

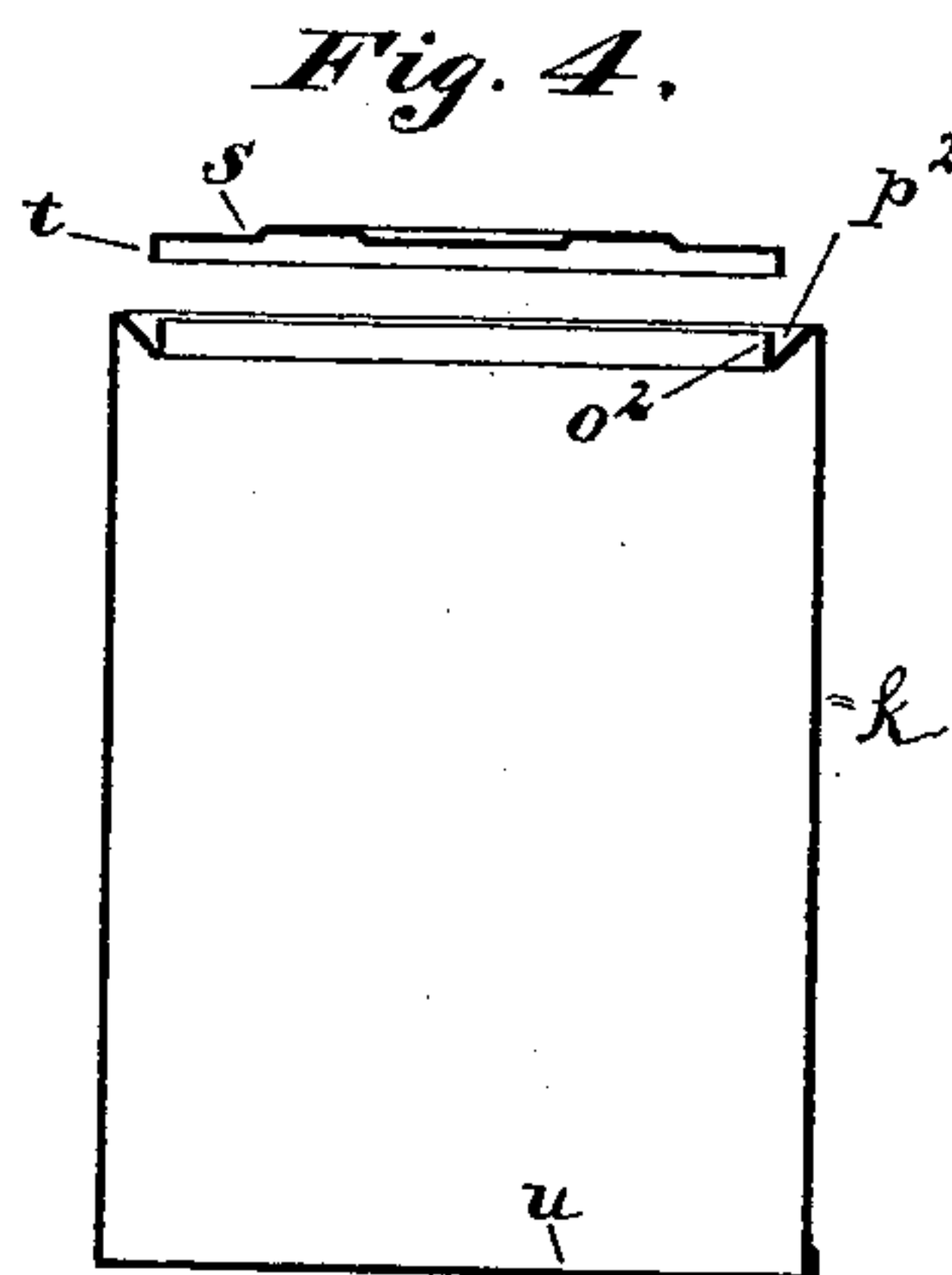
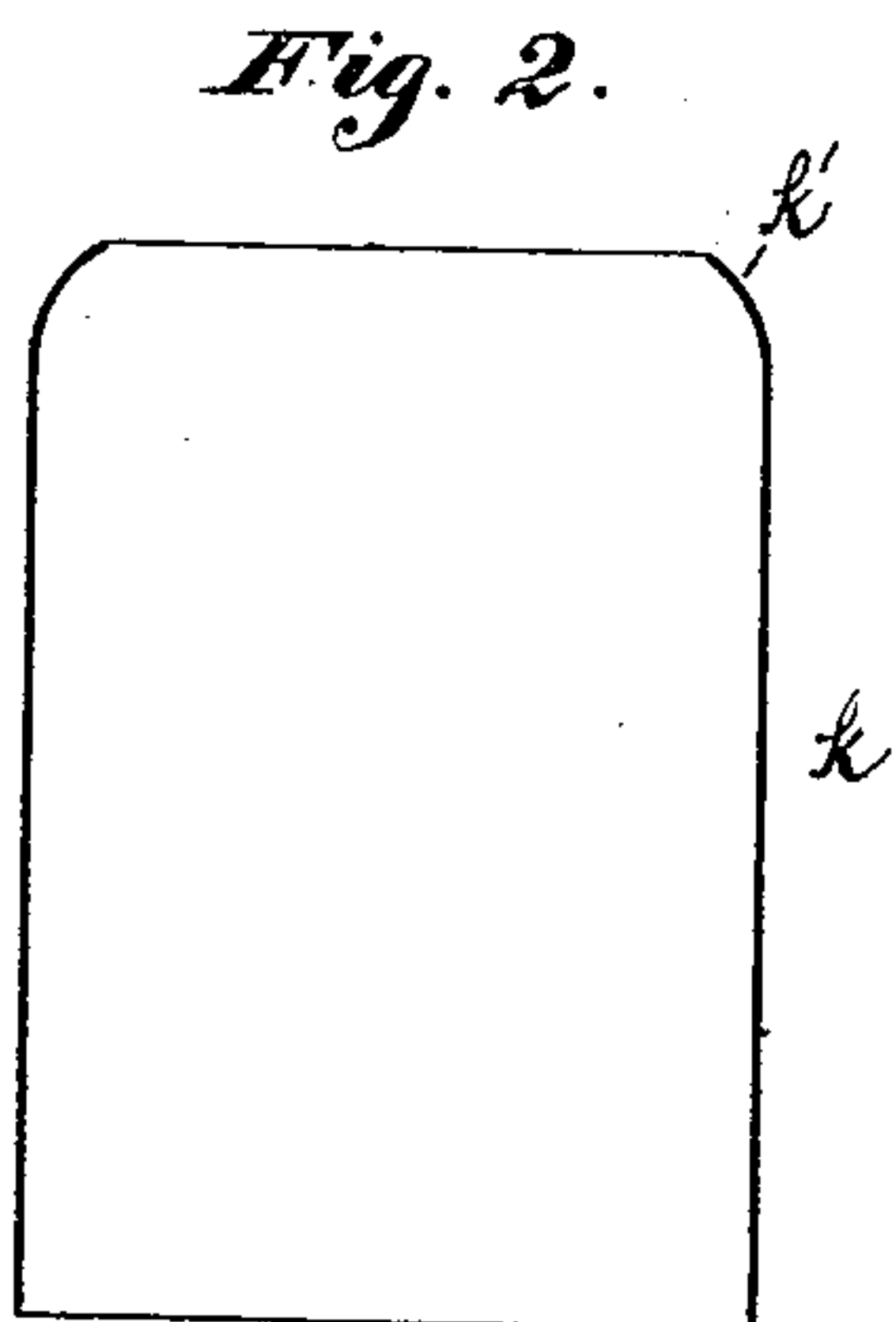
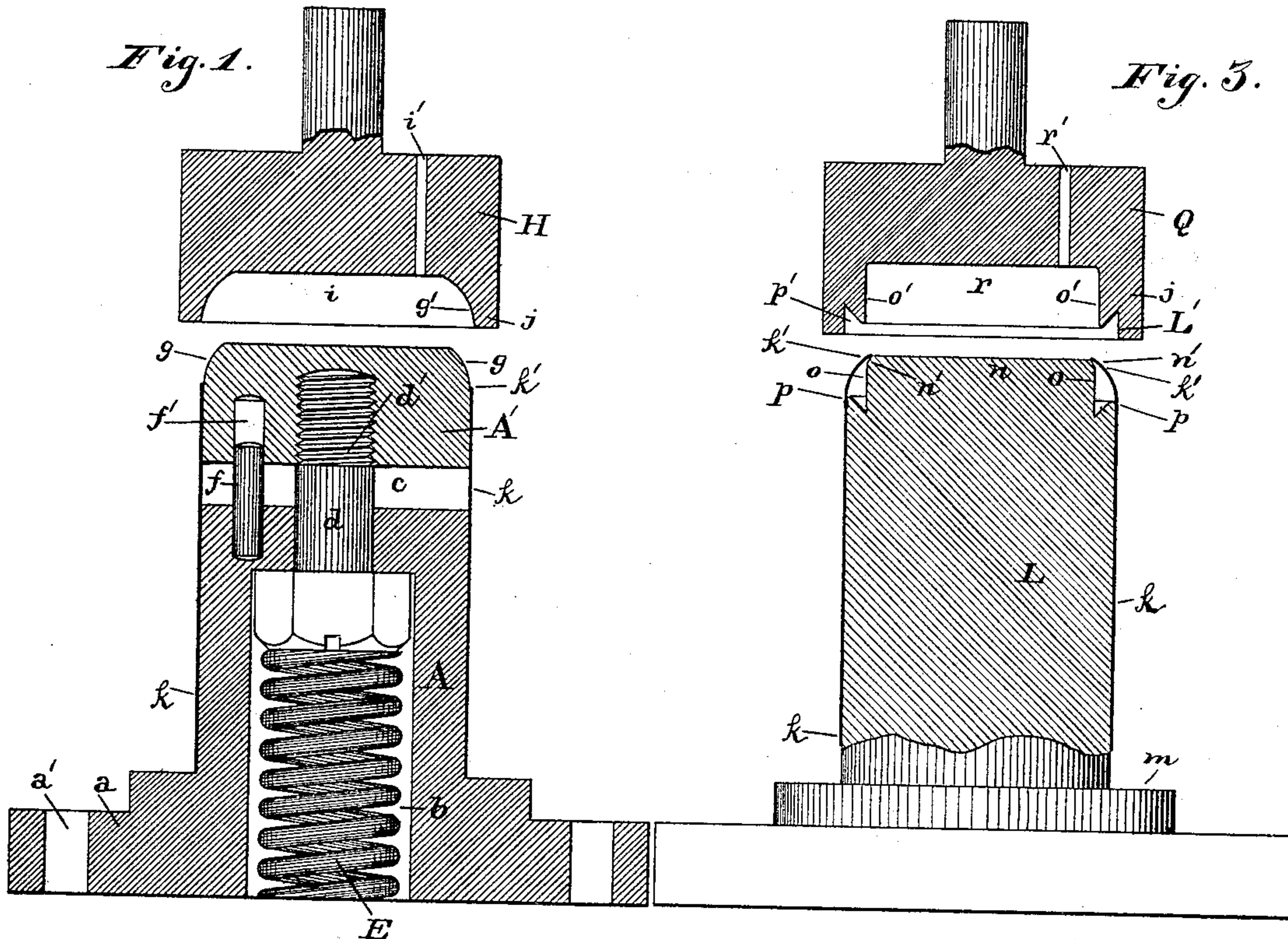
(No Model.)

G. W. KNAPP.

DIE FOR THE MANUFACTURE OF CANS.

No. 388,288.

Patented Aug. 21, 1888.



WITNESSES:

R. L. Clemmitt.
John E. Morris.

INVENTOR:

Geo. W. Knapp.

BY Chas B. Mann.
ATTORNEY.

UNITED STATES PATENT OFFICE.

GEORGE W. KNAPP, OF BALTIMORE, MARYLAND.

DIE FOR THE MANUFACTURE OF CANS.

SPECIFICATION forming part of Letters Patent No. 388,283, dated August 21, 1888.

Application filed June 27, 1888. Serial No. 278,319. (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 the Manufacture of Cans, 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 inward-turned part a channel or groove adapted as a seat for the cap which closes the can end.

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 on its bottom face has 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 duct 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.

The base part L of the second pair of dies (see Fig. 3) is a vertical cylinder having a base-flange, *m*. At the top the cylinder is reduced in size, so as to form a solid rigid center, *n*, having a vertical wall, *o*, and on the exterior of and around said rigid center an annular seat, *p*, the outer edge of which is highest, and from thence inclines downward and inward toward the said rigid center, whereby the annular seat forms an annular channel, one side, *o*, of which is vertical and the other side, *p*, of which is inclined. The top edge *n'* of the rigid center *n* is slightly inclined to serve as a bearing for the contracted top edge *k'* of the can-body, as shown in Fig. 3. The punch part Q of the second pair of dies is above the base part L, and has a bottom cavity, *r*, and a vent or air-duct, *r'*. A downward

rim, *j*, on the punch has two inner annular vertical faces, *o'* and *L'*, and an annular channel, *p'*, between them. The said annular channel *p'* on the punch is the counterpart of the annular seat *p* on the base part of the die.

In operating the second pair of dies the can-body having its top edge *k'* contracted, as shown in Fig. 2, must be placed on the base part *L*, and its contracted top edge *k'* must rest on the inclined top edge *n'* of the rigid center *n*. (See Fig. 3.) The punch part *Q* of the die may then be forced down and its two annular vertical faces *o'* and *L'* will surround the can-body and compress it upon the base part *L* of the die, and that part of the sheet metal which is contracted or turned inward will be forced to take position between the vertical wall *o* and the annular seat *p* on the base part *L* and the annular channel *p'* on the punch part *Q*. When the punch *Q* has been raised, the finished can-body may be lifted from the base of the die, and will be found to have its top end turned inward (see Fig. 4) and with a vertical lip, *o'*, and an annular groove, *p'*, around said lip.

A suitable cap, *s*, with a right-angled flange, *t*, is to fit over the vertical lip of the can and close the can-top. The bottom *u* of the can may be attached in any desired manner. Cans having lips *o'* and caps *s* of this style are usually sealed with wax or cement.

It will be obvious to any one skilled in the art that the invention is not limited to the particular shape or style here shown of rounding the top rim, *g*, of the die-head *A'*. Any other curve—such as a double or “ogee” curve—may be made.

Having described my invention, I claim—

1. A pair of dies for shaping the ends of sheet-metal cans, consisting of a base part, *A*, provided with a vertically-movable die-head, *A'*, having a turned-off or rounded top rim, *g*,

in combination with a punch part, *H*, having a downward rim, *j*, the inner circumference, *g'*, of which is concaved as a counterpart to the said rounded top rim, as set forth.

2. A pair of dies for shaping the ends of sheet-metal cans, consisting of the base part *A*, having a central bottom cavity, *b*, with a central opening in its top, a die-head, *A'*, above the base part, having a turned-off or rounded top rim, *g*, a bolt, *d*, passed through said central opening and connecting the die-head and base part, and a spring, *E*, occupying the bottom cavity and pressing up against the said bolt, in combination with a punch part, *H*, having a downward rim, *j*, the inner circumference, *g'*, of which is concaved as a counterpart to the said rounded top rim, as set forth.

3. Two pairs of dies for shaping the ends of sheet-metal cans, the first pair consisting of the base part *A*, provided with a vertically-movable die-head, *A'*, having a turned-off or rounded top rim, *g*, and a punch part, *H*, having a downward rim, *j*, the inner circumference, *g'*, of which is concaved as a counterpart to the said rounded top rim, in combination with the second pair, consisting of the base cylinder, *L*, having at the top a solid rigid center, *n*, with a vertical wall, *o*, and around the said center an annular seat, *p*, the outer edge of which is highest and forms an annular channel, and the punch *Q*, having a downward rim provided with two annular vertical faces, *o'* and *L'*, and between them an annular channel, *p'*, which is the counterpart of the said annular seat on the base part, for the purpose set forth.

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

GEORGE W. KNAPP.

Witnesses:

JOHN E. MORRIS,
JNO. T. MADDOX.