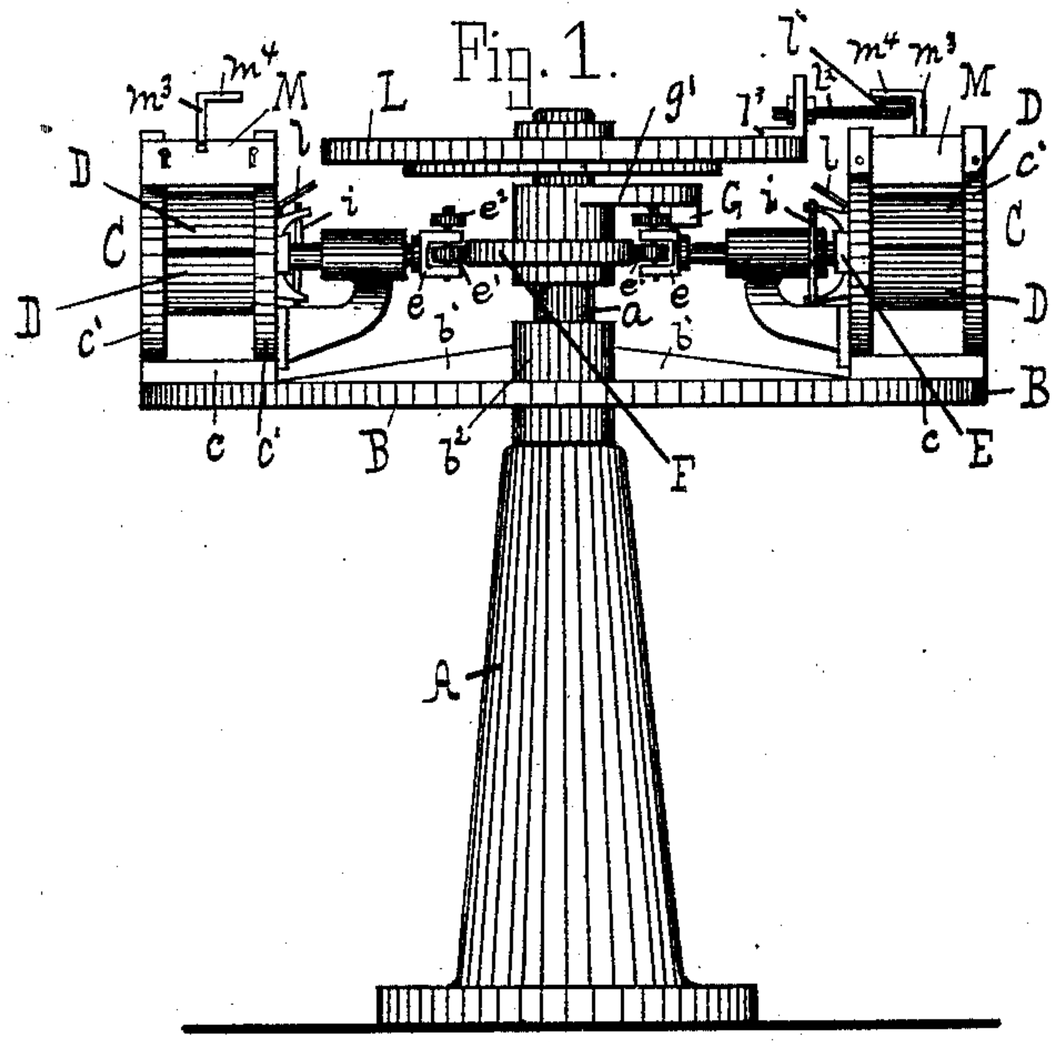
(No Model.) 2 Sheets—Sheet 1.

D. M. MONROE.

CAN SOLDERING MACHINE.

No. 353,420. Patented Nov. 30, 1886.

Fig. 1.



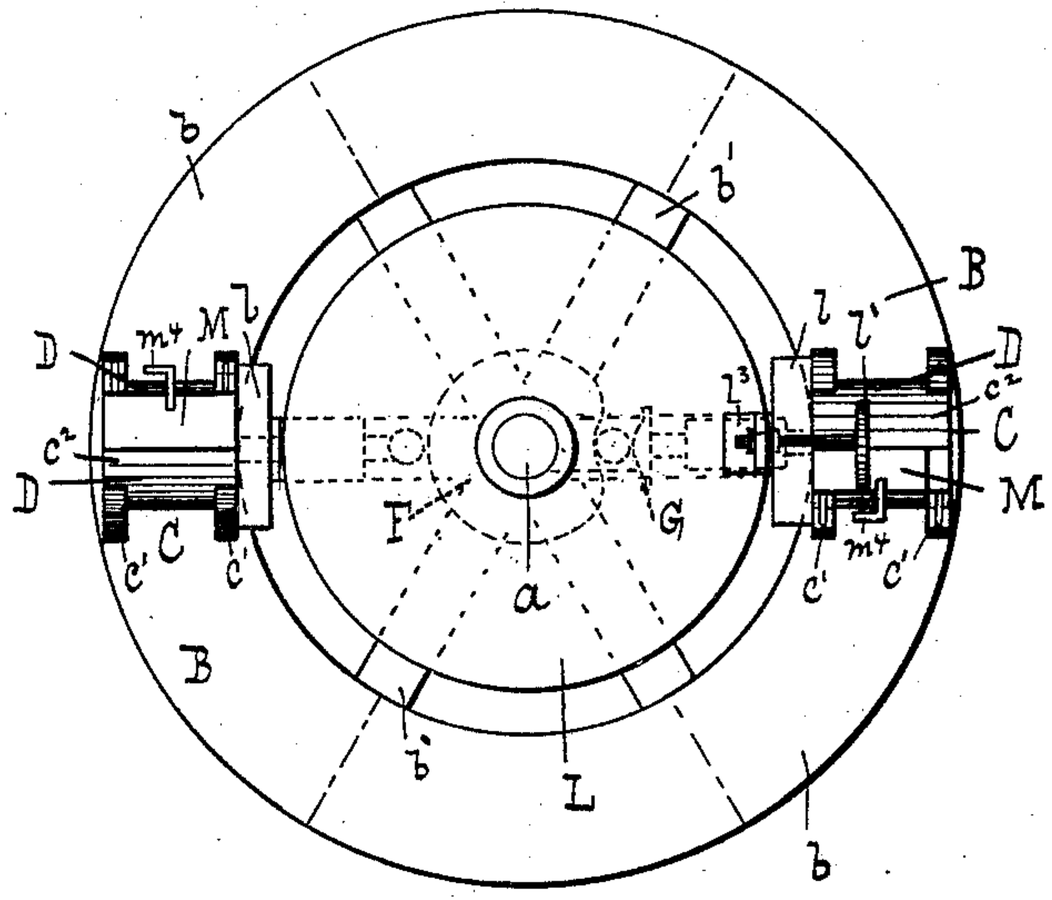


Fig. 2.

Witnesses:
Chas W. Smiley
Wilen Ringle

Inventor:
David M. Monroe.
By Borden, Bailie & Mason
attys.

(No Model.) 2 Sheets—Sheet 2.

D. M. MONROE.

CAN SOLDERING MACHINE.

No. 353,420. Patented Nov. 30, 1886.

Fig. 3.

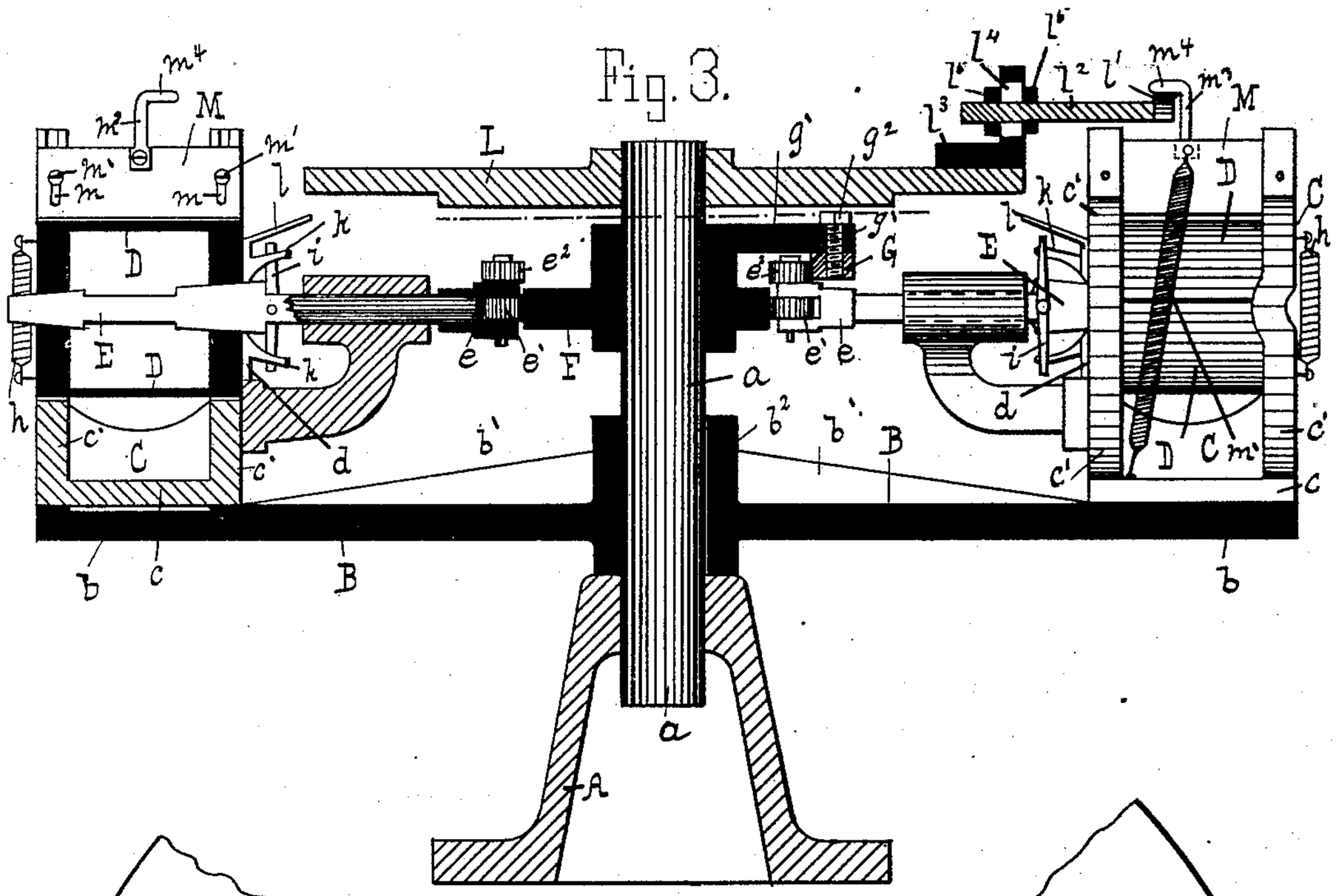


Fig. 4.

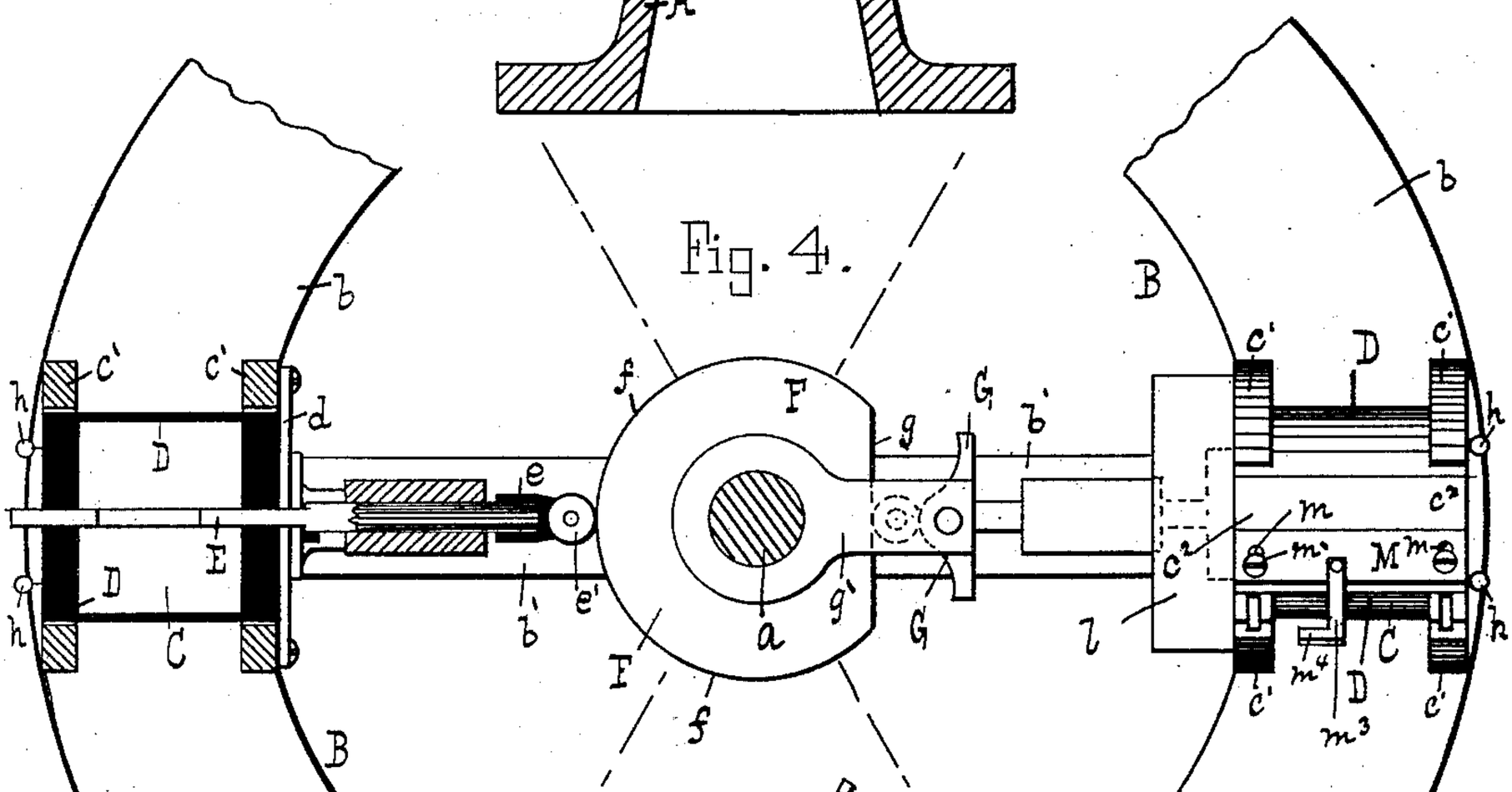
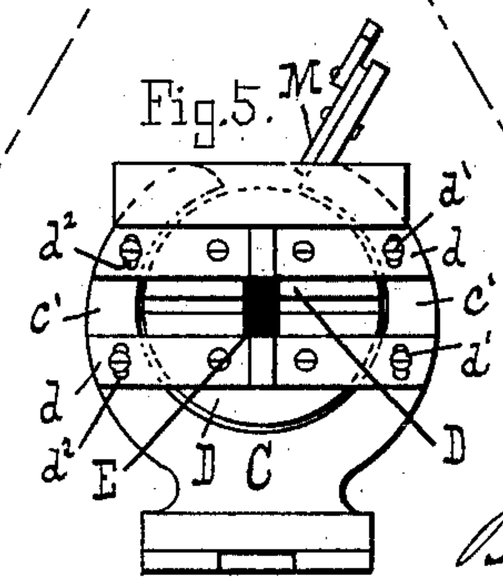


Fig. 5.



Witnesses:
Chas. H. Smiley.
Wilson Ringle

Inventor:
David M. Monroe
By Boyden, Bailie & Mason
Attys.

UNITED STATES PATENT OFFICE.

DAVID M. MONROE, OF BALTIMORE, MARYLAND.

CAN-SOLDERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 353,420, dated November 30, 1886.

Application filed June 5, 1886. Serial No. 204,270. (No model.)

To all whom it may concern:

Be it known that I, DAVID M. MONROE, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Can-Soldering Machines; and I do declare the following to be a full, clear, and exact description of the invention, 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, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in can-soldering machines, in which the gaging devices are mounted on a rotary table and actuated by the movement of the said table, as illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the machine; Fig. 2, a top view of the same; Fig. 3, a detailed vertical section through the machine, with one of the gaging devices shown in full; Fig. 4, a top detail view of the rotary table, with a portion broken away, showing the gaging devices and mechanism by which they are operated. Fig. 5 is an end view of the gaging device, showing how the cylinder is secured to the standard.

Similar letters refer to similar parts throughout the several views.

The letter A designates the frame of the machine provided with the vertical shaft *a*, which is secured thereto in any suitable manner. The frame A may be made sufficiently high to rest on the floor, or only of a height to be placed on an ordinary bench. On this frame and around the shaft *a* freely rotates the table B, which may be moved in either direction to suit the operation or circumstances; and it consists of a cylindrical plate, *b*, on which are secured the gaging devices C, and radial arms *b'*, secured to the hub b^2, or cast integral therewith. In this case six radial arms and gaging devices are indicated, though any number may be used.

The can-body gaging devices C consist of a base-plate, *c*, provided with the standards *c'*, which have circular openings concentric with each other. The said openings determine the size of the can-body, as they are bored out to correspond with the diameter of the can-head or ends. In the said circular openings is placed the expanding-cylinder, consisting of two parts, D D, secured to one of the standards *c'* only by the plates *d*, which extend across the standards, and are secured thereto by means of the screws *d'*, which pass through the slots d^2 therein and are threaded into the standards, permitting the parts of the cylinder D D to be moved toward and from each other. The said cylinder parts D D are forced outward by the wedge E, placed therebetween, which extends toward the center of the table, and is provided with the jaw *e*, in which is pivoted the roller *e'*, and on which is pivoted a second roller, e^2, coaxial with the first-mentioned roller. These rollers come in contact with the cams F and G alternately, thereby reciprocating the wedge by which the two parts D D of the cylinder are moved toward and from each other.

The cam F is secured to the shaft *a*, and consists of a circular portion, *f*, which forces and holds the wedge E outward during nearly the whole revolution as the table rotates, and an eccentric part, *g*, which permits the wedge to be withdrawn by the roller e^2 coming in contact with cam G, which partly withdraws the wedge from the cylinder, and thereby permits the parts of the same to approach each other. At this point in the table's rotation the can-bodies are inserted and removed.

The cam G is secured to the one F by means of the arm *g'*, which, in this instance, is cast integral therewith by means of the screw g^2, or in any suitable manner, so as to come in contact with the roller e^2 as the table is rotated, thereby automatically operating the gaging device by the rotation of the table. As the wedge E is withdrawn one end of the parts D D of the cylinder are drawn together by the springs *h*, secured thereto by suitable pins projecting therefrom, and the other end by means of the yoke *i*, secured to the wedge E, acting on the angular or wedge-shaped projection *k*. Immediately over the said yoke mechanism and extending across the standard *c'* is arranged the plate *l*, which prevents any flux from fouling the mechanism thereunder.

The top portion of the standard *c'* is cut away to form the opening c^2, at which point the

seam is placed, thereby permitting the soldering to be performed. To one side of the said opening c^2 is arranged the guide M, which is provided with the slots m, by which it is secured to the standards by means of the screws m', and is thereby permitted to reciprocate vertically, the spring m^2 pulling it downward. When the unsoldered can-body is placed on the expanding-cylinder and expanded into form, it comes in contact with the guide M, and the said guide, being yielding, adjusts itself to the suface of the can-body, forming a guide for the soldering-tool, and also retaining the solder and the flux in its position, and, further, holding the overlapped edges of the can together.

To the guide M is secured the arm m^3, which is provided with the projection m^4. This arm, together with the spring m', serves to operate the said guide automatically, the guide M being raised at the proper time by the projection m^4 of the arm m^3 coming in contact with the inclined surface of the lifter l', which lies in the path of the projection m^4, and thereby raises the guide M and permits the removal or insertion of a can-body. The said guide returns to its position of pressure upon the can-body by means of spring m' when the projection m^4 has passed over the lifter l'.

The plate L is secured rigidly to the shaft a, and forms a support for the lifter l' by means of the bracket l^3, which is bolted to the said plate, and the rod l^2, carrying the lifter l'. The bracket l^3 is provided with the slot l^4, in which the rod l^2 is secured by means of the nuts l^5, which permit the adjustment of the lifter l', whereby the lift of the guide M is controlled to suit any size can. The plate L further serves the purpose of a shelf for holding the tools of the operator, and forms a shield for the machinery thereunder.

The manner of operating the device is as follows: The gaging device which is to receive the unsoldered can-body is placed in a position whereby the roller e^2 will be in contact with the cam G and the roller e' in contact with the cut-away portion g of the cam F, whereby the wedge E is in its outward position and the expanding-cylinder contracted by means of the springs h at one end of the said cylinder and the yoke i and inclined edges of the projection K at the other end of the cylinder. In this position of the gage the projection m^4 of the arm m^3 on the guide M will be in contact with the lifter l', and the guide M thereby raised from the cylinder. The cylinder D being contracted and the guide M raised, the unsoldered can-body is placed, with its seam upward, over the cylinder C, within the space between the said cylinder D and the inner surfaces of the standards c'. The table B, carrying the gaging device, is now moved from this position, whereby the roller e will be carried past the cam G and the roller e' brought in contact with the enlarged or concentric portion f of the cam F, thereby forcing the wedge E inward, expanding the cylinder D, and pressing the can-body tightly against the inner surfaces of the standards c', and thus insuring a uniformity in the size and shape of the can-body. In moving the gaging device from the first position the projection m^4 of the arm m^3 of the guide M will have passed the lifting-plate l', and the guide M will be brought in close contact with the can-body by means of the spring m', thereby holding the seam together during the process of soldering and cooling. In this second position the seam of the can-body is soldered by an operator in the usual manner with a hand-copper. As represented by the dotted lines in the drawings, the apparatus is provided with six gaging-cylinders. The table B is revolved in one direction, and by the use of the six gaging-cylinders sufficient time is permitted after soldering to allow the solder to cool before the gaging-cylinder reaches the first position, when the completed can-body is removed from the cylinder and an unsoldered one placed, as before stated.

Having described my invention and the manner of operating, what I claim, and desire to secure by Letters Patent, is—

1. In a can-body-seaming machine, the combination of the rotary table B, the can-body-gaging devices mounted on the table, the shaft a, the cam F, and means to expand the cylinder D, whereby the rotation of the table moves and successively expands the body-gaging devices, as set forth.

2. The combination of the rotary table B, the expanding-cylinder D, the standards c', the wedge E, the yoke i, the angular projection k, and the cam G, for the purpose set forth.

3. In a can-body-seaming machine, the combination of the rotary table B, a series of complete gaging and clamping devices mounted on and arranged to rotate with the table, each comprising the standards c', the expanding-cylinder D, and a guide, M, means to expand and contract the said cylinder and to operate said clamping-guide, jointly arranged to be automatically operated by the movement of the rotating table B.

4. The combination of the rotary table B, the expanding-cylinder D, the standards c', the wedge E, the cam F, and the cam G, for the purpose set forth.

5. The combination of the rotary table B, the standards c', the expanding-cylinder D, means to expand the cylinder, the clamping-guide M, the projecting arm m^3, and the lifting-plate l', for the purpose set forth.

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

DAVID M. MONROE.

Witnesses:
G. A. BOYDEN,
JNO. T. MADDOX.