W. C. Allison,

Welding Tubes.

No. 111,299. Patented Jan. 31. 1871.

FIG. 1.

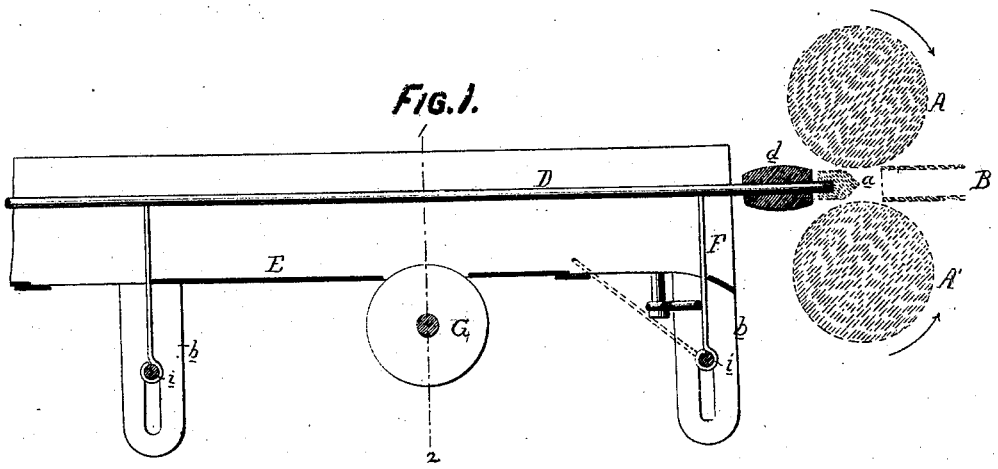


FIG. 3.

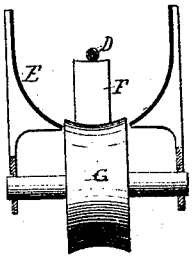


FIG. 2.

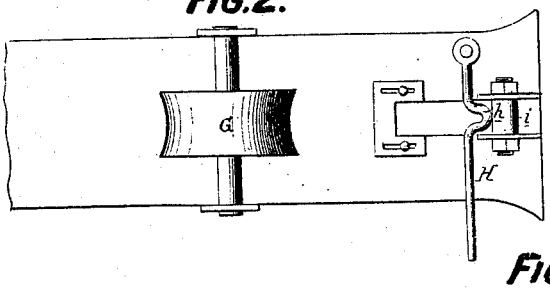


FIG. 4.

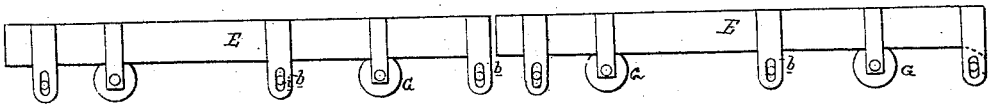
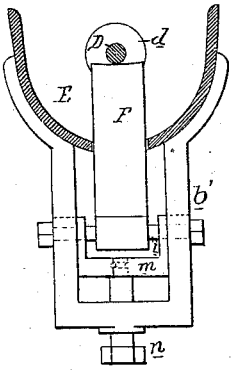


FIG. 5.



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United States Patent Office.

WILLIAM C. ALLISON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO W. C. ALLISON & SONS, OF SAME PLACE.

Letters Patent No. 111,299, dated January 31, 1871.

IMPROVEMENT IN MACHINES FOR WELDING TUBES.

The Schedule referred to in these Letters Patent and making part of the same.

I, WILLIAM C. ALLISON, of Philadelphia, county of Philadelphia, State of Pennsylvania, have invented an Improvement in Tube-Rolling Machines, of which the following is a specification.

Description of the Accompanying Drawing.

Figure 1 is a vertical section of my apparatus, to be used in connection with tube-rolling machines;

Figure 2, an inverted plan view of part of fig. 1;

Figure 3, a transverse vertical section on the line 1 2, fig. 1;

Figure 4, a side view of the guiding-troughs; and

Figure 5, a transverse section, showing a modification of part of the apparatus.

General Description.

A and A′ represent, by dotted lines, sections of two grooved rolls of a tube-rolling machine; and

B, part of the tube or bent skelp about to be passed between the rolls.

D is a rod, furnished at the end with the usual head situated between the rolls.

The above-mentioned parts are similar to those of ordinary tube-rolling machines, and the mode of operation is the same as usual, the heated tube or bent skelp B passing through the grooves of the rolls over the head at the end of the rod D, by which head the interior of the tube is formed, while its exterior is determined by the grooves of the rolls.

In front of the rolls I place a long trough, E, made in two parts, as shown in fig. 4, the trough being of the sectional form, best observed in reference to figs. 3 and 5, and to projections *b b* on the trough are jointed the arms F, which, projecting through the bottom of the trough, serve to support the rod D, so that its center shall coincide with a horizontal line drawn midway between the rolls A and A′.

Each of these arms F is so arranged that it can fall to the inclined position shown by dotted lines in fig. 1, from which position it can be elevated by a horizontal arm, H, hung to the under side of the trough, as best observed in fig. 2.

These arms F are arranged at intervals throughout the trough, as are also rollers G G, the grooved peripheries of which project a short distance above the bottom of the trough, as shown in figs 1 and 3, the rollers being attached to spindles having bearings in projections on the under side of the trough, so that they are at liberty to turn freely.

A circular block, *d*, is fitted snugly to and concentrically with the rod D, and so as to slide freely on the same, the front end of this block being slightly less in diameter than the bore of the tube, for a purpose explained hereafter.

After the arms have been elevated, the block D adjusted on the rod D immediately at the rear of the head of the rod, and the latter has been retained at its rear end in the usual manner, and the rolls have been caused to revolve in the direction of their arrows, the heated tube can be introduced between them.

The revolving rolls draw the tube over the head of the rod, immediately after passing which the end of the tube comes in contact with, and is penetrated a short distance by the block *d*, which is moved forward by the tube so that it will strike one support F after the other, thereby clearing the way for the tube as it rapidly pursues its course.

After the tube has passed from between the rolls it rests on the rollers G G with the rod, the latter being quickly removed and the finished tube drawn from the trough.

The sliding block *d* is an important feature of my invention. As before remarked, the front end penetrates the end of the tube, and the latter, as it pursues its course, remains plugged, as it were, by a portion of the block, which thus maintains the tube concentrically with the rod throughout its course, and prevents the end from the sagging which frequently results in the distortion of the tube.

The block, moreover, and not the tube, strikes the arms F and depresses the same, a duty which the heated tube cannot well perform without being subjected to distortions.

One of the common accidents in tube-rolling mills arises from an imperfect weld as the tube first passes between the rolls. The result of this is that the imperfect tube will not follow the course of the rod D, but is apt to bend downward or laterally and take a tortuous course, to the danger of the attendants and of the machinery, the rapid movement of which cannot be arrested in time to prevent such accidents.

It will be noticed, on reference to figs 1 and 2, that the end of the trough E is flared both downward and laterally, and by this flaring end the tube is arrested, when it has a tendency, for the reasons given, to bend downward or laterally, and, once arrested, it will be guided by the flaring end of the trough along the same, and its movement will be facilitated by the rollers G.

Not only are serious accidents thus prevented, but the damaged tube, instead of being so bent and distorted beyond remedy, is comparatively straight, and can be removed to the furnace and reheated preparatory to being again subjected to the action of the rolls for conversion into a sound tube.

It is advisable to have the arms F adjustable vertically to suit rods D of varying thickness.

In fig. 5 I have shown a plan of so adjusting the

arm, which is connected to a pin on a slide, *m*, adapted to guides in a hanger, *b'*, secured to the under side of the trough, a set-screw, *n*, in the hanger serving to raise or lower this guide, and consequently to adjust the arm F.

Claims.

1. The sliding block *d* arranged on the rod D of a tube-rolling mill, at the rear of the head of the rod, as set forth.

2. The trough E, having a flaring end, adjoining the rolls, and carrying rollers G, as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

W. C. ALLISON.

Witnesses:
JOHN WHITE,
WM. A. STEEL.