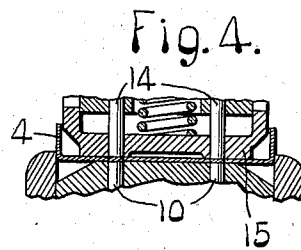
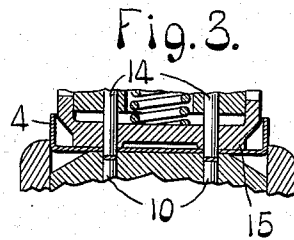
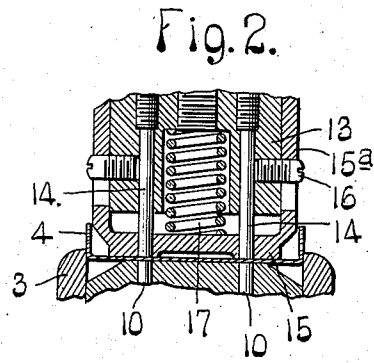
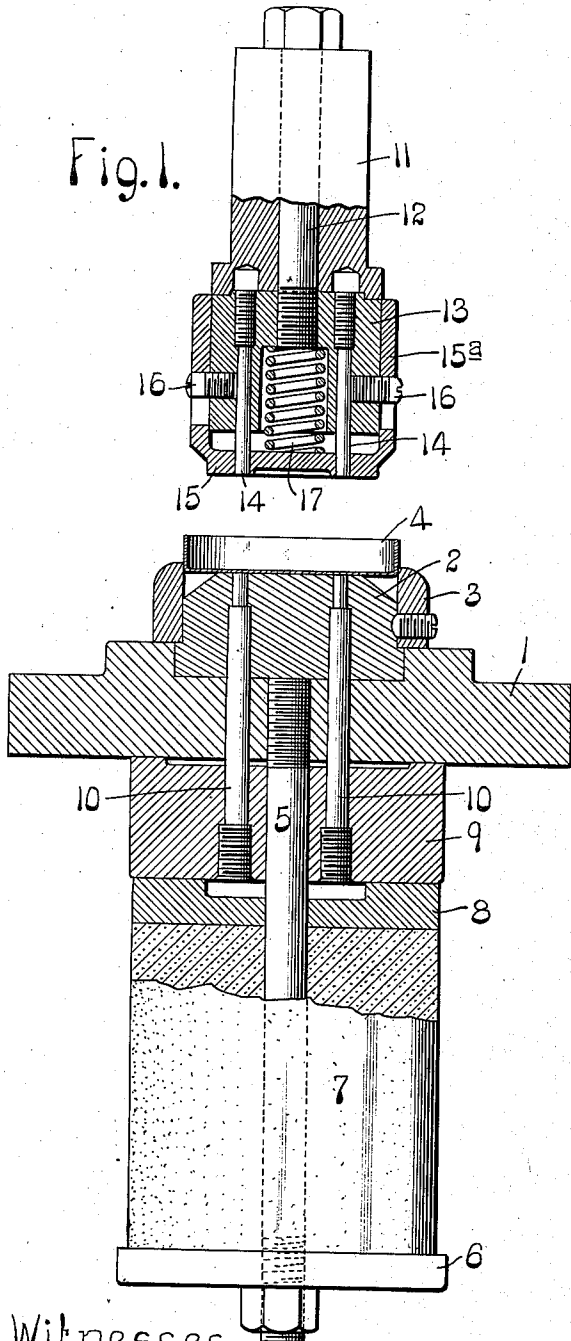


J. H. KUECHENMIESTER.
DIE FOR PERFORATING CAN TOPS.
APPLICATION FILED MAY 24, 1909.

987,144.

Patented Mar. 21, 1911.



Witnesses
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UNITED STATES PATENT OFFICE.

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DIE FOR PERFORATING CAN-TOPS.

987,144.

Specification of Letters Patent. Patented Mar. 21, 1911.

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To all whom it may concern:

Be it known that I, JOHN H. KUECHENMIESTER, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Dies for Perforating Can-Tops, of which the following is a full, clear, and exact description, such as will enable others, skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical sectional view of my improved die for can tops, the die being open. Fig. 2 is a similar view, illustrating the die closed. Fig. 3 is a similar view showing the plungers on the upper die depressed. Fig. 4 is a similar view showing the plungers on the lower die raised.

This invention relates to a new and useful improvement in dies for perforating tops for cans and the like, the object being to have the perforated disks, which are removed by the upper die, restored by the plunger operating under the lower die. In this manner, the burred edges of the perforated openings and of the pieces of material removed from said openings constitute a fastening or holding means to retain said severed pieces in said openings. The can top with these pieces in position can be used as an imperforate can top, retaining the contents of the can intact. When it is desired to sift the contents of the can through the perforated openings, a pointed instrument may be employed to force the severed pieces into the can, thereby exposing the perforated openings and enabling the contents of the can to be sifted therethrough.

In the drawings, 1 indicates a table or support upon which is arranged a female die 2. This female die is surrounded by marginal flanges 3 which serve as a guide to center the can top 4 on the female die.

5 is a rod threaded into the support 1 and carrying a plate 6 at its lower end, above which is a yielding device, in this instance in the form of a rubber body 7, but which may be in the form of a heavy spring if desired. Within the rubber body 7 is a follower or washer 8.

9 is a plunger head having a lower plunger 10 secured therein and movable therewith. This head 9 and its carried plunger slide vertically on the rod 5 and are

normally held lifted by the rubber or other spring 7 in such position that the upper ends of the plunger 10 are flush with the upper surface of the female die 2.

11 is the upper plunger, to the lower end of which is secured by a suitable bolt 12 the upper plunger head 13. In this upper plunger head are plungers 14. On the upper plunger head is a stripping plate 15 whose marginal flanges 15^a are slotted so as to receive guiding screws 16. A spring 17 holds the stripping plate in its lowered position so that its lower face will be flush with the lower ends of the upper plungers. The spring 17 is accommodated in a centrally formed opening 17^a in the plunger head 13, and the plungers 14 are disposed around said spring and chamber. The spring 17, it will be observed, bears centrally upon the stripping plate 15.

The operation of the device is as follows: The support 1 is mounted in appropriate manner and the upper plunger is carried by a vertically reciprocating bar or arm in a manner well known in punching machinery. The can top is arranged in position and the apparatus causes the upper plunger to descend, as shown in Fig. 2. The stripping plate contacts with the can top and holds the same firmly in position, after which a continued downward movement of the upper plunger forces the plunging rods 14 downwardly, punching out portions of the can top, forcing them into the openings in the female die. This downward movement of the upper plunger causes the lower plunger to be depressed, as shown in Fig. 3. It is only necessary to completely sever the punched portions of the can top, after which the upper plunger is permitted to rise, still under restraint however, until it reaches the position shown in Fig. 4 wherein it will be seen that the force under the lower plunger has restored them to their normal position in which the portions removed from the can top have been replaced. The upper plunger must, of course, be restrained so as to offer sufficient resistance to the lower plungers in their upward movement. After the pieces have been inserted in the openings from which they were punched, the continued upward movement of the upper plunger retracts said plungers within the stripping plate, the stripping plate holding the punched can top on the female die until the

upper plungers are wholly housed. When the upper plungers have been lifted a sufficient distance, the punched can top may be removed and a new blank inserted in position for another operation.

5 The plungers 10 and 14 respectively are preferably provided with threaded portions by virtue of which they may be adjusted vertically to take up wear, especially when
10 the corners thereof become rounded and it is necessary to regrind their ends for the purpose of sharpening them. The lower end of rod 5 is threaded a sufficient distance so that the spring follower 6 may be adjusted
15 on said rod to regulate the compression of said spring and thereby vary the force under the lower plungers as required by different thicknesses of metal in the can top operated upon.

20 Having thus described my invention, what I claim is:

In a die for perforating can tops and replacing the material removed from said per-

forations, the combination of a female die on which said can top is arranged, a marginal flange around said female die, extending beyond the same to form a guide for the can top, an upper plunger having perforating plungers performing said perforations, a stripping plate through which said
25 perforating plungers pass, having a marginal flange placed around said upper plunger, a spring interposed between said plunger and said stripping plate, a lower plunger head
30 having replacing plungers in line with said upper plungers and yielding means under said lower plunger head for restoring the same after they are displaced by the upper plungers.

In testimony whereof I hereunto affix my
signature in the presence of two witnesses,
this 21st day of May, 1909.

JOHN H. KUECHENMIESTER.

Witnesses:

ALMA GEBHART,
LENORE CLARK.