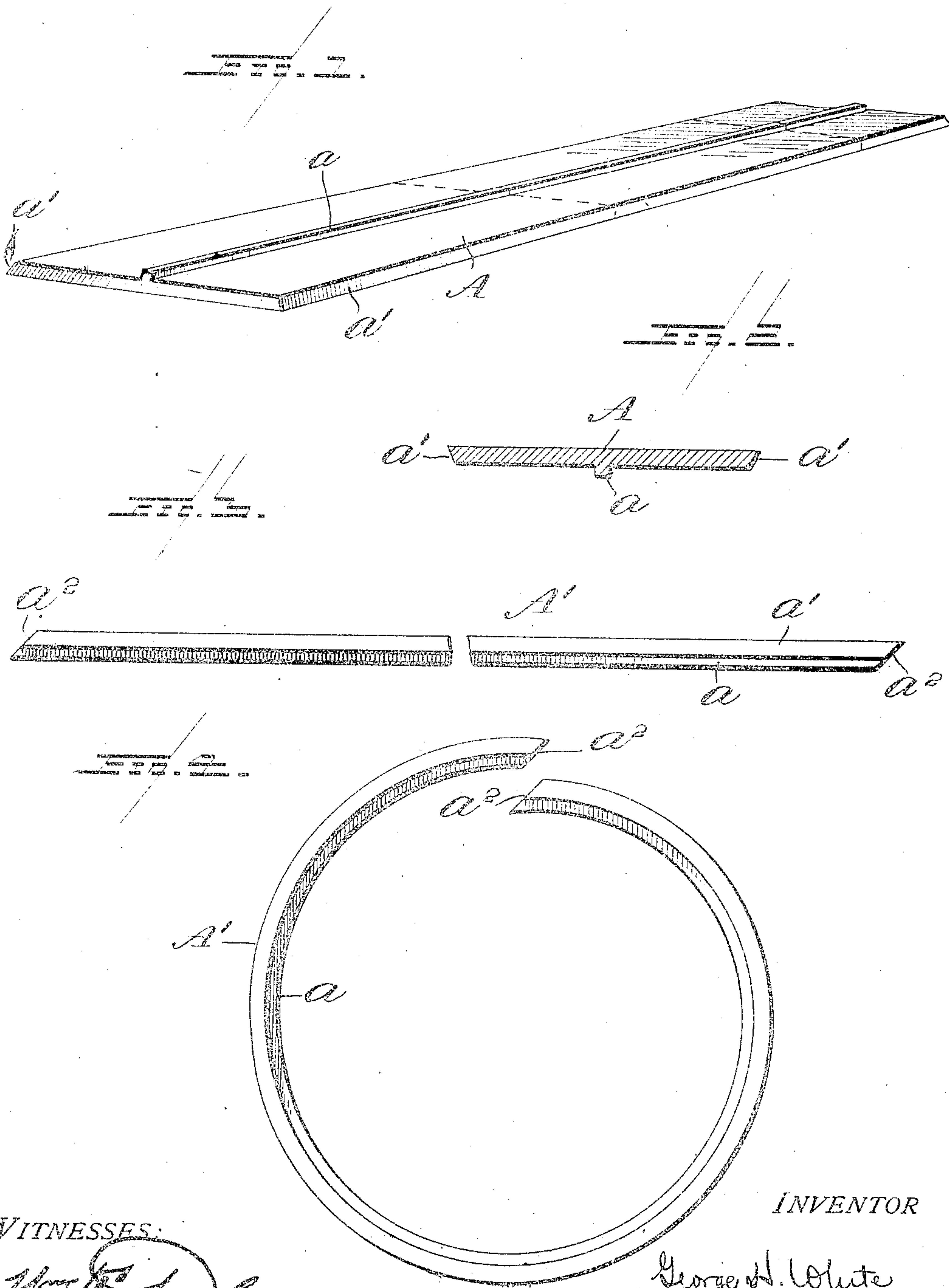


G. H. WHITE.  
PROCESS OF MAKING METAL RINGS FOR PIPE COUPLINGS.  
APPLICATION FILED JAN. 13, 1906. RENEWED SEPT. 8, 1909.

940,414.

Patented Nov. 16, 1909.  
2 SHEETS—SHEET 1.



WITNESSES:

*H. F. Foye*  
*E. Hubbard*

INVENTOR

By *George H. White*

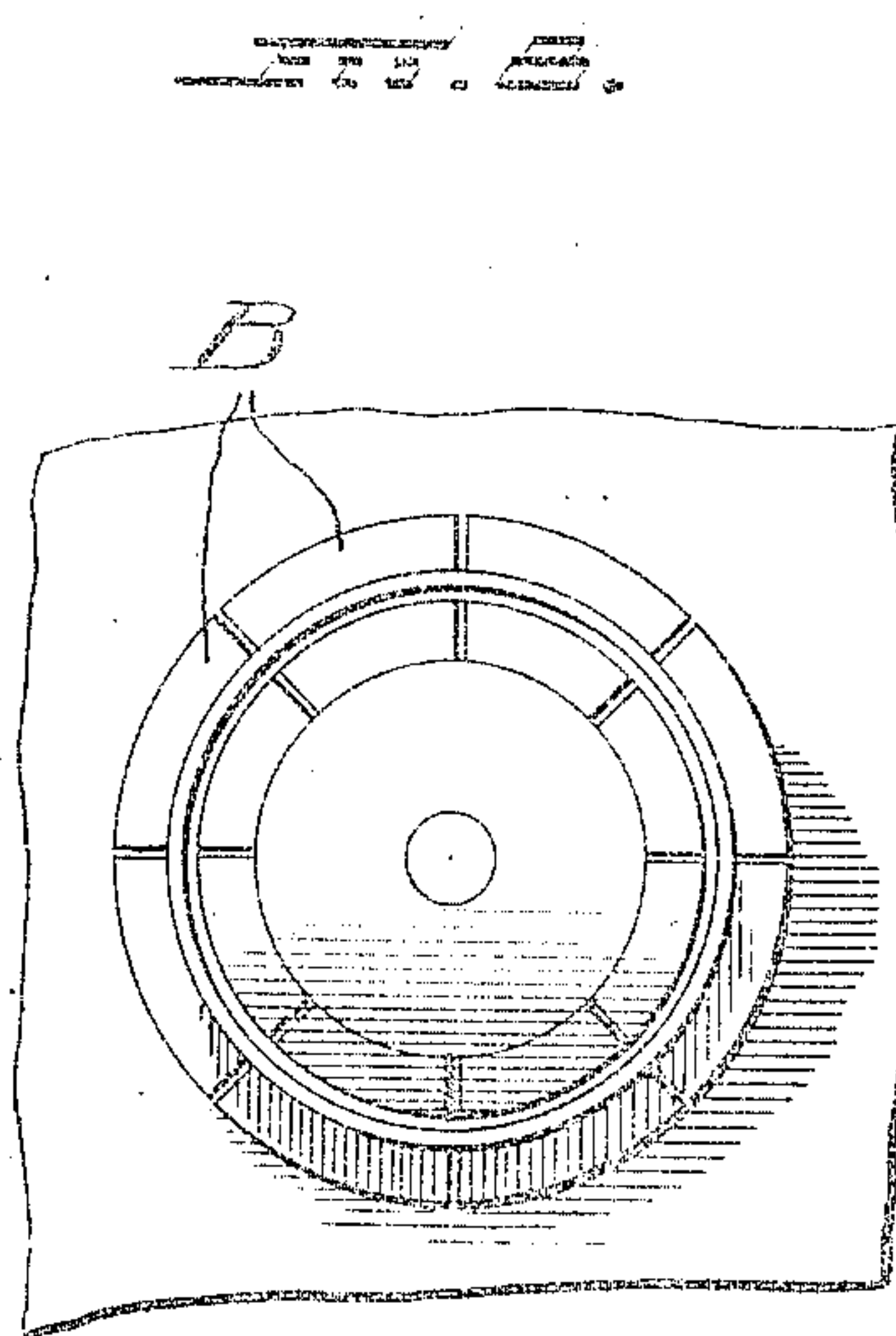
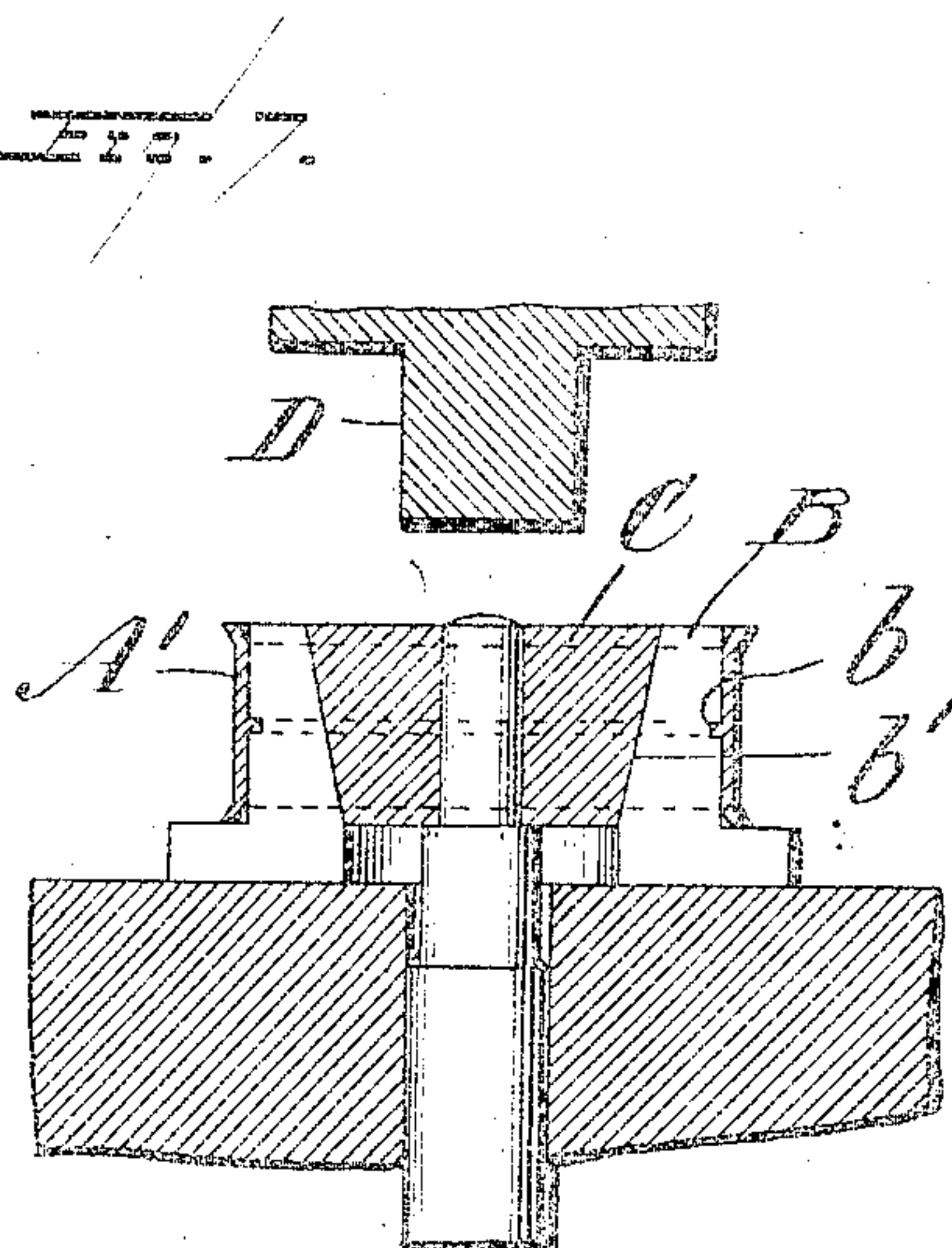
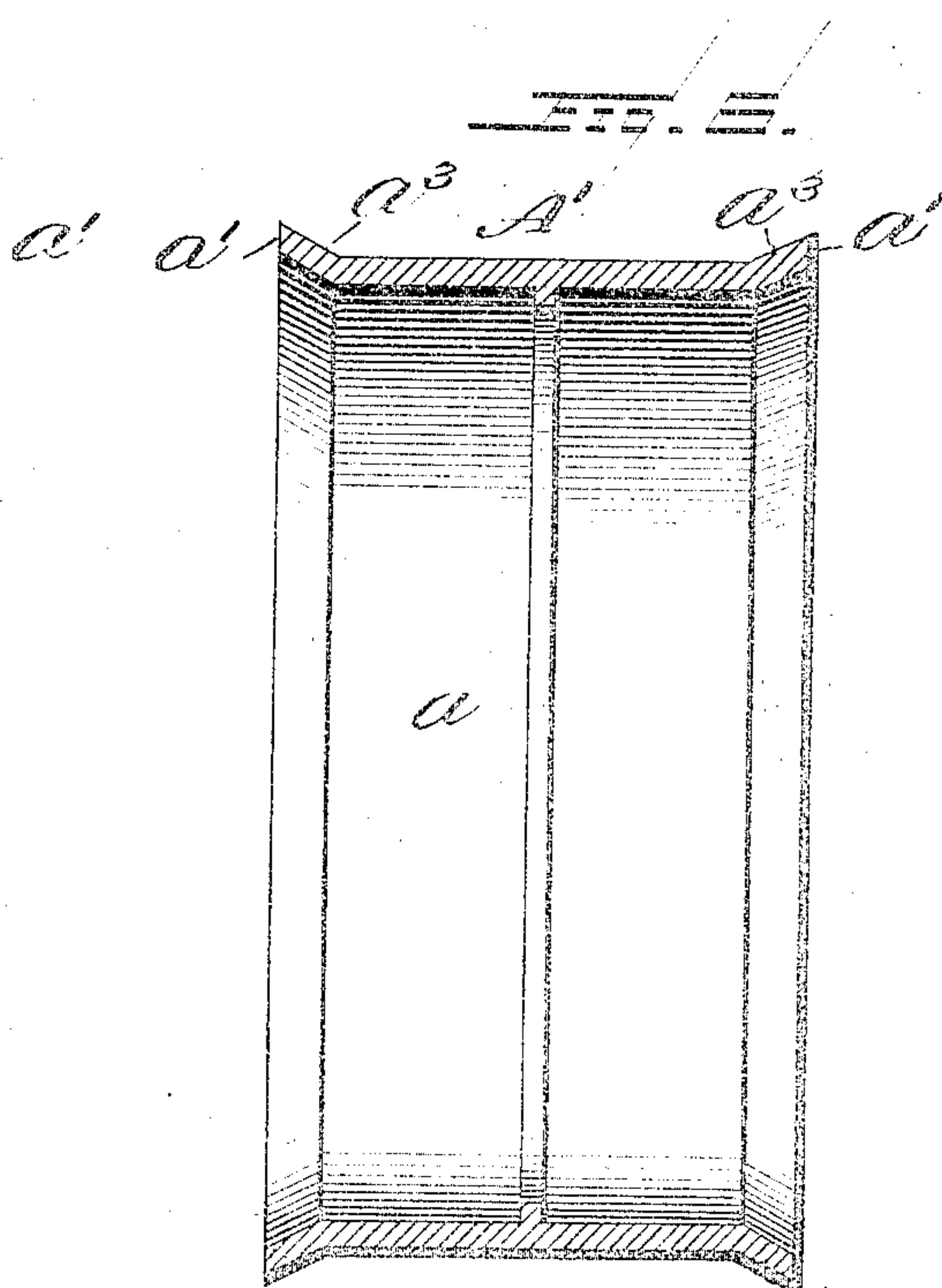
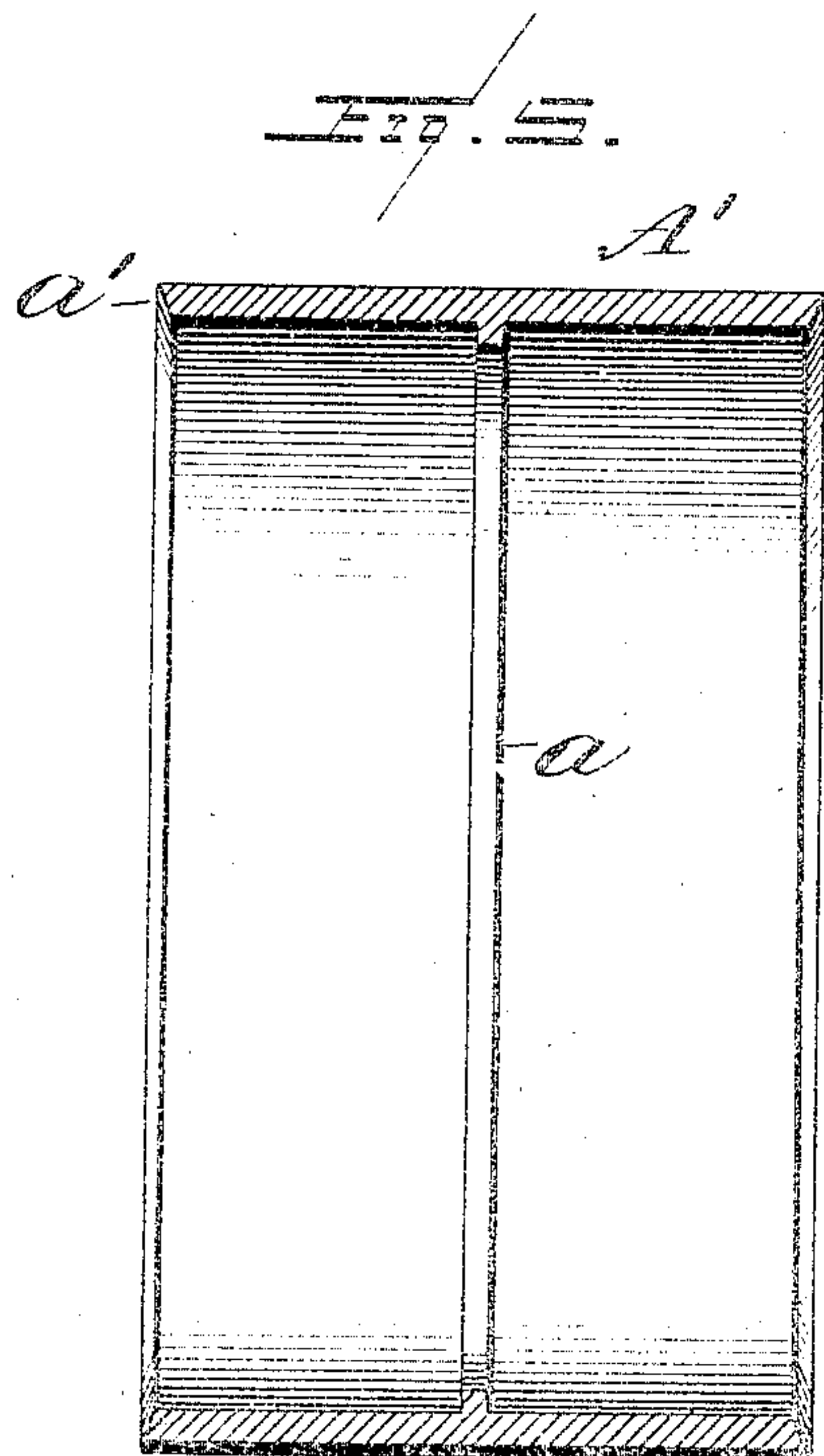
*Whitaker & Twest* Attorneys

G. H. WHITE.  
 PROCESS OF MAKING METAL RINGS FOR PIPE COUPLINGS.  
 APPLICATION FILED JAN. 13, 1906. RENEWED SEPT. 8, 1909.

940,414.

Patented Nov. 16, 1909.

2 SHEETS—SHEET 2.



WITNESSES:

*Wm. F. Doyle*  
*Attorney*

INVENTOR

*George H. White*

By

*Whitaker & Perce*

Attorney



# UNITED STATES PATENT OFFICE.

GEORGE HENRY WHITE, OF OIL CITY, PENNSYLVANIA, ASSIGNOR TO S. R. DRESSER MANUFACTURING COMPANY, OF BRADFORD, PENNSYLVANIA.

## PROCESS OF MAKING METAL RINGS FOR PIPE-COUPPLINGS.

940,414.

Specification of Letters Patent.

Patented Nov. 16, 1909.

Application filed January 13, 1906, Serial No. 295,339. Renewed September 8, 1908. Serial No. 516,798.

To all whom it may concern:

Be it known that I, GEORGE H. WHITE, citizen of the United States, residing at Oil City, in the county of Venango and State of Pennsylvania, have invented certain new and useful Improvements in Processes of Making Metal Rings for Pipe-Couplings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention consists in the novel features hereinafter described, reference being had to the accompanying drawings, and my invention is fully disclosed in the following description and claims.

Referring to the said drawings, Figure 1 represents a perspective view of a portion of a skelp from which the herein described rings are made. Fig. 2 is a transverse sectional view of the skelp. Fig. 3 is a side elevation of a blank for a ring, as it appears after being cut from the skelp, the central portion being broken away. Fig. 4 represents the blank bent into circular form preparatory to welding. Fig. 5 is a sectional view as it appears after welding. Fig. 6 is a similar view of the ring after the end portions are flared or flanged. Figs. 7 and 8 are a sectional view and a top plan view respectively illustrating one means which may be employed for truing the ring and bringing it to exact size.

This invention consists in an improved method of manufacturing the middle ring of a pipe coupling similar to the middle ring shown in the United States Letters Patent granted to S. R. Dresser, for improvements in pipe coupling, dated July 2, 1889 and numbered 406,035. Such rings are characterized by a central inwardly projecting bead and by having their ends flaring outwardly for the purpose of receiving a suitable packing ring.

In the manufacture of pipe couplings of this class, it has been customary to cast these rings and in consequence it frequently happens that they contain sand holes or defects which would cause leakage if the rings were used in a pipe line. To prevent this, it is necessary to test each ring by hydraulic pressure or pneumatic pressure and discard those which are defective, which adds considerably to the cost of production.

According to my invention I propose to make these rings of wrought iron or steel, and preferably of rolled steel, and rings produced by the herein described process will be entirely free from defects which could cause leakage in the pipe line.

In carrying out my process, I first roll or otherwise form a "skelp", preferably of steel which is of a thickness equal to that desired in the finished ring and of a width equal to the desired length of the ring. Such a skelp is indicated in Fig. 1 at A, and it is provided on one of its faces with a central longitudinal bead or rib  $a$  and the lateral edges  $a'$  of the skelp are preferably inclined or beveled so that the beaded face of the skelp is less broad than the plain face, as clearly shown in Fig. 2. The lateral edges of the skelp may therefore be said to be inclined toward the beaded face. This skelp is rolled or otherwise formed in lengths and is then cut up into blanks one of which is indicated at A' in Fig. 3. In cutting these blanks from the skelp, I prefer to make the two ends of the blank parallel and inclined to the flat faces thereof as shown at  $a^2 a^2$ . The blank is then heated and bent in any suitable manner in a circular form with the bead  $a$  on the inside, bringing the ends  $a^2 a^2$  together in position to lap slightly, and said ends are then welded. It will be seen that by cutting the ends of the blank parallel and inclined to the faces thereof, they will come together in the most advantageous manner to form a smooth weld, as indicated in Fig. 4.

Fig. 5 shows in section the ring as thus far formed. It will be noted that the bead  $a$  extends entirely around the interior of the ring and that the ends of the ring formed by the beveled edges  $a'$  are beveled from the outside inwardly. The ring is now heated and the marginal or end portions are bent or flared outwardly in any suitable manner, as indicated at  $a^3$ , which has the effect of bringing the edges  $a' a'$  of the ring perpendicular with the longitudinal axis of the ring as clearly indicated in Fig. 6.

In welding the rings, there must of necessity be slight variations in their internal diameter and it is desirable to bring all the rings of a certain required diameter to the same size, in order to adapt them for use with the standard sizes of pipe with which they are to be used.



In order to finish the rings so that they will be true circles and also to bring them to exact size, they are subjected to internal pressure or expansion to the required extent by a circular die or tool, so that they will all be brought to a uniform diameter. To accomplish this result I prefer to employ the means shown in Figs. 1 and 8 in which B represents a die or expander formed in segments and provided on its exterior with a horizontal annular groove *b* to receive the bead *a* of the ring to avoid bruising it, and provided internally with inclined wedging surfaces *b'* which engage a movable tapered wedge block C. The ring A' is placed over the expander B and the wedge C is pressed into the expander in any desired way, as by a hydraulic ram indicated at D, thus expanding the ring until its internal diameter is brought to the desired size. The expansion of the rings to bring them to size, or in other words, to standardize them, may be accomplished by other means. The particular means herein shown and described forms no part of the present invention and will be covered by a subsequent application to be filed by me hereafter.

What I claim and desire to secure by Letters Patent is:—

1. The herein described process of forming metal rings provided with flared ends and an internal bead, which consists in forming a skelp having a central longitudinal bead on one face, and lateral edges inclined toward the beaded face, severing said skelp and forming a blank therefrom having its ends parallel and inclined to the faces thereof, bending the blank into circular form with the bead on the inner side and welding the ends together, flaring the ends of the ring so formed and bringing its inclined edges perpendicular to the axis of the ring and expanding the portions of the ring between said flared portions to bring it to a true circle of required diameter.

2. The herein described process of forming metal rings having an internal bead, and flared ends, which consists in forming a blank consisting of a flat plate of a width substantially equal to the length of the desired ring, and a length greater than the periphery thereof, said plate being provided

with a longitudinal bead on one face, and having its edges inclined toward its beaded face, forming the blank into a ring with the bead inside and welding the ends together and then flaring the ends of the ring outwardly, and bringing said inclined edges perpendicular to the axis of the ring.

3. The herein described process of forming metal middle rings for pipe couplings which consists in bending a plate or blank having its edges inclined toward one of its faces, into ring form, welding the ends of the blank together and then bending marginal portions at each end of the ring outwardly to bring the inclined faces thereof perpendicular to the axis of the ring, substantially as described.

4. The herein described process of forming a wrought metal middle ring for pipe couplings having an internal bead and outwardly flared ends, which consists in forming a blank consisting of a flat plate of wrought metal having a longitudinal bead located centrally on one face of the same, bending said blank into the form of a ring, with the bead on the inside, welding the ends of the blank together, and preserving the continuity of the bead during the welding operation, bending the marginal portions of the ring at each end thereof outwardly and expanding the ring to a circle of predetermined diameter while preserving the internal bead, to true the ring and standardize it.

5. The herein described process of forming a wrought metal middle ring for pipe couplings, having outwardly flared ends, which consists in forming a blank consisting of a plate of wrought metal, bending said blank into ring form, and welding the ends together, bending marginal portions only of the ring, at each end of the same outwardly to form packing recesses, and expanding the welded and flared ring to a circle of predetermined internal diameter, to true the ring and standardize it.

In testimony whereof I affix my signature, in the presence of two witnesses.

GEORGE HENRY WHITE.

Witnesses:

JOS. W. BARR,  
J. P. KINGSLAND.