

C. W. SHEVLIN.

CAPPING DIE.

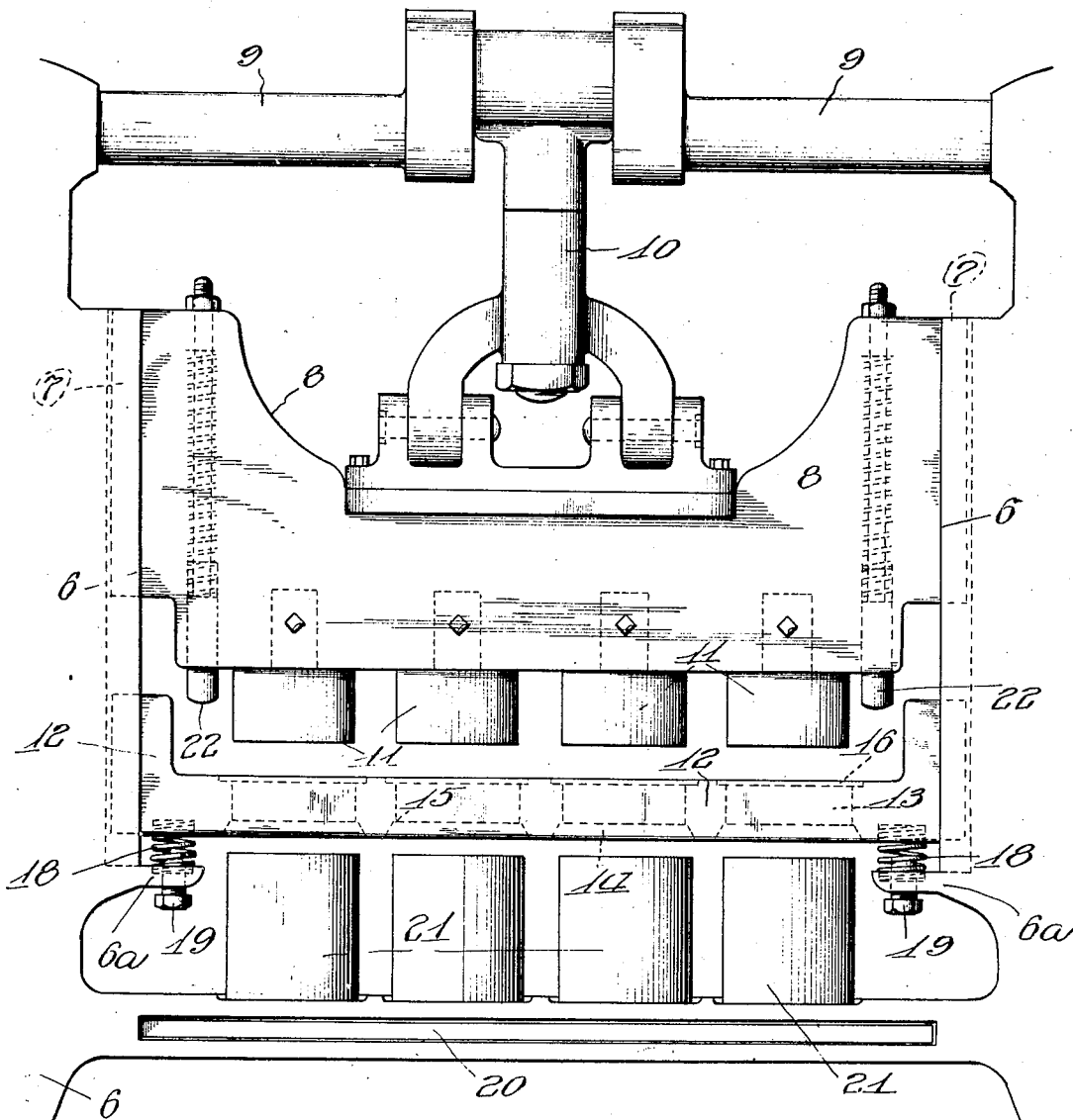
APPLICATION FILED DEC. 22, 1913. RENEWED JULY 3, 1916.

1,218,907.

Patented Mar. 13, 1917.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

Fig. 3.

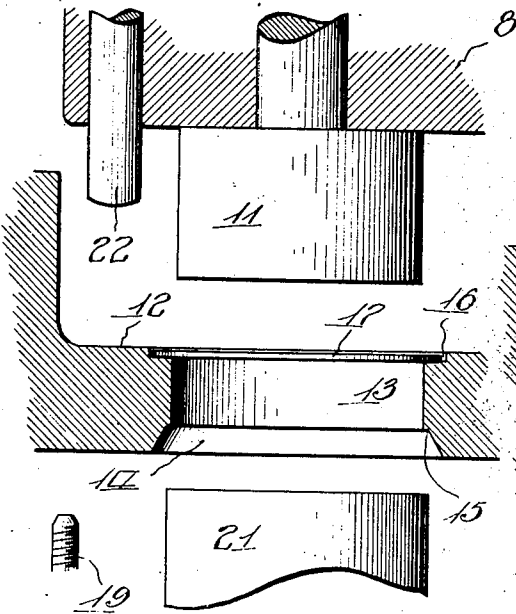
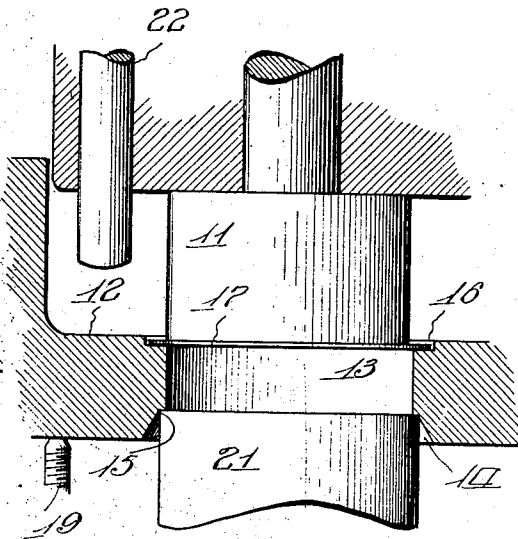
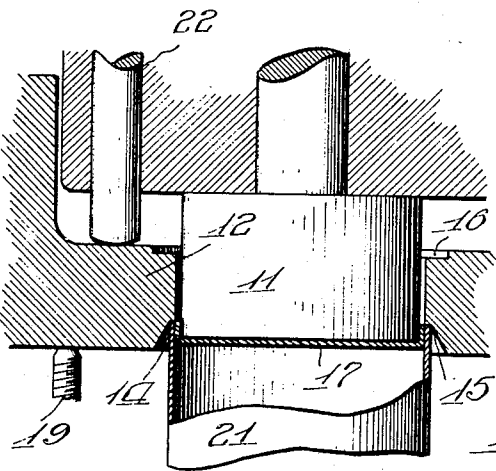
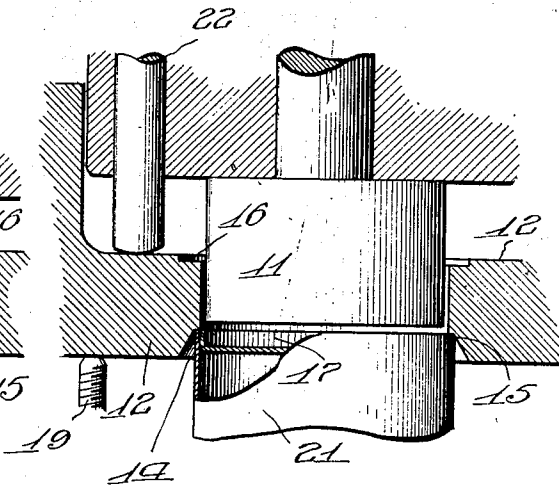


Fig. 4.

Fig. 5.



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UNITED STATES PATENT OFFICE.

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CAPPING-DIE.

1,218,907.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES W. SHEVLIN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Capping-Dies, of which the following is a specification.

My present invention relates to a tool or die for the capping of cylindrical cartons or paper containers, and has for its main object the provision of elements and their arrangement and coöperation so as to uniformly and adequately perform the operation of capping a container.

Another object of my invention is the provision of means for centering and shaping the container previous to the capping operation.

Still another and important object is the provision of means whereby the container when held in this centered relation to the dies, is also protected from the force by which the cap is inserted.

I attain the above objects by the device illustrated in the following views, in which similar reference characters refer to similar parts throughout:—

Figure 1 is a fragmental front elevation of a well known form of punch press, shown equipped with a series of my capping dies, and a plurality of containers in place ready for capping;

Fig. 2 is a fragmental vertical section through the dies, the plunger and the top portion of a container being shown in full lines, and a capping blank being shown in place prior to the commencement of the operation of capping the container;

Fig. 3 is a view similar to Fig. 2, illustrating the first movement or downward stroke of the plunger;

Fig. 4 is a view similar to Fig. 3, showing the result of the finished downward stroke of the plunger, and

Fig. 5 is a view similar to Fig. 4 showing the starting of the return or upward stroke.

In carrying out my invention I employ a punch press of a well known design, composed respectively of side frame members 6, having inwardly facing vertical channels 7, adapted to act as guideways for a plunger 8, actuated by the well known form of a crank shaft 9 and connecting rod, 10.

Mounted at intervals along the bottom edge of the member 8, are a series of plunger dies 11.

Traveling in the same channels 7 below the plunger 8, is a forming die member 12, having a series of vertical apertures 13 with which the plungers 11 are adapted to register. The lower edges of these apertures 13, are beveled outwardly or flared, and where this beveled portion 14 contacts the aperture 13, there is provided an annular shoulder 15, approximately the width of the thickness of the wall of the container. At the upper side or top of each aperture respectively, is provided a groove 16, somewhat larger in diameter than the aperture, and into which are adapted to be fed the capping blanks 17. Said die member 12 is yieldingly supported at its outer ends by coiled expansion springs 18, bearing against an arm 6^a of the frame 6; and the downward movement of this die 12 is limited by stops or set screws 19, also supported by said arms 6^a, and about which are coiled the springs 18.

A cross piece or table 20, in line with the dies 11 and 12, and a suitable distance below the die 12 (approximately the height of a container) is supported by or may be integral with the frame 6. This table is provided with means (not shown) for receiving containers 21, and centering each below their respective apertures and dies.

Spring actuated plungers 22 project below the bottom edge of aforesaid plunger die 8, one at each end respectively, and for purposes hereafter to be set forth.

The operation of my die is as follows: First, the containers are placed on the table 20 as shown in Fig. 1, and the cap blanks 17 are placed in their respective grooves 16, then the plunger 8 is caused to descend, thus forcing the die 11 against the cap blank 17, and due to the stiffness of this member, the die 12 is caused to descend against the tension of the springs 18, until it strikes the stops 19. Fig. 3 shows the dies in this position. Should the container after having been approximately centered below the aperture 13, be slightly out of shape or off center, the die 12 on its downward stroke, will draw it in shape and to its true center, by means of the tapering wall 14, as clearly shown,

and the stops 19 are so adjusted, as to stop the die 12 at the point when the top of the container comes in contact with the shoulder or annular ledge 15, which relieves any and all pressure from the walls of the container.

The plunger 11 continues on its downward stroke, and as it is smaller in diameter than the aperture 13 by the thickness of the cap 17, it forces said cap down, forms it in a cup shape, and forces it into the container, at the same time the plunger 22 strikes the upper surface of the die 12, and is compressed. Fig. 4 shows the dies in this position.

The plunger 11 now starts to return, and as it is drawn upward, the spring pressed plunger 22 bearing against the surface of the die 12 prohibits it from following until the plunger is well withdrawn from the cap. Fig. 5 shows the dies in this position. From here the plunger returns to the position shown in Figs. 1 and 2, thus allowing the expansion spring 18 to raise the die 12, thus leaving the capped containers to be removed and the operation repeated.

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

1. A capping die, comprising a mobile plunger die, a forming die adapted to receive said plunger die, said forming die having means provided therein for truing the shape of the container to be capped and for securing said container in trued position during the capping operation, and a spring pressed plunger adapted to be compressed against the surface of said receiving die when said plunger die is in its extreme lower position, for the purpose of retarding said

receiving die until said plunger die is withdrawn upwardly and well without the cap.

2. A capping die, comprising a mobile plunger die, a relatively movable receiving die, said receiving die having means provided therein for truing the shape of the container to be capped, and for securing said container in trued position during the capping operation, and means for relieving all the force of said operation from the walls of the said container, and a spring pressed plunger adapted to be compressed against the surface of said receiving die when said plunger die is in its extreme lower position, for the purpose of retarding said receiving die until said plunger die is withdrawn upwardly and well without the cap.

3. A capping die, comprising a mobile plunger die, a relatively movable receiving and forming die, last said die having an outwardly flaring taper on its under side, an annular shoulder at the intersection of said taper and the inner wall of last said die, and an annular groove around said inner wall on the upper surface of last said receiving die, and a spring pressed plunger adapted to be compressed against the surface of said receiving die when said plunger die is in its extreme lower position, for the purpose of retarding said receiving die until said plunger die is withdrawn upwardly and well without the cap.

In testimony whereof I affix my signature in the presence of two witnesses.

CHARLES W. SHEVLIN.

Witnesses:

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