No. 735,936. PATENTED AUG. 11, 1903.

G. G. & R. O. BLAKEY.

MANUFACTURE OF TUBULAR ARTICLES.

APPLICATION FILED NOV. 1, 1901.

NO MODEL

Fig. I.

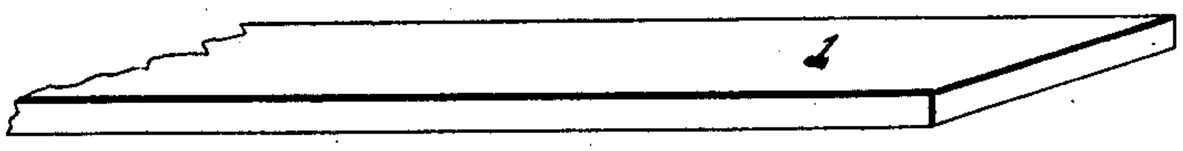


Fig. II.

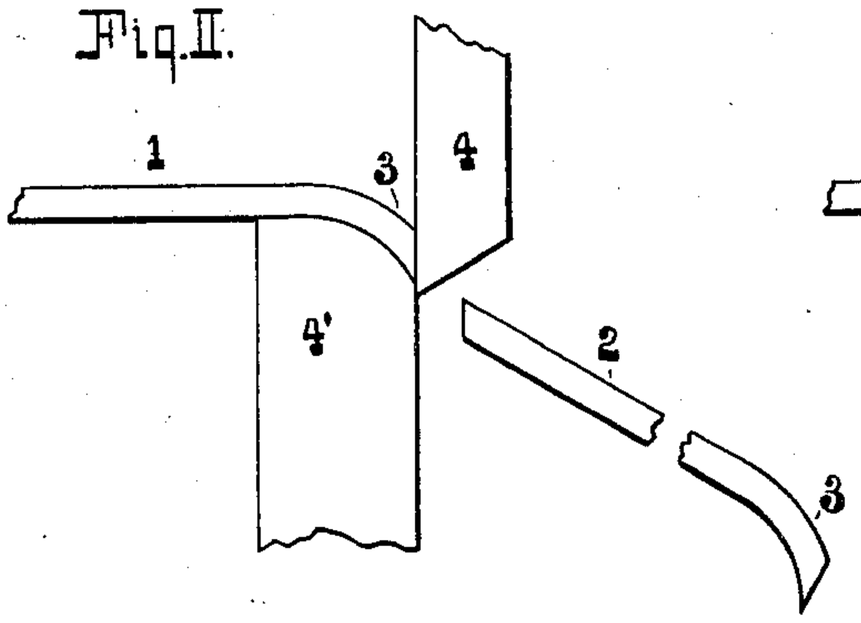


Fig. VI.

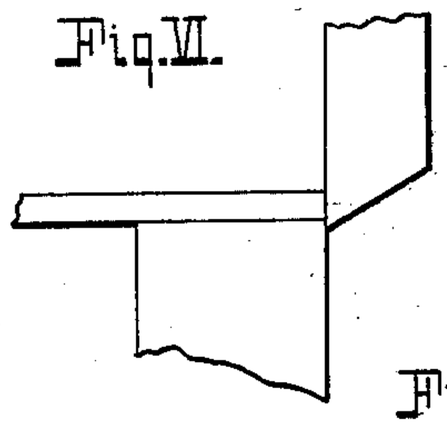


Fig. VII.

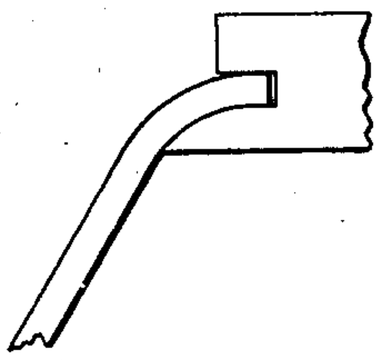


Fig. III.

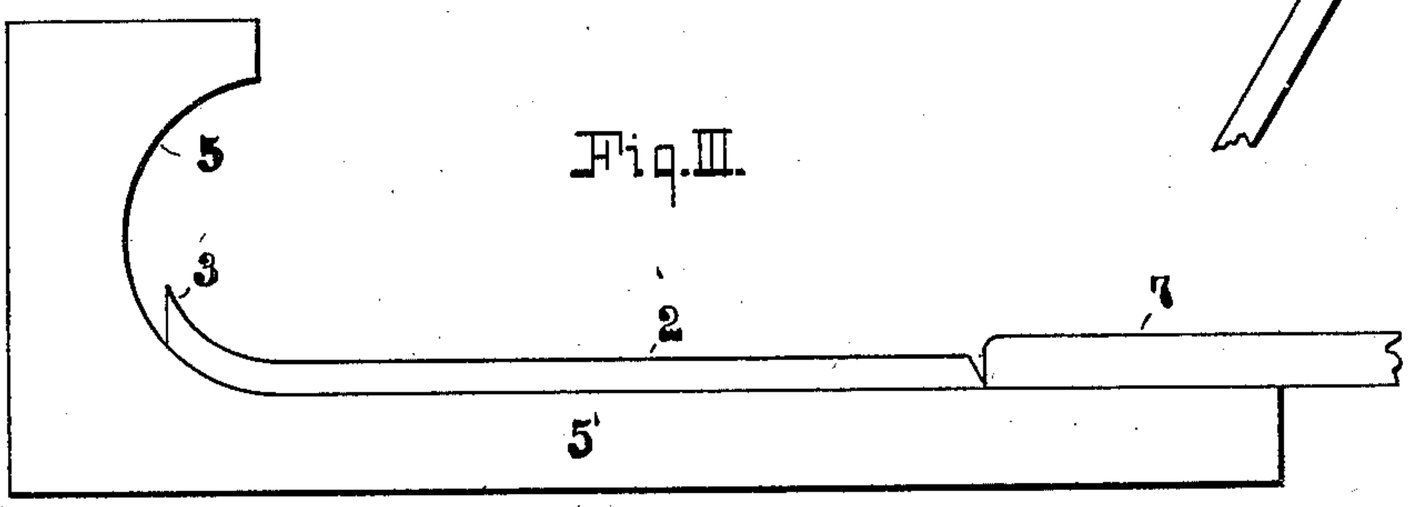


Fig. IV.

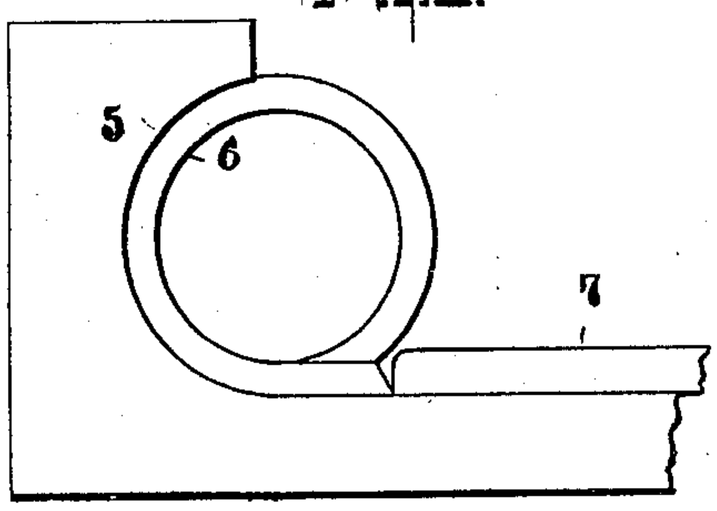
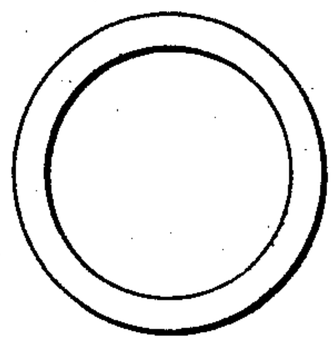


Fig. V.



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No. 735,936. Patented August 11, 1903.

UNITED STATES PATENT OFFICE.

GEORGE G. BLAKEY AND ROBERT O. BLAKEY, OF PITTSBURG, PENNSYLVANIA.

MANUFACTURE OF TUBULAR ARTICLES.

SPECIFICATION forming part of Letters Patent No. 735,936, dated August 11, 1903.

Application filed November 1, 1901. Serial No. 80,744. (No model.)

To all whom it may concern:

Be it known that we, GEORGE G. BLAKEY and ROBERT O. BLAKEY, citizens of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered new and useful Improvements in the Manufacture of Tubular Articles, of which the following is a specification.

In the accompanying drawings, which make part of this specification, Figure I is a perspective view, partly broken away, showing an ordinary blank plate or strip of iron or steel. Fig. II is a side elevation, partly broken away, of the shear mechanism during the operation of bending and clipping the end or side of a strip. Fig. III is a side elevation of an arc-shaped die, showing the clipped and partly-bent strip in position to be bent into annular form. Fig. IV is a side elevation of the arc-shaped die, showing the strip bent into annular form. Fig. V is a side elevation of a pipe-coupling or a pipe after being welded. Fig. VI is a side elevation of an ordinary shear, partly broken away. Fig. VII is a side elevation of a bending-block, showing the end of a strip bent therein.

Our invention is particularly adapted to the manufacture of pipe-couplings, but may advantageously be employed in making a great variety of tubular articles, including pipe.

In the manufacture of pipe-couplings it has been the practice to shear long strips of metal into suitable short lengths. The short strips were then charged into a heating-furnace and usually heated to a bright cherry color. The strips would then be removed and while in a highly-heated condition would be bent into annular form by means of rolls or mandrels, while the smaller sizes would be bent up by hand. The "skelp-coupling" (as it would be termed) after being bent into annular form is charged into a heating-furnace and heated to a welding heat, after which it is withdrawn and welded. It would now be known as a "coupling-blank." The coupling-blank is reamed out and tapped, after which it is known to the trade as a "pipe-coupling."

By the steps of our process, as will be subsequently described, the manufacture of tubular articles from metal skelp is simplified, the output increased, skilled labor dispensed with, the wear and tear of the cutters, taps, and dies reduced, and the resultant product is produced at a less cost than by prior processes.

Our process bends into circular form skelp metal used in the manufacture of tubular bodies without heating it, thus reducing the oxidation of the finished annular blank to a minimum and by a less number of operations than heretofore used. We will, however, describe our invention in connection with the formation of a pipe-coupling.

In the drawings accompanying this specification, 1 represents a skelp strip before being bent at one end or edge.

2 represents a skelp strip having a curved end 3.

4 is a shear-knife for bending and severing the strip into proper form and lengths, so that they can be bent into tubular form.

In the form of our invention shown in Fig. II the lower die or anvil is curved on the side next to the knife. The skelp will not be supported so as to cut off until it is bent by the knife, so that it lies upon the anvil at the side next to the knife.

5 represents an arc-shaped die.

6 represents a strip bent into tubular form.

7 is a power-ram for pushing the forward end 3 of strip 2 around the die 5.

The steps of the process are thus performed, reference being had to Fig. II: A skelp strip 1 is inserted between the shears 4 and 4′. Shear-knife 4 descends, bends the strip, and cuts off the projecting end that is beyond the bend. The skelp strip is now the shape indicated by 1 and 3 in Fig. II. The operator now feeds the strip forward regularly between the shears. The shears bend a portion of the strip to the desired arc required and while the overhanging portion of the strip is being severed, thus approximately simultaneously bending and severing the strip 2, as indicated in Fig. II. The severed strip 2 is placed on the table 5′ of arc-shaped die 5. Ram 7 travels forward and coming into contact with the rear end of strip 2 pushes the strip forward and causes the curved end 3 of the strip

to travel around the arc-shaped die 5, bending and forming the strip 2 into a skelp-coupling, as shown in Fig. IV. The skelp-coupling is removed from the die 5 and charged into a welding-furnace, and after being properly heated it is removed and welded by any of the well-known methods into a coupling-blank or tubular article, as indicated in Fig. V.

Mechanically and preferably there are but two movements required in the process of forming tubular skelp articles by our process—viz., the downward stroke of the knife and the forward movement of the ram. However, we have shown in the drawings, Figs. VI and VII, a shear for severing the strip and separate means for bending one of the ends of the severed strip when these two steps are performed as separate operations.

Strip 2, as indicated in Fig. II, would be used for lap-weld articles, while the strip shown in Fig. VII would be used for butt-weld articles.

Having described our invention, what we desire to secure by Letters Patent is—

The method of manufacturing lap-weld tubular forms which consists in simultaneously bending and shearing a scarfed edge from the homogeneous metal of a strap, cutting off a section sufficiently long to compensate for the scarf at the joint and forcing the severed section lengthwise against a concave die to complete the skelp ready for welding as set forth.

Signed at Pittsburg, Pennsylvania, this 26th day of October, 1901.

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