

(No Model.)

G. W. KNAPP.

DIE FOR FORMING CAN BODIES.

No. 388,289.

Patented Aug. 21, 1888.

Fig. 1.

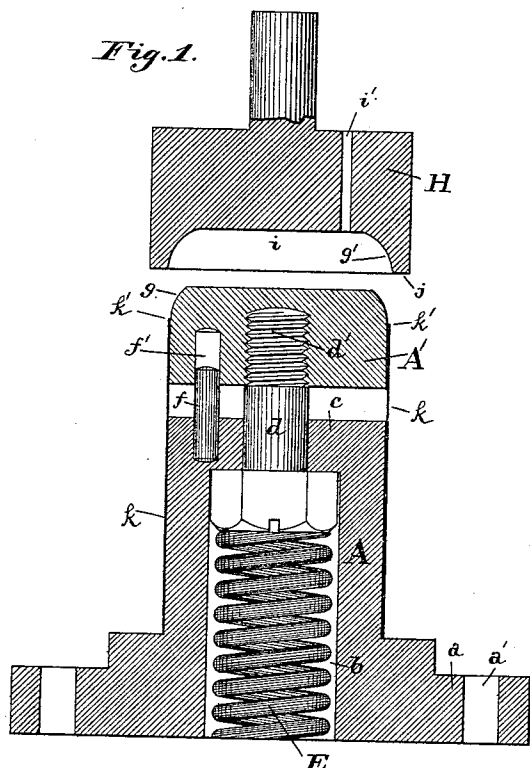


Fig. 3.

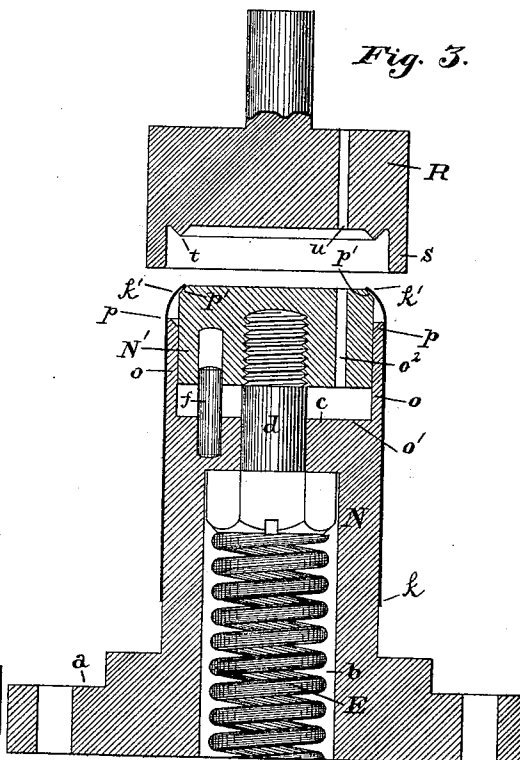


Fig. 2.

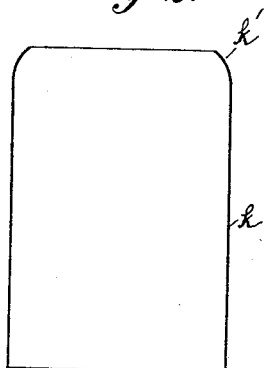
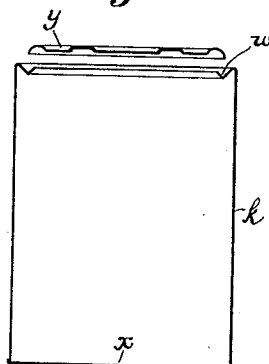


Fig. 4.



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DIE FOR FORMING CAN-BODIES.

SPECIFICATION forming part of Letters Patent No. 388,289, dated August 21, 1888.

Application filed June 27, 1888. Serial No. 278,320. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. KNAPP, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Dies for Forming Can-Bodies, of which the following is a specification.

My invention relates to certain dies to be employed in the manufacture of preserve-cans, such as are used in hermetically sealing fruits, vegetables, oysters, and other articles.

The object of my invention is to provide dies for turning the ends of sheet metal can-bodies inward and forming on the said inwardly-turned part an annular V channel or groove adapted as a seat for the cap, which is soldered thereto.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of a pair of dies for the first operation on the can-body. The outer vertical black lines represent the can-body. Fig. 2 represents the sectional form of a can-body after it has been subjected to the treatment of the first pair of dies. Fig. 3 is a vertical section of a pair of dies for operating on the can-body after it has been subjected to the treatment of the first pair of dies. Fig. 4 represents the sectional form of a finished can-body made by the joint action of the two pairs of dies.

The letter A designates the base part of the first pair of dies, which is a vertical cylinder of suitable metal, having a bottom flange, *a*, provided with holes *a'* for securing it. The cylinder has a central cavity, *b*, in its bottom, and a top, *c*, with a central opening through it from the said cavity upward, for a bolt, *d*, the upper end of which has a screw-thread, *d'*, for connection with a movable die-head, A'. The bolt *d* connects the said die-head A' with the base part A in such way as to allow a vertical movement to the die-head and permit it to be seated on the base part A and also be lifted above its seat. A spring, E, occupies the cavity *b* in the base part and presses upward against the bolt *d*, and thereby keeps the die-head A' elevated or lifted from its seat. A pin, *f*, is fixed in the top *c* of the base part, and projects upward and loosely occupies a hole, *f'*, in the die-head, and prevents the die-head from turning on the bolt *d*, but does not

interfere with its vertical movement. The top rim of the die-head A' is turned off or rounded, as at *g*, from the vertical wall to the upper flat surface.

The punch part H of the first pair of dies is above the base part A A', and has on its bottom face a cavity, *i*, and a downward rim, *j*, the inner circumference, *g'*, of which is concaved or rounded, and is the counterpart of the turned-off top rim, *g*, of the die-head. A dent or passage, *i'*, is in the punch part, and leads to the cavity *i* and serves as an air-vent.

In operating the first pair of dies, just described, the cylindric can-body *k*, which in the first instance is straight from top to bottom, is placed on and around the base part A A'. (See Fig. 1.) The die-head A' must be so adjusted on its supporting screw-threaded bolt *d* that the top edge, *k'*, of the can-body will come just below the turned-off top rim, *g*, when the die-head is elevated. The punch part H of the die may then be forced down, and its downward rim *j* will surround the top edge, *k'*, of the can-body, and as the die-head A' yields the said top edge of the can-body will be contracted and take position between the turned-off rim *g* of the die-head and the concaved inner circumference, *g'*, of the punch-rim. When the punch part H of the die is raised, the can-body *k* may be lifted from the base part A, and it will be found that its top end has been contracted or turned inward, as shown in Fig. 2. The can-body will then be ready for the treatment of the second pair of dies.

A portion of the base part N of the second pair of dies is like the first pair, to wit: it is a vertical cylinder, with bottom flange, *a*, central cavity, *b*, and top *c*, with opening for the bolt *d*, a spring, E, in the bottom cavity, and a guide-pin, *f*. It differs from the first pair of dies in that it has at its top a cup, *o*, the rim *p* of which is beveled inward to form one half of the V-channel in the end of the can, and the movable die-head N', which is connected with the base part by the bolt *d*, forms the other half of the said V-channel in the can end. The movable die-head N' fits in and occupies the cup *o* at the top of the base part, and is kept elevated or lifted from its seat *o'* at the cup-bottom by the action of the spring E. It is provided with a vent-duct, *o''*, which allows

air to escape from the cup. The top rim has a bevel, p' , which first serves as a seat to receive the contracted top edge, k' , of the can, when the latter is placed on, (see Fig. 3,) and afterward serves as a seat to form one-half the V-channel in the can end.

The punch part R of the second pair of dies is above the base part N, and has on its face a downward rim, s , which takes around the can-body k on the base part N. It also has an annular V-shaped ridge or ring, t , in the cavity within the said downward rim s . This V-ridge forms the top side of the V-channel w in the can end. A vent-duct, u , relieves the cavity.

In operating the second pair of dies, the can-body having its end k' contracted, must hang on the base part by said top contracted edge resting on the bevel p' of the movable die head N' , which latter is elevated. The punch part R may then be forced down, and one side of the annular V-ridge t will clamp the contracted top edge, k' , of the can on the bevel p' of the movable die-head, and at the same time the downward rim s will take around the can-body below the contracted top and bind it against the outer wall of the cup o . The movable die-head N' will yield and settle down into the cup o , and when seated therein its bevel p' will be coincident or even with the bevel rim p of the cup, and the said two bevels will form the lower side of the V-channel w in the can end. The sheet metal of the can, which is contracted or turned inward, will be forced to

take position in the said two bevels p and p' , and the annular V-ridge t will form the top side of the channel w in the can-top. The finished can-body may then be removed, and will have the appearance shown in Fig. 4. The bottom x may be secured in any desired way.

A cap, y , to fit the annular channel w of the can, is designed to be attached by solder.

Having described my invention, I claim—

1. A pair of dies for shaping the ends of sheet-metal cans, consisting of the base part N, having at its top a cup, o , with an inwardly-beveled rim, and a die-head, N' , having a beveled top rim, p' , and occupying said cup and yielding vertically therein, in combination with a punch part, R, having a downward rim, s , and an annular V-shaped ridge, t , in the cavity within said downward rim.

2. A pair of dies for shaping the ends of sheet-metal cans, consisting of the base part N, having at its top a cup, o , with an inwardly-beveled rim, a die-head, N' , having a beveled top rim, p' , and occupying said cup, and a spring to lift the die-head from its seat, in combination with a punch part, R, having a downward rim, s , and an annular V-shaped ridge, t , in the cavity within said downward rim.

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

GEORGE W. KNAPP.

Witnesses:

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