

No. 685,744.

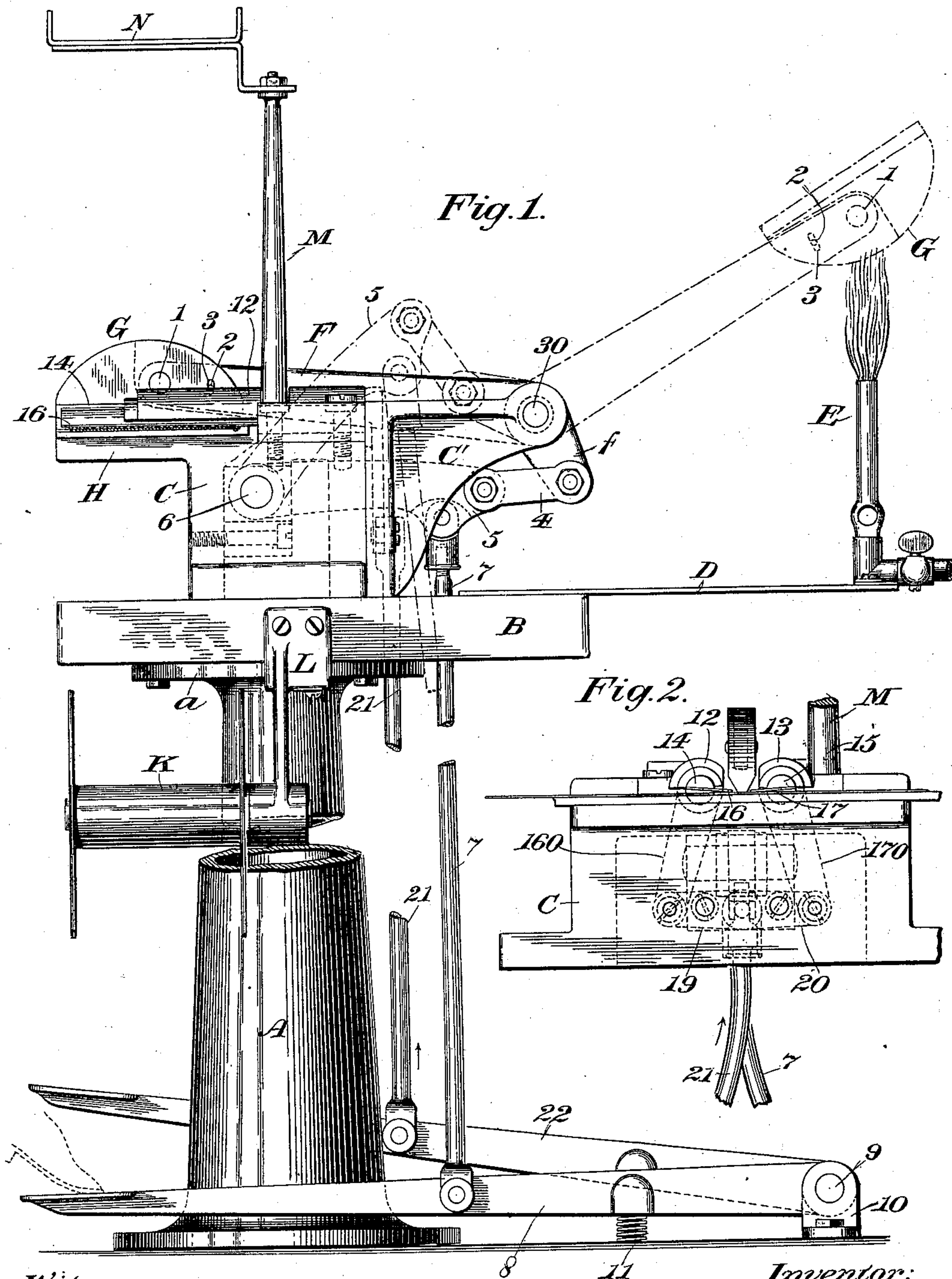
Patented Nov. 5, 1901.

W. E. CRANE.
SOLDERING MACHINE.

(Application filed Oct. 27, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

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Inventor:

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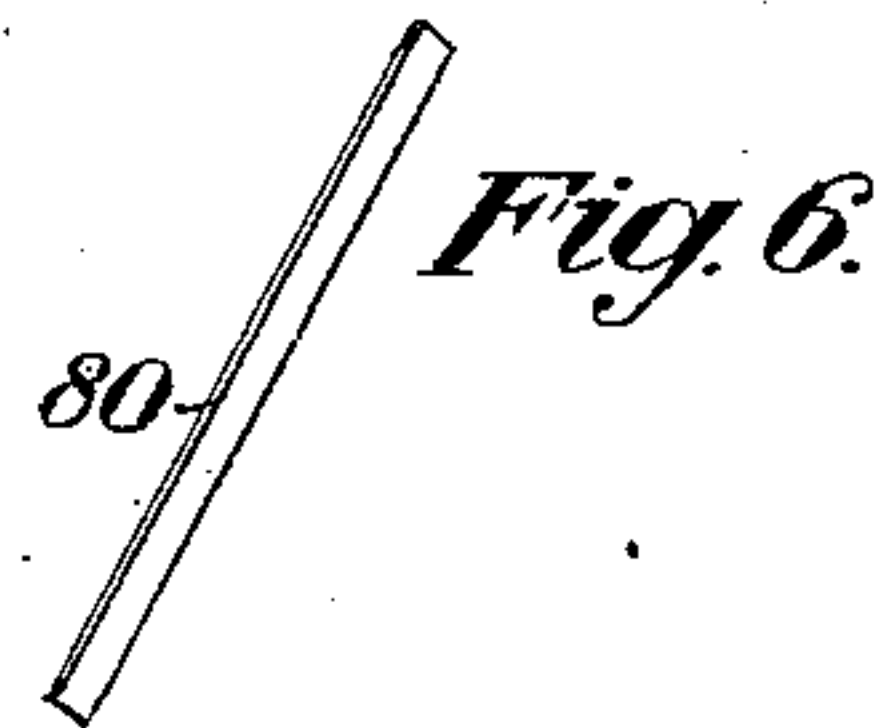
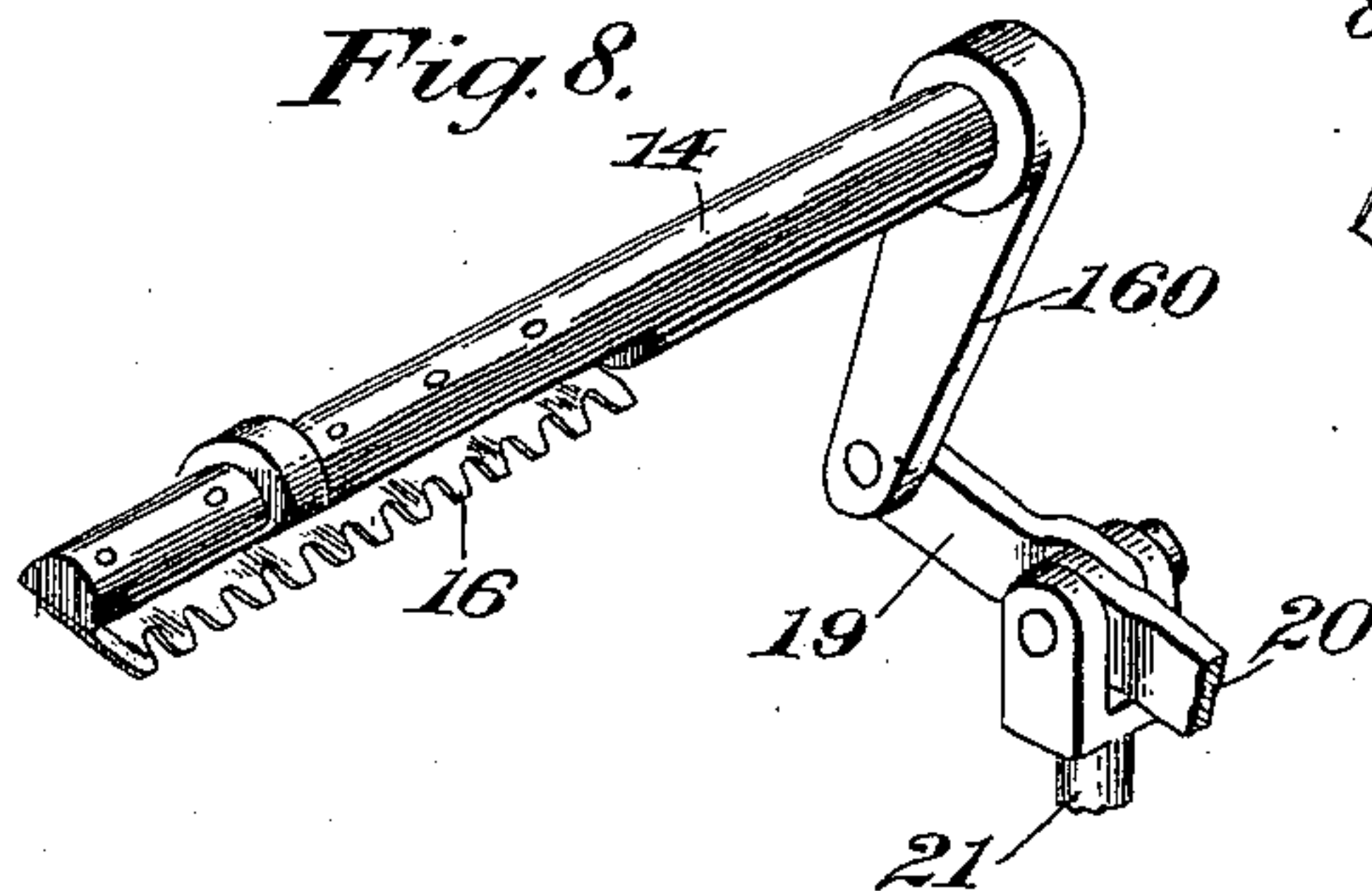
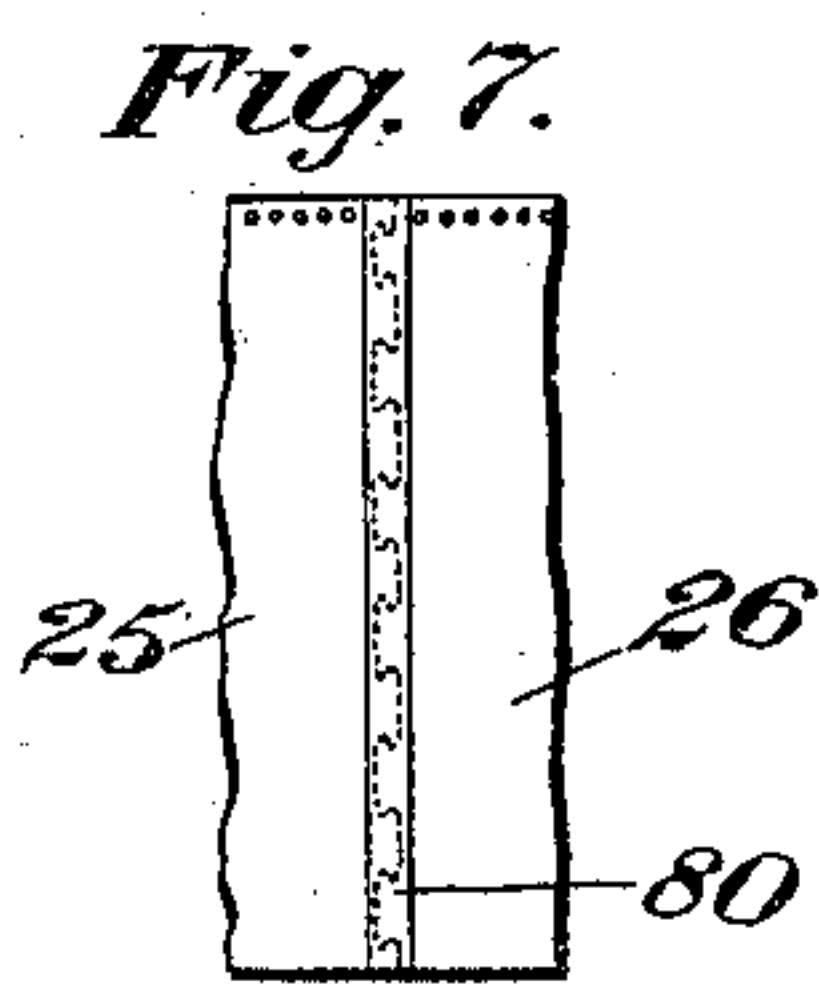
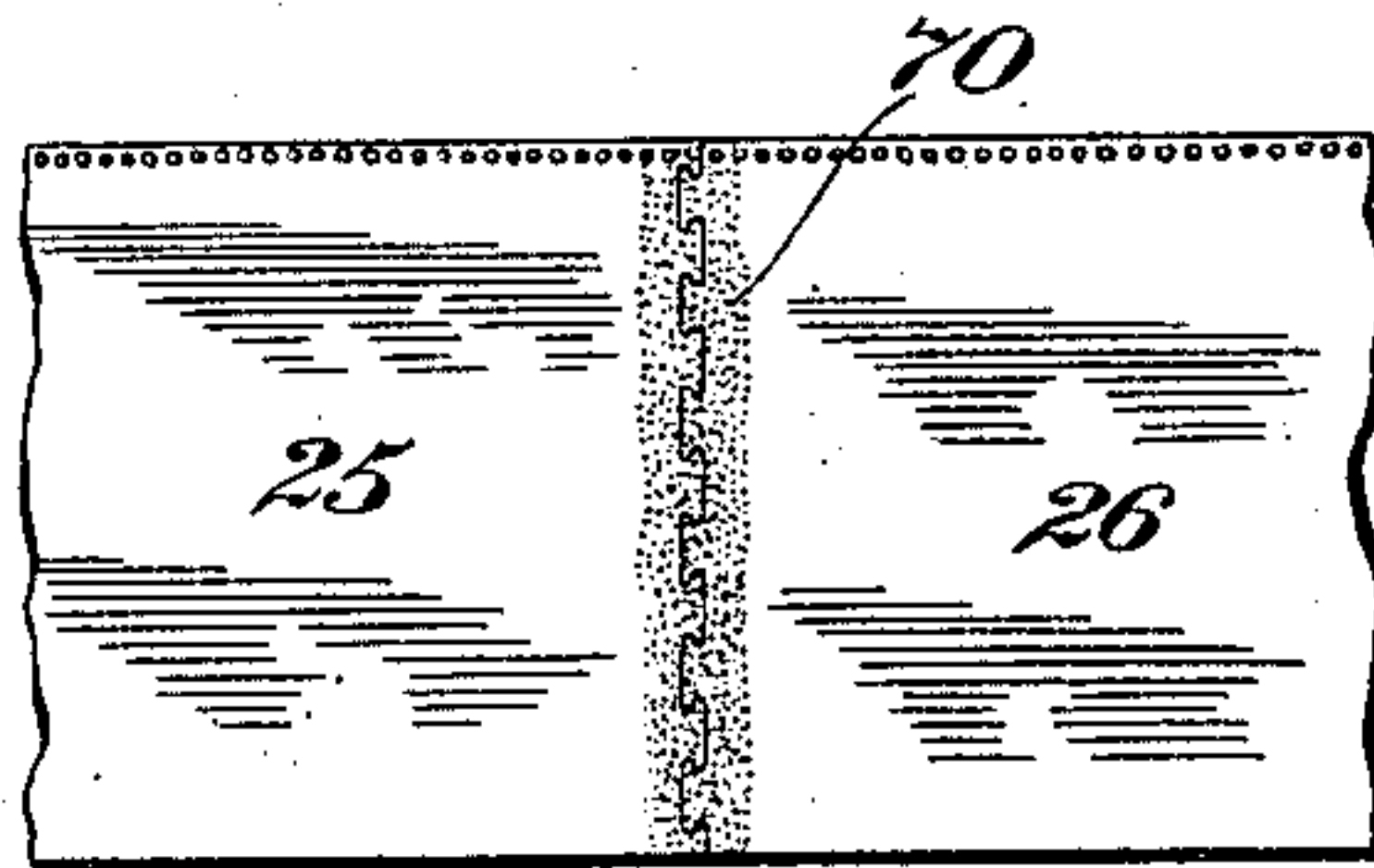
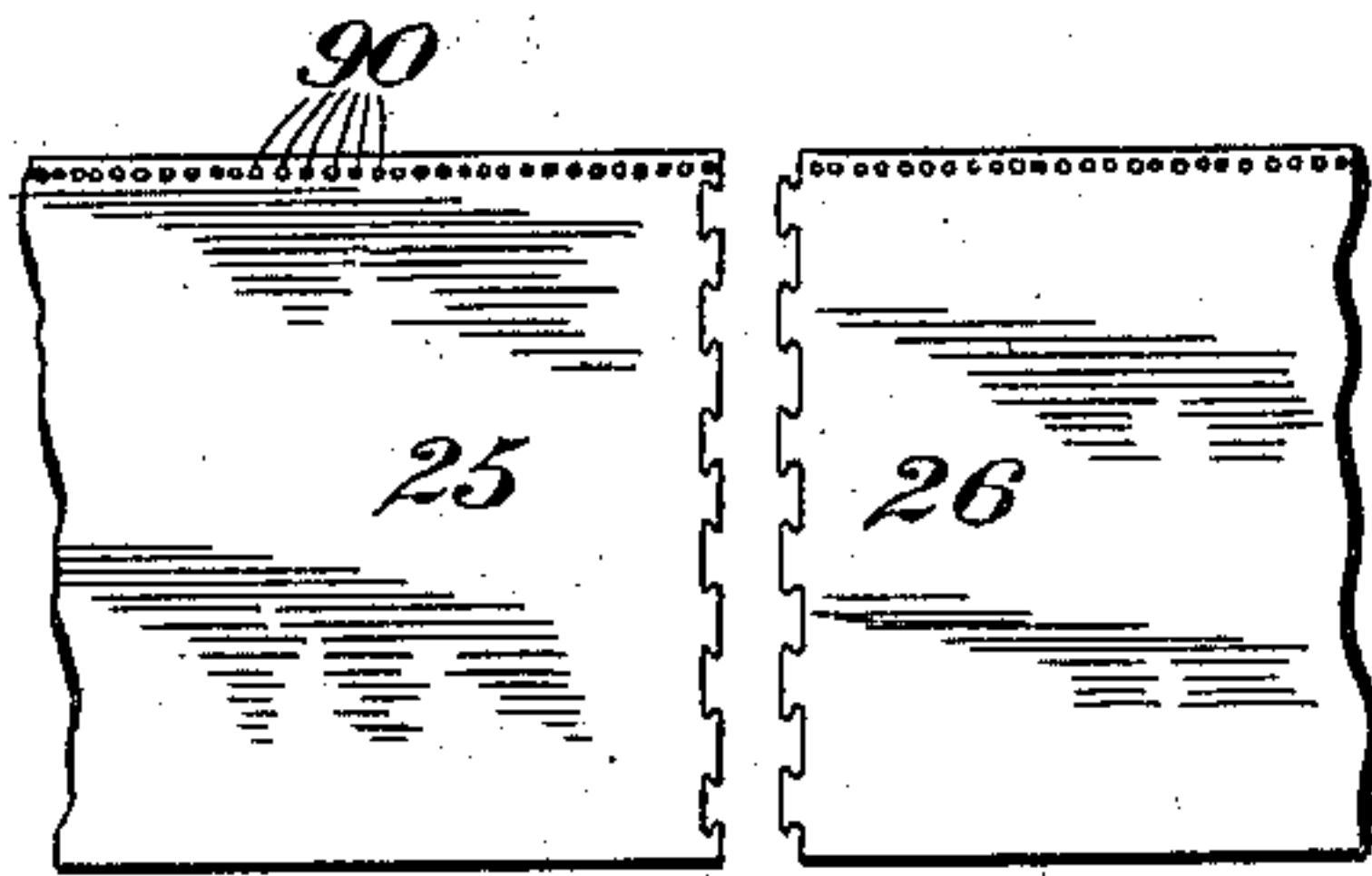
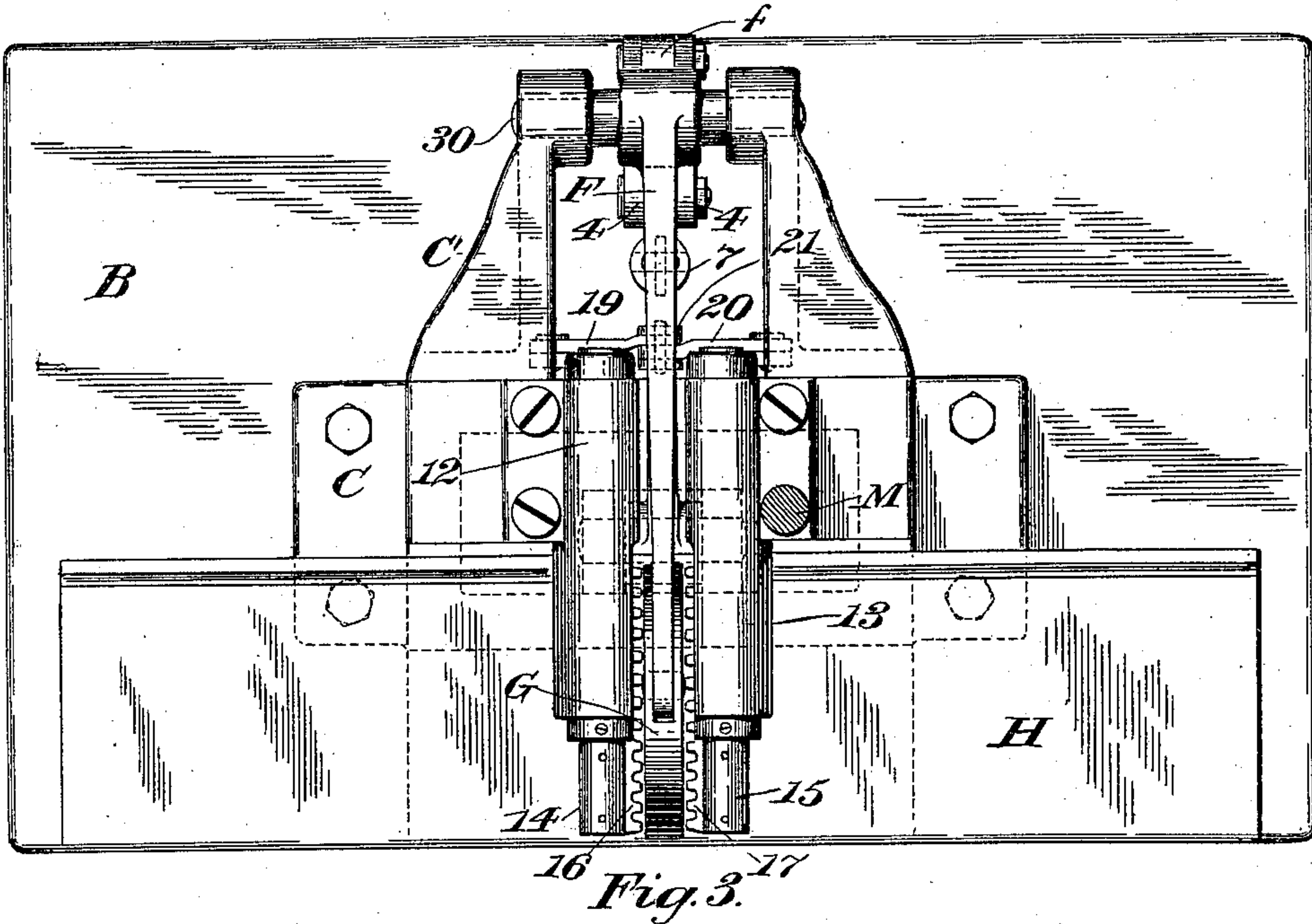
Patented Nov. 5, 1901.

W. E. CRANE.
SOLDERING MACHINE.

(Application filed Oct. 27, 1900.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

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SOLDERING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 685,744, dated November 5, 1901.

Application filed October 27, 1900. Serial No. 34,582. (No model.)

To all whom it may concern:

Be it known that I, WALTER E. CRANE, a citizen of the United States, residing in El Paso, in the county of El Paso and State of Texas, have invented certain new and useful Improvements in Soldering-Machines, of which the following is a specification.

This invention relates to a machine for uniting by means of a soldering operation adjacent edges of two strips of metal, and is primarily intended permanently to unite the notched joint of two sections of a continuous printing sheet or strip which is employed in what are known as "addressing-machines." These sheets or strips are generally formed of thin metal, such as sheet-brass, and are impressed by dies with the desired address in a suitable machine.

Often it becomes necessary to remove a certain address or addresses from the continuous sheet without disturbing the arrangement or location of the others thereon, and these addresses are cut out in short sections or blanks by a metal shearing or punching machine, which will leave the edges of the original sheet or strip in such form that they may readily be jointed or spliced together, or a new blank with the desired address embossed or impressed thereon may be inserted in place of the blank removed.

Primarily, the object of the invention is to provide a machine for uniting by soldering these connections or joints of the printing-strips, although the machine is not limited to this purpose, for, as will be obvious, it is adapted for application in the soldering of various kinds of work.

A further object of the invention is to equip a soldering-machine with means whereby the soldering-iron will normally be thrown up or away from the bed-plate and into contact with a suitable heat-producing agent—such, for instance, as a gas-jet.

A further object of the invention is to provide means for actuating the soldering-tool in order that it may accomplish its work upon the sheets to be united.

A further object of the invention is the provision of clamps and means for actuating the

same, said clamps serving securely to hold the ends of the adjacent parts to be united upon the bed-plate of the machine.

Referring to the accompanying drawings, Figure 1 is a side elevation of my improved soldering-machine, showing the soldering-iron down upon the strips to be united upon the bed-plate. Fig. 2 is a front elevation illustrating the soldering-iron in place upon the bed-plate and the clamps for holding the ends of the blank or sheets to be united. Fig. 3 is a plan view of the improved machine. Fig. 4 is a detail plan view of two sections of strips or sheets to be united, showing one form of a notched joint. Fig. 5 is a similar view showing the strips soldered together. Fig. 6 is a perspective view of a blank of thin sheet metal which may be employed to reinforce the joint. Fig. 7 is a plan view of a joint with such strip soldered thereon; and Fig. 8 is a detail in perspective of one of the arms or bars carrying the clamping-plate for holding the blanks or sheets, showing a part of the toggle connection for actuating said arm or bar.

Similar characters designate like parts in all the figures of the drawings.

A suitable frame, shown as of hollow pillar-like formation, is designated by the letter A, and at its upper extremity this frame is provided with a flange *a*, to which the bed-plate B of the soldering-machine proper may be secured in any well-known manner. Rising from the bed-plate is the machine-frame, (designated by C,) in which the various parts of my invention are arranged for operation in a manner hereinafter set forth. Attached to the bed-plate is an extension or bracket D for supporting a suitable heating device, shown as a gas connection E.

Pivoted in an extension C' of framework C is an arm or lever F, to the forward end of which a soldering-iron G is connected, as by a pivot 1, the movement of said soldering-iron around its pivot being limited by a pin 2, traveling in a short slot 3 in lever F. (See dotted lines, Fig. 1.) This soldering-iron is shown of oblong form and of a length sufficient on its working surface to conform to the width

of the bed-plate H, upon which the material to be united is placed.

Arm or lever F is pivoted at 30 to extension C' and is equipped with a downwardly-extending arm *f*, to which links 4 are connected, these links being in turn articulated to a longer link, shown by dotted lines in Fig. 1 and designated by the numeral 5, pivoted at 6 to the frame of the machine. These links 4 and 5 constitute a toggle connection for operating the arm or lever F, carrying the soldering-iron, in a manner hereinafter stated. Articulated to one of these links, as 5, is a pitman or rod 7, connected at its lower end to a treadle 8, pivoted at 9 to a short standard 10, bolted to the floor. This treadle is normally raised by a spring 11 and through the connections described tends automatically to throw the arm F and soldering-iron G to a position over the heating device. (See dotted lines, Fig. 1.) When treadle 8 is depressed, as shown in Fig. 1, the toggle connection is straightened and the soldering-iron is thrown to its position for work.

Mounted in suitable bearings 12 and 13 of the machine-frame C are rock shafts or bars 14 and 15, lying substantially parallel to the joint to be soldered and in proximity thereto, to which clamping-plates 16 and 17 of considerable length and serrated along their lateral edges toward the joint to be soldered are attached, the serrations of said plates forming a series of separated bearing-points for clamping the plates at intervals, and thereby permitting a free flow of the soldering material. Projecting from each of these bars 14 and 15 are extensions 160 and 170, respectively connected at their lower ends to links 19 and 20, which constitute a toggle-joint. Articulated to these links 19 and 20 is a pitman or rod 21, pivoted at its lower end to a treadle 22, which is in turn mounted upon the pivot 9 of bracket 10, attached to the floor. A suitable spring, (not shown,) similar to the spring 11, heretofore described, will be employed for normally raising said treadle 22, and thereby through the connections described simultaneously throwing the serrated clamping-plates to the position shown in Fig. 2, where they operate to hold the work to be soldered upon the bed-plate of the machine.

For receiving the strips when united by the soldering operation an ordinary reel K may be removably secured in a bracket L, projecting from the bed-plate B, as shown in Fig. 1.

Rising from the machine-frame C is a standard M, to which a table or support N may be attached for sustaining a portion of the continuous strip while the notched end thereof is being spliced or connected to an additional blank or strip in the manner described.

In operation my improved machine works as follows: The notched strips or sheets 25 and 26 to be united (shown detached in Fig. 4) are first coupled together upon the bed-plate H of the machine in the manner shown

in Fig. 5, and a layer of soldering material 70 is then applied to the joint, as shown by stippling in Fig. 5, or, if necessary, a strip 80 for reinforcing said joint is applied (see Figs. 6 and 7) and the sheet is advanced by hand or otherwise to bring the joint beneath the clamping and soldering devices of the machine. When this result has been accomplished, treadle 8 is depressed by the foot, as shown in Fig. 1, and treadle 22 is released, which will permit the clamping-plates 16 and 17, carried by the rock-shafts 14 and 15, to swing downward into contact with the sheets at each side of the joint and clamp them upon the bed-plate, as shown in Fig. 2. When treadle 8 is depressed by the operator, as shown in Fig. 1, the soldering-iron is swung from the position shown in dotted lines in said figures to that represented by full lines therein, and its lower surface is brought into contact with the soldering material or such material and the strips placed upon the joint to fuse the solder thoroughly and unite the parts. After this operation has been accomplished treadle 8 is released and spring 11 throws the connections controlled thereby and the soldering-iron to the position shown in dotted lines in Fig. 1 and over the heating device B. These operations are carried on as desired, and the strips when united form a continuous sheet which is wound upon the reel K, which may readily be removed for the purpose of placing it in the printing or addressing machine. At one edge these strips are shown provided with a series of indentations 90, which are adapted to cooperate with feed mechanism of the addressing-machine in which the strip is to be employed. To permit a slight rocking movement of the soldering-iron as it is applied to the work, said iron is pivoted, as above stated, to the end of the arm or lever F, and its action in this respect is limited by the pin-and-slot connection shown.

My invention is not limited to the precise details illustrated and described, for they may be modified and still be within the scope thereof. Furthermore, the character of heating agent is immaterial, that shown being simply for the purpose of illustration.

By serrating the clamping-plates 16 and 17 in the manner shown in Fig. 6 the solder is permitted readily to flow over the joint to be united and to fill all the interstices thereof, and the series of bearing-points on the plates 16 and 17 press at intervals upon the sheets, and therefore do not interfere with the dispersion of the solder along the joint.

Having described my invention, I claim—

1. In a machine of the class described, the combination, with a bed-plate upon which the articles to be united may rest at the joint between them, of rock-shafts lying substantially parallel to the joint and in proximity thereto, movable clamps attached to the rock-shafts adapted to contact with the parts to be united at each side of the joint to press them against

the bed-plate; a soldering-iron; and means for actuating the same to cause it to pass between the clamps and act upon the work.

2. In a machine of the class described, the combination, with a bed-plate upon which the articles to be united may rest at the joint between them, of rock-shafts lying substantially parallel to the joint and in proximity thereto, clamps attached to the rock-shafts adapted to contact with the articles to be united at each side of the joint to press them against the bed-plate; means for simultaneously rocking said shafts; a soldering-iron; and means for actuating the same to cause it to pass between the clamps and act upon the work.

3. In a machine of the class described, the combination, with clamping-plates serrated along their lateral edges toward the joint to be soldered, of means for actuating said plates, and a soldering-iron for operating upon the work.

4. In a machine of the class described, the combination, with a bed-plate and clamps for securing the material to be soldered thereto, of a pivoted soldering-iron; means controlled by the operator for positively actuating said soldering-iron in one direction to cause it to operate upon the work; and a spring for au-

tomatically throwing said soldering-iron to its inoperative position.

5. In a machine of the class described, the combination, with a bed-plate upon which the work to be soldered is supported, of a soldering-iron pivoted at one end to said bed-plate; a toggle for operating said soldering-iron; and means for actuating said toggle.

6. In a machine of the class described, the combination, with rock-shafts carrying clamping-plates serrated along the lateral edges toward the joint to be soldered, of a toggle connection for actuating said rock-shafts, and a pivoted soldering-iron adapted to be applied to the work between said clamping-plates.

7. In a machine of the class described, the combination, with a bed-plate, of two separated rock-shafts each carrying a clamping device; a toggle connection for actuating said rock-shafts; a lever pivoted to the machine-frame; a soldering-iron movably connected to one end of said lever; and a toggle for actuating said lever.

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Witnesses:

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