As will also be seen from Figures 1 and 2, the large punch or cutter 9 is mounted under the underside of the operating lever 5 on a slide 14 which passes through guides 15 fixed on the underside of said lever 5, the outer end of the slide 14 terminating in a stop 16 which abuts against the outermost guide 15 when the large punch or cutter 9 is moved into operative position. For the convenient shifting of the large punch or cutter 9 into and out of operative position, the operating lever 5 is provided with a slot 5' (Figs. 2 and 5) through which a headed stud 14' extends for manual manipulation. It will also be seen from Figure 4 that the large cutter 9 is provided with a chamber 17 formed through the center thereof and sufficiently large to house the small cutter 8 entirely within the large cutter 9 when the large cutter 9 is moved into operative punching position, as shown in Figure 2.

When the large cutter 9 is thus in operative position, downward pressure exerted on the operating handle 5 causes the large cutter 9 to provide a large pouring aperture in the can-head 3'', as well as a suitable venting perforation therein, as shown in Figure 3, while to provide a can with a small pouring aperture, the large cutter 9 is merely moved outwardly of the operating lever 5 into inoperative position shown in Figure 1, thus exposing the small cutter 8 for operation.

Having thus described the invention, I do not wish to be understood as limiting myself to the exact construction shown in the drawing and described herein, as various changes and modifications may be made therein, and I consider myself clearly entitled to all such changes and modifications as fall within the limit and scope of the appended claims.

I claim:

1. A can punching device including a base for supporting a can to be punched, a post on the base, an operating lever pivoted to the post, a pair of small punches fixed on the operating lever and adapted to punch two small perforations in the head of a can adjacent the side wall of a can upon downward pressure applied to the operating lever, to provide a pouring aperture and a venting aperture in a can-head, a large punch slidably mounted on the underside of the operating lever, the mounting means for said large punch including a slide and guiding means for the slide, a stop on the slide adapted to abut the guiding means to limit the sliding movement of the large punch, means on the slide to be manually engaged for sliding the large punch relatively to the operating lever, the large punch and its mounting means being arranged whereby said punch may be moved into and out of operative punching position, said large punch being provided with a chamber sufficiently large to house one of the pair of small punches, the whole arranged whereby, upon movement of the large punch into operative can-punching position, one of the pair of small punches is housed within the large punch and upon downward pressure applied to the operating lever, the large punch provides a large pouring aperture in a can-head closely adjacent the side wall of a can, and one of the pair of small punches provides a venting aperture therein diametrically opposite to the position of the large pouring aperture provided by the large punch.

2. A can punching device including means for supporting a can to be punched, an operating lever, a pair of small punches fixed on the operating lever and adapted to punch two small perforations in the head of a can adjacent the side wall thereof upon downward pressure applied to the operating lever to provide a pouring aperture and a venting aperture in a can-head, a large punch slidably mounted on the underside of the operating lever and adapted to be moved into and out of operative position over the can-head, said large punch being provided with a chamber therein to house one of the said pair of small punches, the whole arranged whereby movement of the large punch into operative can-punching position houses one of the said pair of small punches and upon downward pressure applied to the operating lever the large punch provides a large pouring aperture in a can-head closely adjacent the side wall of a can and one of the said pair of small punches provides a venting aperture in a can-head.

3. A can punching device including an operating lever, a pair of small punches on the operating lever and adapted to punch two small perforations in the head of a can closely adjacent the side wall thereof upon downward pressure applied to the operating lever to provide a pouring aperture and a venting aperture, a large punch movably mounted on the operating lever and adapted to be moved into and out of can-punching position, said large punch being provided with a chamber to house one of the said pair of small punches therein, the whole arranged whereby movement of the large punch into operative can-punching position houses one of the said pair of small punches and upon downward pressure applied to the operating lever the large punch provides a large pouring aperture in the can-head and the unhoused one of the said pair of small punches provides a venting aperture in a can-head.

4. A can punching device including an operating lever and a small punch thereon adapted to punch a pouring aperture in a can-head, a large punch movable on the operating lever, said large punch having a chamber to house the small punch

therein when it is desired to increase the capacity of the pouring aperture.

5. A can punching device including an operating lever and a small punch thereon adapted to punch a pouring aperture in a can-head upon actuation of the operating lever, a large punch movable on the operating lever into and out of

operative position, said large punch having one of its sides formed arcuately to conform substantially to the contour of the side wall of a can and provided with a cavity to house the small punch therein when the large punch is moved into can-punching position.

JACK HANSEN.