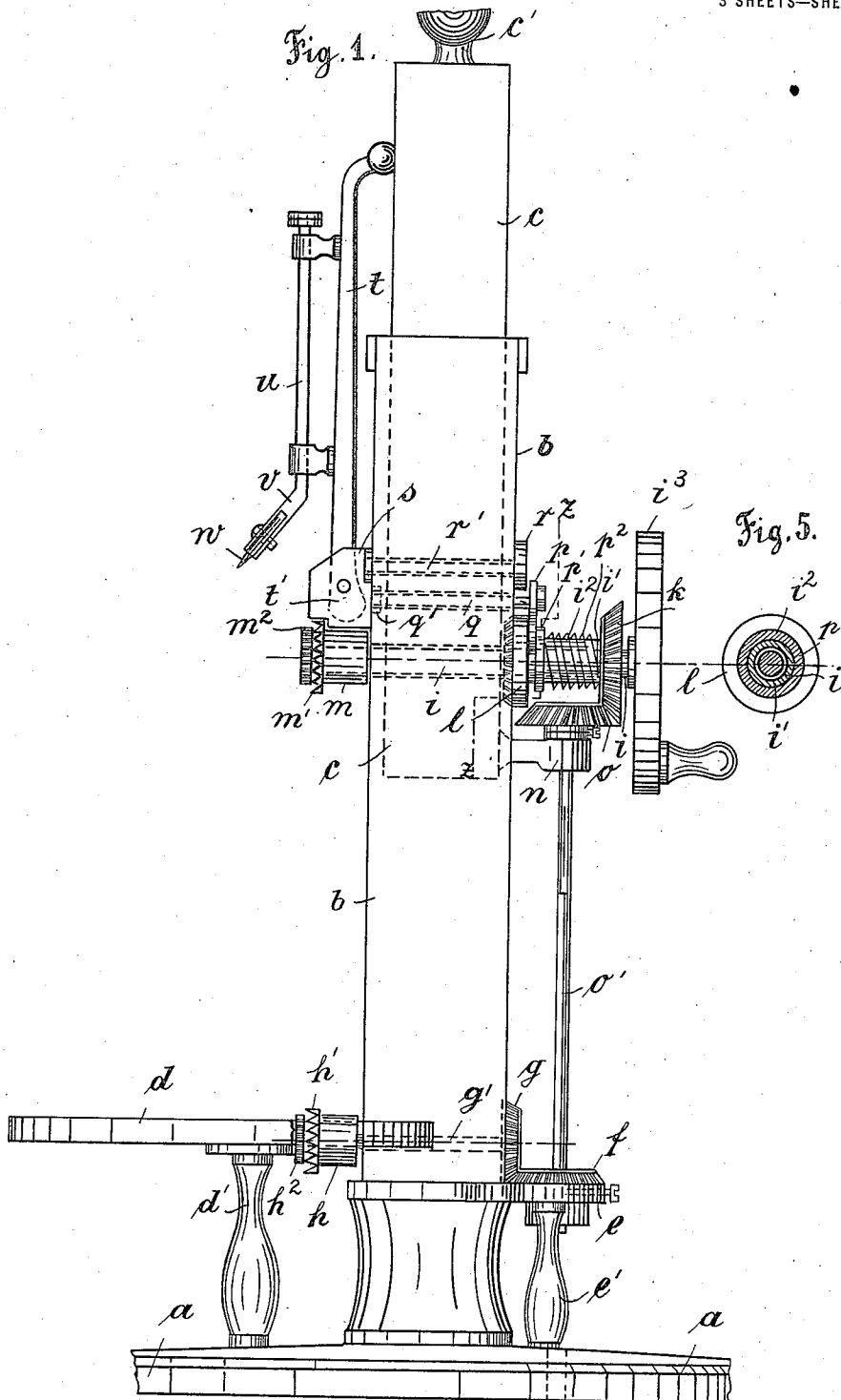


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 APPARATUS FOR OPENING AND MANUFACTURING CONSERVE BOXES.
 APPLICATION FILED JAN. 9, 1919.

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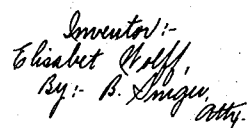
Patented Oct. 26, 1920.

3 SHEETS—SHEET 1.



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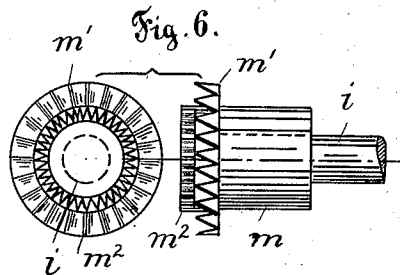
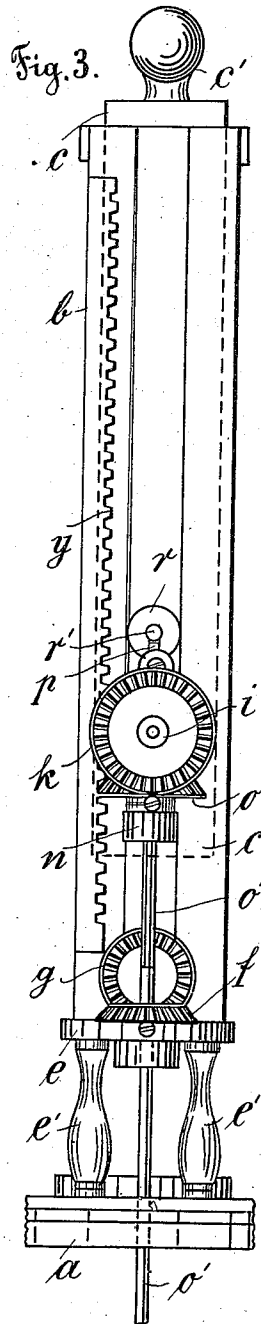
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Inventor:-
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UNITED STATES PATENT OFFICE.

ELISABET WOLFF, OF CHARLOTTENBURG, GERMANY.

APPARATUS FOR OPENING AND MANUFACTURING CONSERVE-BOXES.

1,356,581.

Specification of Letters Patent.

Patented Oct. 26, 1920.

Application filed January 9, 1919. Serial No. 270,373.

To all whom it may concern:

Be it known that I, ELISABET WOLFF, a subject of the King of Prussia, residing at No. 62 Schillerstrasse, Charlottenburg, in the Kingdom of Prussia, Germany, have invented certain new and useful Improvements in Apparatus for Opening and Manufacturing Conserve-Boxes, of which the following is a specification.

My invention relates to improvements in apparatus for opening and manufacturing conserve-boxes of tinned iron, paste-board and other material of similar kind; this invention is destined to be applied to boxes and receptacles of any size, shape and condition, whether new or old or in a fresh or somewhat deformed or dented state.

In the use of the improved apparatus of my invention for opening tinned boxes, the cover of the box is cut out round about along the circumferential raised margin of the box, the cutting line being operated flush with the inside face of the said margin and leaving no projecting parts of the cover; by this means, on emptying the box, its contents may be poured out completely and easily without leaving any residue in the box.

In the accompanying drawings I have illustrated the apparatus of my invention, Figure 1 is a side-elevation of the same, shown in the position of rest, *i. e.*, with the cutting lever raised or inoperative.

Fig. 2 is a similar side elevation of the apparatus in the cutting or operative position, with the cutting lever lowered.

Fig. 3 is a rear view of the apparatus, the hand-wheel for operating the same being omitted.

Fig. 4 illustrates a modification of the apparatus, showing a simplified construction, in which the cutting lever is dispensed with. Fig. 5 is a section drawn on line *z-z* of Fig. 1.

Fig. 6 illustrates the pair of gripping-wheels hereinafter referred to, employed for imparting rotary motion to the box operated upon, the said wheels being shown in front and side-elevation, drawn on an enlarged scale.

In the said drawings, *a* is the base or foundation from which a stationary standard or post *b* is raised. Within said hollow standard *b* a piston *c* is provided to perform a sliding up-and-down motion; said piston

c carries the cutting mechanism of the apparatus firmly connected to it.

d is the working table supporting the box to be treated, the said table *d* is carried by a post *d'*. To the standard *b* a rearward plate or extension *e* is formed or secured, said plate *e* being supported by posts *e'* raised from the base *a*.

The working or cutting apparatus of my invention comprises a stationary lower part and a movable upper part. The former, stationary part consists of two beveled gears *f*, *g*, a shaft *g'* and a lower driving roller *h*, said driving roller carrying a double set of toothed wheels *h'* and *h''*. The upper or movable part of the cutting device comprises a shaft *i*, carried by the movable piston *c*. Said shaft *i* carries at its outer end a hand- or flywheel *i'* and a bevel-gear *k*; at the other side of the standard *b* an upper gripping roller *m* is keyed to said shaft *i*, the said roller *m* being provided with a double set of teeth *m'* and *m''*, as shown in Fig. 6. An extension-piece *n* carried by the piston projects from a slot in the standard *b*; on said extension *n* rests a bevel-wheel *o* in gear with the bevel-gear *k* mounted on a shaft *o'*. Said shaft *o'* passes through a square hole in the wheel *f* and accordingly, turns along with said wheel, but may be raised and lowered within the same. The shaft *i*, further carries a sleeve *i'*, to which a toothed wheel *l* is secured. A projecting nose *i''* is formed to the said shaft *i*, which nose engages a recess in the hand-wheel *i'* and also serves to turn the sleeve *i'* with the toothed wheel *l*. The said sleeve *i'* is engaged by a yoke *p* secured to the projecting end of a rod *q* which passes through the piston *c* and carries a disk *q'*. The said yoke *p*, normally, is held in position by the disk *p'*.

At the opposite side of the standard *b*, the rod *p* carries a slotted block *s* keyed to it by a rod *r'* and nut *r*. Within the slot of said block *s* the cutting lever *t* is pivotally arranged to turn. The lower end of lever *t*, projecting beyond the pivot, as at *t'*, (Fig. 2), will bear, on being turned, against the disk *q'* of rod *q* and thereby shift the yoke *p* and disk *p'* to the right side of Figs. 1 and 2, against the pressure of the spring *p''*, whereby the toothed wheel *l* comes free of the sleeve *i'*.

The said lever *t* carries in supports or

brackets connected to it, a rod *u*, to the lower end of which the cutter or knife *w* is secured within a slot or fork *v*. *x* is the box to be opened or operated upon.

5 The standard *b* is slotted along the whole of its length thus allowing the said upper cutting mechanism to be raised and lowered according to the height of the box under treatment. The slot within the standard *b* at the side of the hand-wheel *i*³ is racked, as shown at *y* and with that rack the wheel *l* is adapted to engage.

The mode of operation of the said apparatus is as follows:

15 In order to properly adjust the box *x* on the table *a* according to its varying size or height, the said lever *t*, first, is swung into its inoperative position shown in Fig. 1; the sleeve *i*¹ with the toothed wheel *l* being free of the pressure exerted by the lower, eccentric end of the rod *t* against the disk *q*¹, the spring *p*² will, by its pressure, shift the wheel *l* into engagement with the racked portion of the slot in the standard *b* and thereby the whole piston *c*, by a rearward turn given to the hand-wheel *i*³, is carried in the upward direction, raising the whole cutting mechanism.

The box *x* may now be placed on the table 30 *d*, its lower raised periphery being engaged between the two rows of teeth *h*¹ and *h*² of the supporting roller *h*. The lever *t* is now lowered by turning it downward by hand; the lower end of said lever *t* will bear against the disk *q*¹ and thereby shift the sleeve *i*¹ with the toothed wheel *l* out of engagement with the rack *y*; the spring *p*², by such action, will be compressed, as shown in Fig. 2. The piston *c*, now, will be free 40 from the engagement of the wheel *l* with the rack *y* and slides down by its own gravitation. The set of gripping teeth *m*¹, *m*², thereby, carried by the upper cutting roller *m*, will be placed on the upper projecting rim or edge of the box and the box is now held engaged between the upper and the lower sets of gripping rollers *m*¹, *m*², and *h*¹, *h*². The forked tool-holder *v* with the cutting knife *w*, simultaneously, is lowered 50 down to adjust itself against the surface of the cover of the box to be cut out along the rim. On turning now the hand-wheel *i*³ in the forward direction, the rollers *h* and *m* will be turned in the same direction, owing to the wheels *h* and *f* engaging into the bevel-gears *i* and *g*, and the speed of turning the two sets of gripping rollers *h* and *m* will be exactly the same. The box *x* being firmly pressed down, partly by the weight of the piston *c* and partly by an additional pressure given by the hand to the lever *t*, the knife *w* will be forced against the cover of the box and the said cover will be cut out round about along the margin of the box.

When a box has been treated in this manner, the lever *t* is again raised and a fresh box placed below the knife *w*, into the gripping wheels.

Instead of using the apparatus for cutting out the cover of closed boxes, the said apparatus may be equally employed for closing boxes by inserting a cover, particularly a cover of a softer material, such as paste-board or the like. In such case, a cover of a slightly greater diameter than the rim of the box is placed on said rim; then, on turning the handwheel *i*³, and giving the lever *t* a slight additional pressure, the knife *w* will force said cover down and produce a slight recess within the rim or margin of the box, into which recess the edge of the cover will be firmly lodged by the pressure of the knife, thus hermetically closing the box.

The modification of the apparatus before described, as illustrated in Fig. 4, consists in leaving away the cutting lever *t* and by securing the cutting knife *w* directly to the roller *m*. The cutting lever *t* in this modification is replaced by the eccentric *t*¹ pivoted within the block *s*, said eccentric terminating in a handle *z* of any suitable form. If the weight of said block should not be sufficient for automatically returning the disk *q*¹ and rod *q*, a slight pressure of the hand on the button *c*¹ of the piston *c* will obtain the same effect and perform the cutting of the sheet iron of the box.

I claim as my invention:

1. In apparatus for cutting out the cover or top of conserve-boxes the combination, with a crank-handle of an upper and a lower gripping mechanism for revolving the box, a cutting knife carried by a cutting lever, an eccentric formed on said cutting-lever and means connecting the upper gripping mechanism with said cutting lever, said means being thrown out of gear by lowering the said cutting-lever, through the agency of said eccentric.

2. In apparatus for cutting out the cover or top of conserve-boxes, the combination, with a crank-handle, of a standard slotted in the vertical direction, a piston sliding within said standard in the vertical direction, a cutting-mechanism carried by said piston, an upper and a lower gripping-mechanism for revolving the box and means for throwing the upper gripping mechanism out of gear with the said piston on lowering the cutting-lever into its operative position.

In testimony whereof I have affixed my signature in presence of two witnesses.

ELISABET WOLFF.

Witnesses:

ERNST BOGDHYN,
T. WARTENBERG.