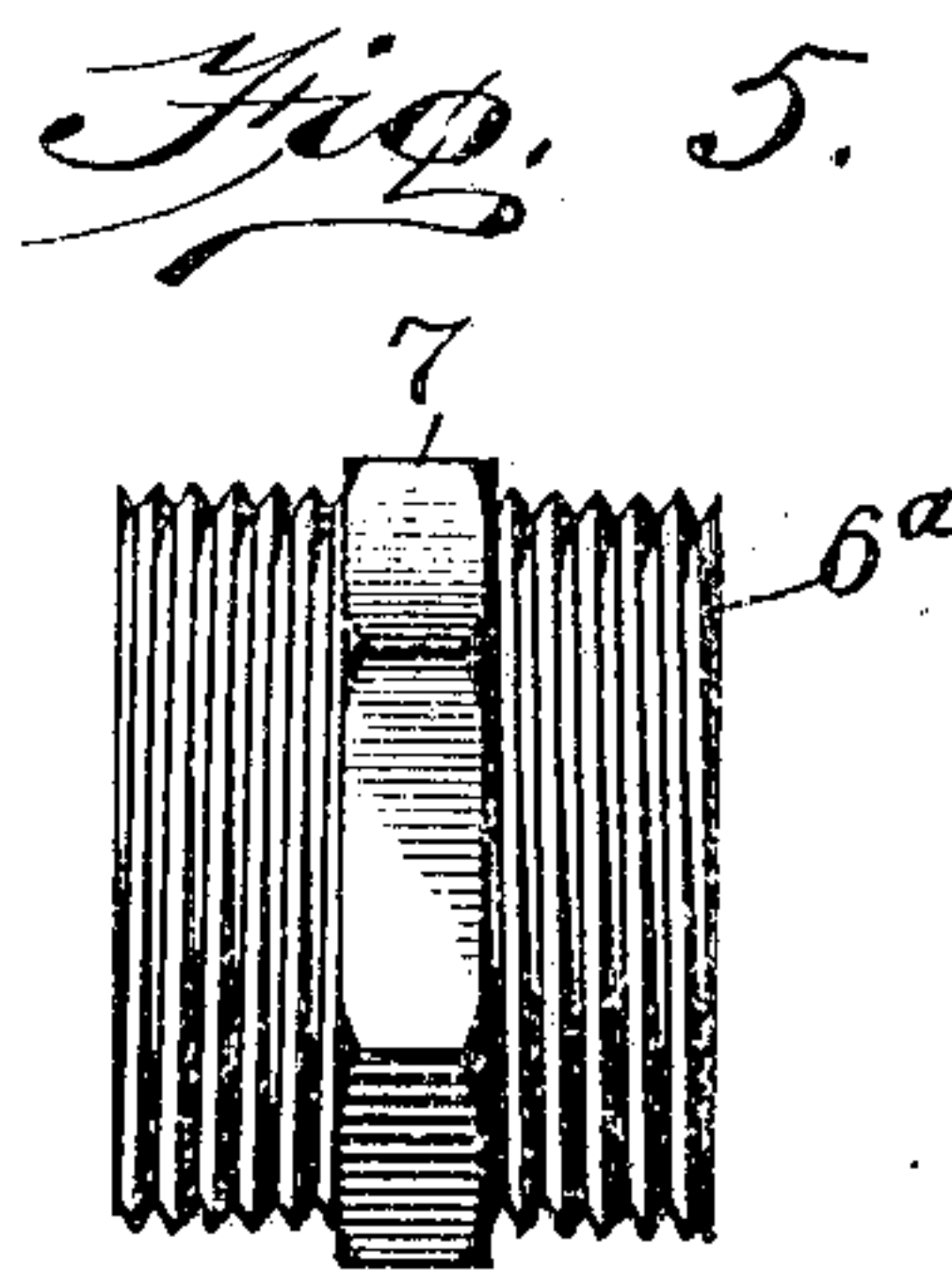
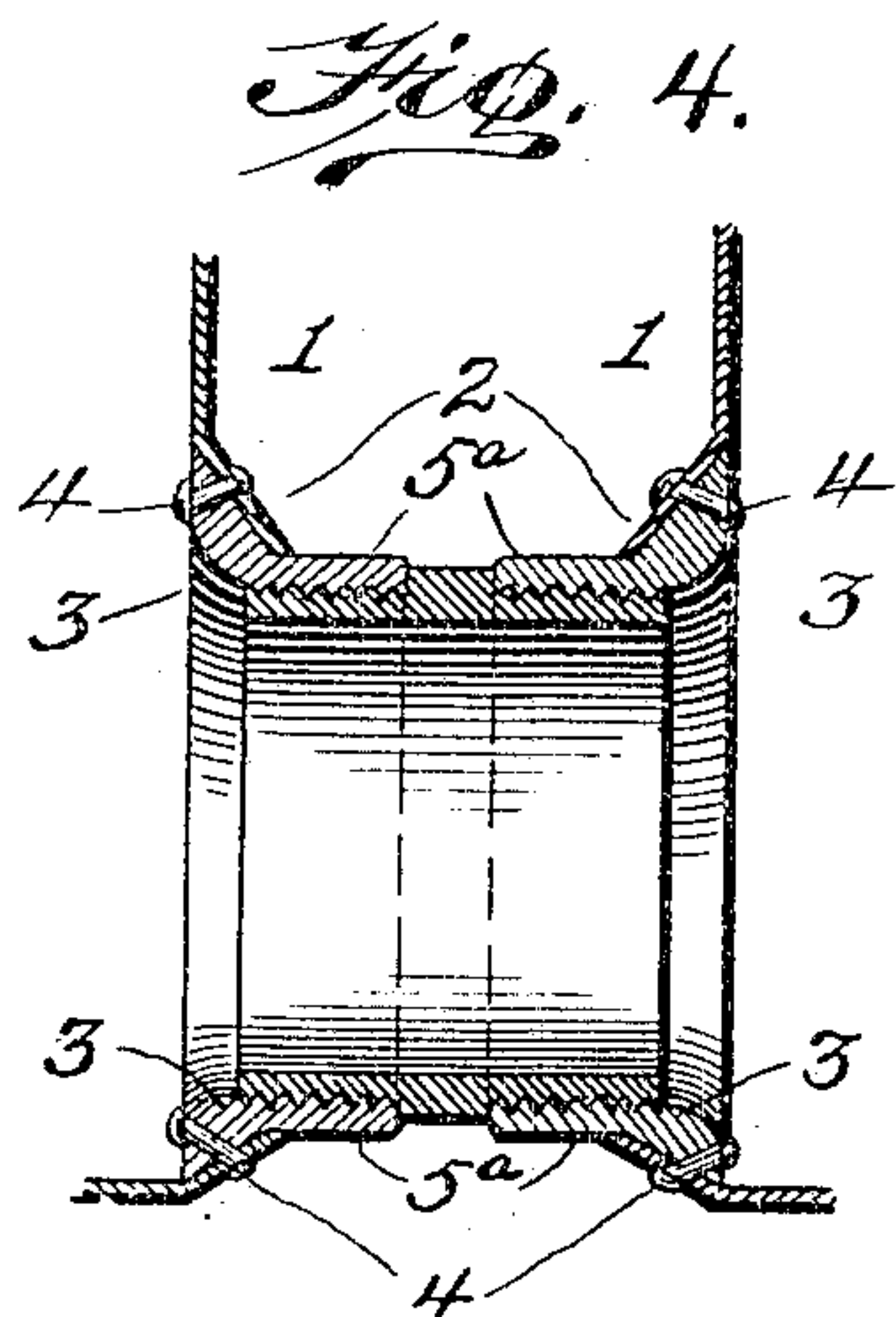
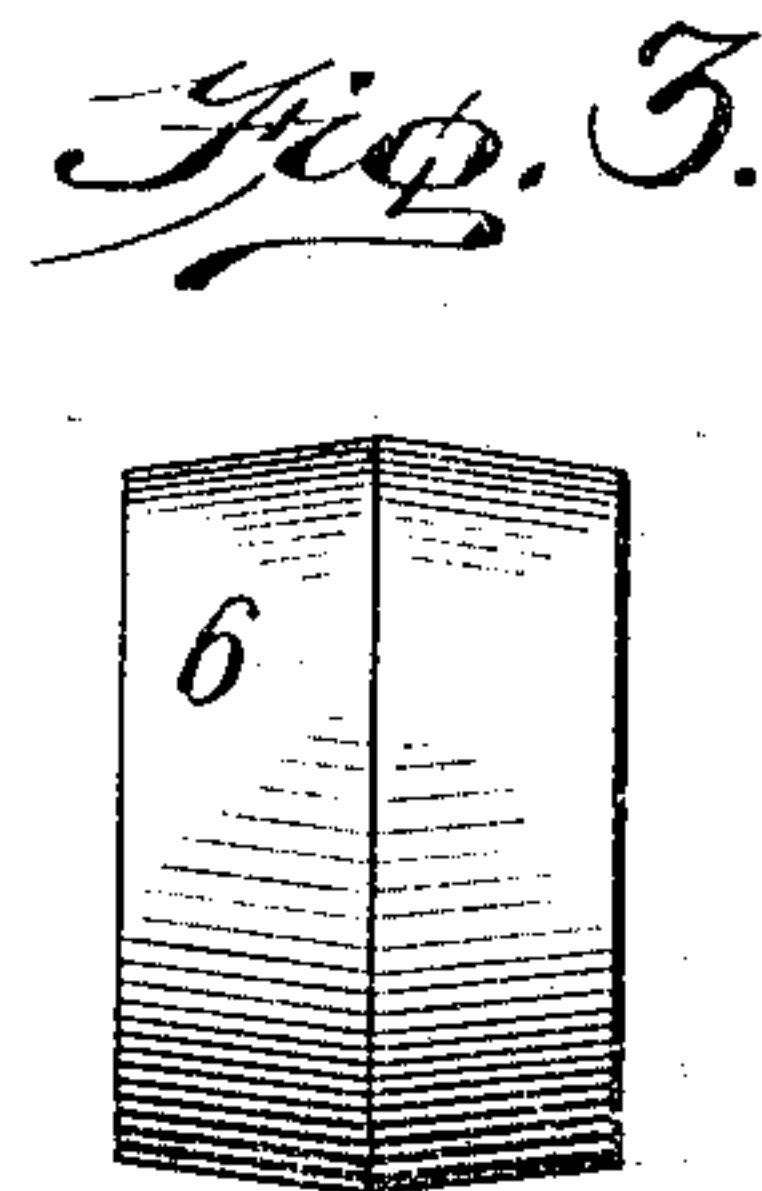
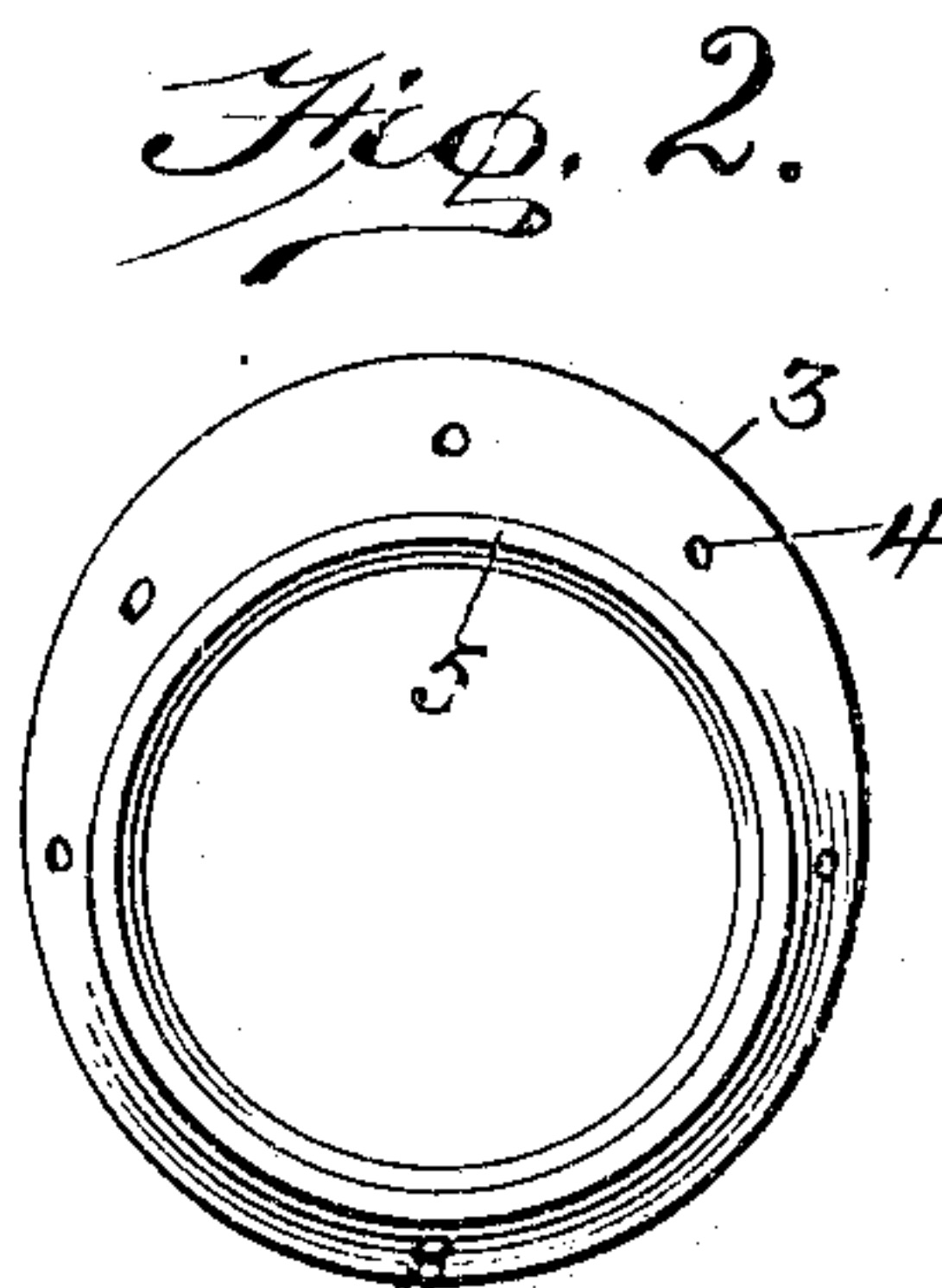
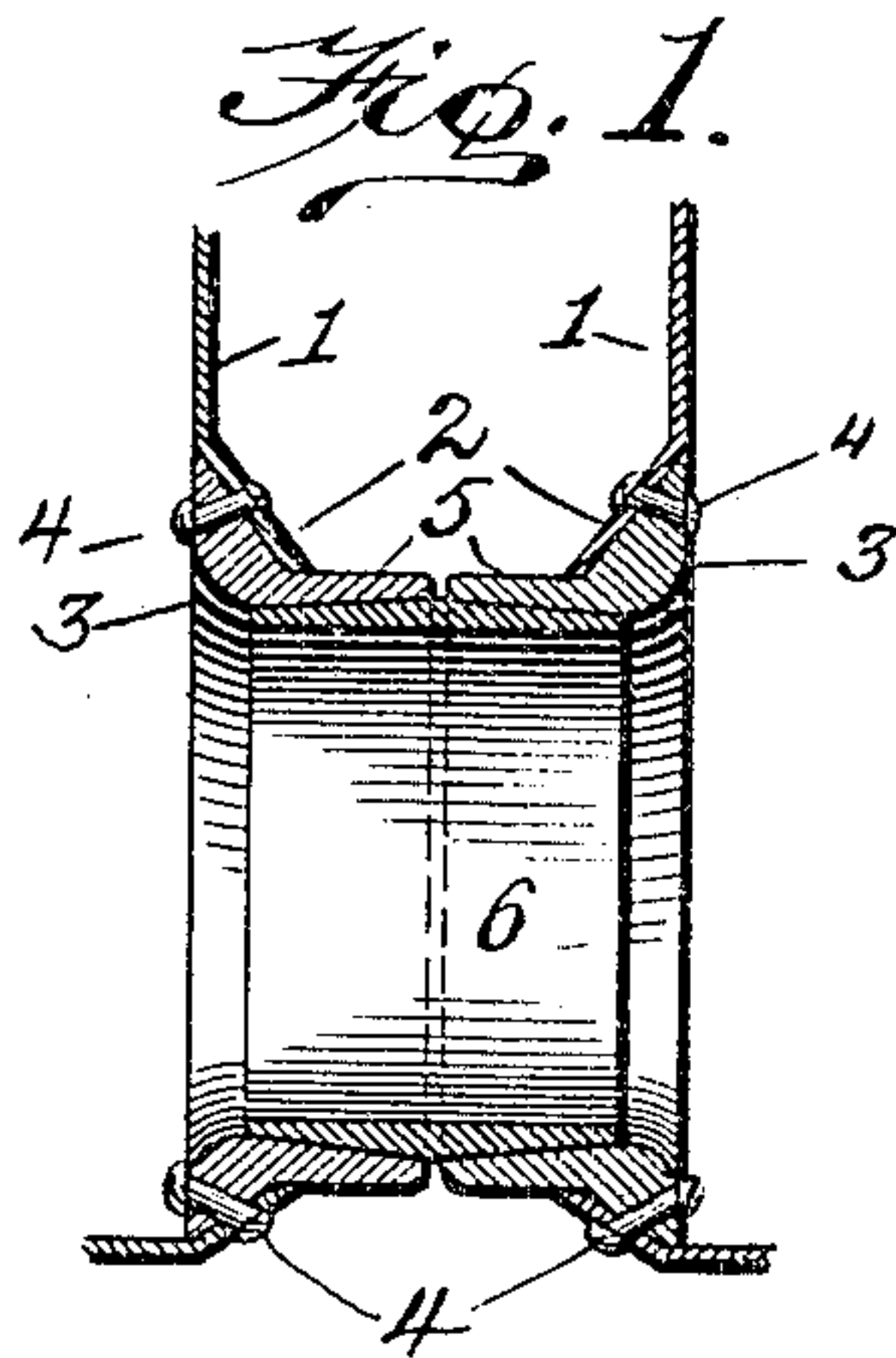


No. 788,140.

PATENTED APR. 25, 1905.

H. W. NOWELL.  
CONNECTION FOR SHEET METAL RADIATORS.

APPLICATION FILED MAY 7, 1904.



Witnesses  
*H. G. Dieterich*  
*J. A. Adams*

Inventor  
*Herbert W. Nowell,*  
By *Knight Bros* Attorneys

# UNITED STATES PATENT OFFICE.

HERBERT W. NOWELL, OF NEW YORK, N. Y., ASSIGNOR TO KINNARD-  
HOOD STEEL COMPANY, OF NEW YORK, N. Y., A CORPORATION  
OF NEW JERSEY.

## CONNECTION FOR SHEET-METAL RADIATORS.

SPECIFICATION forming part of Letters Patent No. 788,140, dated April 25, 1905.

Application filed May 7, 1904. Serial No. 206,920.

*To all whom it may concern:*

Be it known that I, HERBERT W. NOWELL, a citizen of the United States, and a resident of the borough of Manhattan, in the city and State of New York, have invented certain new and useful Improvements in Connections for Sheet-Metal Radiators, of which the following is a specification.

This invention relates to connections for sheet-metal radiators.

It has heretofore been proposed to connect sheet-metal radiators by striking up from the opposed walls to be connected bosses provided with flanges which are united to form a connecting-seam; but inasmuch as the depth of these bosses is necessarily limited by the conditions of the metal it has sometimes been found that sufficient air-space between radiator units cannot be provided in this method of connection. On the other hand, it is not practicable to employ the ordinary slip-joint or right and left threaded thimble in connection with the sheet metal. Moreover, the sheet metal being necessarily flexible and yielding satisfactory joints employing the ordinary double-tapered or right and left threaded thimble have not heretofore been obtainable. According to my present invention I employ means whereby either form of thimble may be used in connection with a sheet-metal radiator, and this I accomplish by providing in each of the walls to be connected a conical or conoidal boss and collars provided with bases tapered on outer surfaces to conform to the struck-up bosses, but flattened on their inner faces to receive pressure-tools, and in a pair of these collars after being attached to the walls to be connected the thimble is fitted either by the double-tapered slip-joint or by the right and left thread.

My invention will be fully understood upon reference to the accompanying drawings, in which two embodiments of the invention are shown by way of illustration, Figure 1 showing an axial section through parts of two opposed walls of a radiator connected by one form of joint, Figs. 2 and 3 being respec-

tively an end view of the collar and a side view of the thimble employed in Fig. 1, and Fig. 4 being an axial section corresponding to Fig. 1, in which the right and left threaded thimble is employed, while Fig. 5 is a side view of said thimble.

1 represents the opposed walls of two sheet-metal radiator units which are to be connected. 2 represents conical or conoidal bosses that are struck up from these walls by a suitable press.

3 represents collars, which are connected to the walls 1 by rivets 4, being formed with enlarged bases, which are tapered on their outer surfaces to conform to the bosses 2 and flattened on their inner faces to make these collars flush with the inner surfaces of the walls 1. In Fig. 1 these flat inner faces of the collars serve the additional function of providing abutments for pressure-tools employed in completing the joint. These collars 3 are further provided with longitudinal lips 5, projecting outwardly from the bosses 2.

6 represents a double-tapered thimble, which fits the inner bores of the collars 3 and makes with said collars a water and steam tight joint when the collars are forced together or toward each other over the ends of the thimble.

According to Fig. 4 the lips 5<sup>a</sup> are provided with internal right and left threads, while the thimble 6<sup>a</sup> is provided with corresponding external threads and a central wrench-hold 7 by which the thimble may be screwed to its seat in both the collars 3.

In both the illustrated forms of the invention, whether the collars are drawn together by the threaded thimble or are forced together by pressure against the inner faces of the collars, the conical structure of the connection between the collars and the radiator-walls is such as to avoid distortion and to provide a very strong construction.

It is to be understood that in the form of joint illustrated in Figs. 1 to 3 the radiator units may be tied together by suitable longitudinal bolts in a well-known manner. I



also desire it to be understood that this connection may be used for so-called "single-tube" or "double-tube" radiator units.

While I have shown the thimble 6<sup>a</sup> as provided with an external wrench-hold, it will be understood that a right and left threaded thimble without this wrench-hold, but having the well-known internal studs to receive the tool, might be employed with equal advantage, especially where it is desired to draw the two collars 3 together.

Having described my invention, what I claim is—

A connection for sheet-metal radiators comprising tapering bosses struck up from oppo-

site walls of two adjacent radiator units, collars formed with bases having tapered outer faces in contact with the inner walls of the bosses throughout the length of the bosses and in alinement at their inner ends with the inner walls of the units, rivets passing through the bosses and through the tapered bases of the collars, and a thimble connecting a pair of collars.

The foregoing specification signed this 2d day of April, 1904.

HERBERT W. NOWELL.

In presence of—

WILLARD M. WORKMAN,  
RAYMOND H. KINNEAR.