

No. 708,501.

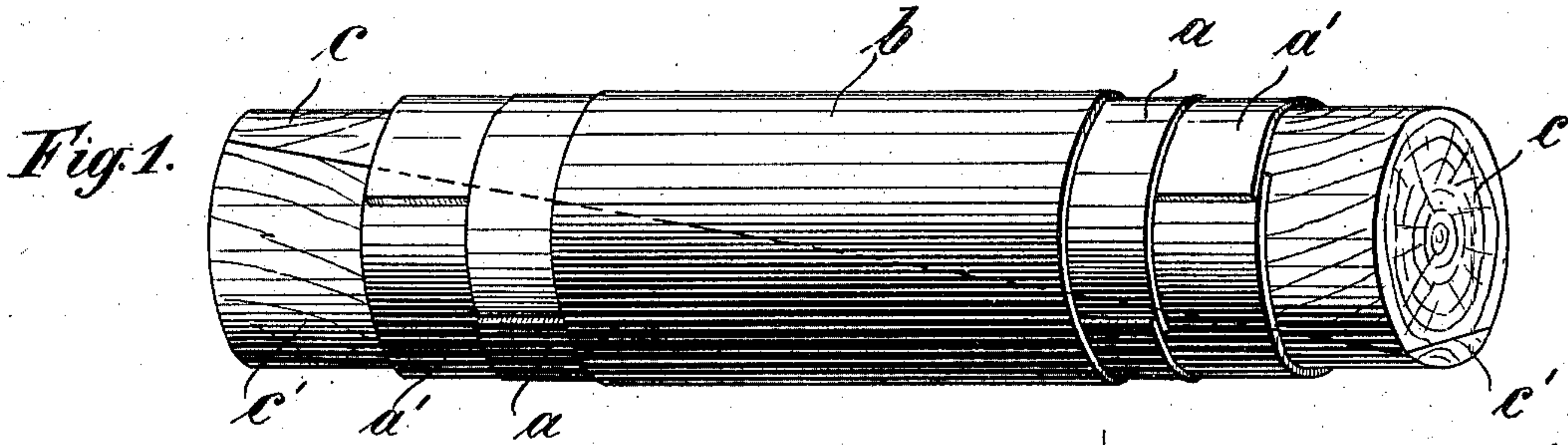
Patented Sept. 2, 1902.

O. STEINER.

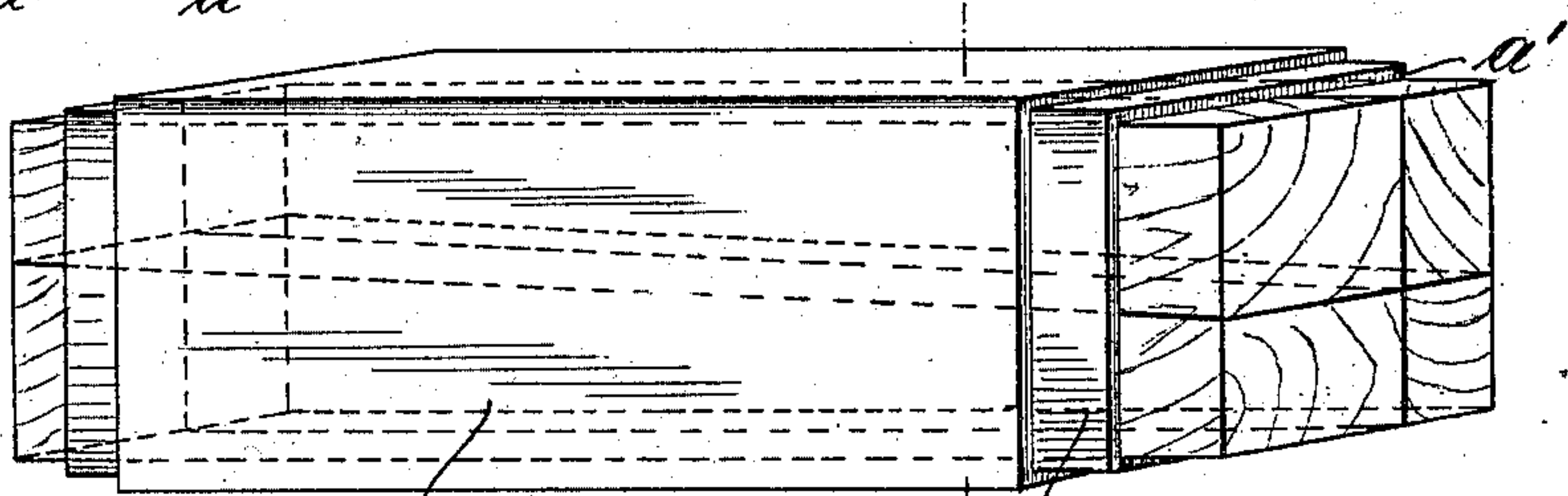
METHOD OF FILLING METAL TUBES WITH WOODEN CORES.

(Application filed Aug. 3, 1900.)

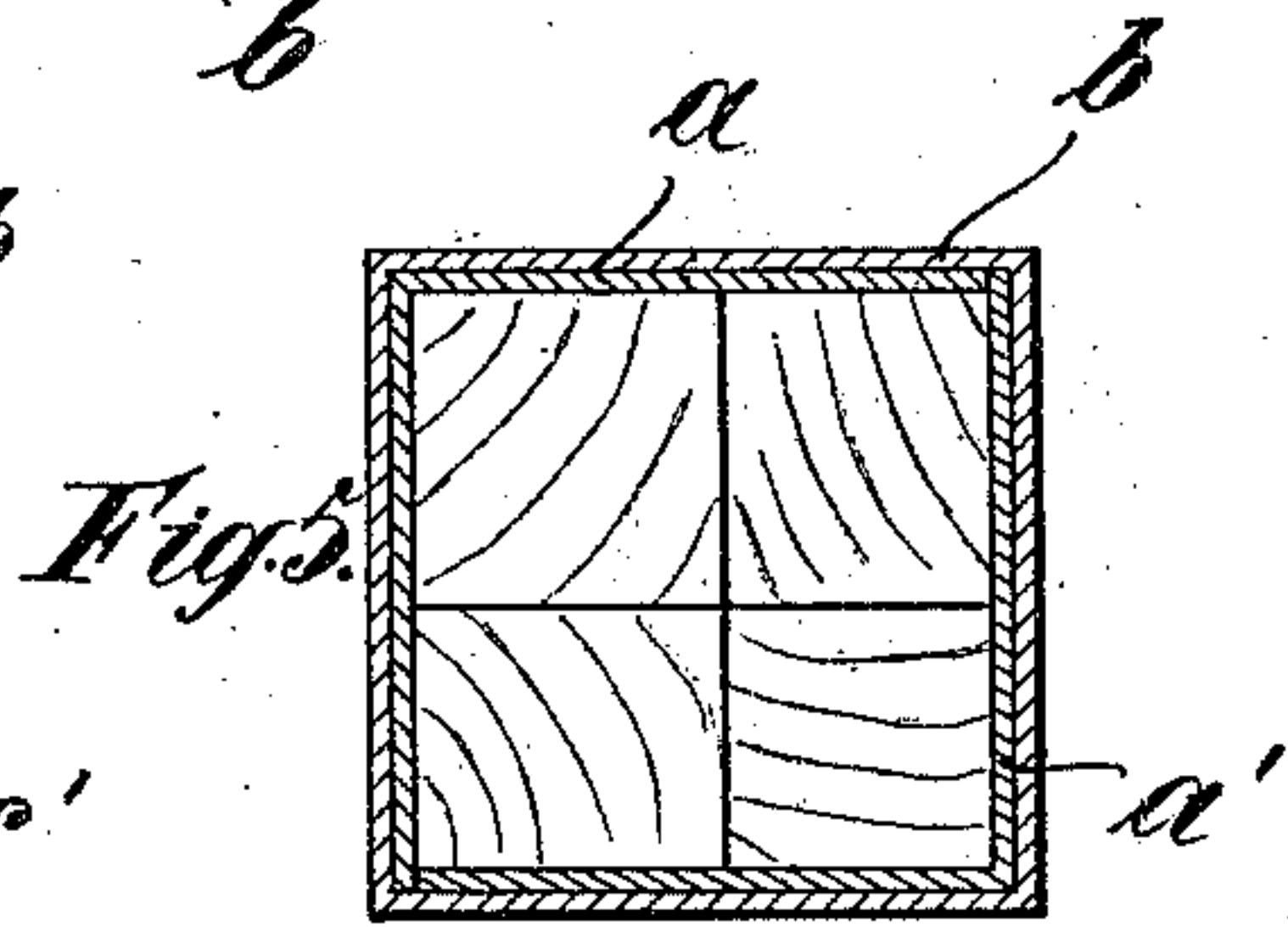
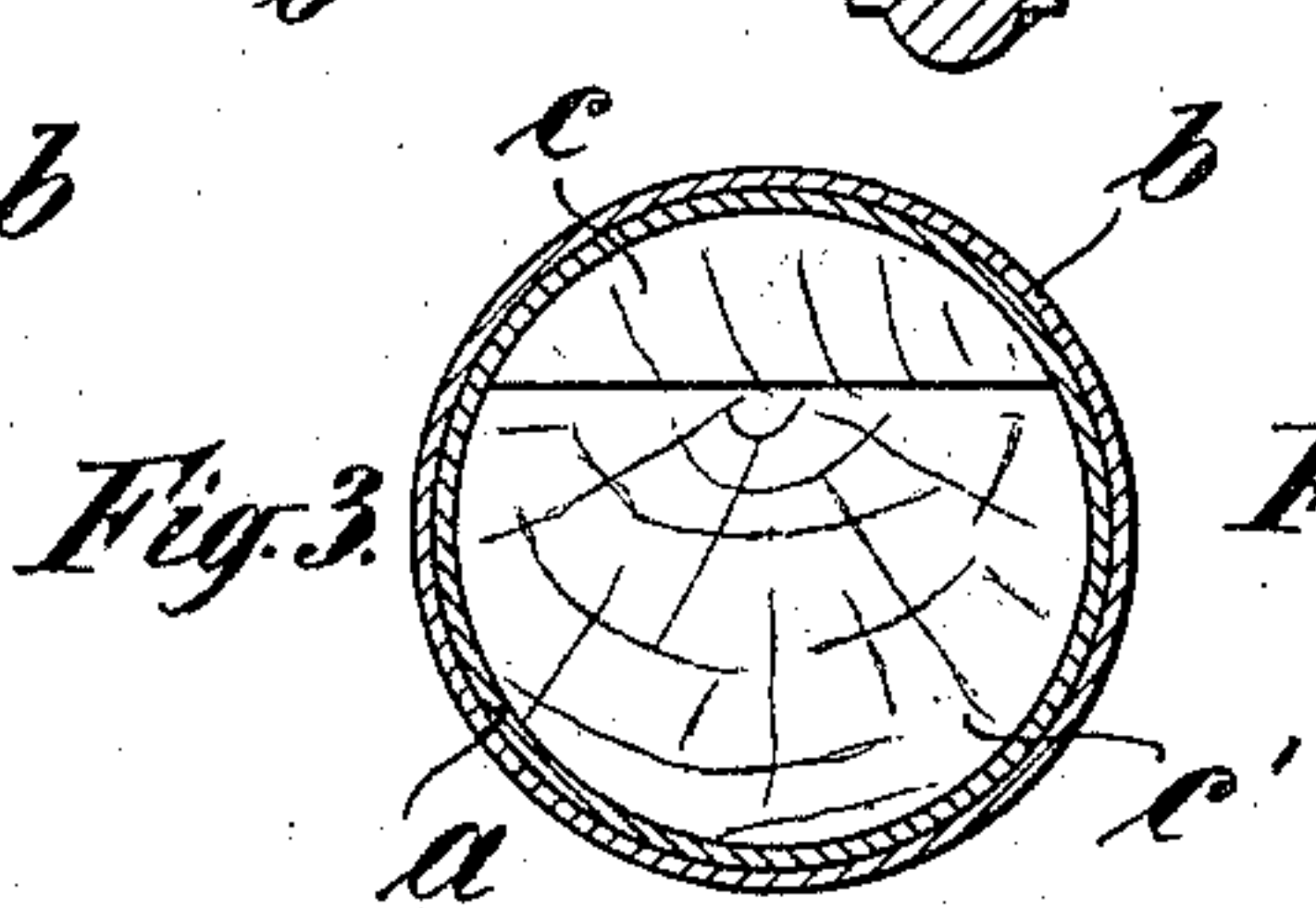
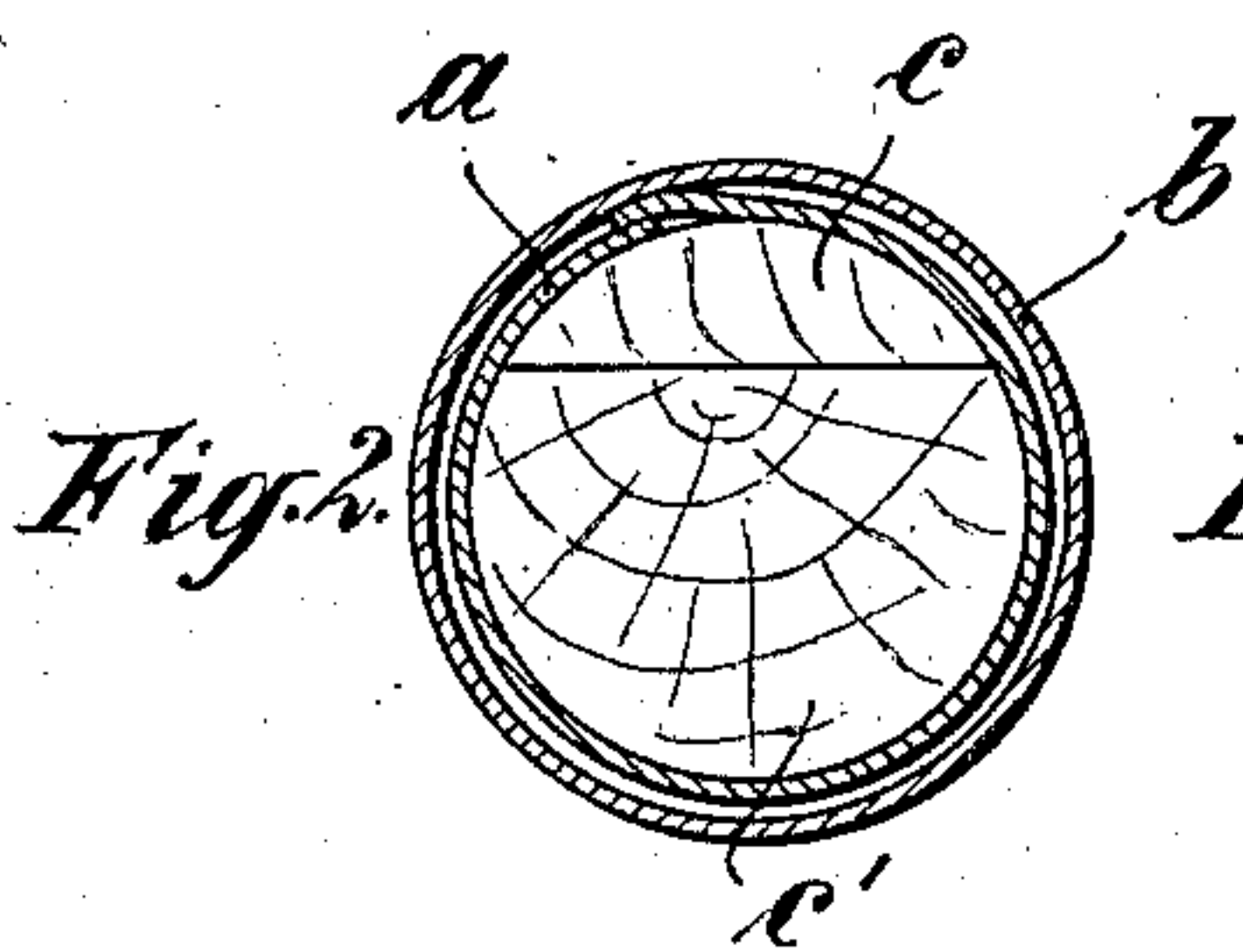
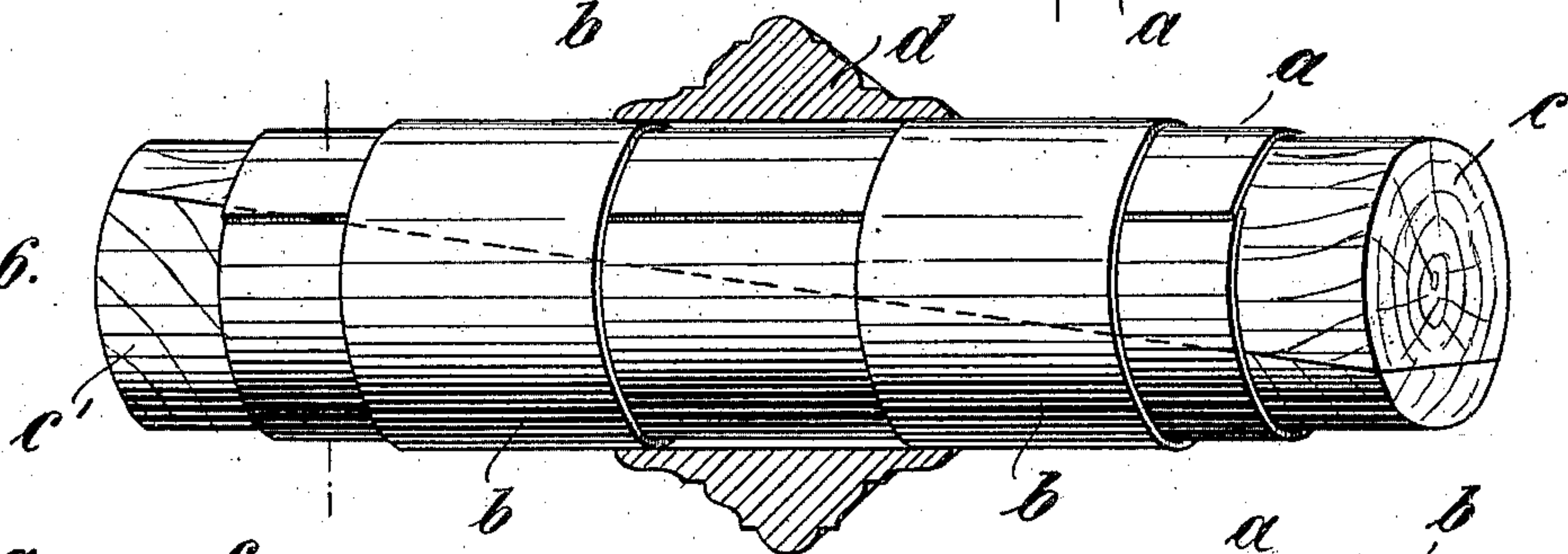
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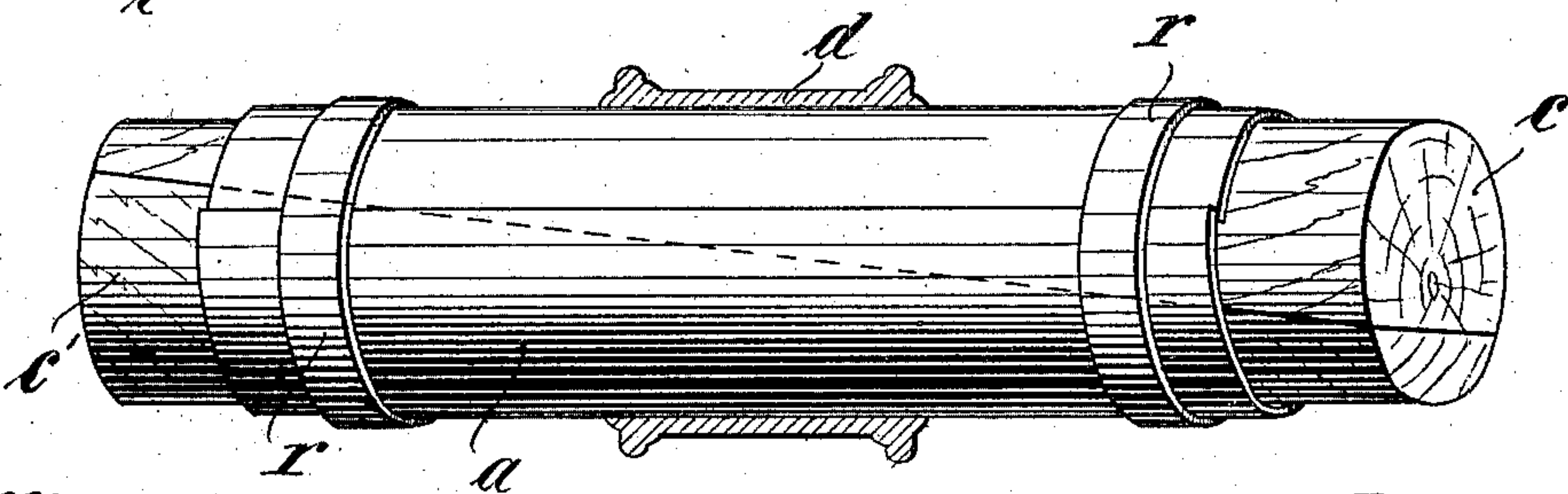
*Fig. 4.*



*Fig. 6.*



*Fig. 7.*



Witnesses:

*Richard Scherpe*  
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*Ottomar Steiner.*

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Attorney.



# UNITED STATES PATENT OFFICE.

OTTOMAR STEINER, OF FRANKENBERG, GERMANY.

## METHOD OF FILLING METAL TUBES WITH WOODEN CORES.

SPECIFICATION forming part of Letters Patent No. 708,501, dated September 2, 1902.

Application filed August 3, 1900. Serial No. 25,798. (No specimens.)

*To all whom it may concern:*

Be it known that I, OTTOMAR STEINER, manufacturer, a citizen of the Kingdom of Saxony, and a resident of Frankenberg, Germany, have invented certain new and useful Improvements in a New Method of Filling Metal Tubes with Wooden Cores, of which the following is a specification.

This invention relates to an improved method for filling metal tubes with wooden cores for use in the manufacture of furniture; and the object is to provide a strong tube capable of resisting great pressure without increasing its weight to any marked degree.

With this and other objects in view the invention consists of inserting into a seamless tube one or more sheet-metal blanks with overlapping edges and then expanding the blanks to withdraw the overlapping edges, so that the entire outer surface of the blanks contact with and brace the inner surface of the seamless tube.

In the accompanying drawings, Figure 1 shows the method employed for filling the tube with a wooden core and with protecting layers of sheet metal. Figs. 2 and 3 are sections through a tube filled with a wooden core and provided with only one layer of sheet metal, interposed before and after wedging the wooden core. Figs. 4 and 5 show the same method employed for filling a tube of square section. Fig. 6 shows the manner in which cornices and the like may be connected to tubes by filling them with wooden cores. Fig. 7 shows the same method employed for bending the inserted sheet metal into the form of a tube.

In order to fill a metal tube with a wooden core after the present method, one or several layers of sheet metal  $a$   $a'$  are bent into the form of tubes. One edge of the strips is to overlap the other one. The tubes thus formed are inserted into the metal tube  $b$ , which is either welded or soldered or weldless. A wooden staff of proper diameter and length is parted into two wedge-shaped pieces  $c$  and  $c'$ . These are inserted with their points from both sides into the tube-shaped strips  $a$   $a'$ , so that their plane surfaces are in contact with each other. Then they are wedged by blows on the thicker of the two halves. The increasing diameter of the core forces the strips

$a$   $a'$  apart and against the inner circumference of tube  $b$  until it is completely filled. In doing this the overlapping edges of the strips  $a$   $a'$  are withdrawn from the opposite edges and give, when just in contact with them, a completely flush surface. The width of the strips  $a$   $a'$  is so calculated that the tube  $b$  is exactly filled up when the upper edge descends from the lower one. The walls of the tube are therefore in all points completely backed by the sheet metal and the wooden core.

In Figs. 4 and 5 the described method is shown as employed for filling tubes of square section with wooden cores. The protecting-cover is formed by two strips  $a$   $a'$  of sheet metal, each bent into V shape and put into opposite corners of the square tube. The sides of the V are just a little larger than the inner sides of the square tube. Their edges are bent before inserting them into the outer tube  $b$ . The wooden core, which is naturally also of square section, is parted into four wedge-shaped pieces by means of two diagonal cuts, as shown in Figs. 4 and 5. By means of blows on the thicker ends of said wedges the diameter of the core is increased, and tube  $b$  completely filled in the same way, as before described. The overlapping edges of the strips descend from each other and are just in contact when the tube is completely filled.

The method hereinbefore described may also be employed for fastening cornices or the like to the tube, Fig. 6. The cornice  $d$  is put over the tube  $b$  and the fastening is done by wedging the core in the same manner as described before. As will be readily seen from the drawings, Fig. 6, two pieces of the tube may be united in this way on the same core.

As welded or weldless tubes are expensive they cannot be employed for the manufacture of cheaper bedsteads or the like. The process hereinbefore described offers a means for dispensing with long tubes, replacing them only by short pieces or rings. The strip of sheet metal  $a$ , bent into the form of a tube and having overlapping edges, is surrounded by some rings  $r$  or cornices  $d$ . The wooden core is inserted and fastened in the known manner and the overlapping edges are drawn

back until flush. At this moment the rings or cornices will be completely filled. The seam where the edges of the strip touch each other is afterward filled with putty, and after  
5 painting, varnishing, or enameling no trace of the seam will be seen.

What I claim is—

1. A process for constructing metal tubes for use in the manufacture of furniture, consisting of inserting into a seamless tube one  
10 or more sheet-metal blanks with overlapping edges, expanding the blanks to permit the overlapping edges to be withdrawn so that the entire outer surface of the blanks contact with the inner periphery of the seamless  
15 tube.

2. A process for constructing metal tubes for use in the manufacture of furniture, consisting of inserting into a seamless tube one or more cylindrically-bent sheet-metal blanks  
20 with their edges overlapping, and inserting wedges within the blanks to spread them apart, to permit the overlapping edges to be withdrawn until the entire outer periphery of the blank contacts with the inner periphery  
25 of the seamless tube.

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

OTTOMAR STEINER.

Witnesses:

WOLDEMAR HAUPT,  
HENRY HASPER.