

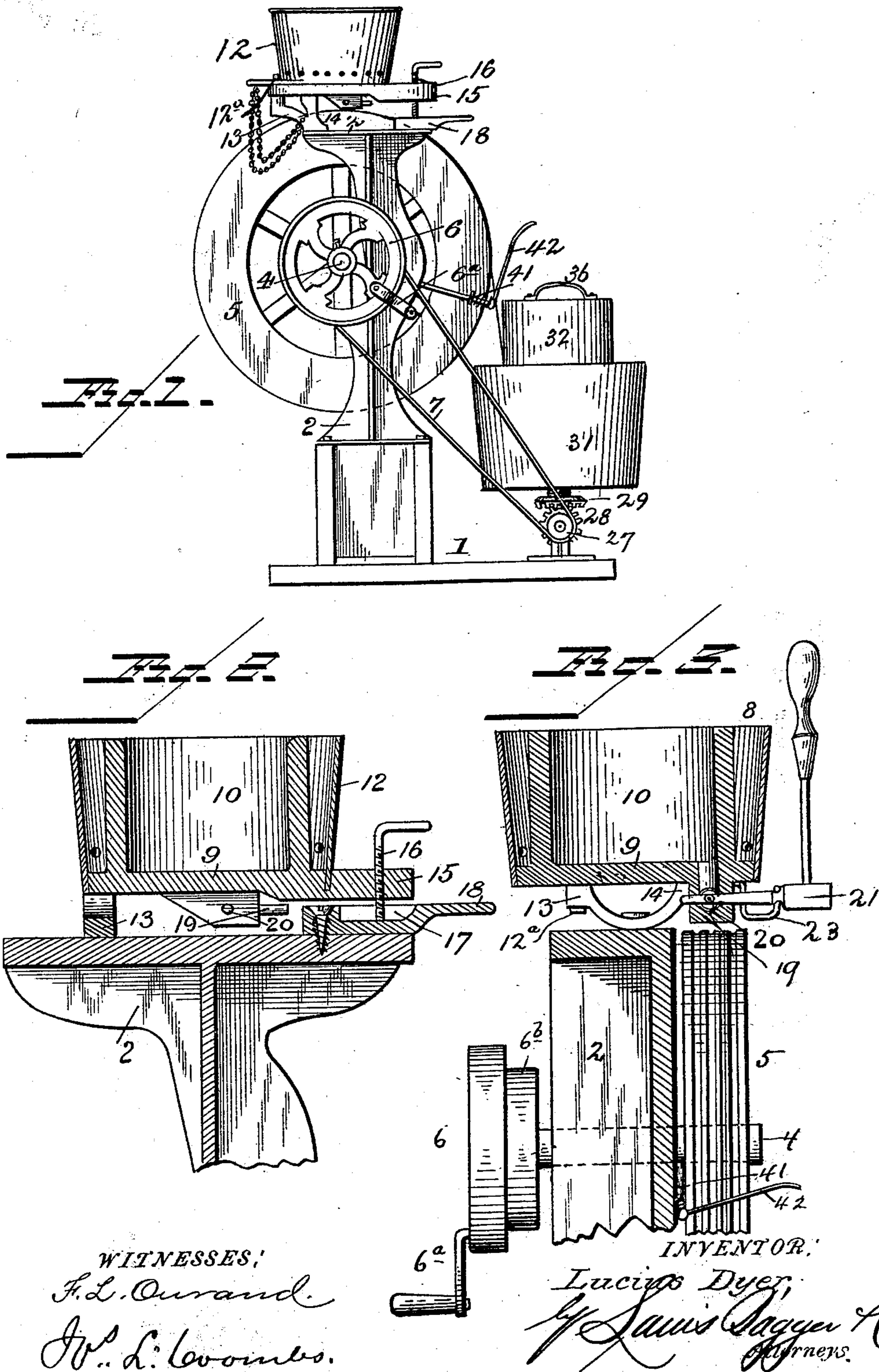
(No Model.)

2 Sheets—Sheet 1.

L. DYER.
WIRE SOLDER MACHINE.

No. 553,187.

Patented Jan. 14, 1896.



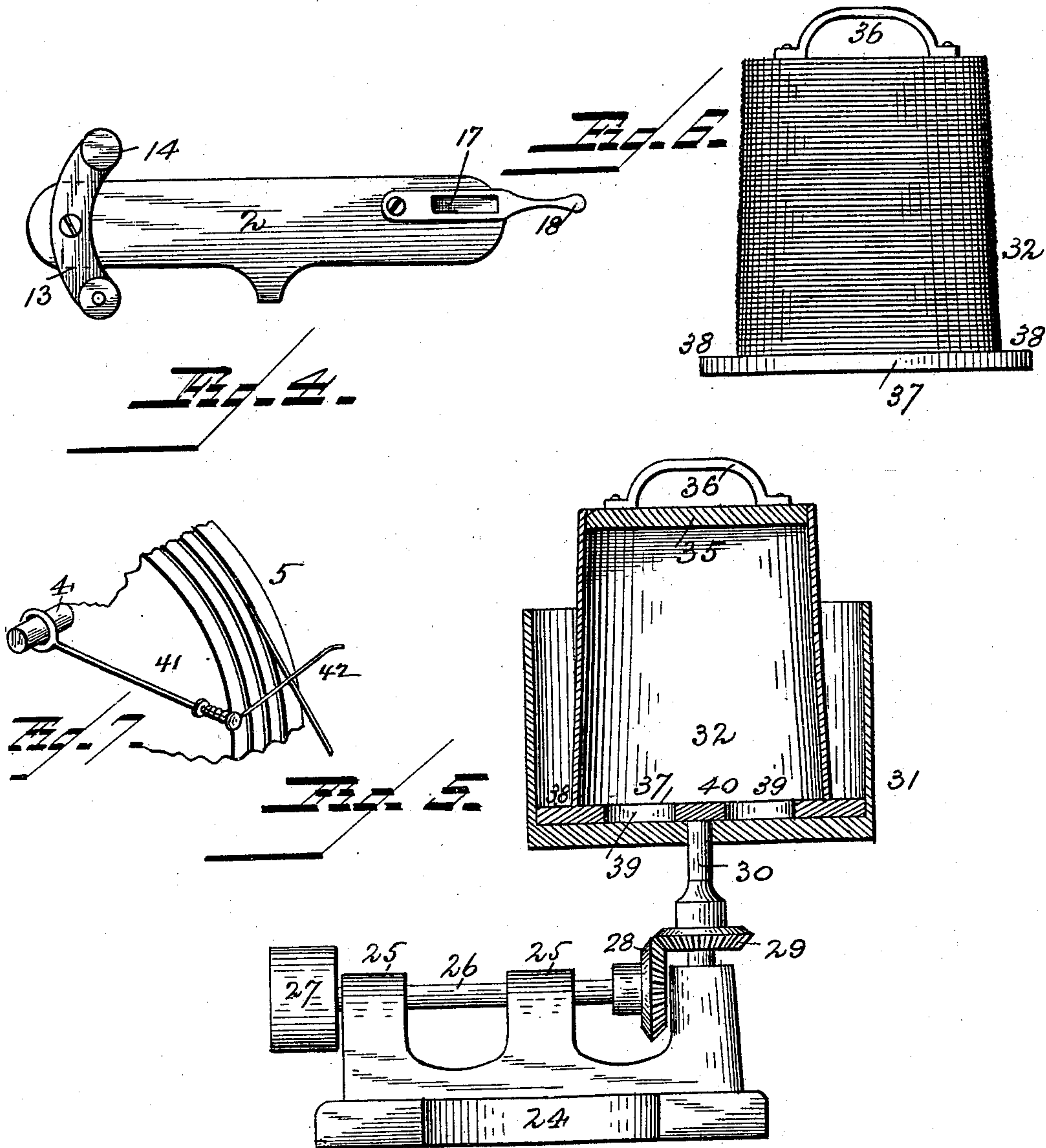
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UNITED STATES PATENT OFFICE.

LUCIUS DYER, OF MILLBRIDGE, MAINE.

WIRE-SOLDER MACHINE.

SPECIFICATION forming part of Letters Patent No. 553,187, dated January 14, 1896.

Application filed March 21, 1895. Serial No. 542,683. (No model.)

To all whom it may concern:

Be it known that I, LUCIUS DYER, a citizen of the United States, and a resident of Mill-bridge, in the county of Washington and State of Maine, have invented certain new and useful Improvements in Wire-Solder Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to improvements in machines for making solder-wire, of that class or description in which melted solder from a kettle or other receptacle is fed onto a rotatable wheel which forms it into wire, which wire is carried to a winding-drum and coiled thereon.

The object of the invention is to provide an improved coiling mechanism for such machines, by which the wire is uniformly wound around a drum located in a deep pan, which drum can be readily removed when a sufficient quantity of wire has been wound around the same, and inverted, so that the coiled wire will be disengaged therefrom.

It is also an object to provide an improved solder-kettle, which can be elevated and lowered, moved laterally to the right or left, or removed entirely when desired, without the use of wrenches or other similar tools.

The invention consists in the novel construction and combination of parts herein-after fully described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a machine for making solder-wire, constructed in accordance with my invention. Fig. 2 is a central longitudinal sectional view of the solder-kettle. Fig. 3 is a transverse section of the same. Fig. 4 is a plan view of the upper part of the vertical standard, the kettle being removed. Fig. 5 is a transverse section of the winding-drum and its pan. Fig. 6 is an elevation of the winding-drum, and Fig. 7 is a detail view of the grooved wheel.

In the said drawings, the reference-numeral 1 designates the bed or base of the machine, to which is secured a vertical standard 2, in which is journaled at right angles and about

midway of its height a shaft 4. At one end this shaft is provided with a hollow rotatable wheel 5, having one or more peripheral grooves, into which the melted solder is fed from the melting-kettle. At the other end the shaft is provided with two pulleys 6 and 6^b, one of which has a crank 6^a by which said shaft is rotated, and by which motion is transmitted by belt 7 to the winding-drum. The parts so far described constitute no part of my present invention, and may, therefore, be of any ordinary or suitable construction. Located above said hollow wheel is a melting-kettle 8, comprising a circular bottom 9 and a pot 10 for holding the solder, preferably made integral, of cast metal. Said bottom is also formed or provided with a vertical cylindrical jacket 12, having holes near the lower end, an annular space being thus formed between said jacket and the pot to receive charcoal or other fuel, by the combustion of which the solder in the pot is melted and kept in a fluid state. This circular bottom at its edge is formed with a lug 12^a, which is pivoted to an arm 13, which in turn is pivoted at or near its center to the upper end of the standard 2. The other end of this arm projects inwardly under the said bottom and is provided with a head 14, upon which the bottom rests. The kettle is thus supported at one side by the ends of said arm. Upon the opposite side the bottom is formed with an outwardly-projecting arm 15, having a screw-threaded aperture near its end in which works a screw-rod 16, the upper end of which is bent at an angle, forming a handle by which it may be rotated. The lower end of this rod works in a recess 17 on the upper side of a lever 18, the inner end of which is pivoted to the upper end of the standard 2, opposite to the arm 13. The bottom 9, on its underside, is formed with a nozzle 19 communicating with the melting-pot and projecting over the periphery of the hollow wire-forming wheel. Located in this nozzle is a rotatable valve 20, having a stem 21 by which it may be rotated to regulate or cut off the supply of solder to the wheel. Secured to said nozzle is a spring 23 consisting of a bent wire, the free end of which bears upon the valve rod or stem, and by friction serves to hold the same in any position to which it may be turned.

Secured to the base 1 is a bracket 24, having bearings 25, in which is journaled a rotatable shaft 26, having a pulley 27 at one end around which the belt 7 passes. Near its other end the shaft is provided with a bevel-pinion 28 which meshes with a corresponding pinion 29 on a vertical shaft 30, journaled in a vertical socket or bearing at one end of the bracket 24. Upon the upper end of this vertical shaft is mounted a deep cylindrical pan 31, in which is located a hollow tapering winding-drum 32, closed at its upper end by a head 35, provided with a hand-hold 36. The lower end of this drum is provided with a disk 37 of larger diameter than the drum, forming an annular rim or flange 38. This disk is provided with two apertures 39, having a central cross-piece 40 which serves as a hand-hold.

Fastened loosely upon the shaft 4, between the standard 2 and wheel 5 (see Figs. 1 and 3) is a radial arm or rod 41, which extends to the periphery of the wheel, where it is provided with a right-angled arm 42, Fig. 7, overlapping the peripheral grooves in said wheel. As the solder wire which is formed upon the wheel is carried thereby toward the winding mechanism, this arm 42 serves as a guide for the wire, as well as a tension device, by resting lightly against the wire, in the position illustrated in Fig. 7.

The operation is as follows: The solder is placed in the melting-pot and a fire built in the space between the same and the jacket. When the solder has been reduced to the proper degree of fluidity, the valve is opened, allowing it to flow in a continuous stream upon the grooved hollow wheel, which is rotated by the crank 6^a, or by power, if desired. As the liquid solder is received in the grooves of the wheel, it is shaped or molded therein, and rapidly hardens or solidifies, assuming the shape given to it by the grooves, so as to be formed into wire, which passes off on a tangential line to the rotatable pan and winding-drum. The pan surrounding the winding-drum is made deep, the top of the same just clearing the fall of the solder-wheel, so that the wire will coil itself uniformly in the pan around the coiling-drum inside, and when the wire is to be removed from the pan, the operator simply grasps the hand-hold at the top of the coiling-drum and lifts the same out. By now inverting the drum and grasping the cross-piece at the bottom thereof, it may be readily withdrawn from the coiled wire.

By moving the lever 18 to the right or left

the kettle may be shifted laterally, and by rotating the screw-rod 16 the kettle may be adjusted vertically with respect to the rotatable wheel. By removing the pivot which connects the kettle with the arms pivoted to the upper part of the standard 2 the kettle may be removed for cleaning or other purposes.

Having thus described my invention, what I claim is—

1. In a wire-solder machine, the combination with the kettle, the rotatable wheel, and its shaft and pulley, of the bracket, the bearings thereof, the shaft journaled in said bearings, having a pulley connected by a belt with said first-mentioned pulley; the rotatable pan, its shaft, and the pinions for rotating the same; and the winding-drum located in said pan, having hand-holds at each end; substantially as described.

2. In a wire-solder machine, the combination with the kettle, the rotatable wheel, and its shaft and pulley, of the bracket, the bearings thereof, the shaft journaled in said bearings, its pulley and pinion; the vertical shaft having a pinion, the pan mounted on said shaft, the winding-drum located in said pan, and the guide consisting of a rod journaled on the shaft of the rotatable wheel, and having a lateral arm; substantially as and for the purpose specified.

3. In a wire-solder machine, the combination with the base, the vertical standard and the rotatable wheel, of the kettle comprising the pot and jacket; the lug formed on the bottom thereof; the arm pivoted to said standard, one end of which is pivotally connected with said lug, while the other end projects underneath the kettle; the projecting arm formed with said kettle, having a screw-rod; the lever pivoted to said standard, having a recess with which said rod engages; and the nozzle and valve; substantially as described.

4. The combination with a kettle for a wire-solder machine, comprising the jacket, the melting-pot, and the nozzle, of the valve and valve-rod, and the spring-arm secured to said nozzle and its free end bearing upon said valve-rod; substantially as and for the purpose specified.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

LUCIUS DYER.

Witnesses:

FRED F. PARKER,
A. D. HOPKINS.