(No Model.)

2 Sheets—Sheet 1.

T. F. ROWLAND, Jr.

WELDING MACHINE.

No. 547,939. Patented Oct. 15, 1895.

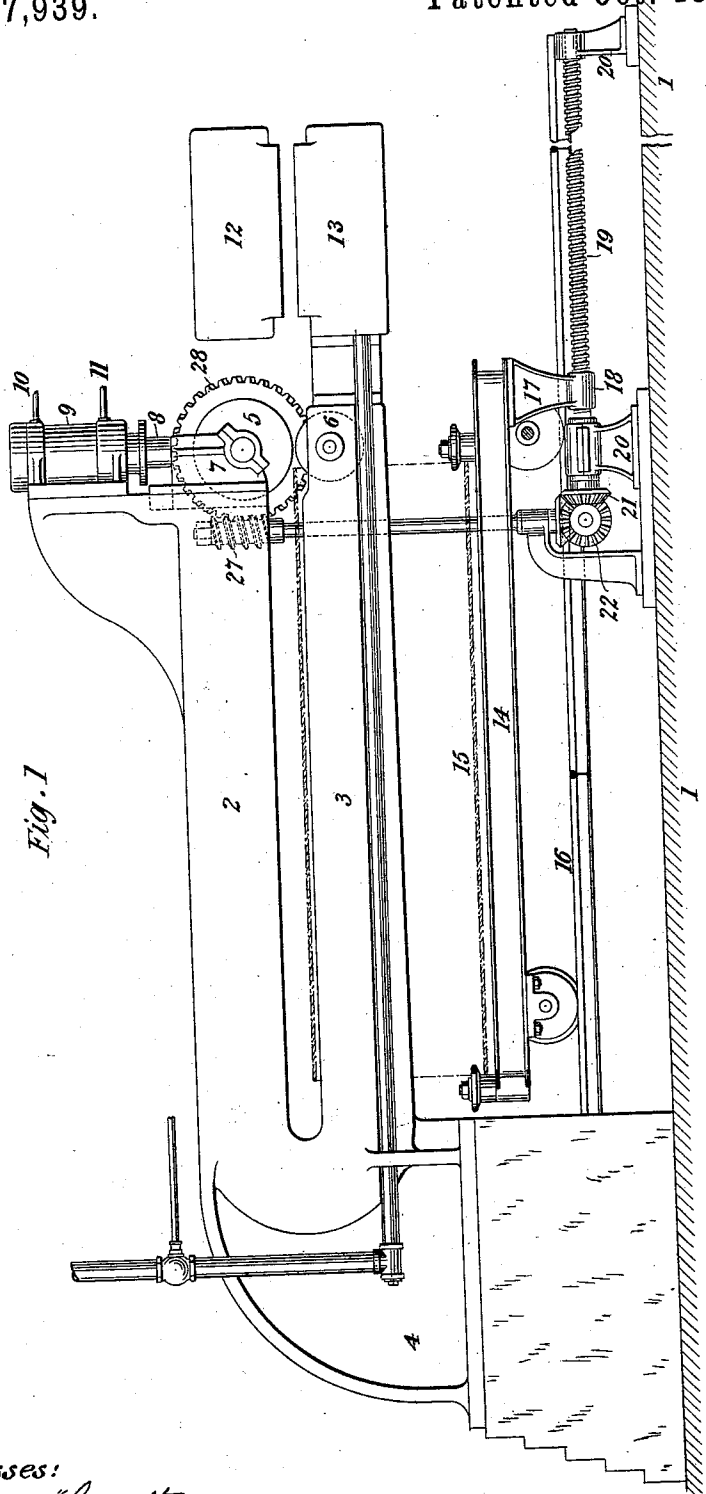

Fig. 1

Witnesses:
Raphael Vetter
Robt. F. Gaylord

Inventor:
Thomas F. Rowland, Jr.
by Duncan Page, Attorneys.

(No Model.) 2 Sheets—Sheet 2.

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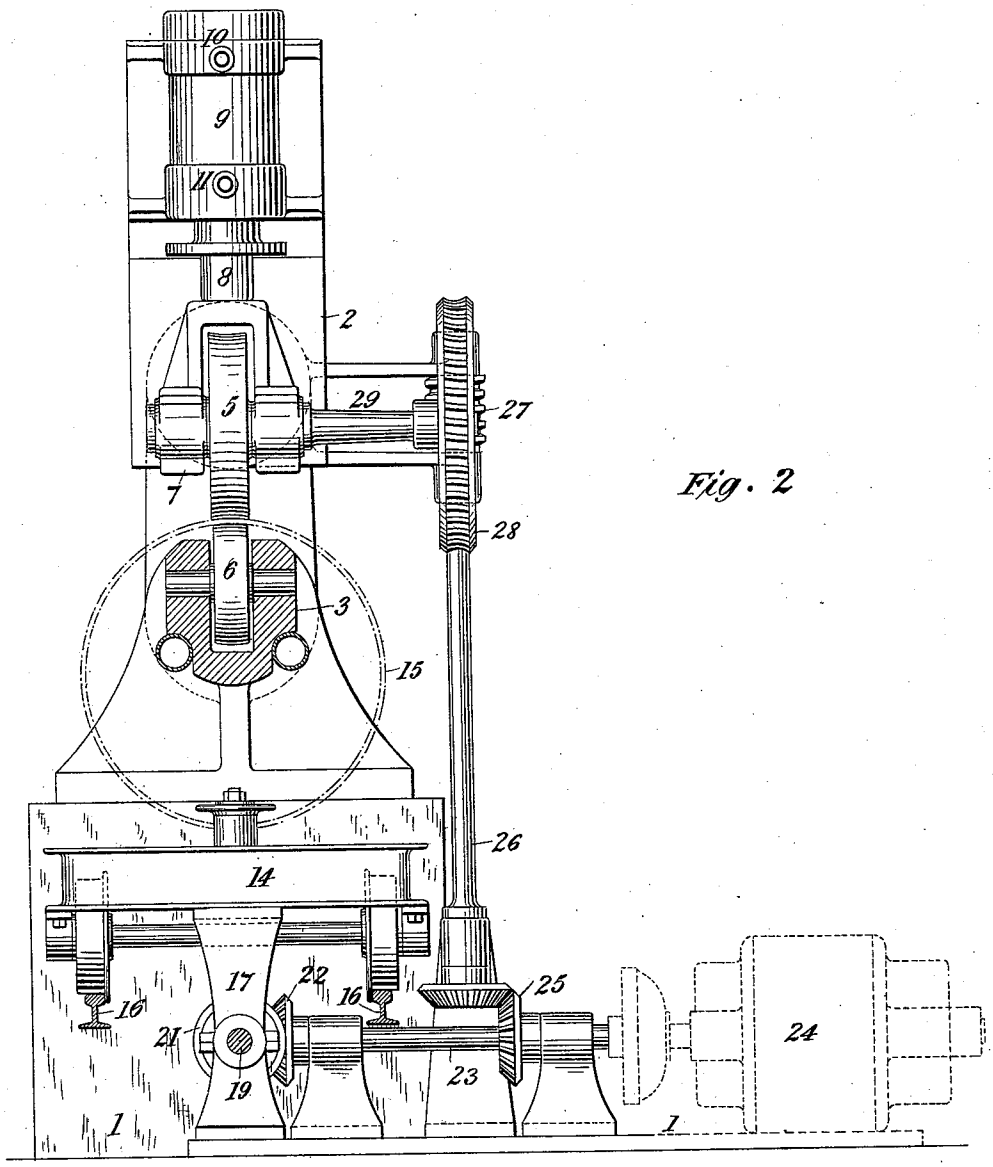

Fig. 2

Witnesses:
Raphaël Netter
Robt. F. Gaylord

Inventor
Thomas F. Rowland, Jr
by Duncan & Page, Attorneys.

UNITED STATES PATENT OFFICE.

THOMAS F. ROWLAND, JR., OF BROOKLYN, ASSIGNOR TO THOMAS F. ROWLAND, SR., OF NEW YORK, N. Y.

WELDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 547,939, dated October 15, 1895.

Application filed July 19, 1895. Serial No. 556,458. (No model.)

To all whom it may concern:

Be it known that I, THOMAS F. ROWLAND, Jr., a citizen of the United States, residing in Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Welding-Machines, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

The present improvements relate to welding-machines, and particularly to such machines when adapted to operate upon thick blanks.

One of the essential objects of the present invention is to provide means whereby the welding-rolls and the blank-carrying carriage of a welding-machine will be operated by mechanism positively connecting the same, the carriage having a linear speed the same as the circumferential speed of the welding-rolls.

Referring to the drawings accompanying this specification, Figure 1 is a side elevation view of one form of mechanism embodying my invention. Fig. 2 is an end elevation, on a larger scale, from the right-hand end of Fig. 1, the furnace structures being removed and the lower arm of the machine being cut in vertical cross-section through the axis of the lower roller.

Referring to the drawings in detail, the numeral 1 represents the groundwork upon which this machine is supported.

2 and 3 represent, respectively, the upper and lower arms or horns of the machine, which arms are joined together at their base 4 and are of the usual U shape, or are arranged parallel to each other in any suitable manner. These arms bear the welding-rolls 5 and 6, the latter roll being non-adjustably journaled in the lower arm. The upper roll 5 is journaled in the traveling block 7, which slides vertically on ways on the end of the upper arm and is attached to piston 8 of the hydraulic cylinder 9, fixedly secured in vertical position at the end of the upper arm. The pipes 10 and 11 supply the cylinder with suitable motor fluid under pressure. By these means the upper roller is made to move to or from the lower roll to apply to the blank being operated on by the rolls any suitable welding-pressure.

12 and 13 represent furnaces for heating the blank, which furnaces may be supported in any suitable manner.

14 represents the blank-carriage, 15 (in dotted lines) indicating the blank secured and carried thereon. This carriage runs on rails 16 and is provided with a bracket 17, the lower end or threaded sleeve 18 of which runs on the screw-rod 19, journaled in the standards 20, so as to have rotary motion but not lengthwise motion. This screw-rod carries the beveled gear 21, which meshes with the gear 22 on the driving-shaft 23, which is operatively connected to any suitable power mechanism, as the electric motor 24. Gear 25 on the driving-shaft meshes with and operates the vertical shaft 26, which carries a worm 27, meshing with the screw-wheel 28, mounted on the shaft 29 of the upper roll, which worm is of a length greater than any required vertical adjustment of the upper roller, whereby the adjustment of said roller does not affect the meshing relation of the worm with the screw-wheel. The size of the various gears and the arrangement of the threads of the screw-shaft and the worm-shaft are such that the peripheral speed of the upper roller will be the same as the linear speed of the blank-carriage. By these means it is assured that the blank mounted on the carriage and running between the welding-rolls being operated upon by the same will be positively forced between the rolls and without slipping. It is well understood in this art that if the welding-rolls be alone relied upon to effect the feed of the blank, then oftentimes the welding-rolls will drag or slip on the blank. In cases where the blank is driven by power controlled separately of the means or power for driving the rolls, then difficulty is likely to ensue by reason of the speed of the blank varying from the speed of the rolls. By the mechanism here shown the blank is forced to enter between the rolls, which also act with corresponding speed to draw the blank, and any unusual resistance at the seam of the blank is readily overcome without distorting the blank or springing the seam. At the same time it results that welding together the edges of the blank can by such a machine be more perfectly and rapidly accomplished than by mechanism in which

the welding-rolls are driven independently of the blank-carriage.

What is claimed as new is—

1. In combination in a welding machine, a pair of welding rolls, blank supporting carriage, and driving mechanism for operating one of the rolls and also the carriage, so that the feed movement of the blank will be the same as the peripheral speed of the welding rolls, substantially as set forth.

2. In combination in a welding machine, the arms 2 and 3, one carrying the welding roll 6, and the other carrying the roll 5 and mechanism for adjusting the same, a blank feeding carriage, and driving mechanism for simultaneously operating the adjustable welding roll and the carriage so that the blank is positively fed to the rolls in accordance with their peripheral speed, substantially as set forth.

THOS. F. ROWLAND, JR.

Witnesses:
CHAS. H. CORBETT,
THOS. F. ROWLAND.