(No Model.) 3 Sheets—Sheet 1.

W. D. BROOKS.
Can Soldering Machine.

No. 234,949. Patented Nov. 30, 1880.

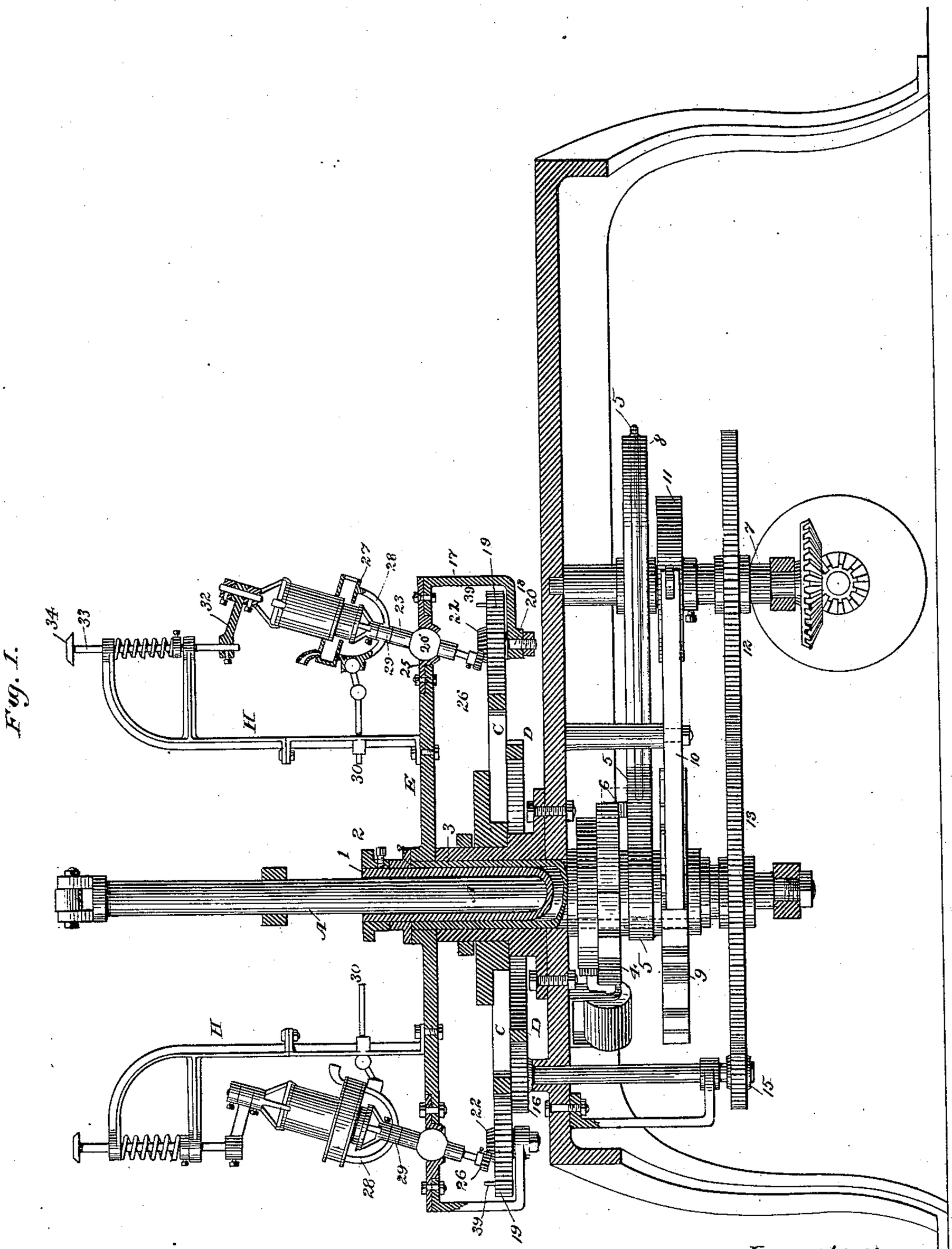

Fig. 1.

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W. D. BROOKS.

Can Soldering Machine.

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Fig. 2.

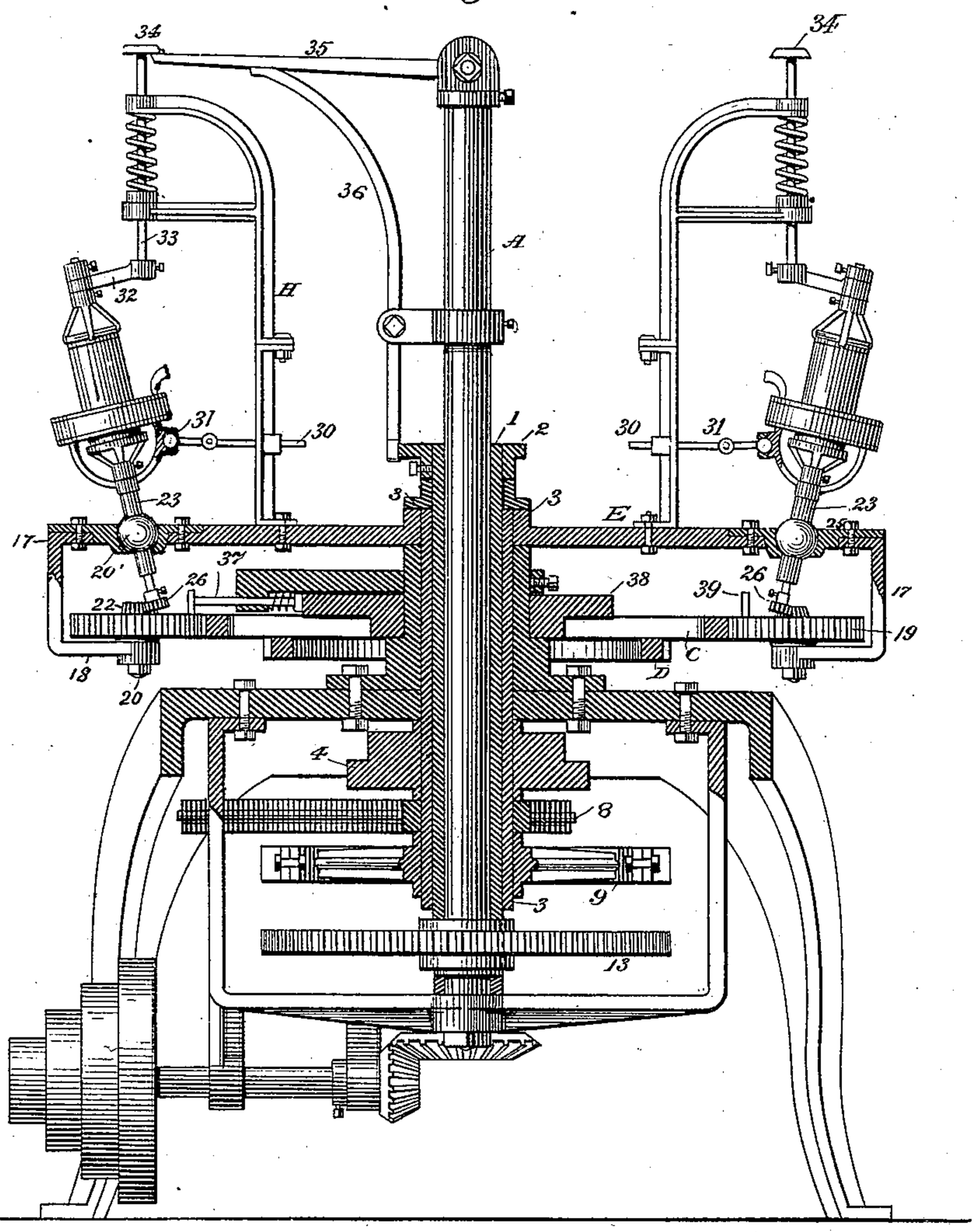
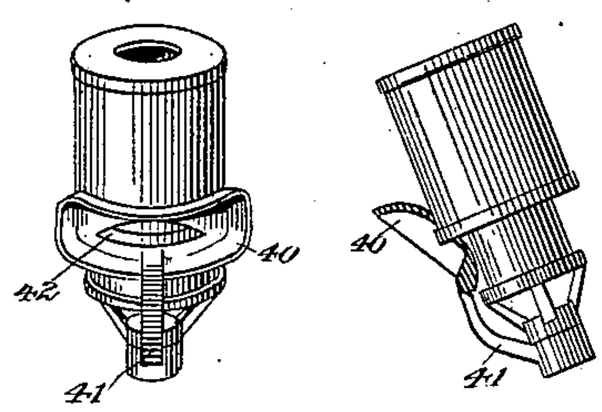


Fig. 7.



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(No Model.) 3 Sheets—Sheet 3.

W. D. BROOKS.

Can Soldering Machine.

No. 234,949. Patented Nov. 30, 1880.

Fig. 3.

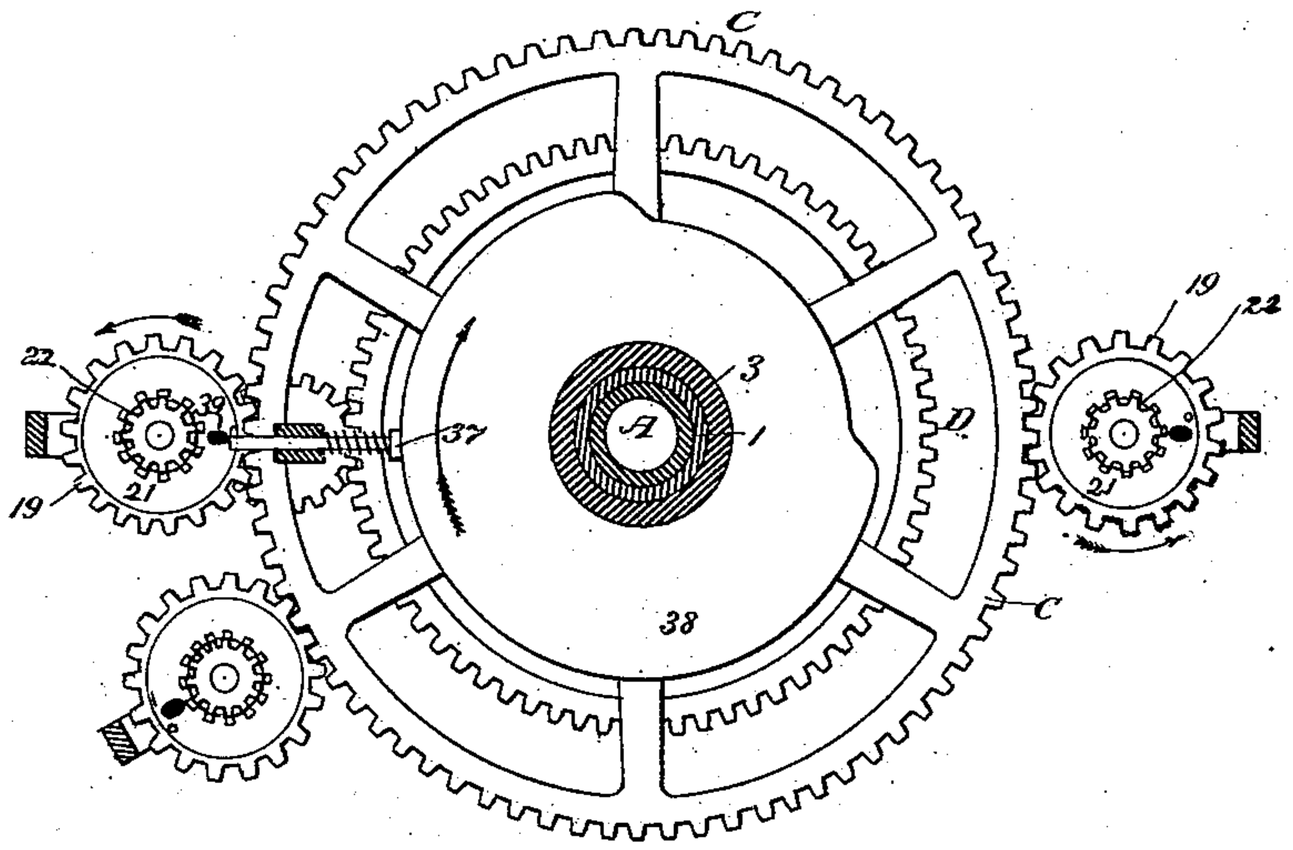


Fig. 4.

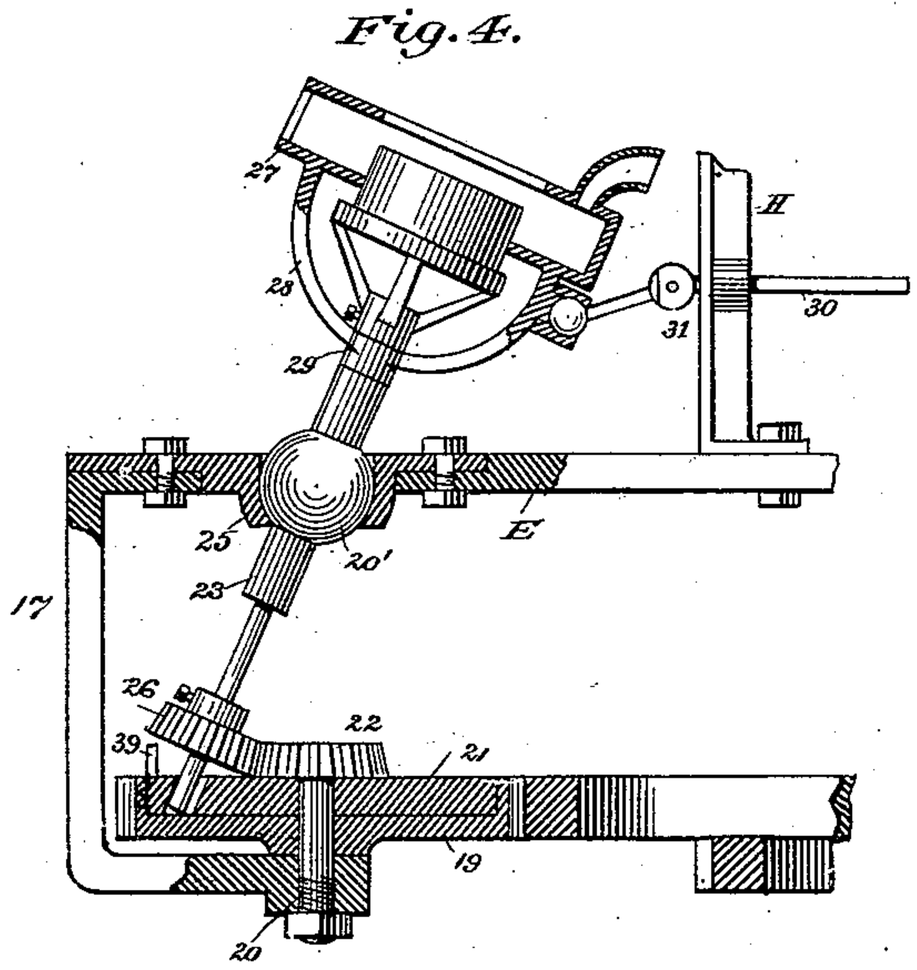


Fig. 6.

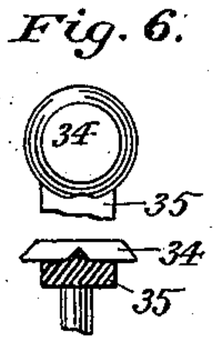
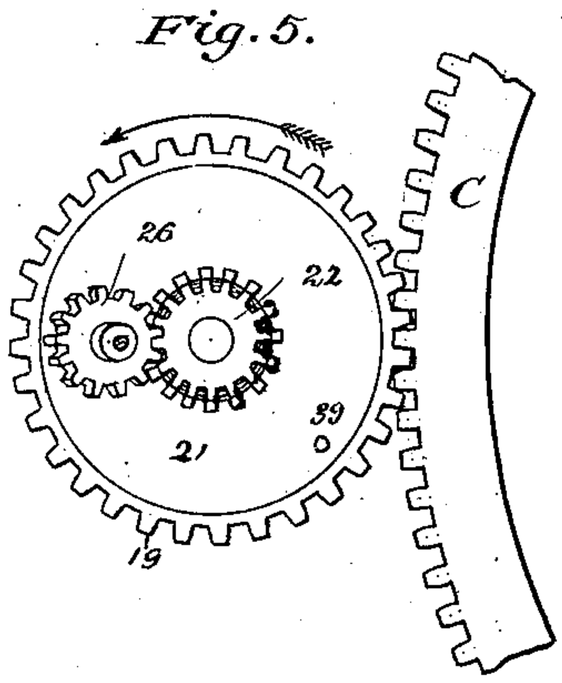


Fig. 5.



Attest:
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L. A. Lully

Inventor:
William D. Brooks
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Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM D. BROOKS, OF BALTIMORE, MARYLAND, ASSIGNOR TO HIMSELF AND D. D. MALLORY, OF SAME PLACE.

CAN-SOLDERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 234,949, dated November 30, 1880.

Application filed August 28, 1880. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM D. BROOKS, of Baltimore, in the county of Baltimore and State of Maryland, have invented a new and useful Improvement in Can-Soldering Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to can-soldering machines of that class in which a series of cans is carried around in order that each can may be exposed in succession to the action of flame for melting the solder.

The devices by which the cans are made to revolve around a common center and the principal devices for imparting rotary motion to the cans while in revolution are the same as those shown in an application of even date herewith, and form no part of the invention herein claimed.

The devices which are specially the subject of this application relate to a wholly new movement imparted to each can, whereby the melted solder is more effectually spread upon the joint and permitted to soak between the lap.

The invention consists, essentially, in causing the can, while carried around in its revolution in order to bring each can in succession to the flame, at the same time to revolve on its axis, and also to have a wabbling motion.

It consists, further, in greatly-simplified devices for effecting this motion and distributing the solder, and in certain other details of construction relating to the can-soldering machine, all of which are hereinafter fully explained.

In the drawings, Figure 1 represents a longitudinal section of the table and revolving wheel, other parts being shown in side elevation. Fig. 2 is a like transverse section. Fig. 3 is a plan view of the driving-wheels and pinions underneath the revolving wheel. Fig. 4 is a side elevation of the can-support, with the mechanism for wabbling and rotating the can promptly in section. Figs. 5, 6, and 7 represent details.

In Figs. 1 and 2 are represented the devices shown in application referred to above. These devices consist of the central cylindrical fixed post, A, of the inner sleeve, 1, carrying a cam, 2, and an outer sleeve, 3, which gives motion to the table E. The mechanism by which these sleeves are driven is also precisely the same as in said application, consisting of the ratchet-wheel 4, fixed on the outer sleeve, 3, the lever 5, carrying pawl 6 and operated by an arm on the shaft 7, revolving in the loop 8, which forms the outer end of the lever 5. I have also shown the same form of ratchet-wheel indicated at 9, pawl 10, and cam 11, for holding the sleeve 3 and the wheel E steadily in place after the intermittent impelling mechanism has ceased to operate.

The mechanism for imparting a continuous motion of rotation to the cans consists of the wheels 12 13, fixed on the shaft 7 and sleeve 1, respectively, of the pinions 15 16 and cog-wheels C D. These are also precisely as shown in my said application. The wheel E, however, is modified in form. The radial arms extend downward and inward, as shown at 17 18, the lower portion, 18, being horizontal and provided with a boss, which supports a recessed pinion, 19. This pinion rests directly on the boss and rotates on a fixed pin, 20. It meshes into the gear-wheel C, by which it is driven. The recess is circular on its upper face, and contains a friction-wheel, 21, held to the gear-wheel between the pinion 22 and the nut on the pin 20, so that the amount of friction between wheel 21 and the gear-wheel 19 may be regulated at pleasure. Ordinarily the friction-wheel revolves with the gear-wheel. The pinion 22 is slightly beveled, and is fixed upon the pin 20, so as not to revolve.

The device which supports the can is a rod, 23, supported by a ball, 20′, near its center, resting in a curved recess in a plate, 25, on the arm of the wheel E. The lower end of this rod is provided with a pinion, 26, which gears into the pinion 22. The end of the rod projecting beyond the end of the pinion 26 extends into an inclined hole in the friction-wheel. The gear-wheels C D turn in the direction of the arrow in Fig. 3. The motion of these wheels therefore carries the pinions 19 in an opposite direction, and with them the lower end of the rod 23. This gives to the can-holder and the upper end of 23 what I have designated as a "wabbling" motion. At the

same time the pinion 26, gearing into 22, is carried around and caused to rotate, thereby giving a rotary motion to the can. This compound motion causes the solder to spread and flow until it is cool, and to be thoroughly and uniformly soaked into and spread over the lap.

The flame-chamber 27 is mounted upon the rod 23 by means of arms 28 and a collar, 29. It is prevented from rotating with the rod by means of a sliding rod, 30, connected to the chamber by a double ball and socket, 31. The rod slides freely in the standard H, and permits the chamber to tip from side to side. The upper spider revolves in the end of an inclined arm, 32, secured by a set-screw to the vertical rod 33, sliding in the upper arms of the bracket H. This rod 33 may turn freely in its bearings, and is held down by a spring in the usual manner. It is provided with a button, 34, upon its upper end, (shown more clearly in Fig. 6,) which has a V-shaped notch on its under surface.

The button is lifted by the arm 35, as in machines of this class. In this machine, however, the outer end of the arm 35 is provided with a tooth, which catches into the notch in the button at the same time that it lifts said button, and as it lifts the upper spider it also prevents it from turning, so that it falls again directly upon the can. The arm is lifted by a lever, 36, which is moved by the cam 2 on the sleeve 1. This cam should revolve once while the wheel E is moving and resting for one space.

It will be understood that the wheel is provided with twelve brackets, and moves intermittently a distance between the cans, and after moving rests, in order to expose the can to the flames. This movement and rest occupy about five seconds, and the cam 2 is so arranged and the movement so timed that the spider is lifted the instant the can stops.

The cam 2 should be of such size and shape as to hold up the spider while the attendant is removing the finished can and putting an unfinished one in its place. This lifting apparatus is only at one point opposite where the attendant stands who removes the cans. The soldering takes place on the opposite side, and the relative positions are shown in Fig. 2.

In order to arrest the rotation of the can for removal and for replacement, I have provided a rod, 37, which is retracted by a spring and advanced by a cam, 38, so that it projects past a pin, 39, in the friction-wheel 21. This arrests the friction-wheel, though the pinion on which it is placed continues to revolve.

The cam 38 is carried with the gear-wheels C D, and is shaped and timed exactly like cam 2, in order that it may arrest the rotation of the can while the upper spider is lifted.

The brackets H are set directly upon the arms of wheel E and firmly bolted.

In Fig. 7 I have shown a modified form of a flame-chamber, or, rather, a substitute for flame-chamber, adapted to small cans. It consists of a shield, 40, which may be attached to a bracket, 41, on a supporting-rod. An opening, 42, permits the flame to strike the edge of the can. This allows the flame to be narrowed for small cans, and prevents melting the side seams.

It will be understood that the motion both of the stop 37 and the lifting-arm 35 must be accurately timed, to arrest the rotation and lift the upper spider the instant the can stops, and to reverse the movements the instant before the can starts.

What I claim is—

1. In a can-soldering machine in which a series of cans is moved intermittingly to bring each in order to the flame, the can-supporting device having both a rotary and wabbling motion, substantially as described.

2. The combination of the can-supporting rod 23, moving in ball-and-cup joint, the pinion 19, and the friction-wheel 21, whereby wabbling motion is imparted to the can.

3. The combination, with the pinion 19 and friction-wheel 21, carrying the end of the can-supporting rod, of the pinions 22 26, substantially as described.

4. The combination, with the friction-wheel and its pin 39, operating as described, of the stop 37, moved by the cam, substantially as described.

5. The combination, with the flame-chamber having the described movement, of the rod 30, bracket H, and ball-and-socket joint 31.

6. In combination with the upper spider, the inclined arm 32 and the arm 33, substantially as described.

7. The combination of the notched button 34, arm 35, lever 36, and cam 2, as described.

8. The shield 40, provided with opening 42 and combined with the can-support, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM D. BROOKS.

Witnesses:
C. A. NEALE,
F. L. MIDDLETON.