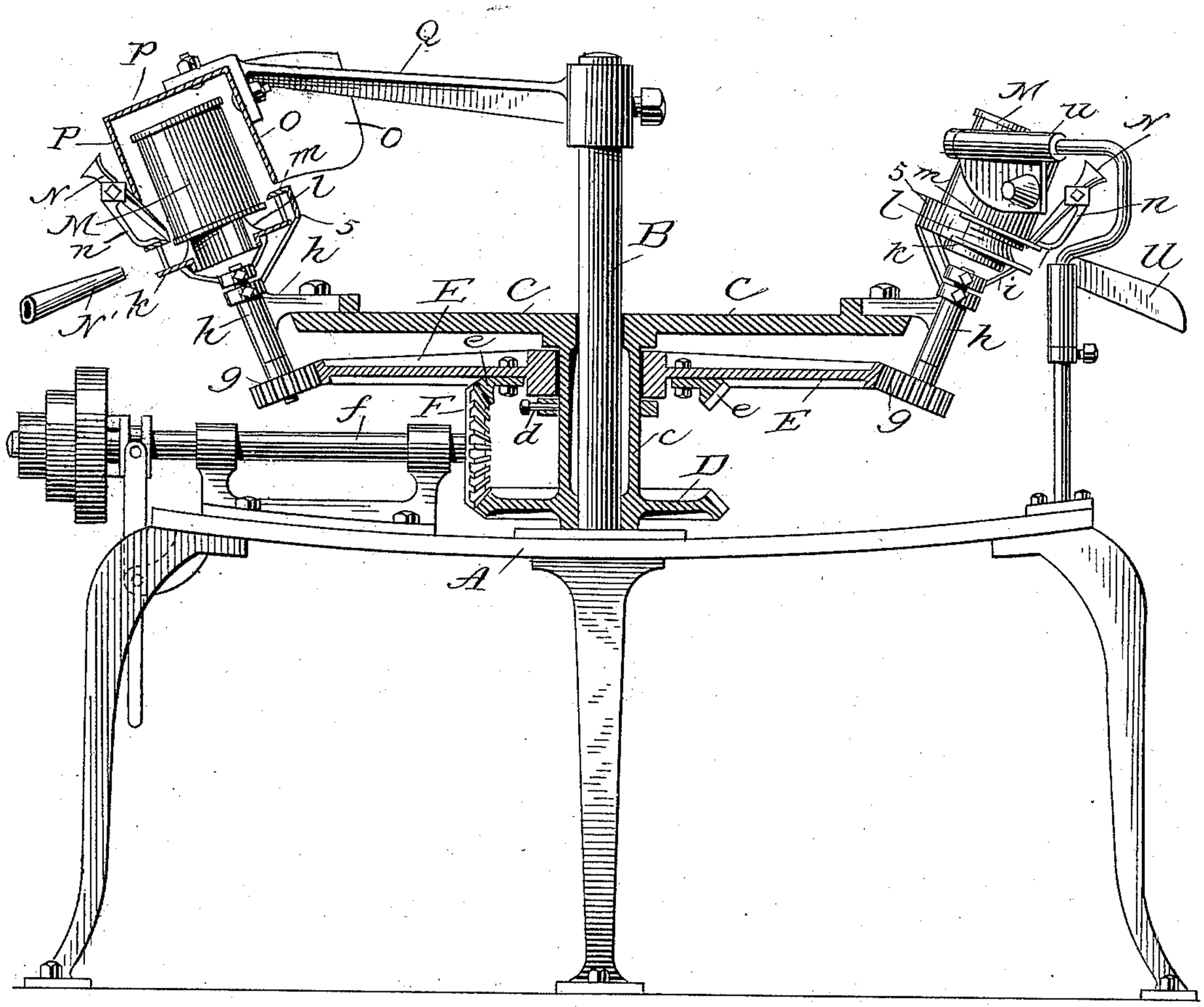
(No Model.) 3 Sheets—Sheet 1.

W. D. BROOKS.

CAN SOLDERING MACHINE.

No. 335,012. Patented Jan. 26, 1886.

Fig. 1.



Attest:
Walter Bradam
F. L. Middleton

Inventor
William D. Brooks.
by Joyce & Kean
Attys.

(No Model.) 3 Sheets—Sheet 2.

W. D. BROOKS.

CAN SOLDERING MACHINE.

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Fig. 2.

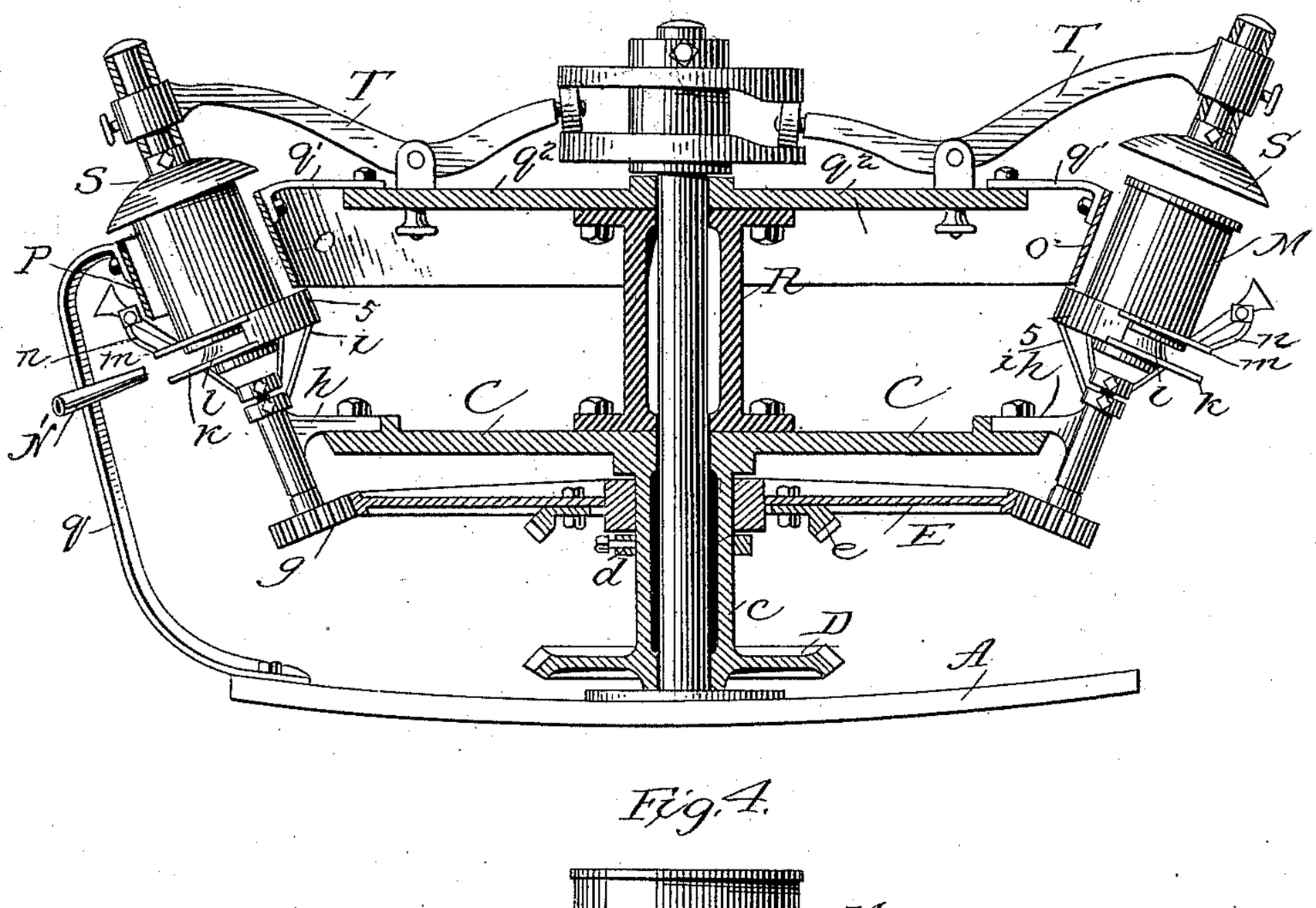


Fig. 4.

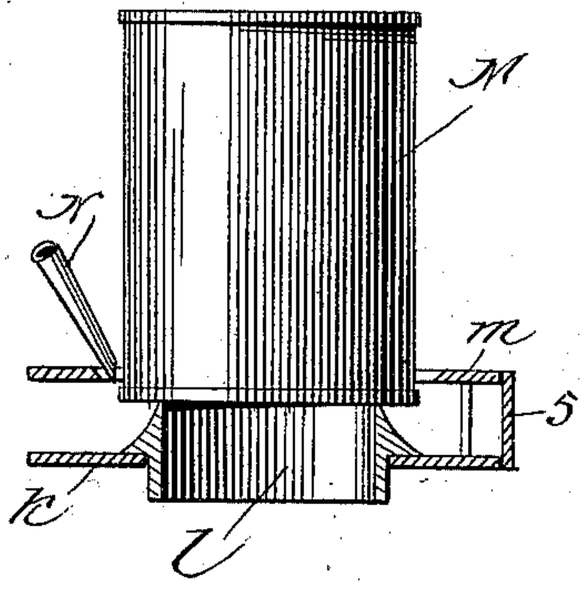


Fig. 6.

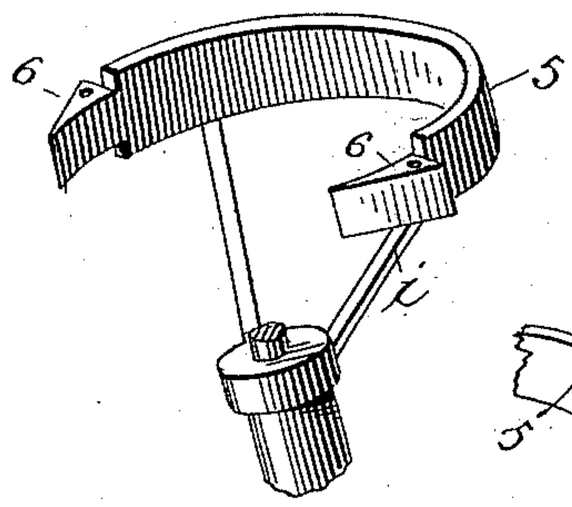
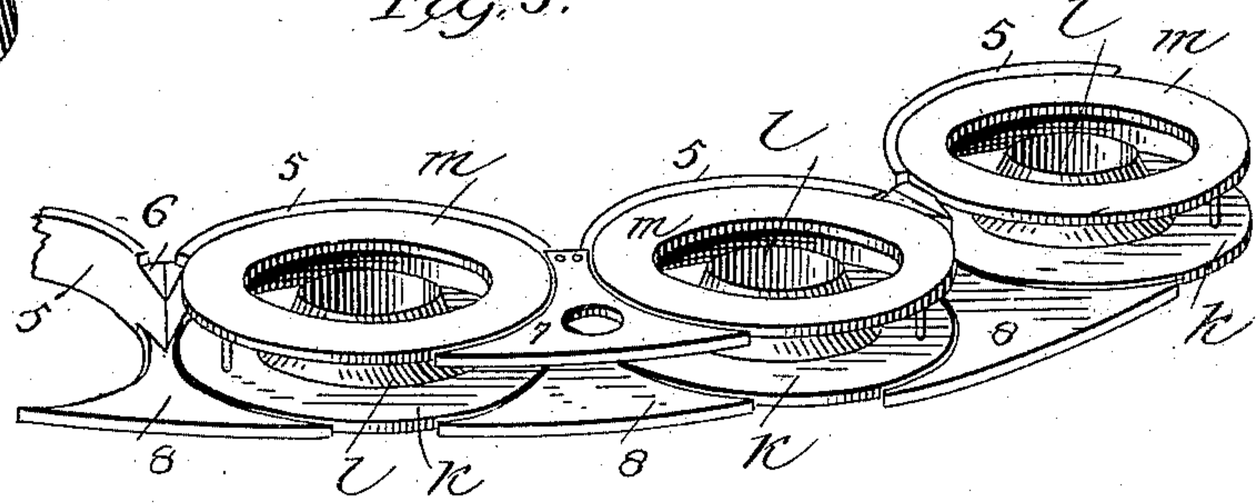


Fig. 5.



Attest:
Walter Donaldson
F. L. Middleton

Inventor
William D. Brooks
by Joyce & Shea
Attys.

(No Model.)

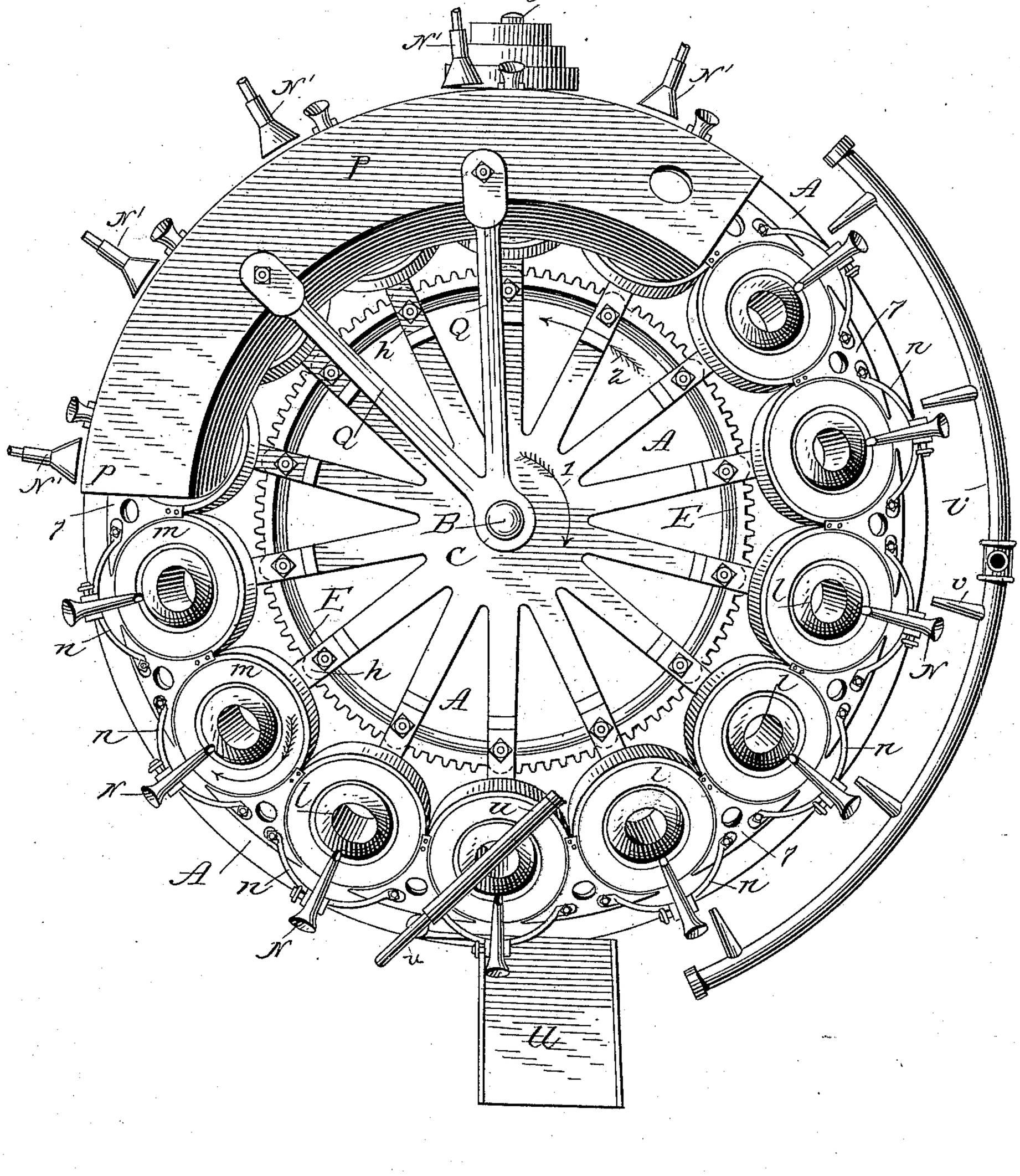
3 Sheets—Sheet 3.

W. D. BROOKS.

CAN SOLDERING MACHINE.

No. 335,012. Patented Jan. 26, 1886.

Fig. 3.



Attest:
Walter Dallas
F. L. Middleton

Inventor
William D. Brooks.
by Joyce & Shea.
Attys.

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. 335,012, dated January 26, 1886.

Application filed November 16, 1885. Serial No. 182,985. (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.

My invention relates to machines for soldering the tops and bottoms of provision-cans, known in the art as a "floater."

My object in this invention is, first, to simplify the mechanism for rotating the revolving table and the can-seats; second, to provide mechanism for soldering the outside of the cans; and, third, to retain the heat for the purpose of warming the cans. It also includes details of construction hereinafter fully explained.

In the accompanying drawings, Figure 1 is a side view of the machine, partly in section, showing the improved manner of driving the table and can-seats, the shield for retaining the heat being also shown in place. Fig. 2 is a view, mainly in section, with parts in elevation showing modified form of shield used in connection with presser disks. Fig. 3 is a plan view of the table, can-seats, shields, &c. Fig. 4 represents the removable can-seat in position in the flame-chamber. Figs. 5 and 6 represent details of the flame-chamber.

In the drawings, A represents a suitable table for supporting the post and operating mechanisms. The post B is fixed in the center of the table in vertical position. Upon it is mounted a continuously-revolving table, C, carrying the rotating can-seats. This table has a sleeve or hub, *c*, encircling the post and turning on it. The lower end of the hub rests on the table. On the lower end of the hub is a beveled gear-wheel, D, fixed thereto. On the hub is fixed a collar, *d*, and this supports the master-wheel E, put in place to revolve around the hub. The master-wheel is provided with a beveled gear, *e*, on its under surface, of equal diameter with the beveled gear D. The beveled gear-wheel F, on the main driving-shaft *f*, is in mesh with the beveled gears D and E. The shaft *f* is mounted in suitable bearings on the supporting-table, and has suitable driving-pulleys on its outer end. The master-wheel E is in mesh with the pinions *g* on the lower end of the spindles of the can-seats, and the table C is turned continuously in one direction and the master-wheel continuously in the opposite direction.

The table C is in construction the same as that shown in Letters Patent of the United States granted to me April 4, 1882, No. 256,098, and the can-seats are supported on radially-arranged brackets *h*, by means of spindles which turn in the sleeved ends of said brackets. Upon the upper ends of the revolving spindles are placed spiders *i*, which support plates *k*. The can-seat *l* is supported within the opening in this plate *k* by means of shoulders which rest on the edges thereof, as shown. This can-seat is removable, and may be replaced by sizes to suit the larger or smaller cans. A half-wing, 5, supported upon a spider fixed to the sleeved end of the bracket which supports the revolving spindle, forms the rear wall of the can-holder, and is stationary, extending about half-way around. The top of the can-holder consists of an annular plate, *m*, supported by posts from the plate *k*, with which it revolves. The can marked M is placed within the opening in the plate *m*, and rests upon the can-seat *l*, as shown in my aforesaid patent, and as the front of the holder is open, a margin of the bottom and side of the can is exposed to the flame directed against it by the burners or tubes N'. The half-wing 5 is cast with an enlargement, 6, on its front ends, with upper and lower bearings, which support intermediate plates, 7 and 8. These plates fill the gaps between the upper and lower plates, *m k*, of contiguous flame-chambers, and serve to retain the flame while the table is moving successive flame-chambers past the burners. The upper plate is formed with an opening, to allow part of the heat to rise to the warming-chamber. The solder-feeding tube N is supported upon curved bracket-arms *n*, which extend from the intermediate plates, 7, as shown in Fig. 3. The upper end of this tube is bell-shaped, and the lower end inclined and beveled to face the side of the can. The plate *m* has a corresponding bevel around the edge of the opening, to admit the end of the tube. The tube is

adapted to receive ordinary wire solder, and as its lower end extends down between the inner edge of the plate *m* and the cam-body, and as close as practicable to the can without interfering with its rotation, it directs the solder against the seam of the top or bottom. It will be understood that inside soldering may be done also upon this machine, using segmental solder placed within the can. The flame, impinging against the narrow margin of the side, melts the lower end of the solder wire, which bears against the flange of the outside head of the can. As the can turns, the solder is thus laid around upon the seam, and is sweated in by the heat. The arrangement of this tube is designed especially for soldering cans having heads fitting the outside of the body of the can.

It is desirable that the cans should be kept warm in order to secure the best action of the solder in the operation of soldering. To effect this, I provide a front and rear shield, O P, suitably supported, and forming a way in which the cans move from, and including the soldering-point, to include also, preferably, the fifth station therefrom. As shown in Fig. 1, these shields are connected by the covering-plates P and are fixed to arms Q, supported on the post. This causes the cans, while under the influence of the flame, supplied, as shown in Fig. 3, at five points on the periphery of the table, to be partially covered, or to pass between walls which are kept warm, and thereby the cans themselves are warmed and in better condition for soldering. The form shown in Fig. 1, which has the top plate, *p*, is without a presser-plate for holding down the top of the can. This machine, however, is designed for soldering the tops of the cans to the bottoms, and while this is being done the cans need not be held down—that is to say, the tops of cans which have holes for the caps are not required to be held down. In soldering bottoms to tops the bottoms are liable to spring and warp under heat, and therefore they must be held down when in position by means of presser-plates.

A modified form of machine for this purpose is shown in Fig. 2, the top plate of Fig. 1 being omitted. The front shield, P, is supported upon separate brackets *q*, which are attached to the table. The rear plate, O, is supported upon brackets q', fixed to a table, q^2, attached to sleeve R, attached to the revolving table. In this form I extend the inner shield all the way around the table; but the front shield covers only five stations, or the space occupied by the burners. In this form of the machine the presser-plates S take the place of the upper plate, *p*. They are circular in form, and of sufficient diameter to overlap the shields. They are mounted in pivoted arms T on a table, q^2, which are operated by a cam-path, in the usual manner, and as illustrated in Fig. 2. While the presser-plates are down and over the shields, they sufficiently cover the space between the shields to constitute the roof of the chamber for warming the cans.

The line of movement of the table carrying the can-seats is indicated by the arrow 1 in Fig. 3, and the arrow 2 in the same figure denotes the line of movement of the master-wheel. Three-fourths the way around from the first burner, in the direction of the movement of the revolving table, I place a discharging-chute, U, and a discharging-arm, *u*, which trips the cans successively, and causes them to topple over upon the chute. It will be understood that the arms T are raised by the low part of the cam-path at the proper instant, before the can strikes the arm.

The tube V, with discharge-branches *v*, may be used for cooling the cans after they leave the shields, being connected with a suitable blower.

Figs. 4, 5, and 6 are enlarged views of the details of construction of the can-seats and the flame-chambers.

In the operation of the machine, the operator places cans upon the seats as they move past in succession, standing to the left of the discharge-chute. As soon as the cans reach the warming-chamber, formed by the shields O P, they are acted upon by the first burner, N′, stationed at the entrance to the said chamber, and in the movement through the chamber are acted upon by the burners in succession, and also by the heat contained within the chamber, and by the time the cans reach the fourth station the solder is entirely melted, receiving the final heat from the fifth station, after which they pass from the warming-chamber to the cooling-tube, and in moving past these stations, of which there are preferably five, as shown, the cans are thoroughly cooled and ready to be discharged at the sixth or discharge station.

I have shown the can-seats as set in an inclined position; but I do not confine myself to this, as I contemplate setting the can-seats also in a horizontal position for holding the cans vertically.

It will be understood that the revolving table C need not be a plate, but may be made with radial arms, as shown in Fig. 3, one arm being shown for each can-seat.

I claim as my invention—

1. In combination with a post, the revolving table C, with its sleeve, a beveled gear, D, the master-wheel E, meshing with the pinions of can-seat spindles carried upon said table, and the driving-gear F, in mesh with the gear D, and the gear *e* upon the under side of said master-wheel, substantially as described.

2. In combination, a continuously-revolving table, revolving can-seats carried thereon, and the solder-feeding tube N for each can-seat moving with the table, and supported in the described relation to the can-seats, substantially as described.

3. In combination with a revolving can-seat, solder-feeding tubes supported upon brackets from side plates, and having their lower ends

held near to the part of the can which is exposed to the flame, substantially as described.

4. In combination with a series of revolving can-seats carried upon a revolving table, warming-chambers for the cans supported in the line of their movement, and opposite the heating-flame, substantially as described.

5. In combination with a revolving table, C, carrying revolving can-seats, heating-tubes, and shields O P, and presser-plates for holding down the cans, substantially as described.

6. In combination with the described machine, the revolving can-holders, consisting of the revolving plate *k*, the removable can-seat supported thereby, and the upper plate, *m*, supported upon the plate *k*, substantially as described.

7. In combination, the revolving can-seat, the plate *m*, having its inner end beveled, and the inclined solder-feeding tube having its end beveled, substantially as described.

8. The combination of the revolving can-seat comprising the revolving plate *k*, the seat *l*, the upper plate, *m*, supported upon the lower plate, *k*, with the stationary half-wing 5, substantially as described.

9. The combination of a revolving can-seat comprising the seat *l* and the upper and lower revolving plates, *m k*, with the half-wing 5 and intermediate plates, 8, substantially as described.

10. The combination of a revolving can-seat comprising the seat *l* and the revolving upper and lower plates, *m k*, with the half-wing 5, lower plate, 8, and upper perforated plates, 7, 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:
EDW. RAINE,
S. BATZLER.