

No. 843,809.

PATENTED FEB. 12, 1907.

W. B. HANKINS.
FLUE WELDING MACHINE.
APPLICATION FILED APR. 28, 1904.

2 SHEETS—SHEET 1.

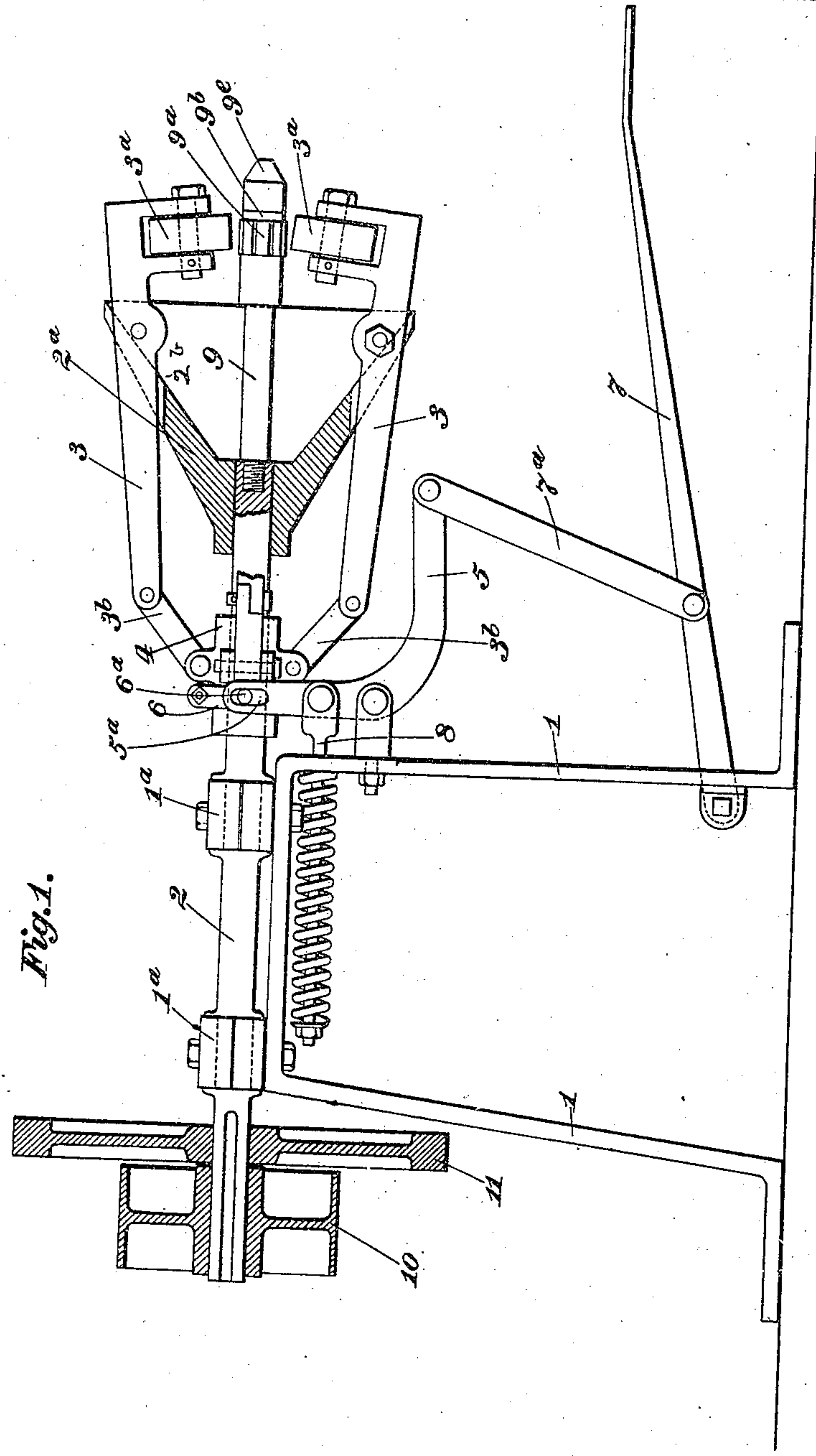


Fig. 1.

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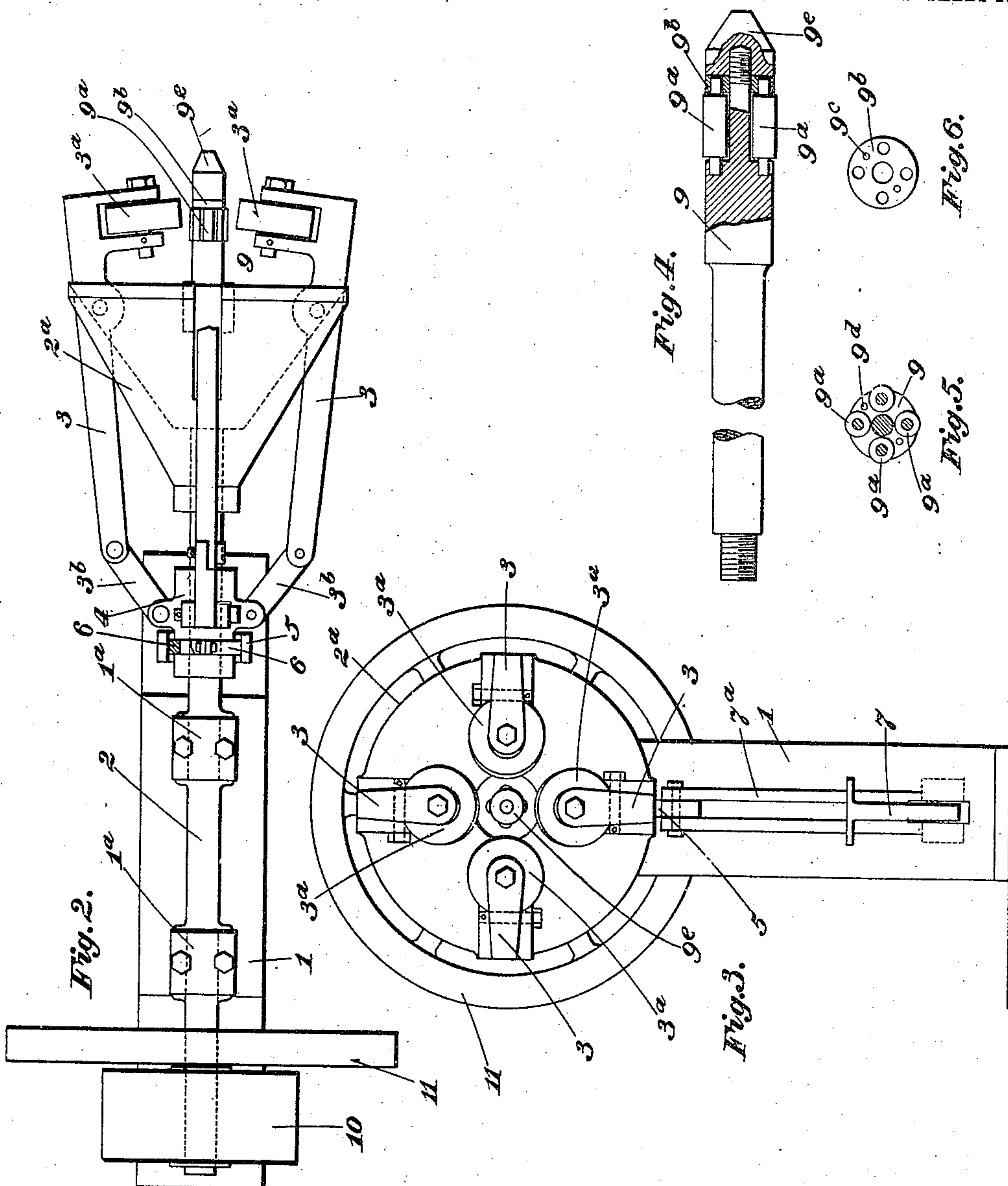
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UNITED STATES PATENT OFFICE.

WILLIAM BENEDICK HANKINS, OF MOUNT VERNON, OHIO, ASSIGNOR OF
ONE-HALF TO WILLIAM E. SEFTON, OF MOUNT VERNON, OHIO.

FLUE-WELDING MACHINE.

No. 843,809.

Specification of Letters Patent.

Patented Feb. 12, 1907.

Application filed April 28, 1904. Serial No. 205,301.

To all whom it may concern:

Be it known that I, WILLIAM BENEDICK HANKINS, a citizen of the United States, residing at Mount Vernon, in the county of Knox and State of Ohio, have invented certain new and useful Improvements in Flue-Welding Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of this invention is to provide an improved machine for welding tubes, whereby the operation can be performed with speed, thoroughness, and neatness.

The invention is embodied in the construction hereinafter described and claimed.

In the accompanying drawings, illustrating one embodiment of the invention, Figure 1 is a side elevation with parts in section. Fig. 2 is a top view with parts broken out. Fig. 3 is a front view. Fig. 4 is a fragmentary view, partly in section, of a welding-mandrel that can be used in the machine. Fig. 5 is an end view of the mandrel with the rollers thereof and their securing devices removed. Fig. 6 is a face view of a bearing-ring for the rollers in the mandrel.

In the several views, 1 designates the supporting-frame, and 2 a rotatable shaft mounted in appropriate bearings 1^a at the top of the frame. On the front end of the shaft 2 is secured a heavy cone-shaped bracket 2^a, having a solid continuous rim slitted, as seen at 2^b, for the passage of the levers 3 and containing the bearings for said levers. In the outer ends of the levers 3 are rollers 3^a. The rear ends of the levers 3 are connected by links 3^b to a sleeve 4, adapted to slide longitudinally on the shaft 2. Pivoted on the front of the frame 1 is a bell-crank lever 5, having its upper end bifurcate, the arms of the bifurcation being provided with slots 5^a, into which project lateral studs 6^a of a strap 6, fitting in an annular groove in the sleeve 4. The lower arm of the bell-crank lever has attached to it, by means of a rod or rods 7^a, a foot-lever 7.

Attached to the upper arm of the bell-crank lever below the bifurcate end thereof is a rod 8, having a nut at its rear end, said rod reaching back under the top of the machine, and encircling this rod between the nut and the frame is a coil-spring that tends

to draw the sleeve 4 rearward, and therefore to throw the rollers 3^a outward. 9 designates the mandrel. In order that other mandrels may be substituted for that shown, it is threaded into the forward end of the shaft 2. When the machine is used for welding, the forward extremity of the mandrel is furnished with several rollers 9^a, journaled at one end in the body of the mandrel-bar and at their other end in a ring 9^b, the ring being held in position by pins 9^c thereon entering sockets 9^d in the end of the mandrel-body between the roller-chambers therein and a cap-nut 9^e screwed up behind the ring.

The rear end of the shaft 2 is furnished with a band-wheel 10 and fly-wheel 11, both keyed on said shaft. The fly-wheel 11 and the heavy cone-bracket 2^a balance the shaft 2 and furnish good momentum.

The shaft 2 being rotated, the operation is as follows: The tube to be welded or otherwise treated is placed on the mandrel and pressure applied to the foot-lever 7 to move the sleeve 4 forward or toward the operator. This throws the forward ends of the levers 3 inward and the rollers 3^a, carried thereby, onto the exterior of the tube. These exterior rollers 3^a thus act in conjunction with the interior rollers 9^a to press the metal to be treated together, thereby welding it.

With this machine the welding operation is rapid, and because treated alike at all points on both sides is smooth and clean.

Changes in the forms of the parts can of course be made without departing from the gist of the invention.

What I claim, and desire to secure by Letters Patent, is—

1. In a machine for treating tubular metal, the combination with a supporting-frame, of a rotatable shaft journaled in said frame, a weighted cone-shaped bracket fixed at its apex end on one end of said shaft, levers pivoted to the base or flared end of said cone, means on one end of said levers to act on the exterior of a tube or tubes, means for operating said levers at their other ends, a cooperating mandrel to act on the interior of a tube or tubes, and a counterbalancing device mounted on the end of the shaft remote from said cone.

2. In a machine for treating tubular metal, the combination with a supporting-frame, of a rotatable shaft journaled in said frame, a

weighted cone-shaped bracket mounted at its apex end on one end of said shaft, said bracket having a continuous outer rim provided with slits, levers pivoted in said slits, means on one end of said levers for acting on the exterior of a tube or tubes, means for operating said levers at their other ends, a cooperating mandrel to act on the interior of a tube or tubes, and a counterbalancing device

mounted on the end of the shaft remote from said cone.

In testimony whereof I affix my signature. in presence of two witnesses.

WILLIAM BENEDICK HANKINS.

Witnesses:

W. P. HOUGH,
CHAS. E. AYERS.