

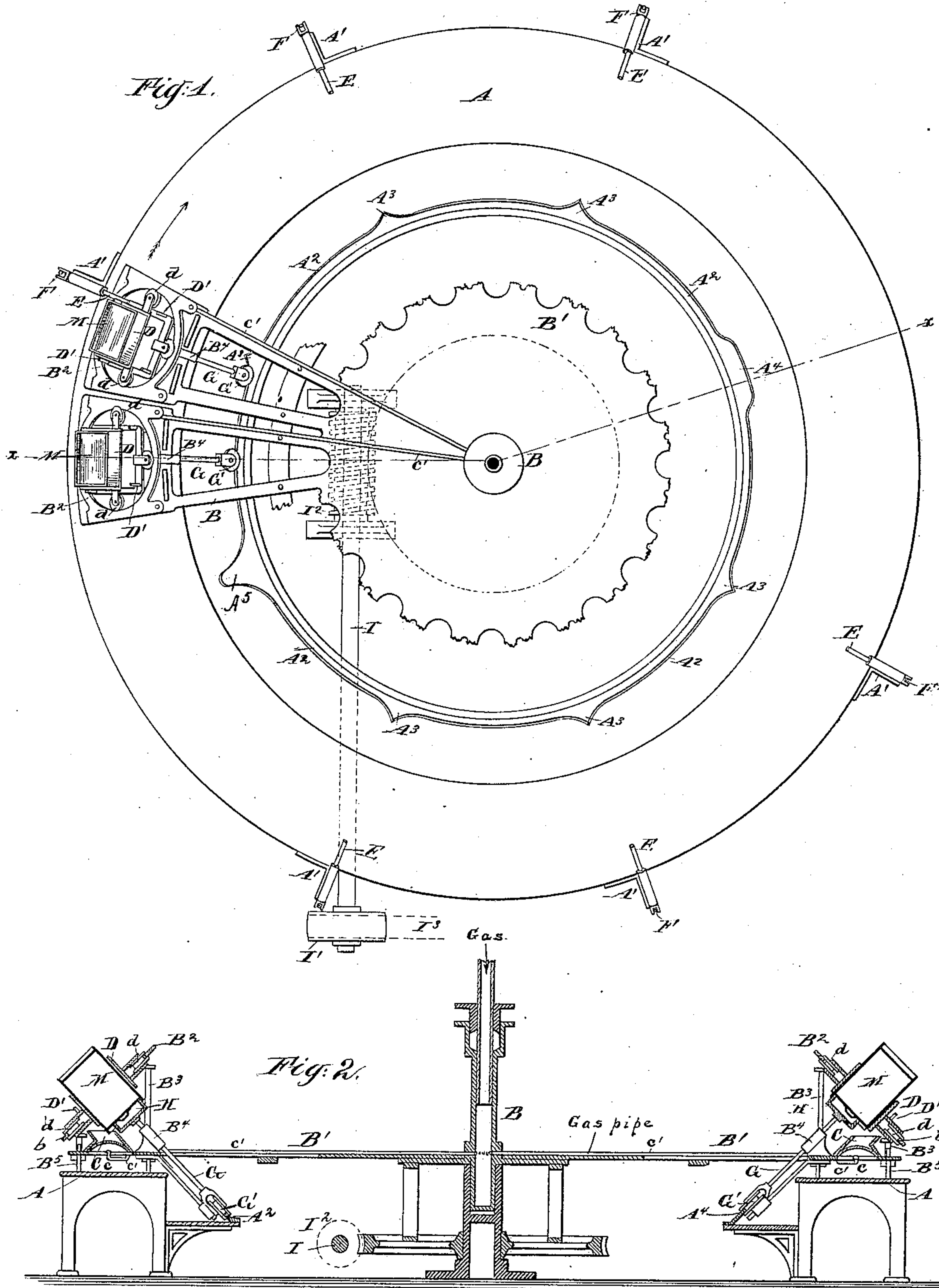
(No Model.)

2 Sheets—Sheet 1.

P. ELEY.
SOLDERING MACHINE.

No. 356,196.

Patented Jan. 18, 1887.



Witnesses:

Charles H. Searle,
H. J. Johnstones.

Inventor

Philip Eley
by his attorney
Thomas Drew Stetson

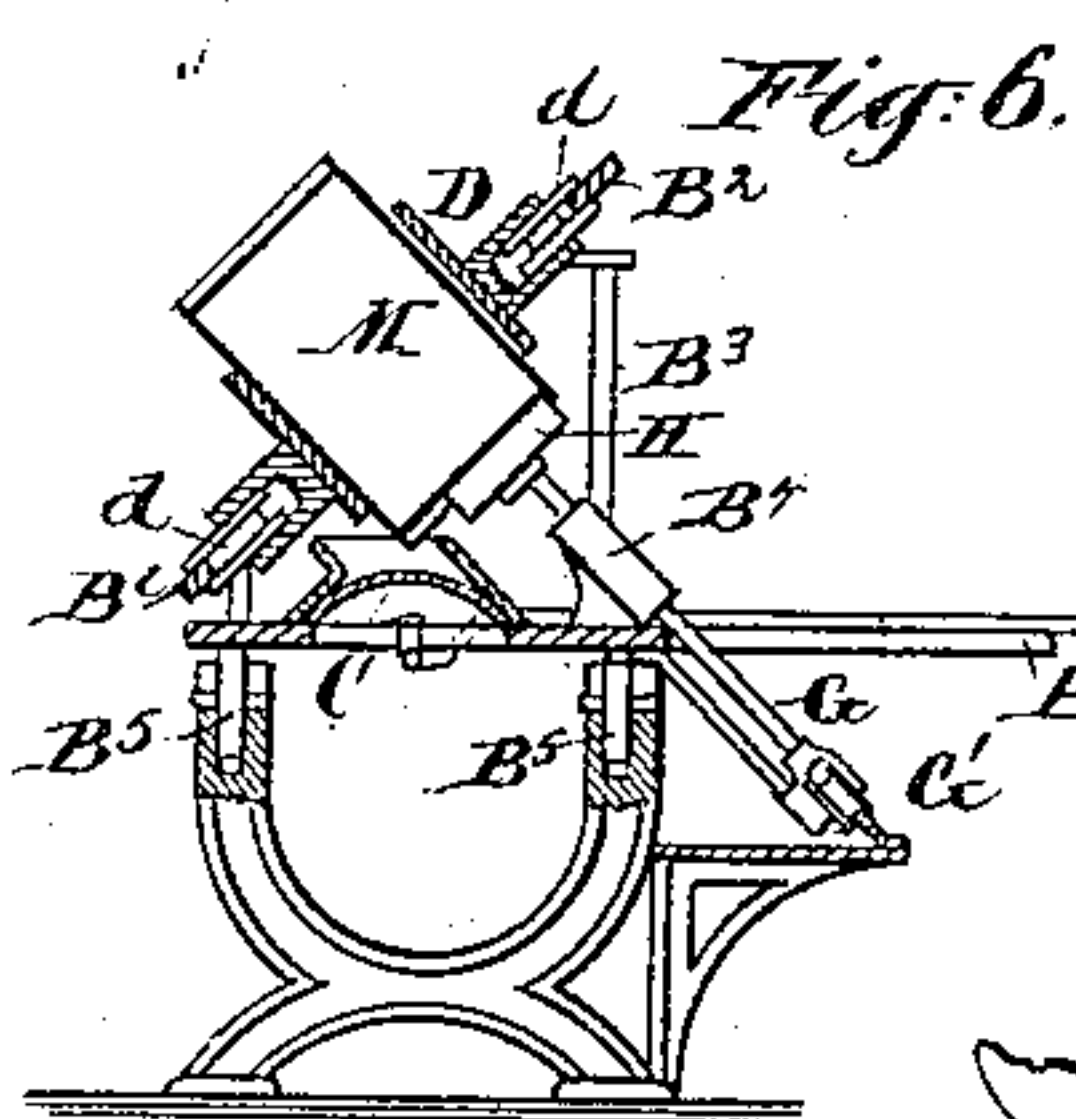
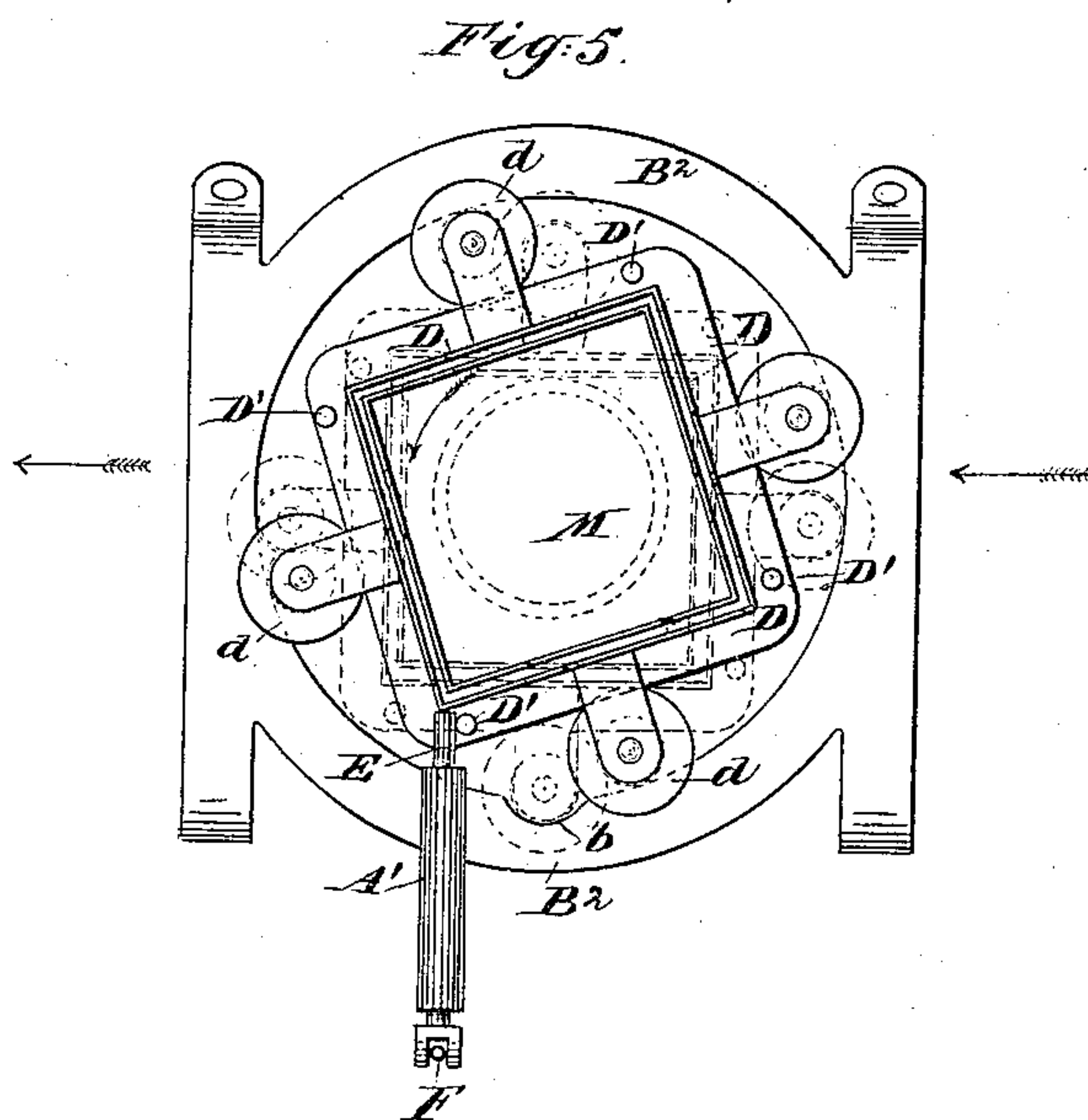
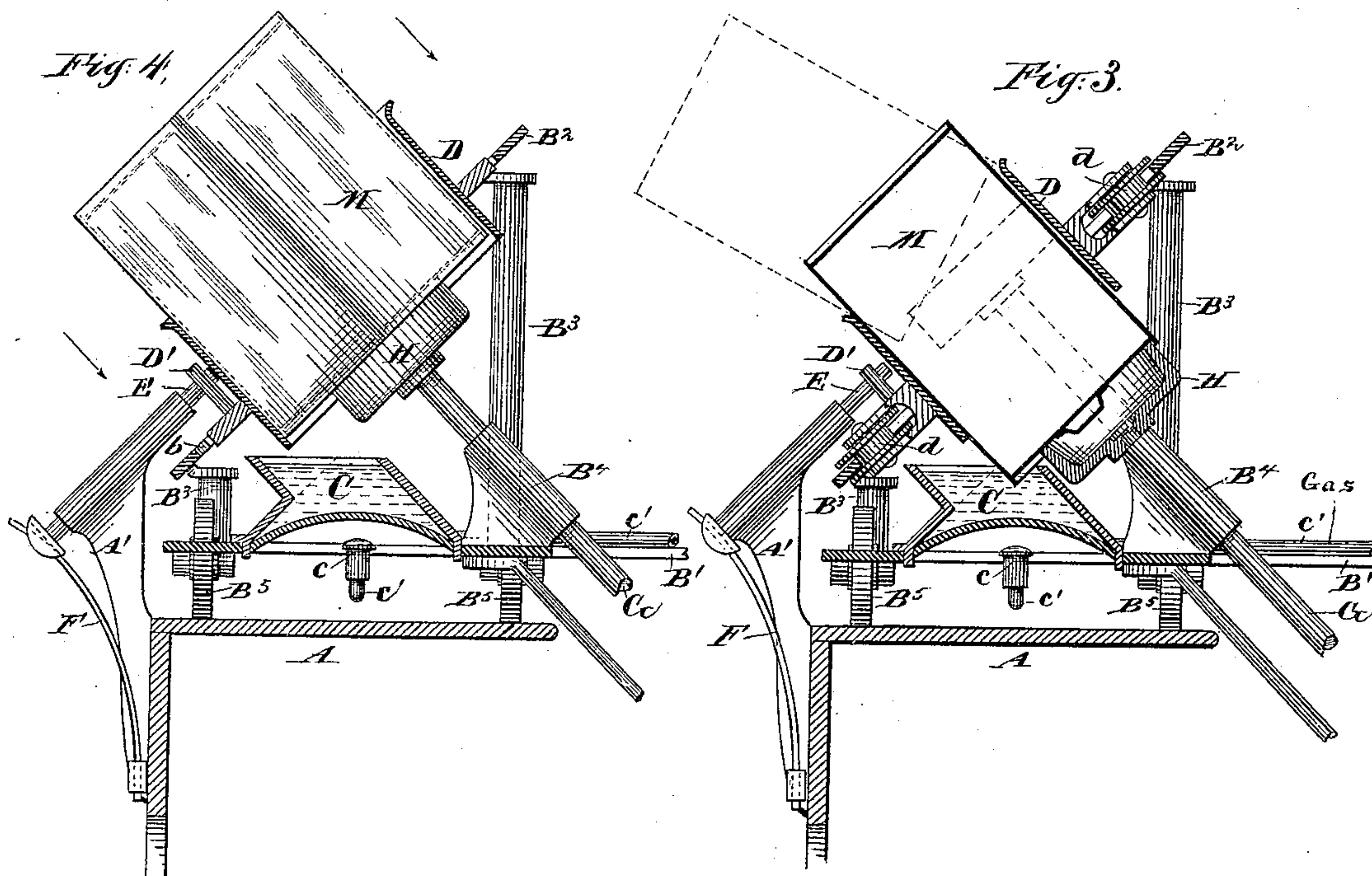
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UNITED STATES PATENT OFFICE.

PHILIP ELEY, OF BAYONNE, NEW JERSEY.

SOLDERING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 356,196, dated January 18, 1887.

Application filed November 18, 1886. Serial No. 219,255. (No model.)

To all whom it may concern:

Be it known that I, PHILIP ELEY, of Bayonne, Hudson county, in the State of New Jersey, have invented a certain new and useful Improvement in Soldering-Machines, of which the following is a specification.

The invention may be applied to the soldering of rectangular cases of various sizes and adapted for various purposes. I will describe it as applied to the manufacture of ordinary five-gallon cans for storing and transporting petroleum.

It will be understood that the metal has been previously bent around to form the sides, and that the ends have been previously manufactured, one end having the proper nozzle to serve as the upper end, and that the ends have been inserted in their proper places and slightly confined by the ordinary means.

I employ a horizontal wheel of from ten to fifteen feet radius, with means for turning it slowly and steadily. It carries a series of holders for the cans, arranged equidistant or otherwise around the periphery. An attendant introduces the cans at one point, and another attendant changes them end for end at another point. The other movements are automatic.

An open-top vessel is mounted under each can-carrier. This carries solder kept in a melted condition by a sufficient gas-flame. The can is held in an inclined position, and is kept the proper time with one of the joints at the lower end immersed slightly in the solder. After a sufficient period to properly heat the thin sheet metal and effect the soldering, the can is automatically lifted out of the solder, partially turned so as to present another joint, and then again lowered. This proceeds until the four joints at the bottom are soldered. Then the can is by hand or by machinery lifted entirely out of its support and turned and again placed in the support in position for soldering the other end. It is again similarly treated until all the joints of the opposite end are soldered. The can is then by a sufficiently long movement lifted out of the holder. The finished cans may be stored in piles, or may, as fast as delivered, be carried through a suitable labeling-machine. (Not represented.)

The accompanying drawings form a part of this specification, and represent what I con-

sider the best means of carrying out the invention.

Figure 1 is a plan view of the stationary parts, with a sufficient portion of the revolving horizontal wheel to show its operation. Fig. 2 is a vertical section on the line $x x$ in Fig. 1. Figs. 3, 4, and 5 are details on a larger scale. Fig. 3 is a vertical section in the plane of the center of one of the can holding and turning devices. The heavy lines show the can in position for soldering. Fig. 4 is a corresponding section, partly in elevation, showing the can-holder and its contents elevated in the act of being turned. Fig. 5 is an inclined or face view seen in the direction indicated by the arrows in Fig. 4. Fig. 6 is a vertical section corresponding with Fig. 2, but showing a modification.

Similar letters of reference indicate corresponding parts in all the figures where they occur.

A is a fixed platform, of cast-iron or other suitable material. In the center is a bearing for a central upright shaft, B, on which is centered the large horizontal wheel B', carrying a series of rings, B², supported on the wheel B by the posts B³.

C C are metallic soldering-pots mounted on the wheel B, near the periphery, each having Bunsen burners c , or other burners, supplied with gas through a pipe, c' , leading from a central passage in the upright shaft B, which is connected with the street-main. (Not represented.) The solder-pots C are kept nearly filled with melted solder.

The rings B² stand in the inclined positions represented. In each traverses a series of wheels, d , which support a can-holder, D, which loosely incloses a can, M, with liberty for it to move endwise, as will presently appear. The interior of the ring B² is circular, except that there is a notch, b , in its lower side adapted to receive the several wheels d as they are presented successively, to aid in holding the can-holder in the correct position to dip the joints in the solder without immersing any part very deeply.

Each can-holder is provided with four pins, D', in the positions represented. The platform A supports a series of brackets, A', which support each a bar, E, in the inclined position represented. Each is capable of sliding end-

wise, subject to the force of a spring, F. These are arranged in such positions that they are struck by the pins D', to effect the turning of the can-holders, and, consequently, of the cans, 5 a quarter-revolution at each passage.

A series of brackets, B⁴, are mounted on the wheel B' in the positions represented. Each supports a bar, G, which is capable of sliding endwise. Its upper end carries a wheel, H, 10 of proper form to support the lower end of the can. When the can is in an inverted position, the nozzle or mouth, as also any handle with which its top may be provided, is accommodated in a cavity in the interior of the wheel. 15 The lower end of the bar G is forked and carries an anti-friction wheel, G'. This wheel traverses on a circular rail, A², which performs an important function. Its upper edge is not level, but, on the contrary, is formed 20 with inclined elevations or cams A³, arranged as shown, which lift the wheel G' and its connections, and consequently lift the can during the period while it is being turned. A longer cam, A⁴, is introduced at one place, 25 the effect of which is to hold the can M in the elevated position for a considerable period. During the passage of each can-holder past this long cam A⁴ the attendant lifts out the can, turns it end for end, and replaces it. After 30 the can has traversed and been turned the proper number of times before reaching the long cam A⁴, then has had its ends reversed in passing this long cam, and has again dipped three times, turning between each dip and the 35 next, so as to complete the soldering of all its joints, the wheel G' is acted on by a cam, which is of much greater height than the others. This lifts the bar G and wheel H, and with them the can M, to such an extent and so 40 briskly as to lift the can M entirely from the can-holder, as shown in dotted lines in Fig. 3. It is then taken care of by other means, and on the sinking of the wheel H again to its original position it is ready to receive a fresh 45 can and commence a second round of operations.

The wheel B is provided with a number of bearing-wheels, B⁵, which traverse on the plane upper surface of the supporting-plat- 50 form A, or on rails which may be specially provided for them. They serve to maintain the wheel B and the parts carried thereon in

the correct position. The wheel B is driven by a worm, I², carried on a nearly-horizontal shaft, I, which is supported in fixed bearings, 55 and receives motion from the belt I³ through a pulley, I'.

The springs F under the bars E perform an important function. They allow the corner of the can-holder D to be depressed in commencing each quarter-revolution, and follow it up 60 as it rises in completing such motion. Its elastic force acting against the corner of the can-holder aids to insure the completion of the quarter-revolution. . 65

Modifications may be made in the forms and proportions. I can employ a greater or less number of the solder-pots with their heating means and of the can-carriers and their supports B². I can use a larger or smaller wheel, 70 B, correspondingly modifying the other portions. I can, when working in a small way, dispense with the mechanism for ejecting, and can remove the finished cans by hand. I can turn the wheel B by other means. 75

In the modification shown in Fig. 6, instead of carrying the small anti-friction wheels B⁵ on the wheel B and allowing them to run on a smooth surface on the platform A, I mount the corresponding anti-friction wheels in fixed 80 bearings in A and allow them to act against a smooth surface on the under side of B. I can with either construction mount the cam-surface A² farther inward and at a lower level, correspondingly elongating the rod G. 85

Various other modifications may be made by any good mechanic without departing from the principle or sacrificing the advantages of the invention. 90

I claim as my invention—

The solder-pots C, and their heating means c c', carried on the wheel B, in combination therewith, and with the can-holders D, and means for raising, turning, and lowering the cans, arranged for joint operation, substan- 95 tially as and for the purposes herein specified.

In testimony whereof I have hereunto set my hand, at New York city, New York, this 21st day of October, 1886, in the presence of two subscribing witnesses.

PHILIP ELEY.

Witnesses:

CHARLES R. SEARLE,
M. F. BOYLE.