

(No Model.)

G. W. HARRINGTON.

SWAGE FOR FORMING BEADS ON THE ENDS OF LEAD LINED PIPES.

No. 485,692.

Patented Nov. 8, 1892.

Fig. 1.

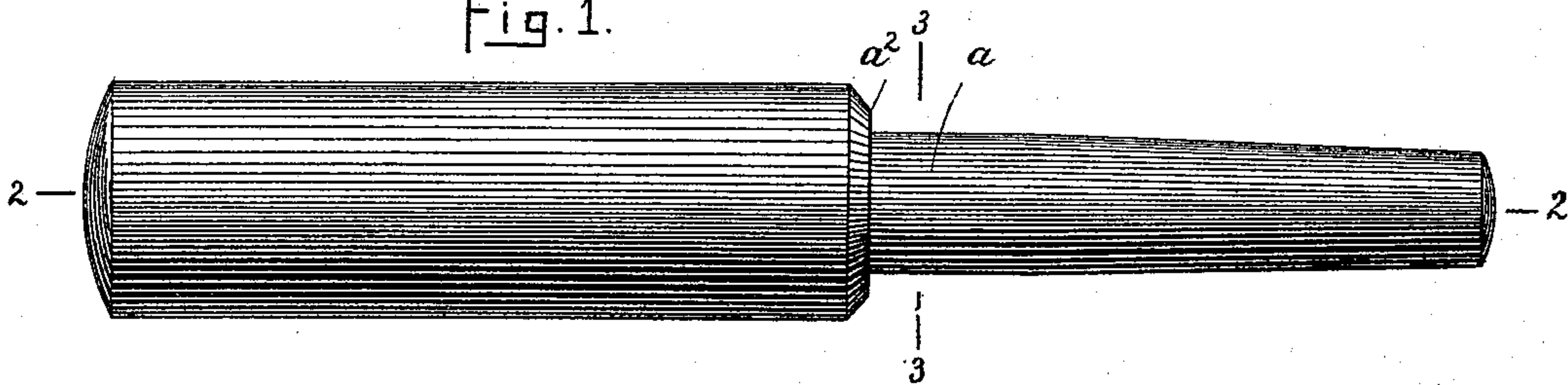


Fig. 2.

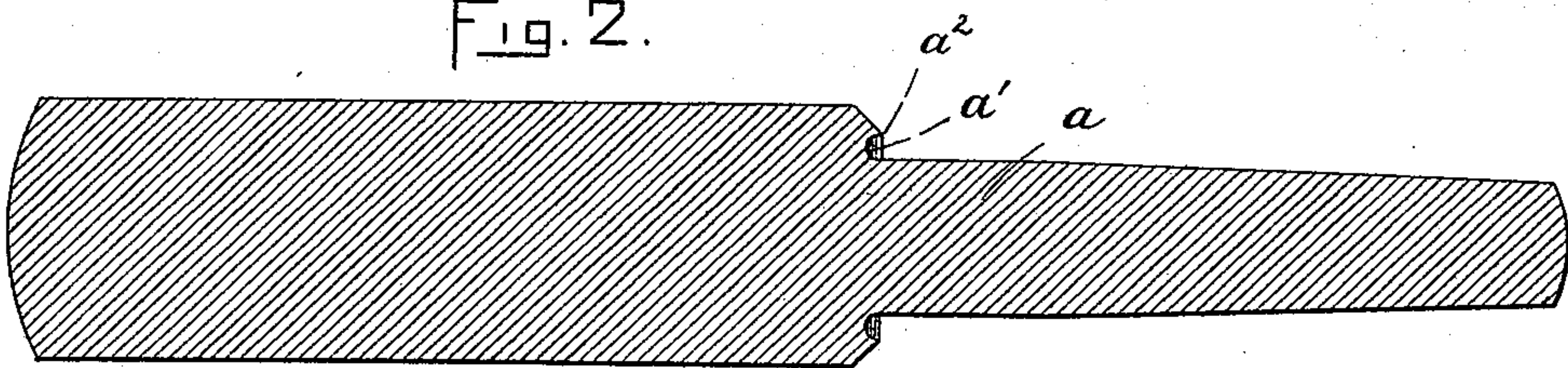


Fig. 3.

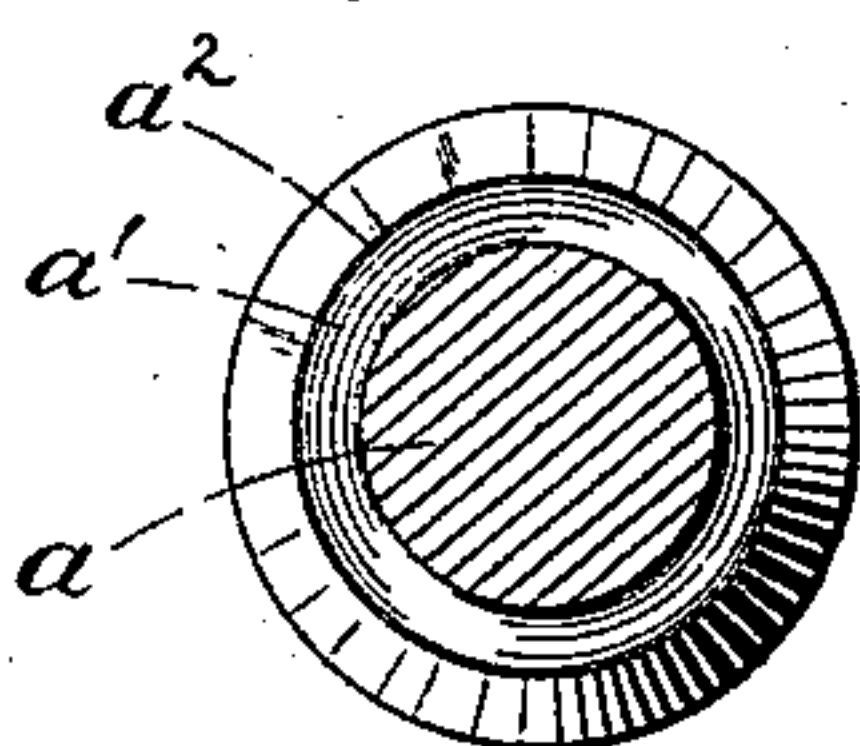
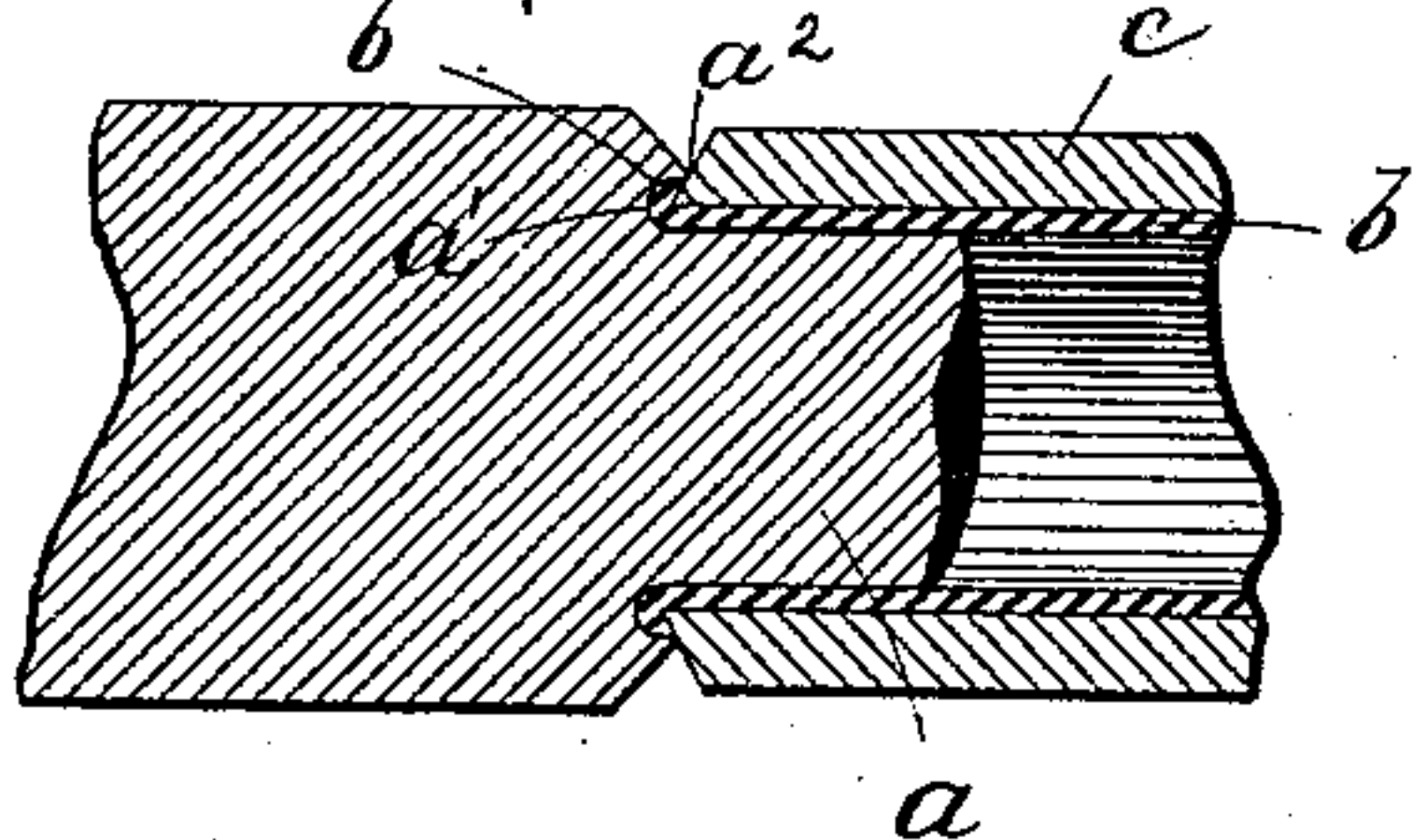


Fig. 4.



WITNESSES

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by Night & Son, for sale

ATT'YS

UNITED STATES PATENT OFFICE.

GEORGE W. HARRINGTON, OF WAKEFIELD, MASSACHUSETTS, ASSIGNOR OF
ONE-HALF TO D. H. DARLING, OF SAME PLACE.

SWAGE FOR FORMING BEADS ON THE ENDS OF LEAD-LINED PIPES.

SPECIFICATION forming part of Letters Patent No. 485,692, dated November 8, 1892.

Application filed November 20, 1891. Serial No. 412,491. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. HARRINGTON, of Wakefield, in the county of Middlesex and State of Massachusetts, have invented a
5 certain new and useful Improvement in Swages for Forming Beads on the Ends of Lead-Lined Pipes, of which the following is a specification.

This invention has for its object to provide
10 a simple and effective tool for swaging the projecting end of the lead lining of a wrought-iron pipe and converting said end into an annular bead lying upon the end of the hard-metal pipe.

The invention consists in the improved tool,
15 which I will now proceed to describe, said tool being intended for use principally in adapting ends of lead-lined wrought-iron service-pipes for connection with lead-lined couplings used in connecting said pipes in lengths or
20 sections.

Of the accompanying drawings, forming part of this specification, Figure 1 represents a side elevation of my improved swage. Fig. 2 represents a section on line 2 2, Fig. 1. Fig.
25 3 represents a section on line 3 3, Fig. 1, looking toward the left. Fig. 4 represents a section similar to a portion of Fig. 2, showing the swage in the operation of forming a bead.

The same letters of reference indicate the
30 same parts in all the figures.

My improved tool comprises in its construction a plug *a*, formed to closely fit a lead lining *b* of a wrought-iron service-pipe *c*, as shown in Fig. 4, and an annular swaging-die
35 *a'*, surrounding the base of said plug and formed to move or press the projecting end of the lead lining into a bead *b'*, lying upon the end of the iron pipe *c*. The lead-lined pipe is prepared for the formation of the bead *b'*
40 by causing the end of the lead lining to project a suitable distance outside of the end of the iron pipe, then inserting the plug *a* in the interior of the lead lining, and then driving the plug into the lining until the die *a'* meets
45 the projecting end of the lining and swages the same into the form shown in Fig. 4. The plug *a*, closely fitting the interior of the lining, prevents the projecting portion of the lead from being turned inwardly, so that it is
50 obliged to turn outwardly and is confined

within the die by the shape of the latter, the die having a semicircular form in cross-section.

*a*² represents an annular knife or trimmer, which surrounds the die *a'* and is formed to
55 trim off the surplus lead that exudes from the die when the latter is entirely filled by the lead, said knife coming in contact with the end of the hard-metal pipe, and thus separating the surplus metal from the bead. The bead is
60 thus given a clean and well-defined outer edge.

The annular knife *a*² is formed at the meeting-point of the annular recess, which forms the die *a'*, and the outer beveled portion of the tool-stock, as shown. This beveled por-
65 tion of the stock is an important feature of my invention, for the reason that if the stock outside of the recess had a face at a right angle to the length of the tool no cutting-edge would be formed, and if such portion of the
70 stock were reduced until its sides were parallel with the length of the tool the cutting-edge would not have the necessary strength.

The bead formed by the described tool is narrower than the thickness of the pipe and
75 presents a convex outer surface, which by reason of its convex form has a rim bearing upon a corresponding shoulder in the coupling into which the lead-lined pipe is screwed, and therefore is less liable to be broken or
80 cracked by the torsional strain exerted on the lining by the contact of its projecting end with the shoulder in the coupling than would be the case if the projecting end of the lead lining were disposed in an outwardly-turned
85 flange having a flat outer surface.

It will be seen that the annular swaging-die and the annular knife extending continuously around the plug *a* enable the bead to be formed and trimmed without rotation of
90 the tool, the latter acting as a hammer and having only an endwise movement.

I claim—

The improved swage for forming lead beads on the ends of lead-lined hard-metal pipes, the
95 same comprising a plug adapted to closely fit the interior of the lead lining and an annular recess surrounding the plug to form a die for converting the projecting end of the lead lining into an annular bead on the end of the
100

hard-metal pipe, the stock of the tool outside
said recess being beveled to form an annular
cutting edge or knife surrounding the said
recess or die, whereby said cutting-edge is
5 adapted to trim off the surplus lead at the
outer edge of the bead by cutting against the
end of the hard-metal pipe, substantially as
described.

In testimony whereof I have signed my
name to this specification, in the presence of 10
two subscribing witnesses, this 16th day of
November, A. D. 1891.

GEORGE W. HARRINGTON.

Witnesses:

C. F. BROWN,
A. D. HARRISON.