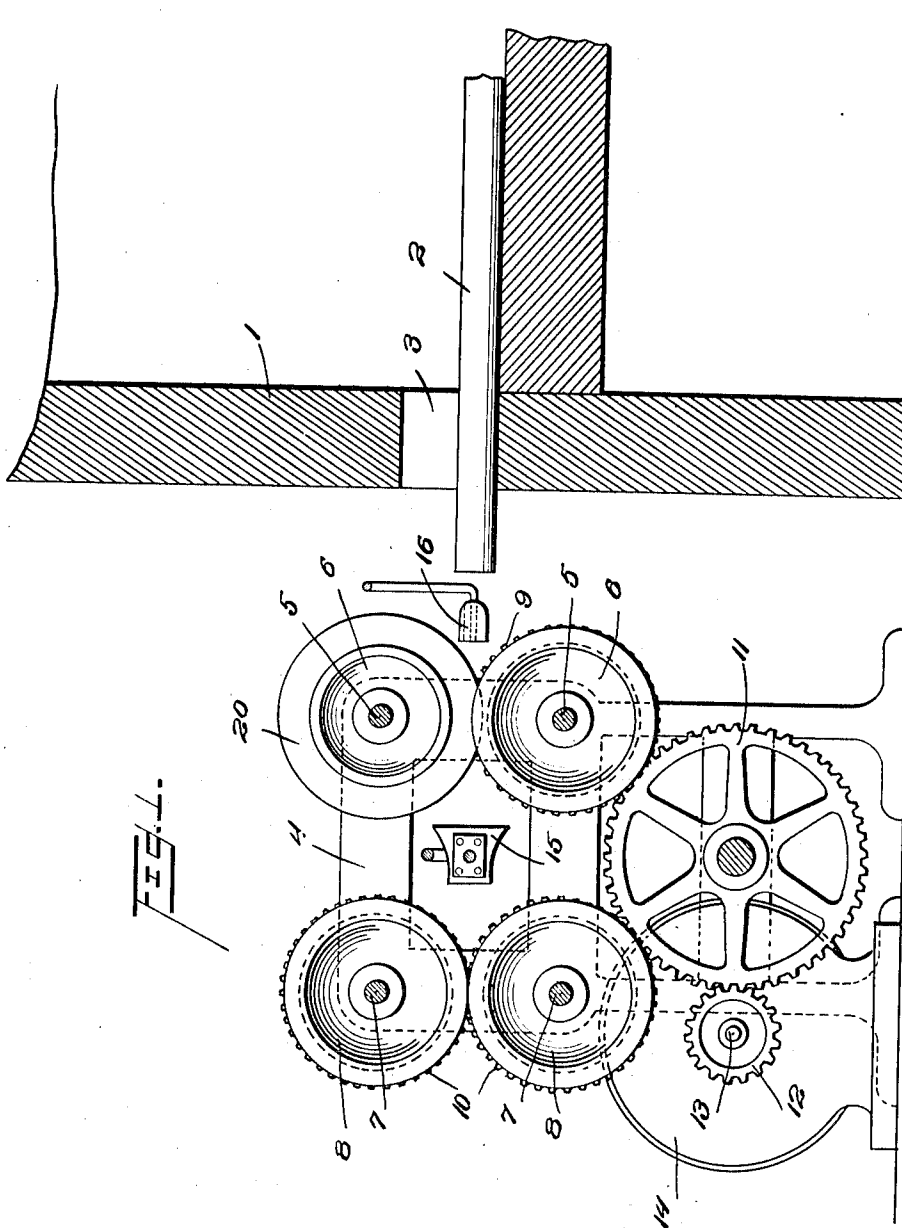


J. SNYDER & A. THOMAS.
TUBE WELDING APPARATUS.
APPLICATION FILED MAY 29, 1911.

1,019,852.

Patented Mar. 12, 1912.
2 SHEETS—SHEET 1.



Witnesses
H. Strauss
R. V. Krenkel.

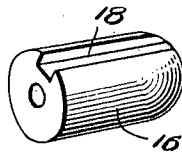
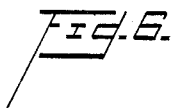
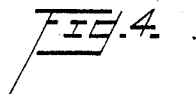
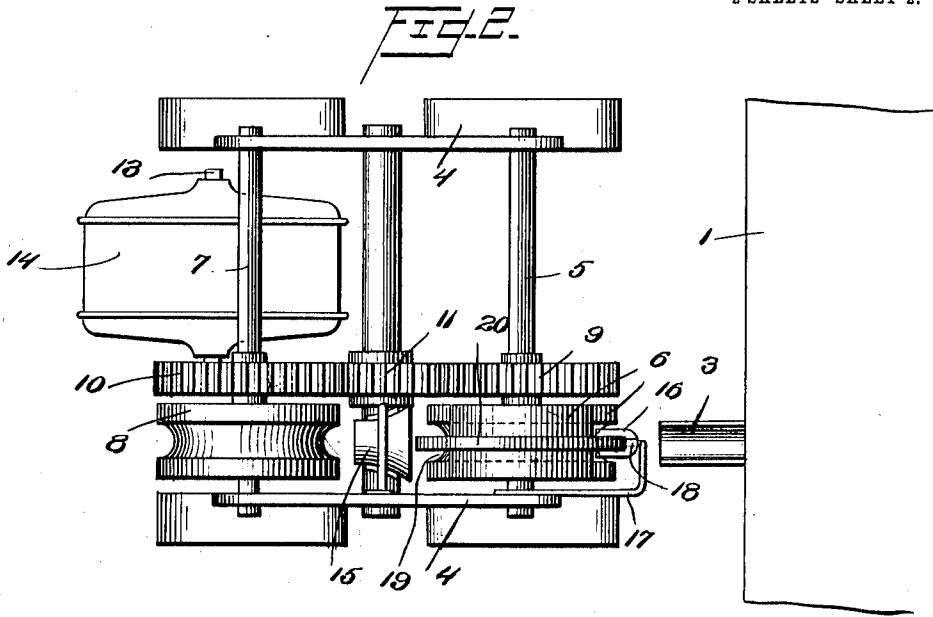
Inventor
Joseph Snyder
Abel Thomas
By Joshua R. T. Totts.
Attorney

J. SNYDER & A. THOMAS.
TUBE WELDING APPARATUS.
APPLICATION FILED MAY 29, 1911.

1,019,852.

Patented Mar. 12, 1912.

2 SHEETS—SHEET 2.



Witnesses

W. Strauss
R. H. Krenkel

Inventor

Joseph Snyder
Abel Thomas

By

Joshua R. N. Fottis
Attorney

UNITED STATES PATENT OFFICE.

JOSEPH SNYDER AND ABEL THOMAS, OF CONSHOHOCKEN, PENNSYLVANIA.

TUBE-WELDING APPARATUS.

1,019,852.

Specification of Letters Patent.

Patented Mar. 12, 1912.

Application filed May 29, 1911. Serial No. 630,109.

To all whom it may concern:

Be it known that we, JOSEPH SNYDER and ABEL THOMAS, citizens of the United States, residing at Conshohocken, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Tube-Welding Apparatus, of which the following is a specification.

Our invention relates to improvements in tube welding apparatus, the object of the invention being to provide an improved construction and arrangement of drawing rolls which are positioned between the bell and the furnace, and are so shaped as to firmly grasp and draw the skelp from the furnace without contacting with the hot edges of the skelp so as to permit a perfect butt welding when the tube reaches the sizing rolls.

With this and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings: Figure 1, is a view partly in section and partly in side elevation illustrating our improvements. Fig. 2, is a top plan view. Fig. 3, is a view in vertical section through our improved drawing rolls. Fig. 4, is a similar view through the sizing rolls. Fig. 5, is a view similar to Fig. 3 illustrating a modified form of drawing roll, and Fig. 6, is a detail perspective view of our improved block 16.

1, represents a furnace, and 2 a skelp which as shown in Fig. 1, is just emerging through the opening 3 in the furnace.

4, represents a supporting frame providing mounting for parallel shafts 5, 5, on which our improved drawing rolls 6 are secured. Frame 4 also provides mounting for parallel shafts 7, on which sizing rolls 8 are secured. Shafts 5 are connected by intermeshing gears 9, and shafts 7 by intermeshing gears 10. The lower gears 9 and 10 both mesh with a driving gear 11, which is operated by a pinion 12 on a motor shaft 13, said shaft 13 being driven by any suitable motor 14. Frame 4 also provides mounting for a shaping bell 15 located between the drawing and the sizing rolls, and in advance of the drawing rolls, our improved block 16 is located, and is supported by a bent rod 17 suitably fixed to frame 4. It is of course to be understood that block

16 and bell 15 are both in alinement with the meeting faces of the feeding and sizing rolls, so that the skelp 2 contacts with both.

The skelp 2 is of general U-shape as shown most clearly in Fig. 3, and the block 16 is rounded at its end adjacent the furnace so as to guide the skelp over the block, and the upper edge of this block is grooved longitudinally as shown at 18 to prevent the hot edges of the skelp from contacting with the block.

The lower drawing roll 6 is made with a semicircular annular groove 19 to receive the rounded intermediate portion of the skelp, while the upper roll 6 is provided with an annular flange 20 to bear against the inner central portion of the skelp without touching the hot edges of the skelp.

The rolls 6 tightly grip the skelp and force it through the bell 15, which brings the edges of the skelp together, and then the cylindrical tube thus formed is pressed tightly between the grooved welding rolls 8, so as to complete the operation.

The drawing rolls may have annular grooves of various other shapes which will permit a strong drawing action without contacting with the hot edges of the skelp and without bringing the edges of the skelp together. One modification is illustrated in Fig. 5, in which the lower roll and the upper roll are provided with grooves curved in a greater arc of a circle than the skelp, the groove 21 in the lower roll being semicircular while the groove 22 in the upper roll is curved concentrically with the groove in the lower roll, but in addition is provided at its intermediate portion with an annular deeper groove 23, which prevents the edges of the skelp from being drawn together. Block 16 also serves to hold the skelp with its edges apart as it is passing between the drawing rolls, because the block is of a sufficient diameter and is located in such proximity to the drawing rolls that it tends to hold the skelp edges apart.

By reason of the close proximity of block 16 to the rolls 6, the curvature or bending of the skelp is greatest at the roll and diminishes to the block. By grooving the block, the edges of the skelp cannot be brought together, nor brought in contact with the cold block, hence the groove serves to prevent any possibility of chilling the hot edges of the skelp.

Various slight changes might be made in the general form and arrangement of parts described without departing from our invention, and hence we do not limit ourselves to the precise details set forth, but consider ourselves at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claims.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:

1. A tube welding apparatus comprising a furnace, a bell, drawing rolls located in advance of the bell between the same and the furnace, sizing rolls located in rear of the bell, and a block having a grooved upper face supported between said drawing rolls and the furnace, and having a rounded end adjacent the furnace and adapted to guide the skelp thereover, substantially as described.

2. A tube welding apparatus comprising a furnace, a bell, drawing rolls located in advance of the bell between the same and the furnace, sizing rolls located in rear of the bell, and a block having a grooved upper face located between said drawing rolls and the furnace, and having a rounded end adjacent the furnace, and adapted to guide the skelp thereover, intermeshing gears secured to turn with the drawing rolls, intermeshing gears secured to turn with the sizing rolls, and a single driving gear meshing with one

of the sizing roll gears and one of the drawing roll gears, substantially as described.

3. A tube welding apparatus comprising a bell, a furnace, drawing rolls interposed between the bell and the furnace, said drawing rolls having their edges shaped to grip the skelp and a spreading block interposed between the drawing rolls and the furnace, without touching the edges of the skelp, said block having a tapering end, and a longitudinal groove therein, substantially as described.

4. A tube welding apparatus comprising a bell, a furnace, and drawing rolls interposed between the bell and the furnace, one of said drawing rolls having a semicircular groove therein, a spreading block interposed between the drawing rolls and the furnace, said block having a tapering end, and a longitudinal groove, and the other of said drawing rolls having an annular flange to engage the skelp and bind it in the groove of the other roll without touching the edges of the skelp, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOSEPH SNYDER.
ABEL THOMAS.

Witnesses:

JOHN H. WEIDMAN,
EDW. F. GLENZINGER.