

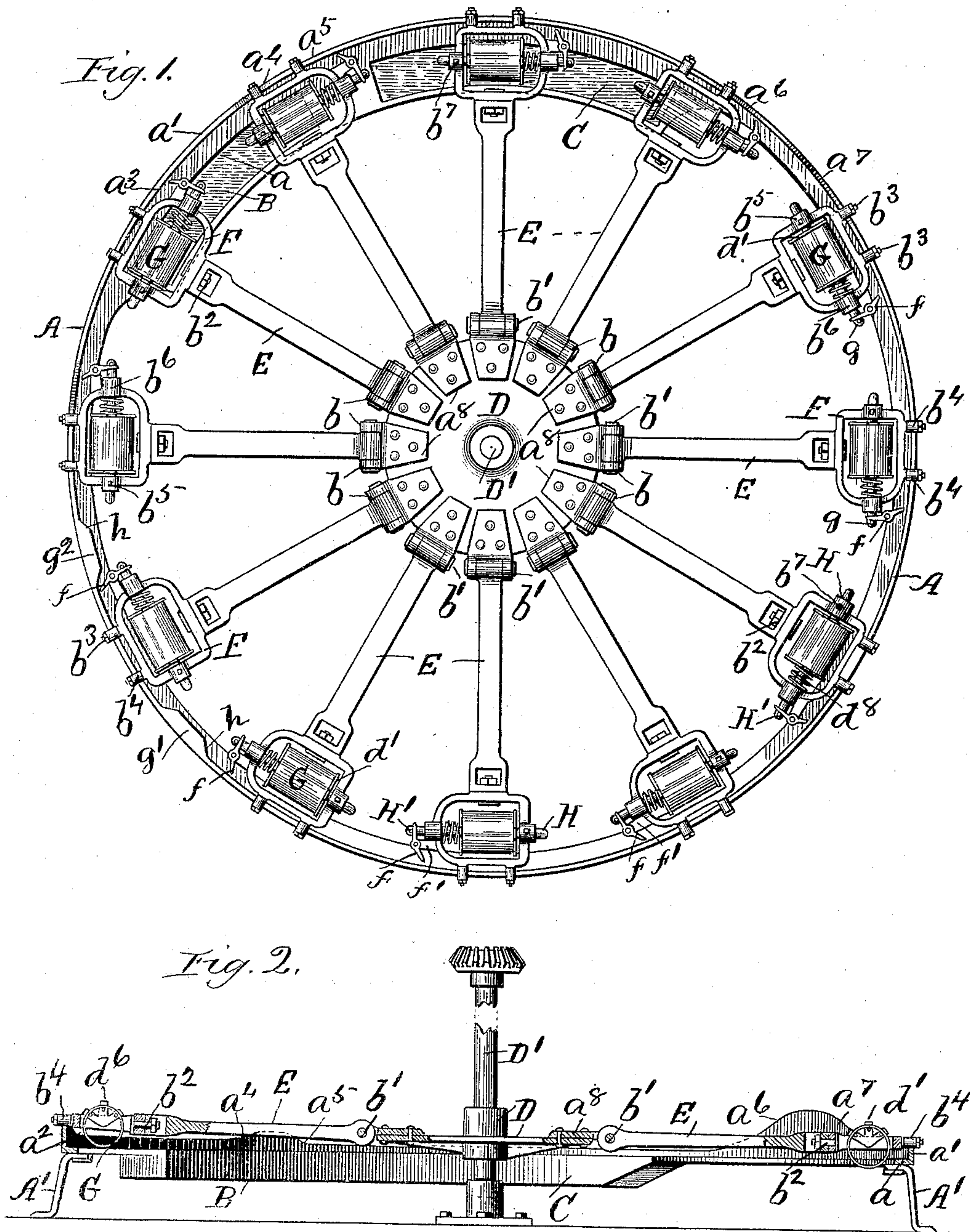
(No Model.)

2 Sheets—Sheet 1.

E. G. LAUTERBACK.
DIP SOLDERING MACHINE.

No. 445,956.

Patented Feb. 3, 1891.



Witnesses
H. Rossiter.
L. M. Freeman.

Inventor
E. G. Lauterback.
By G. B. Coupland
Attys.

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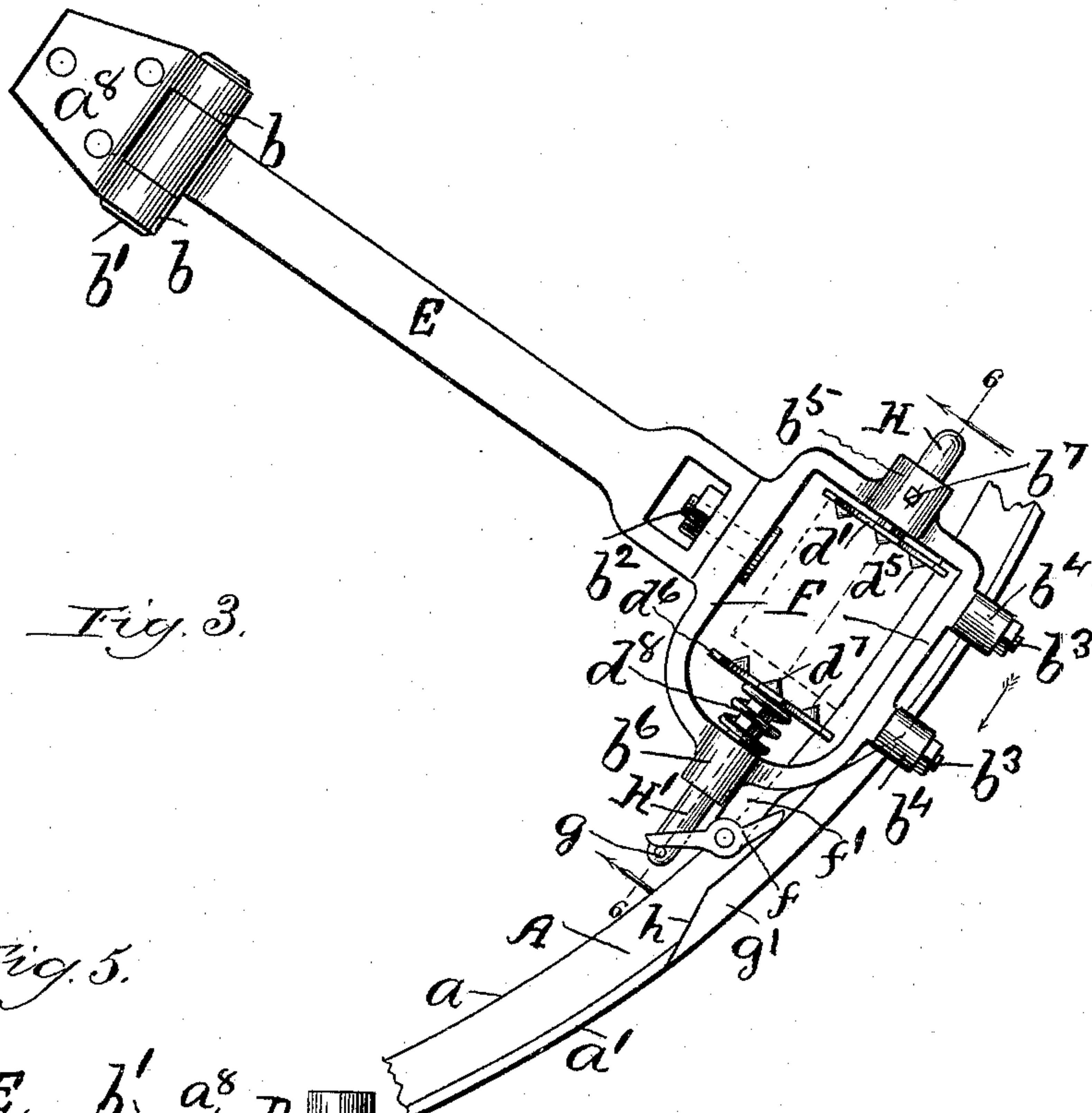


Fig. 3.

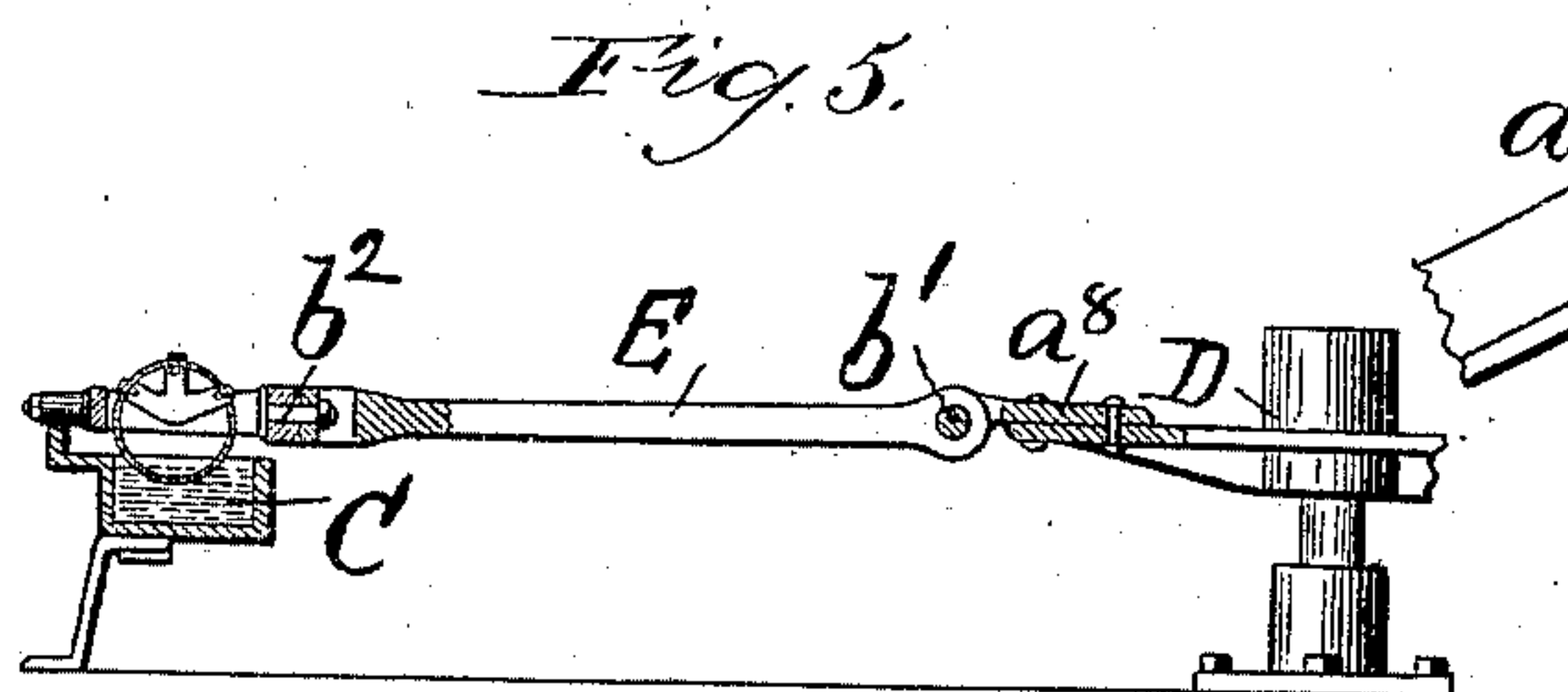


Fig. 5.

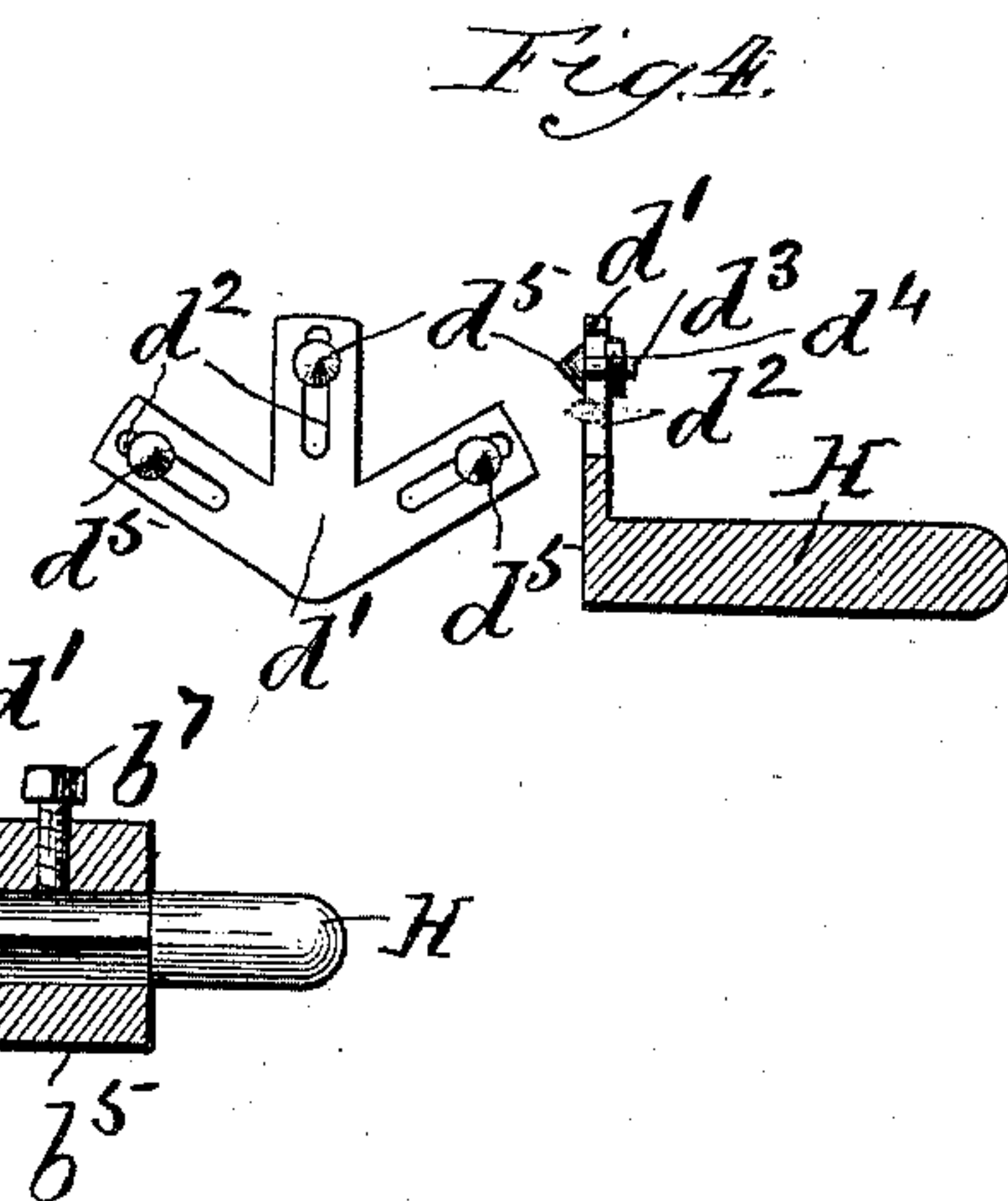


Fig. 4.

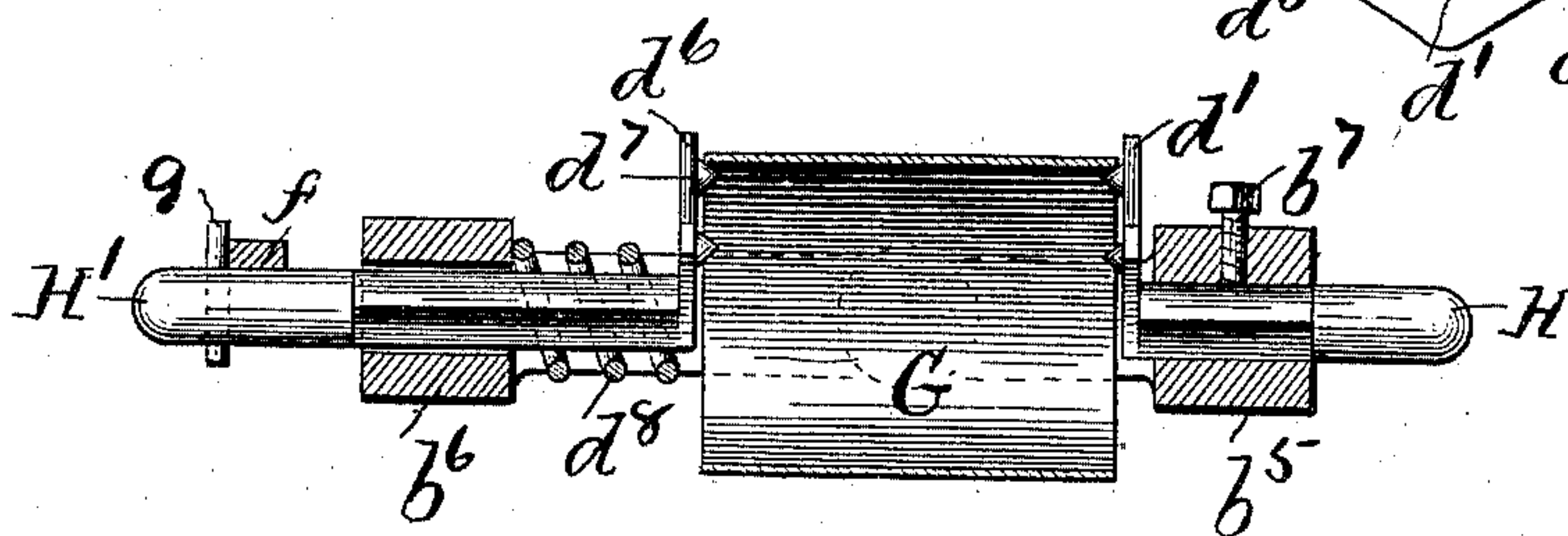


Fig. 6.

Witnesses

W. Rossiter.
L. M. Freeman.

Inventor

E. G. Lauterback
By L. B. Coupland & Co.
Attys

UNITED STATES PATENT OFFICE.

EDWARD GEORGE LAUTERBACK, OF CHICAGO, ILLINOIS, ASSIGNOR TO
ALFRED BOOTH, OF SAME PLACE.

DIP-SOLDERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 445,956, dated February 3, 1891.

Application filed December 24, 1889. Serial No. 334,878. (No model.)

To all whom it may concern:

Be it known that I, EDWARD GEORGE LAUTERBACK, 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 Can-Soldering Machines, of which the following is a full, clear, and exact description, that will enable others to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to improvements in that class of machines employed in soldering the side seams of tin cans, and has for its object the production of a device of this character that is simple in construction and easily and conveniently operated, as will be hereinafter set forth.

To this end the machine consists of a wheel-like structure rotating in a horizontal plane, the outer ends of the series of arms or spokes being provided with a can-holding mechanism and rotated on a circular track having an acid and solder bath receptacle located in the circumference of said track.

Figure 1 is a plan of a machine embodying my improved features; Fig. 2, a vertical transverse section; Fig. 3, a detached plan of one of the can-carrying arms, including a part of the circular track; Fig. 4, a detached detail of construction; Fig. 5, a broken-away vertical transverse section through the solder bath, showing a can-body in position thereon and the depth to which it is submerged; and Fig. 6, a vertical longitudinal section in plane 6, Fig. 3, showing the can holding or clamping mechanism with a can in position.

Referring to the drawings, A represents a circular track supported on a number of legs A'. (Shown in Fig. 2.) It is of course obvious that any suitable means other than the legs shown may be employed to support the track at the proper height from the floor.

The circular track is L-shaped in cross-section, and the acid-bath receptacle or trough B is located at one point in the plane of circumference and along the inner horizontal edge a of the track. A little in advance of the acid bath is located the solder-bath receptacle C. Each of these trough-like receptacles conforms to the curvature of the

track and is in the pathway of the can-bodies, as shown in Fig. 1. The vertical edge or part a' of the track running along the bath-receptacles is undulating—that is, the edge a' is cut down, as at a^2 , (see Fig. 2,) so that the can-body will gradually descend the inclined plane a^3 to a horizontal position on a lower level and immerse the seam part of the can in the acid bath. As the can leaves the first bath it ascends the inclined plane a^4 and is correspondingly tilted, so that the drip of the liquid flux will be returned to its receptacle. The can next descends the incline a^5 and dips into the solder bath, and then up the incline a^6 and tilting or inclining the can, so that the superfluous solder runs back into its proper receptacle. The can is then carried down the incline a^7 onto the horizontal or level part of the track. The incline a^6 a^7 is higher and sharper than any other part of the track and brings the can nearer to a vertical position, so that the superfluous solder runs off quickly and the solder remaining on the seam levels back over the seam as it passes down the last incline a^7 .

D represents the hub of the wheel-like structure, which is rigidly mounted on the vertical shaft D'.

To the outer edge of the annular hub are bolted a number of hinge-plates a^8 , arranged clear around at intervals, as shown in Fig. 1. These plates are each provided with two cylindrical bearing-lugs b , between which are inserted the inner ends of the series of radial arms E, loosely retained in place by the horizontal pivot-pins b' .

To the outer ends of the respective arms E is secured the bracket frame or frames F, in which the cans G are mounted and held as they travel around the circular track in the process of soldering. The frames F are secured to the arms by the pivot-bolts b^2 , which provide for an automatic rocking adjustment at right angles to the wheel-arms, whereby the frames will conform to the undulations of the track. The outer ends of the series of radial arms have an up-and-down movement at the same time on the pivot-pins b' , which secure the inner ends of the arms to the hub-disk.

The outer sides of the frames F are each

provided with two bearing-pins b^3 , on which are loosely mounted the friction-rollers b^4 , resting on the top edge of the track and easing the travel of the can-carrying arms. The
 5 respective ends of the frames F are formed with the tubular bearing parts b^5 b^6 , in which are inserted the shafts H H' , adapted to have a longitudinal adjustment therein. The shaft
 10 H is held in place by the set-screw b^7 , which permits of the same being set in or out with reference to the longitudinal dimensions of the can-body. The inner end of the shaft H is provided with the clamping-head d' , which
 15 bears against one end of the can-body when holding the same in position to be soldered. The head or clamping-plate d' is provided with a number of elongated apertures d^2 , (see Fig. 4,) in each of which is inserted a bolt d^3 , the outer ends of these bolts being threaded
 20 for the reception of the fastening-nut d^4 , while the inner ends terminate in the enlarged conical heads d^5 . The shaft H' is provided on its inner end with the clamping-head d^6 , and has the conical headed bolts d^7 adjustably inserted therein, and which is an exact
 25 duplicate of the head d' . (Illustrated in Fig. 4.) The ends of the can-body rest on the conical heads, (see Fig. 6,) which extend inside, as shown, and support the can in a horizontal plane and proper position with refer-
 30 ence to the flux and solder baths. The conical heads are so disposed as to correspond to the curvature of the can-body, and by reason of the elongated apertures in the clamping-heads may be moved in or out in adjusting
 35 them with reference to the diameter of the can. The conically-shaped heads d^5 d^7 conveniently permit of the can being inserted, and the same more readily drops out when
 40 the pressure of the clamping heads or plates is relaxed. The spiral spring d^8 , mounted on shaft H' , serves to automatically retain the head-plates in a clamping position.

The tripping finger or fingers f are piv-
 45 oted at or near their longitudinal centers to the extension f' , formed on the bracket-frames F , the inner end of which is adapted to bear loosely against the post g , inserted in the outer end of the shaft H' , as shown in
 50 Fig. 6.

The circular track is provided at one side with the inwardly-projecting offset g' , and a little farther along with a second offset g^2 . These offsets are beveled at both ends, as
 55 shown at h , Figs. 1 and 3, and are in the pathway of the outer ends of the series of tripping-fingers f , and throw the same into the position illustrated in Fig. 3, while the inner ends have contact with the post g and move the
 60 shaft H' outwardly and withdraw its respective head or plate from a clamping position and allow the soldered can-body to drop out,

the relative position of the can being indicated by dotted lines (see Fig. 3) when the clamping-pressure is relaxed. When the
 65 fingers pass on out of contact with the first offset, these parts assume their normal position. Contact of the fingers with the second offset g^2 spreads or opens the clamping mechanism when the can-body to be soldered is
 70 inserted.

A cylindrical can-body is shown in the drawings; but it is obvious that with a very slight alteration in the clamping mechanism
 75 cans of a different contour may be soldered by this machine. This arrangement provides a machine of the character described that is simple in construction and requires but one attendant to operate the same.

Motion may be transmitted to the vertical
 80 driving-shaft by any suitable means.

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

1. In a can-soldering machine, the combination, with a circular track having descending and ascending planes, as described, acid and solder baths located along the line of the track, and the central rotating hub, of arms
 85 hinged to the hub, can-holding frames swiveled to said arms, and bearing-points on said frames engaging the circular track on opposite sides of the axes of their swivel-joints, whereby the cans are tipped longitudinally
 90 by the action of the descending and ascending planes, substantially as described.

2. In a can-soldering machine, the combination, with a circular track having descending and ascending planes, as described, acid and solder baths located along the line of the
 100 track, and the central rotating hub, of arms hinged to the hub, can-holding frames swiveled to said arms, said frames having adjustable clamping-plates adapted to engage the ends of the cans and to hold them transversely
 105 to the arms to solder their body-seams, and rollers on said frames for traveling on the circular track on the opposite sides of the axes of the swivel-joints of the frames, whereby the cans are tipped longitudinally by the
 110 action of the descending and ascending planes, substantially as described.

3. In a can-soldering machine, a clamping head or heads provided with a number of elongated radial openings and the bolts in-
 115 serted in said openings, said bolts being threaded at one end to receive a fastening-nut and the opposite end terminating in a conical head which extends inside of the can-body, substantially as described.

EDWARD GEORGE LAUTERBACK.

Witnesses:

L. M. FREEMAN,
 L. B. COUPLAND.