

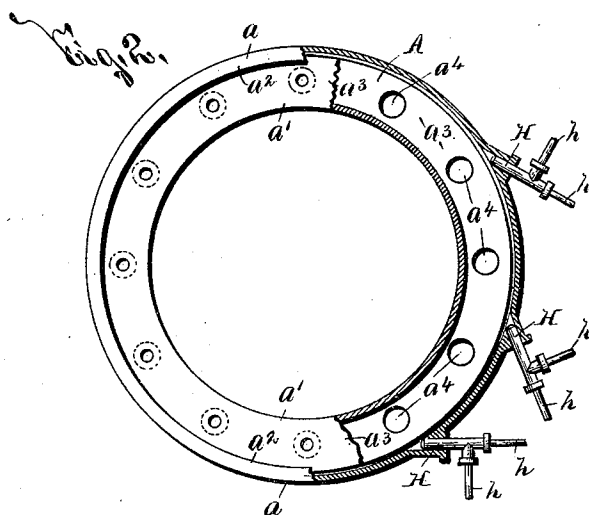
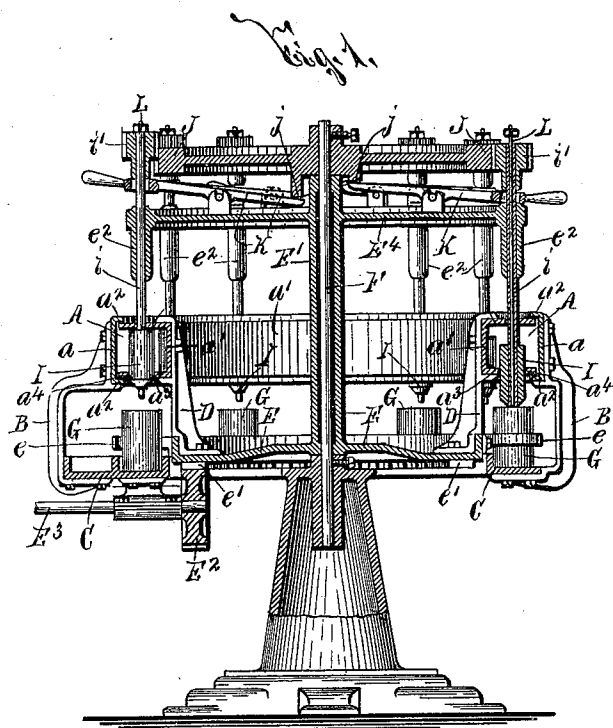
(No Model.)

2 Sheets—Sheet 1.

F. A. ODIN.
SOLDERING MACHINE.

No. 583,120.

Patented May 25, 1897.



WITNESSES:

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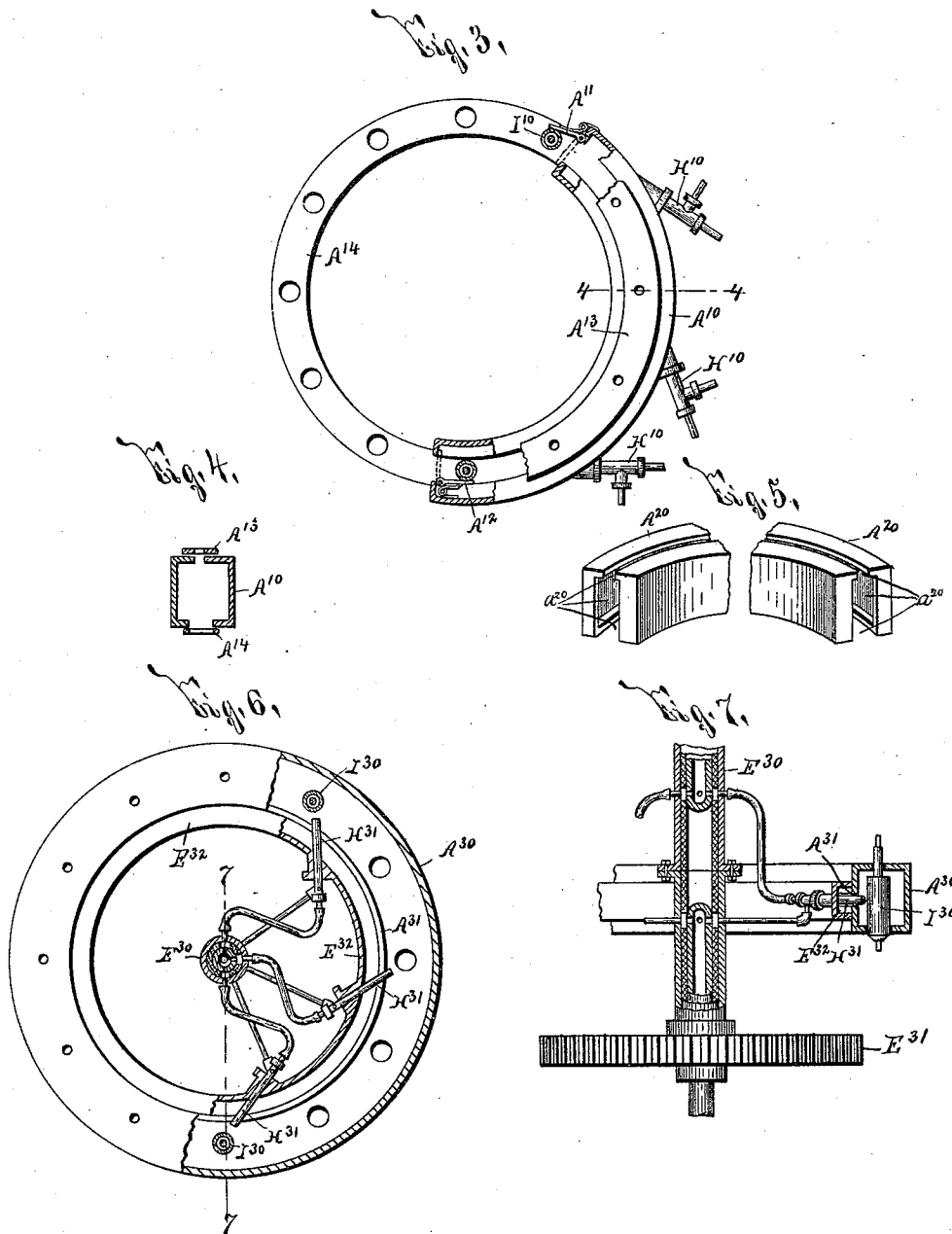
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2 Sheets—Sheet 2.

F. A. ODIN.
SOLDERING MACHINE.

No. 583,120.

Patented May 25, 1897.



WITNESSES:

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UNITED STATES PATENT OFFICE.

FRANK A. ODIN, OF SYRACUSE, NEW YORK, ASSIGNOR TO THE MERRELL-SOULE COMPANY, OF SAME PLACE.

SOLDERING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 583,120, dated May 25, 1897.

Application filed March 17, 1894. Serial No. 504,067. (No model.)

To all whom it may concern:

Be it known that I, FRANK A. ODIN, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful
5 Improvements in Soldering-Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to improvements in
10 soldering-machines particularly applicable for securing caps or covers to cans and similar articles, and has for its object the production of a device of simple construction in which the soldering-tools are heated uniformly at a minimum cost for fuel and the
15 heating devices or burners are operated with a minimum degree of adjustment and attention; and to this end it consists, essentially, in an inclosing chamber, a heating device or
20 burner, a series of soldering-tools movable successively toward and away from the heating device or burner, and in the construction and arrangement of the parts, all as herein-
25 after more particularly described, and pointed out in the claims.

In describing this invention reference is had to the accompanying drawings, forming a part of this specification, in which like letters indicate corresponding parts in all the views.

30 Figure 1 is an elevation, partly in section, of my improved soldering-machine, illustrating the general construction and arrangement of its component parts. Fig. 2 is a top plan, partly in section, of the inclosing chamber for the soldering-tools. Fig. 3 is a top plan,
35 partly in section, of a modified form of the heating-chamber for the soldering-tools. Fig. 4 is a vertical cross-section taken on line 4 4, Fig. 3. Fig. 5 is an isometric view of the opposite ends of a second modified construction
40 of the inclosing chamber for the soldering-tools. Fig. 6 is a top plan, partly in section, of a modified construction of the heating devices or burners and the heating-chamber;
45 and Fig. 7 is a vertical section taken on line 7 7, Fig. 6.

Soldering-machines particularly applicable for securing the caps or covers to cans and similar articles as heretofore constructed are
50 usually provided with a separate burner for each soldering-tool, and consequently a great

amount of fuel is used and the various soldering-tools are not heated uniformly, even though their respective burners are adjusted with great care and constant attention is given
55 by the operator to the machine. Another type of soldering-machines of this class has been devised in which the soldering-tools rotate on a series of axes within an inclosing case, but are fixed relatively with reference
60 to said case and the heating devices or burners for heating the same. The soldering-tools of this type of machines are also ununiformly heated unless the heating devices or burners therefor are arranged and adjusted with great
65 uniformity and the draft within the heating-chamber remains constant, as otherwise the soldering-tools nearest the heating devices or burners are heated to a greater temperature than those more remote.
70

In my invention the soldering-tools are inclosed within a heating-chamber, and although rotating on a series of axes they successively revolve within or traverse the heating-chamber and successively move toward
75 and away from the heating devices or burners, and consequently each soldering-tool is subjected to exactly the same temperature and all are heated uniformly without requiring careful adjustment of the burners or the constant attention of an operator.
80

A represents the heating-chamber, which is preferably disposed in a curvilinear plane and is composed of stationary and revoluble sections a a' , having their adjacent faces provided with upper and lower annular shoulders a^2 a^2 a^3 a^3 , forming the top and bottom walls of the chamber A. The shoulders a^2 a^2 are preferably separated a greater distance than the shoulders a^3 a^3 and lap thereupon.
85

I have here shown the chamber A as forming part of a complete soldering-machine and have illustrated the section a as connected by brackets B to a stationary table C and the section a' as connected by brackets D D to a revolving frame E, having a hub E' loosely revoluble on a stationary upright rod or support F. The stationary section a may be otherwise supported and the revoluble section a' may be connected directly to the table
90
95
100 C should it be desired to use a revoluble table instead of a stationary one.

The cans G are fed upon the table C by suitable means not necessary to herein illustrate, and are engaged by arms *e*, secured to the revolving frame E. The frame E and the arms *e* thus form a can-feed for feeding the cans around the table C. The under face of the frame E is provided with a rack *e'*, which is engaged by a driving-pinion E^2 , secured to a revoluble shaft E^3 , actuated by any suitable power-transmitting mechanism not necessary to herein illustrate or describe.

The chamber A is heated by one or more heating devices or burners II of any suitable construction, which are preferably supported by the stationary section *a* and discharge within the chamber A. Air and suitable fuel, as gas, is conducted to the heating devices or burners by pipes *h h*, and said heating devices are regulated by any suitable adjusting or regulating device or devices, also not necessary to herein illustrate or describe.

The soldering-tools I are of any desirable form, size, and construction, and are preferably arranged equidistant from each other, and are so supported and actuated as to successively traverse or move lengthwise of the chamber A. As here illustrated, the soldering-tools I are carried by the revoluble section *a'* of the heating-chamber A and the revoluble frame E, and consequently said soldering-tools are revolved therewith. Projecting upwardly from each of the soldering-tools I through the upper shoulder a^3 of the section *a'* of the chamber A is a rod *i*, which is movable lengthwise in a corresponding hub e^2 , carried by a disk-shaped head E^4 of the frame E, and is provided at its upper end with a pinion *i'*, engaging a stationary rack J, fixed upon the upright rod or support F. As the soldering-tools revolve within the chamber A the pinions *i'* upon the corresponding rods *i*, being engaged with the rack J, rotate the soldering-tools upon their axes. It is evident, however, that the soldering-tools I may be supported and caused to successively revolve within or traverse the chamber A and to simultaneously revolve upon their axes by any suitable form of mechanism, and that my invention is not limited to the described construction of such mechanism. It is also evident that my invention is not limited to the use of soldering-tools revolving on their axes.

I preferably lower and raise the soldering-tools toward and away from the cans G, and consequently the lower shoulder of the section *a'* of the chamber A is provided with a series of apertures a^4 , through which the lower ends of the soldering-tools are movable. Hinged to the head E^4 of the frame E are a series of actuating-levers K, having their outer ends arranged to engage the pinions *i'* or other shoulders on the rods *i* for elevating the soldering-tools, and their inner ends to engage a suitable cam *j*, which depresses the same for elevating their outer ends and permits said inner ends to move upwardly for ena-

bling the soldering-tools to feed downwardly through the lower shoulder a^3 into operative engagement with the can-caps. It will be obvious, however, to one skilled in the art that instead of moving the soldering-tools toward and away from the cans the cans may be similarly moved toward and away from the soldering-tools. I also preferably provide the soldering-tools with suitable presser-rods L, movable lengthwise therein for holding the cans in position during the operation of the soldering-tools.

At Fig. 3 I have shown an arc-shaped heating-chamber A^{10} , provided with burners II^{10} and formed of less length than the path of the soldering-tools I^{10} , (only two being here illustrated,) which may be connected in the same manner as the tools I for causing the same to successively traverse or move lengthwise of said heating-chamber. Said chamber is provided with end walls having movable sections $A^{11} A^{12}$ and with bottom and top walls having revolving circular sections $A^{13} A^{14}$, but at Fig. 5 I have shown an additional heating-chamber A^{20} , having its end, top, and bottom walls provided with slots a^{20} for permitting the soldering-tools to successively traverse the heating-chamber.

At Figs. 6 and 7 I have illustrated a stationary heating-chamber A^{30} , having one of its walls formed with a circular groove A^{31} , relatively-fixed soldering-tools I^{30} , (only two being here illustrated,) arranged within the heating-chamber, and revoluble heating devices or burners II^{31} , registered with the groove A^{31} and supported by a revoluble hub or frame E^{30} , which is revolved by any suitable means, as a gear E^{31} . A ring E^{32} may also be secured to said heating devices or burners and to the hub or frame E^{30} for closing the groove A^{31} . This construction is obviously a mere reversal of the preferable form of my invention and is no material departure therefrom.

The operation of my invention will be readily perceived from the foregoing description and upon reference to the drawings, and it will be readily apparent that the soldering-tools are heated uniformly at a minimum expense for fuel and with a minimum degree of adjustment and attention.

It will be evident, however, that my invention is not limited to the mechanism for supporting the heating-chamber or for supporting and feeding the cans, nor to any particular construction of soldering-tools, mechanism for operating the same, or soldering-tools provided with presser-rods, and that the can-feed, soldering-tools, presser-rods, and the mechanism for actuating the soldering-tools herein illustrated and described form no part of my invention, and are merely illustrated and briefly described for the purpose of rendering the illustration and description of my invention more clear and explicit.

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

1. In a soldering-machine, the combination of a heating-chamber, a heating device or burner discharging within the chamber, and a series of independently-movable soldering-tools movable successively in the heating-chamber toward and away from said heating device or burner, substantially as and for the purpose specified.

2. In a soldering-machine, the combination of an inclosing heating-chamber, and a series of connected soldering-tools successively movable within the heating-chamber, substantially as and for the purpose set forth.

3. In a soldering-machine, the combination of a curvilinear heating-chamber, and a revoluble soldering-tool traversing or moving lengthwise of said heating-chamber, substantially as described.

4. In a soldering-machine, the combination of a heating-chamber, and a series of independently-movable soldering-tools successively traversing or moving lengthwise of said heating-chamber in the same path, substantially as specified.

5. In a soldering-machine, the combination of a heating-chamber, a heating device or burner discharging within said chamber for heating the same, and a series of independently-movable revoluble soldering-tools successively traversing or moving lengthwise of said heating-chamber in the same path, substantially as set forth.

6. In a soldering-machine, the combination of a heating-chamber, and a soldering-tool traversing or moving lengthwise of the heating-chamber and means for moving the soldering-tool endwise and depressing its end

beneath the heating-chamber, substantially as and for the purpose described.

7. In a soldering-machine, the combination of an inclosing heating-chamber having a movable lower wall, and a series of soldering-tools successively traversing or moving lengthwise of the heating-chamber and having their lower ends projecting through and beneath the lower wall of the heating-chamber, substantially as and for the purpose specified.

8. In a soldering-machine, the combination of a heating-chamber consisting of a fixed or stationary section, and a revoluble section, and a soldering-tool traversing or moving lengthwise of the heating-chamber and movable simultaneously with said revoluble section, substantially as and for the purpose set forth.

9. In a soldering-machine, the combination of a heating-chamber consisting of a fixed or stationary section, and a series of axially-revoluble soldering-tools successively traversing or moving lengthwise of the heating-chamber and movable simultaneously with said revoluble section, substantially as described.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 1st day of February, 1894.

FRANK A. ODIN.

Witnesses:

CLARK H. NORTON,
K. H. THEOBALD.