(No Model.)

2 Sheets—Sheet 1.

W. D. BROOKS.

CAN SOLDERING MACHINE.

No. 335,011. Patented Jan. 26, 1886.

Fig. 1.

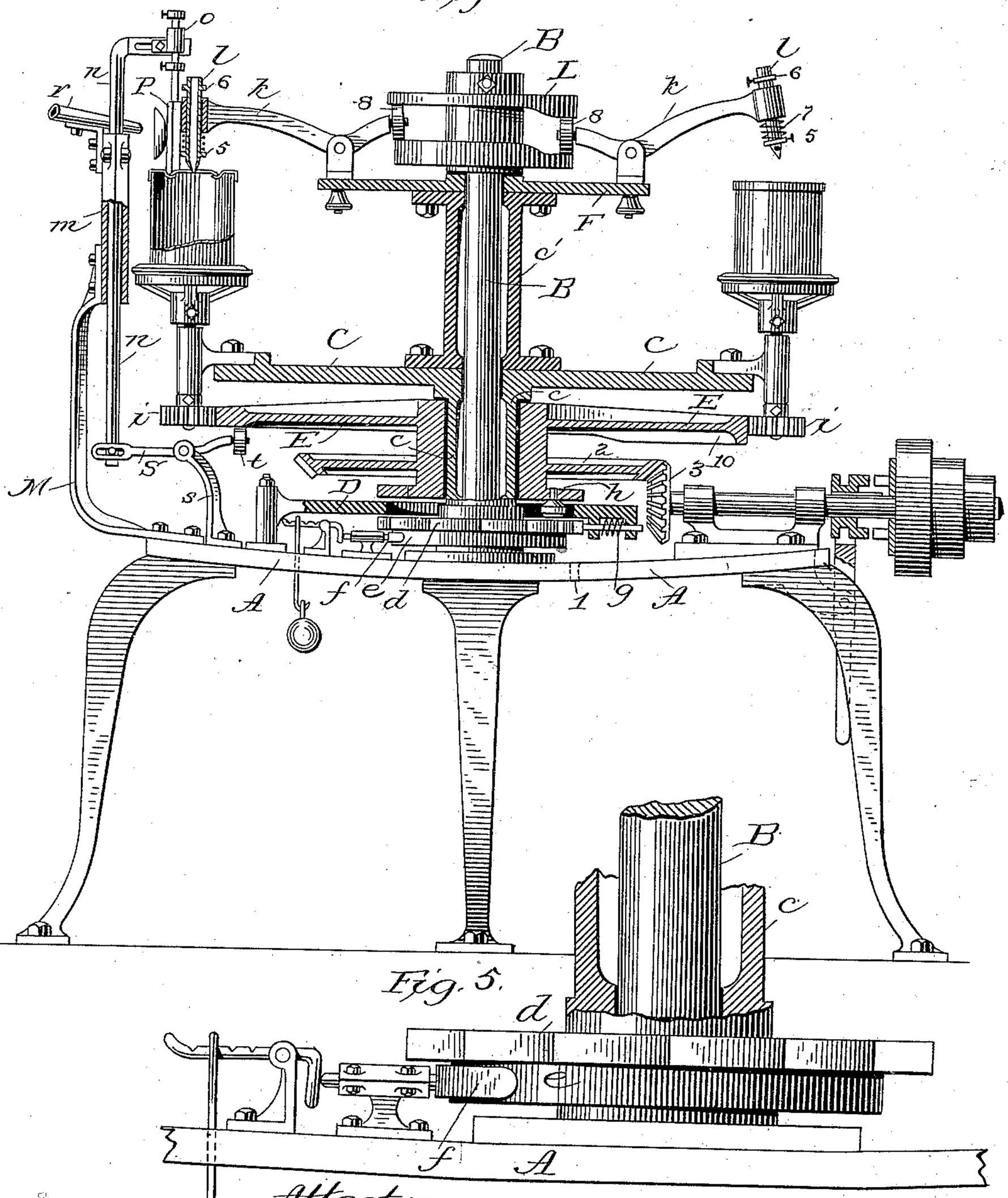
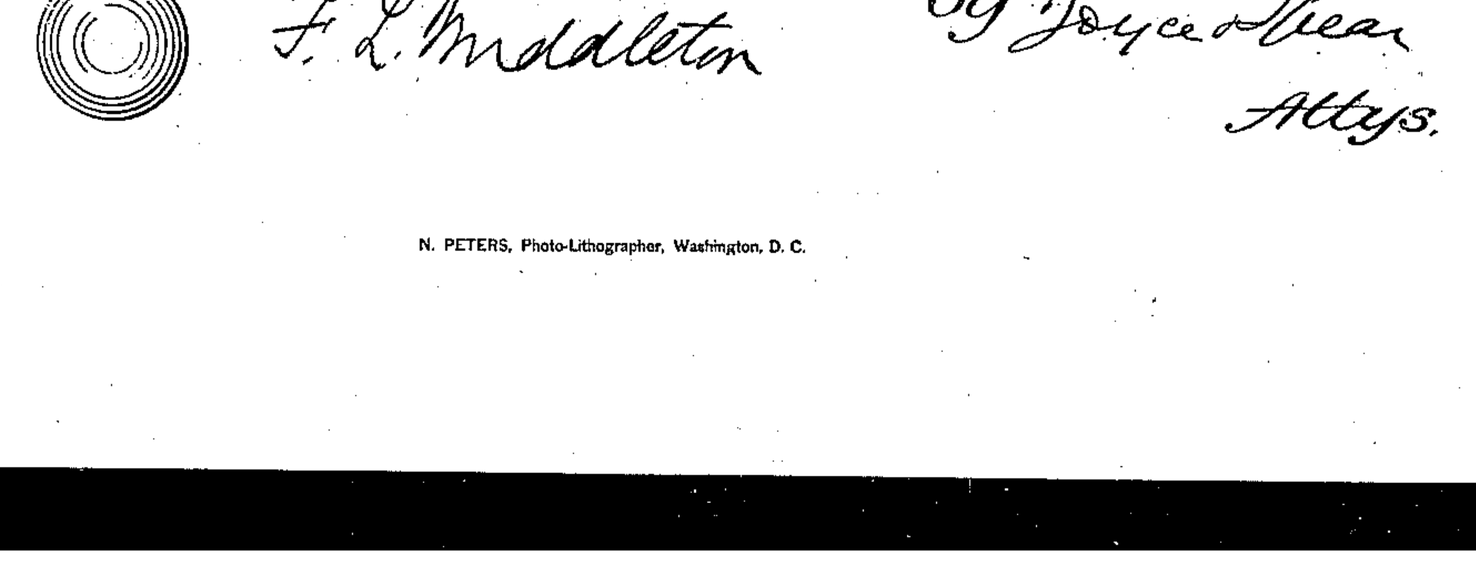


Fig. 5.



Attest,
Walter Donaldson
F. L. Middleton

Inventor
William D. Brooks
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(No Model.)

2 Sheets—Sheet 2.

W. D. BROOKS.

CAN SOLDERING MACHINE.

No. 335,011. Patented Jan. 26, 1886.

Fig. 2.

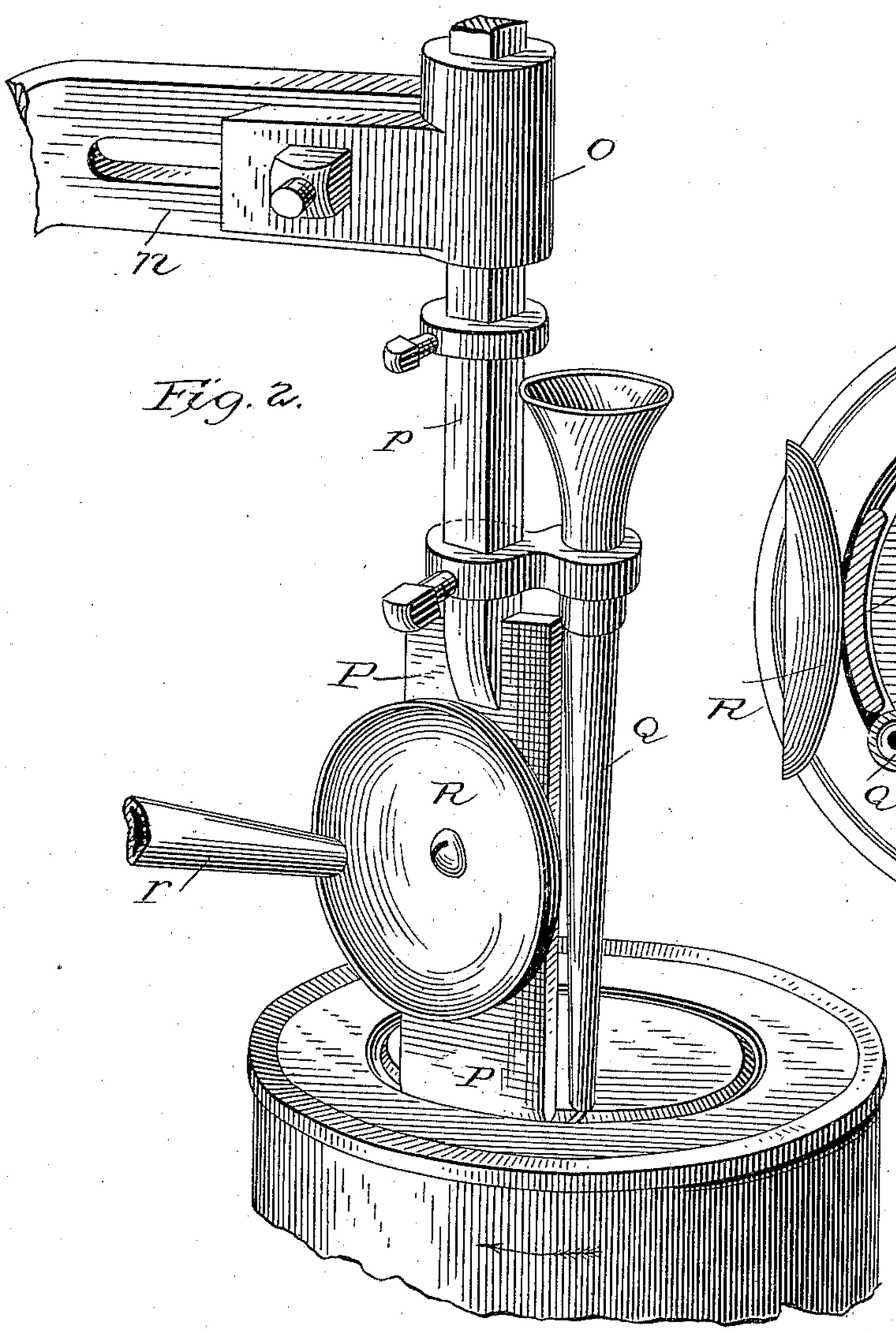


Fig. 3.

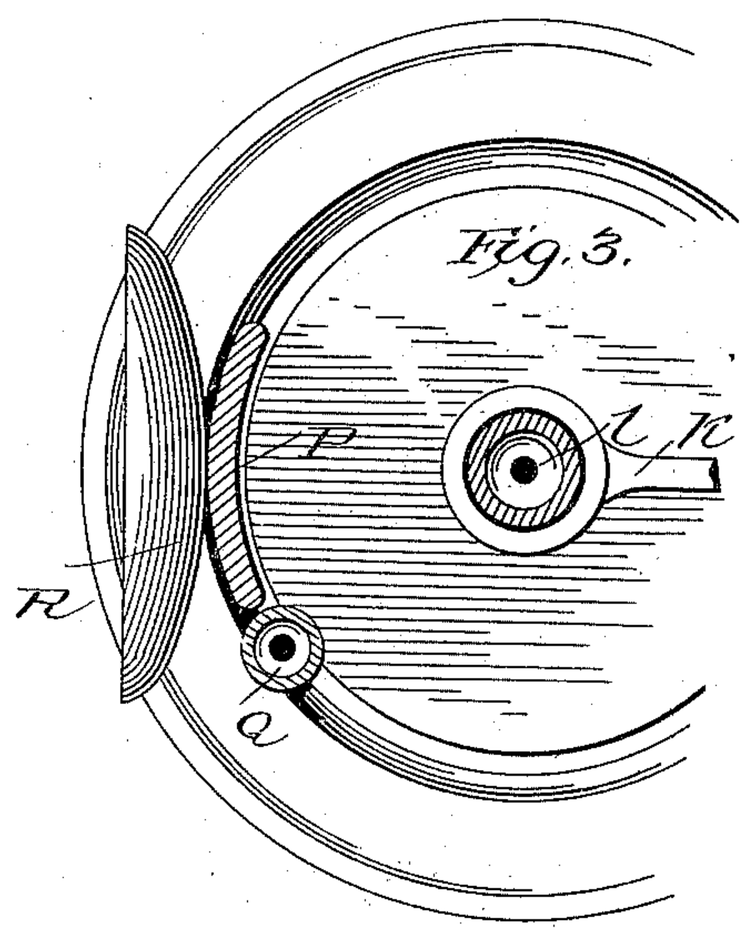
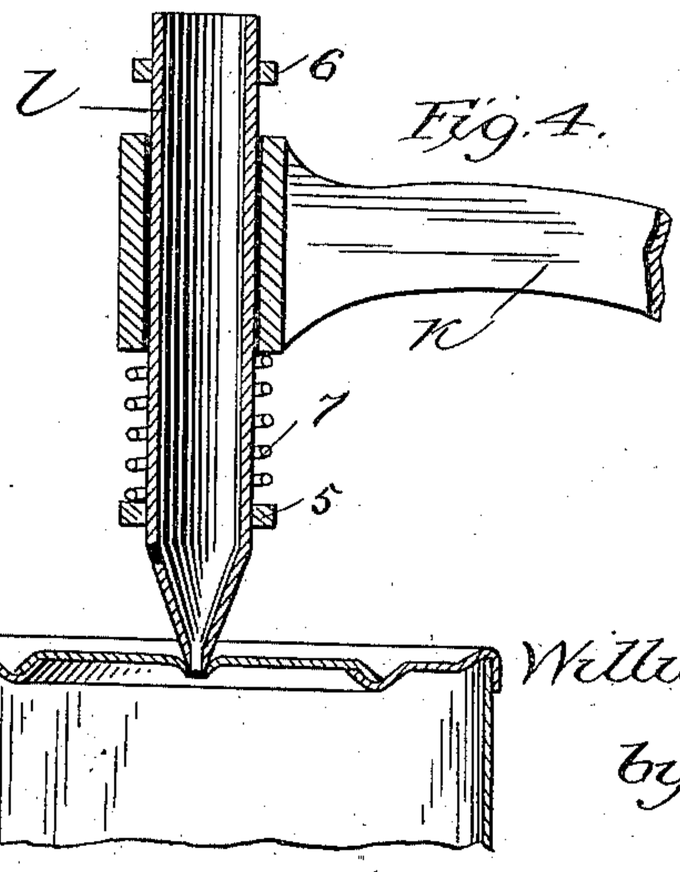


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM D. BROOKS, OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE-THIRD TO D. D. MALLORY, OF SAME PLACE.

CAN-SOLDERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 335,011, dated January 26, 1886.

Application filed November 16, 1885. Serial No. 182,984. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM D. BROOKS, of Baltimore, in the 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.

In the can-making machines heretofore used—such, for example, as that shown in my United States Patent No. 256,098, of April 4, 1882—the cans are carried by planetary movement upon a revolving table, and thus are revolved in turn before a flame or flames whereby the solder is melted.

The invention is illustrated in the accompanying drawings, in which Figure 1 represents the machine partly in central vertical section, and partly in side elevation, all as hereinafter fully explained. Fig. 2 is an enlarged detail view in perspective of the soldering-iron, part of the heating apparatus, and solder-applying device. Fig. 3 is a horizontal section of the same. Fig. 4 is a vertical section of the part of the can and device for holding it down. Fig. 5 is an enlarged view of details of the machine.

In these drawings, A represents the table upon which the mechanisms are supported. It is made concave upon its upper surface in order to catch the oil dripping from the machinery, and to cause it to flow toward the center, where it may be drained through an opening, 1, into a cup below. Upon this table in the center thereof is fixed a post, B. The revolving table C is provided with a hub or sleeve, *c*, surrounding the post which passes up through the table. The lower end of the sleeve is connected to the ratchet-wheel *d*, below which is a smooth bearing-surface, *e*, fixed to or forming a part of the ratchet-wheel. Against this bears a brake, *f*, to steady the motion of the machine. The brake is operated by levers and adjustable weights, as shown in Fig. 1. The ratchet-wheel is operated by a lever, D, carrying a spring-pawl, *g*, which is moved by an arm, *h*, worked within the cam-shaped opening of the lever, as in the aforesaid patent. This arm is on the hub of the master-wheel E, and operates the lever D to move the table one step, and each revolution of the master-wheel E is driven constantly through the gears 2 and 3, the latter being on the main driving-shaft, and the master-wheel gears into the pinions *i* on the spindles of the can-seats, which are mounted in sleeves of brackets fixed to the table C, all as in my said patent, except that the spindles are in a vertical position, and the can-seats are simply fitted to hold the can and need not have any flame-chamber or exposed surface of the can when in place. A second hub, *c'*, is fixed to the table C and extends upward, encircling the post, and carrying a table, F, on which is pivoted a series of levers, *k*, each in line with the can-seat, carrying on its upper end a hollow pin, *l*, the lower pointed end of which is adapted to bear upon the center of the can-cap. These pins have a hole at their lower end, to ventilate the interior, to provide for the escape of steam, and to prevent heating. They have fixed collars 5 and 6, to retain them in the sleeve ends of the lever *k*, and the spring 7 to keep them down, the pins thus being held to the cap with a yielding pressure. The inner ends of the lever *k* have anti-friction rollers 8, which travel in the cam-path of a circular head, L, fixed on the upper end of the shaft. The high part of this cam-path is horizontal, and extends the larger part of the way around the head from and including the position of the burner, so as to hold the caps down in place while they are subjected to the heat, and for a sufficient length of time thereafter to allow the solder to cool before the pin is lifted. The low part of the cam-path is shown on the right of Fig. 1 with the pin raised from the can. This low part is made to extend over enough space to give the attendant sufficient time to remove the soldered can and replace it with an unsoldered can. Upon one side of the table is fixed a standard, M, having a tubular extension, *m*, set vertically on its upper end. Within this tubular extension slides freely a rod, *n*, the upper end of which is bent inward toward the center of the table and carries a socket, *o*, held to the bent end of the rod by bolt and nut passing through a slot in the said end, whereby it may be adjusted toward or from the center of the can.

The solder-iron P (shown more clearly in

Figs. 2 and 3) is provided with a shank, *p*, the upper end of which passes loosely through the socket *o*, being adjustable to proper position vertically by its own weight. The soldering-iron is in the form of a thick plate curved to correspond with the curve of the cap and to fit its groove. By the side of this soldering-iron is fixed a solder-feeding tube, Q, preferably bell-shaped on its upper end, and adapted to receive wire solder and to permit the end of the wire solder to project through below and rest in the groove of the can in which the edge of the cap rests. To the side of the soldering-iron is fixed a concave disk of metal, R, against which the flame plays delivered from the pipe *r*, for the purpose of keeping the soldering-iron hot. The solder is melted by the heat of the soldering-iron, the tube Q being sufficiently near the iron for that purpose. The lower end of the rod *n* is connected to the slotted end of the lever S, pivoted upon the standard *s* on the table A. The inner end of this lever has a small roller, *t*, which travels upon a cam-shaped flange, 10, on the under side of the master-wheel E. The lower part of this cam-path extends around the greater part of the circumference of the wheel E, and when the small wheel *t* is bearing upon the low part of the path the soldering-iron is lowered into the cap-groove. When the high part of the cam marked G is brought around to bear upon the wheel *t*, it lifts the soldering-iron out of the groove and clear of the can.

The machine shown is designed to have twelve can-seats, and in this machine the high part of the cam should occupy about one-eighth of the circumference of the wheel E, and it is arranged so that its forward end will strike the wheel *t* just before the arm *h* operates to turn the table C one step, and the length of the high part is sufficient to hold the soldering-iron up until another can has been brought by the revolution of the table C into position under the end of the soldering-iron. Then the low part lifts the wheel *t* and allows the solder-iron to descend. The movement of the soldering-iron is less than one-fourth of an inch, and the flame plays constantly into the cup on this side, so that it is constantly heated.

I have shown the solder-feeding tube as a more convenient way to apply the solder; but the mechanism may be used with any means for bringing the solder to the groove.

It will be understood that the step-by-step movement of the table is arranged accurately, so as to bring the can directly in front of the soldering-iron and to hold it there while the can is revolving to melt the solder and properly apply it.

I have shown the lever S as moved by the master-wheel E; but I do not confine myself to the precise construction of a cam-shaped flange upon the master-wheel E. It is sufficient that the arm *n* should be raised by any mechanism connected with the driving mechanism of the machine at the proper time.

I claim as my invention—

1. In combination with revolving can-seats carried on a table having step-by-step movement, a soldering-iron suitably supported, a solder-tube for supplying solder to the can-top, a flame-tube for applying the flame to the said soldering-iron, and means for automatically raising and lowering the said iron from the cap-groove of the can, substantially as described.

2. In combination with the revolving can-seats carried upon a table having step-by-step movement, a rod, *n*, sliding in suitable standards, a soldering-iron, P, supported thereby, a lever, S, and cam 10, upon the under side of the master-wheel, adapted to operate said lever S, substantially as described.

3. In combination with the revolving can-seats, mechanism for holding down the caps at the solder-station, the vertically-adjustable soldering-iron, means for automatically raising and lowering said iron, a solder-feeding tube arranged in the described relation thereto, and a flame-tube adapted to heat said iron, substantially as described.

4. In combination, the revolving can-seats, mechanism for holding down the caps, the soldering-iron carried on the vertically-movable rod, the pipe *r*, for delivering the flame, and the concave disk R, secured directly to the soldering-iron between it and the flame, substantially as described.

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

WM. D. BROOKS.

Witnesses:
ED. RAINE,
L. BATZLER.