

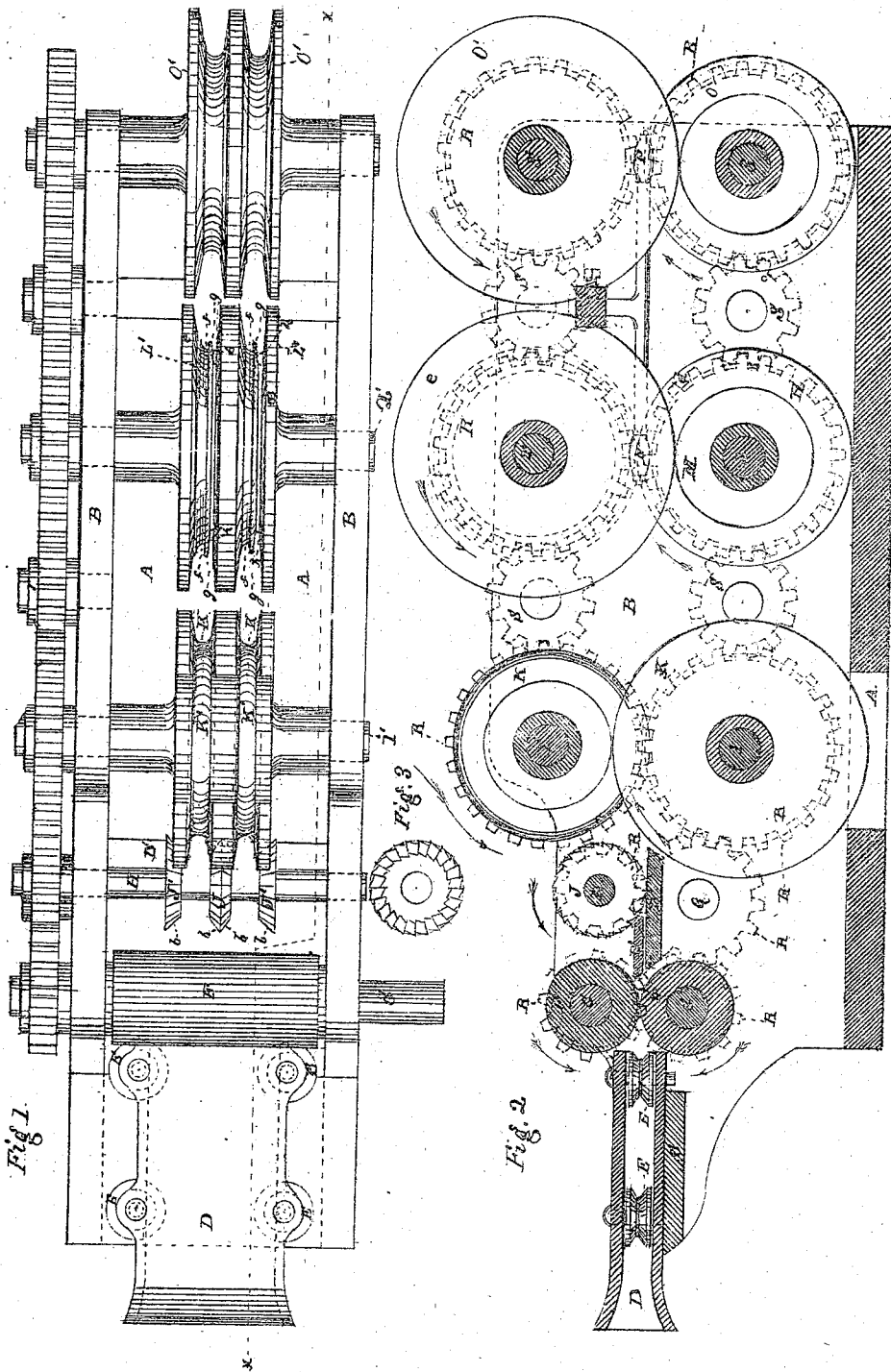
S. P. M. Tasker,

2. Sheets, Sheet 1

Tubing Mach.

No. 111,014.

Patented Jan. 17, 1871.



WITNESSES

Leonard O. Smith
Chas. W. Clontock

INVENTOR

Stephen P. M. Tasker
By his Atty Stephen H. Harkness

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Fig. 4

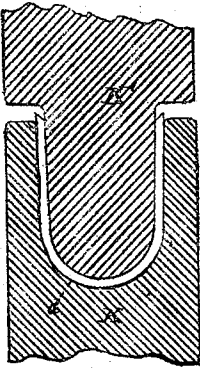


Fig. 5

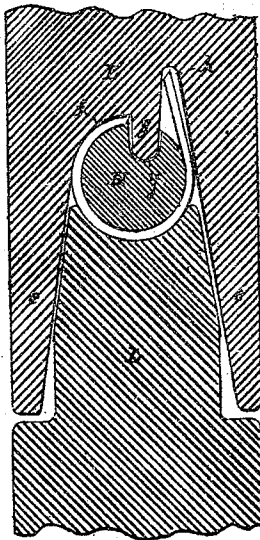


Fig. 6

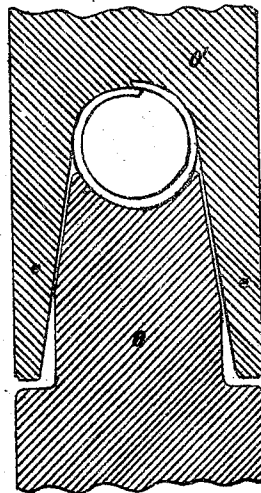


Fig. 7



Fig. 8

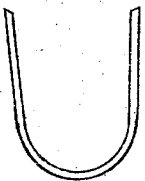
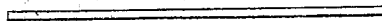


Fig. 9



Fig. 10

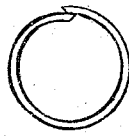


Fig. 11

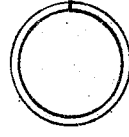


Fig. 12

WITNESSES.

Leonard O. Smith
Chas. W. Clintoock

INVENTOR.

Stephen S. M. Tasker
By his Atty. Stephen M. Tasker

UNITED STATES PATENT OFFICE

STEPHEN P. M. TASKER, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN MACHINES FOR SLITTING, BEVELING, AND BENDING METAL-TUBE SKELPS.

Specification forming part of Letters Patent No. 111,012, dated January 17, 1871.

I, STEPHEN P. M. TASKER, of the city of Philadelphia and State of Pennsylvania, have invented certain Improvements in Slitting, Beveling, and Bending Metal-Tube Skelps, of which the following is a specification:

My invention consists of a machine which slits, bevels, and bends the skelp at one operation in making the lap-welded-joint tubes. When making such tubes I employ milled-head cutters of the proper form to give the requisite bevel to the edges of the skelps, as hereinafter described; but in making butt-joint tubes I employ plain cutters, which produce square edges.

The sheets are passed through suitable guides to the feed-rollers, which catch their front ends and pass them through the bending-rolls.

The first pair of rolls bends the skelps with their edge portions parallel to each other, the middle portion being semicircular, as in the manner of other bending-machines.

After the skelp passes through these rolls it is caught by a second pair of rolls, one of which has beveled flanges, which lap over the other rolls, so as to form guides for the skelps, thus dispensing with the ordinary stationary guides. This roll has, at the inner portion of one of the flanges, a curve of one-fourth of a circle, for continuing the bending, so that as the skelp passes through the rolls only one-fourth remains to be bent by another operation, thereby diminishing the chance of buckling. This roll has an annular tongue at the termination of said curve, against which the bent edge of the skelp rests, the unbent edge passing into a groove formed by the opposite side of the tongue and the contiguous bevel-flange of the roll.

The mandrel which regulates the inner form and size of the skelp is grooved out to admit of the passage of the tongue.

The finishing operation in the bending is performed with two grooved rolls, in the ordinary manner. One of these rolls has bevel guide-flanges, as in the case of the second pair above described.

In the accompanying drawing, which makes a part of this specification, Figure 1 is a plan view of the improved machine. Fig. 2 is a longitudinal section at the line *x x* of Fig. 1. Fig. 3 is a side view of the cutter H. Figs. 4, 5, and 6 are, respectively, portions of the

edges of the three pairs of rolls K K', L L', O O', and the skelps as formed by each pair, on an enlarged scale. Fig. 7 is an end view of a plate-skelp for forming a lap-welded-joint tube. Fig. 8 is a like view of a skelp for forming a butt-joint tube. Fig. 9 represents the form of the skelp produced by the rolls K K'; Fig. 10, the form produced by the rolls L L'; Fig. 11, the form of the skelp when passed through the rolls O O'. Fig. 12 represents the finished form of a butt-joint skelp after passing through the same rolls.

Like letters in all the figures indicate the same parts.

A is the bed-plate, and B B the housings. To the latter the several parts of machine are connected.

On the horizontal plate C, the ends of which are connected with the projections *a* on the front ends of the housings B B, there is a mouth, D, through which the metal sheet passes into the machine.

At the sides of the mouth D there are carrying grooved wheels, E E E, which facilitate the passage of the sheet.

After passing the guide-rollers E the sheet is guided, as it passes to the first pair of bending-rolls, by the guide-plates D' D'.

F F on the shafts G G are feed-rolls, which catch the front end of the sheet and pass it through the machine.

Immediately in advance of the feed-rolls F F is the revolving shaft H, on which are milled-head cutters J J' J', for slitting the sheet into the proper widths for the skelps and beveling the edges at one operation.

The middle head, J, has a double inclined edge, *b b*, to form the bevels on the contiguous edges of the two skelps, while the outer heads, J' J', have a single bevel, *b*, as represented in the drawing, to form the outer edges of the skelps. The cutter-head J is shown detached in Fig. 3.

I have represented cutters for slitting and bending two skelps out of a sheet merely by way of illustration. In practice, I form a greater number, which varies, according to the size of the sheet and width of the skelps. The bending-rolls, also, of course, instead of being duplex merely on each shaft, as represented, correspond in number to the number of the skelps. In making butt-joint tubes I use merely plain cutters.

The shaft 1 is provided with the double rolls K K, and the shaft 1' with the double rolls K' K', for bringing the skelps as they pass through them into the form represented in Figs. 4 and 9.

The shaft 2 is provided with double rolls L L, which project from the hub M, and have in their peripheries circular grooves *d d*, in which the bent portion of the skelp rests as the latter passes from the rolls K K'.

The upper double rolls, L' L', have annular flanges *e*, which overlap the rolls L L, as shown clearly in Fig. 5.

At the base of one of the flanges of each roll is a curve, *f*, which extends to the annular tongue *g*, against which the edge of the skelp rests as it is turned by the flange *e*, and brought into the curved position represented in said figure. The form of the skelp is also represented in Fig. 9.

On the opposite side of the tongue *g* there is an annular groove, *h*, which terminates with the inside of the contiguous flange *e*. This groove is formed of sufficient depth to receive the unbent portion of the skelp, as represented.

The mandrels N are grooved out at *i*, to admit of the passage of the tongues *g* of the rolls L'. After the skelps pass through the second pair of rolls just described, they are caught by the rolls O and O', the peripheries of which and their action on the skelps are shown in detail in Fig. 6.

The rolls O' are provided with flanges *e*, the same as the rolls L', as represented in the drawing, for guiding the skelp. The mandrels P are of the full circular form of the ordinary mandrels.

In the drawing I have represented the shafts G G of the feed-rolls F F, the shaft H carrying the milled heads J J' J', the shafts I I' carrying the bending-rolls K K'; and the intermediate shafts, Q, are geared together by means of wheels R.

The gearing is continued with the shafts 2 2' 3 3' by means of wheels R on said shafts and the intermediate pinions, S. The several shafts may be connected together, however, in any convenient manner, and the power applied to either shaft in the train.

The operation is as follows: The front end of the sheet is placed in the mouth D, and the sheet is pushed forward until caught by the feed-rolls F F, which pass it to the bending-rolls, the milled-head cutters slitting and beveling the skelps. Then the first pair of rolls bends the skelp in the manner and form rep-

resented in Figs. 4 and 9. As the skelp is caught by the second pair of rolls, L L', it is brought into the form represented in Figs. 5 and 10. The third pair of rolls finishes the bending operation, bringing the skelp into the form represented in Figs. 6 and 11. The flanges *e* of the rolls L' O', by overlapping the rolls L O, guide the skelp after it passes the first pair of bending-rolls, K, and thus dispense with the necessity of separate guiding devices. If the tube is a butt-joint, the skelp is brought into the perfect circular form represented in Fig. 12.

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

1. The combination of the milled-head cutters J J' J' with feed-rolls F F and lower guides, D', arranged and operating substantially as and for the purpose above described.

2. The combination and arrangement of the milled-head cutters J J' J' with the feed-rolls F F, guides D', and bending-rolls K K', substantially in the manner and for the purpose set forth.

3. Jointly, the construction of the roll L' with the curve *f*, tongue *g*, and groove *h*, and the combination thereof with the roll L, as described.

4. Jointly, the construction of the roll L' with the curve *f*, tongue *g*, groove *h*, and flanges *e*, and the combination thereof with the roll L, as described.

5. The combination of the rolls L L' with the rolls K K' by means of suitable gearing, as and for the purpose set forth.

6. The combination of the rolls O O' with the rolls L L', for finishing the bending operation, substantially in the manner described.

7. The combination and arrangement of the three pairs of rolls K K', L L', and O O', for bending a flat skelp into the form represented in Figs. 9, 10, and 11, as above set forth.

8. The combination of the guiding-mouth D and guides D', the feed-rolls F F, and the milled-head cutters J J' J', with the three pairs of bending-rolls, substantially in the manner and for the purpose above described.

In testimony that the above is my invention I have hereunto set my hand and affixed my seal this 30th day of August, 1870.

STEPHEN P. M. TASKER. [L. s.]

Witnesses:

THOMAS J. BEWLEY,
STEPHEN USTICK.