

No. 778,068.

PATENTED DEC. 20, 1904.

G. PETERSON.  
EXPANSION PLUG FOR BOILER TUBES.

APPLICATION FILED JULY 13, 1904.

NO MODEL.

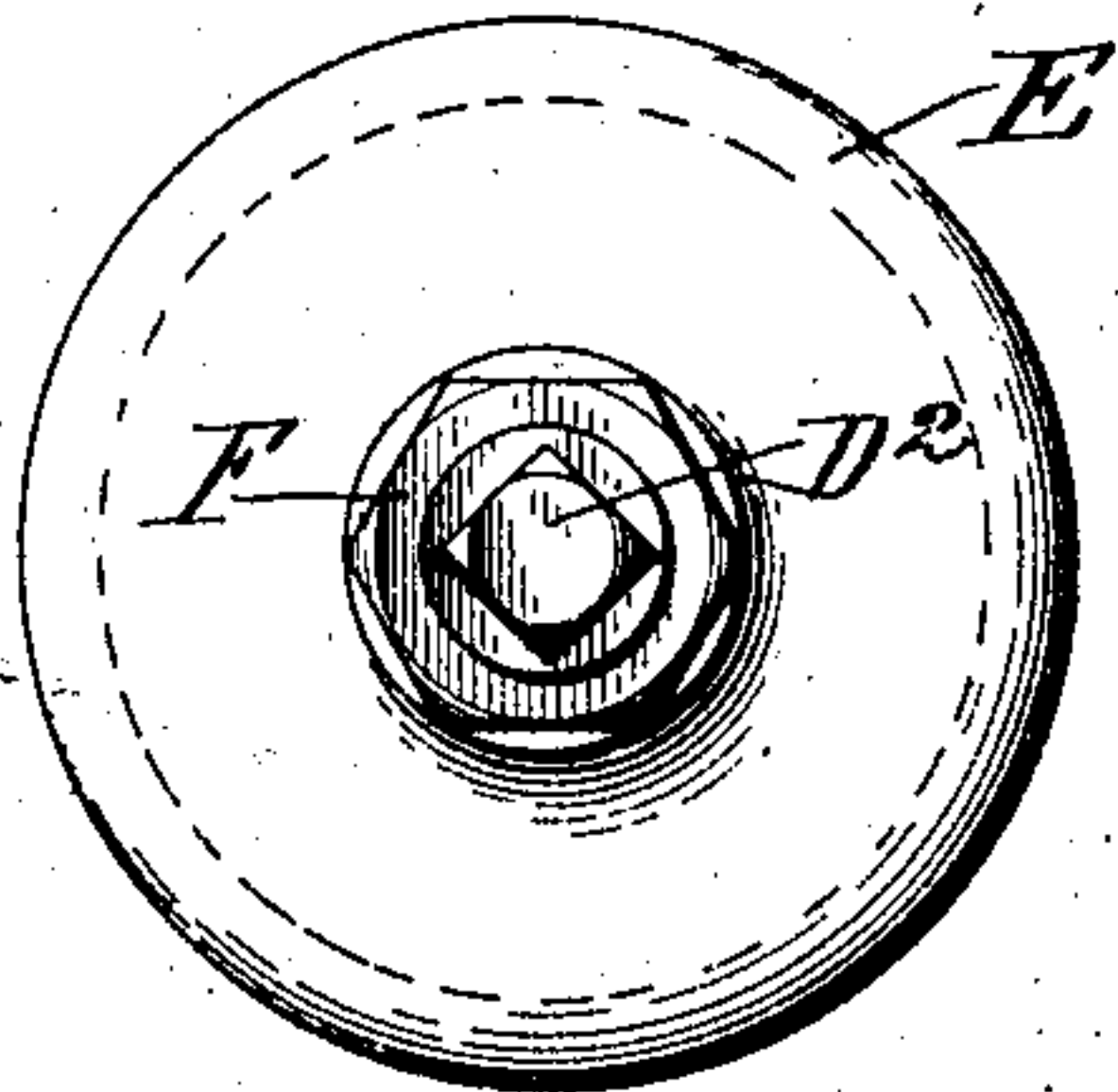
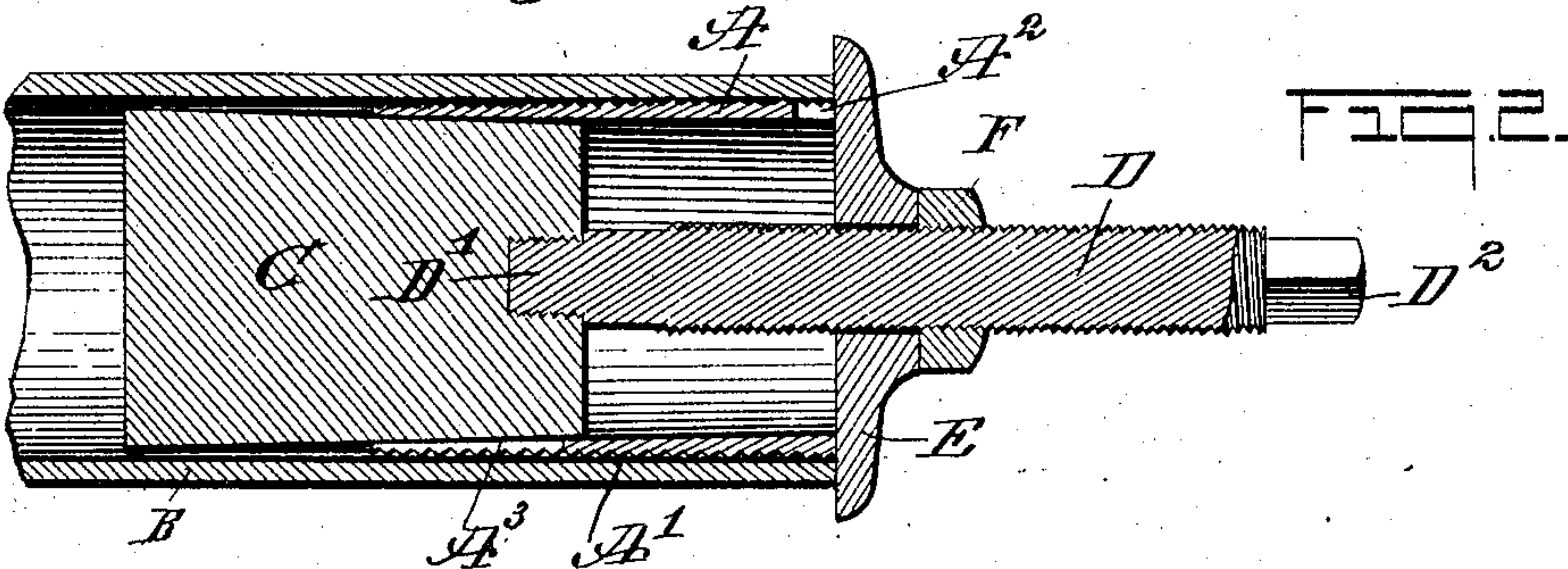
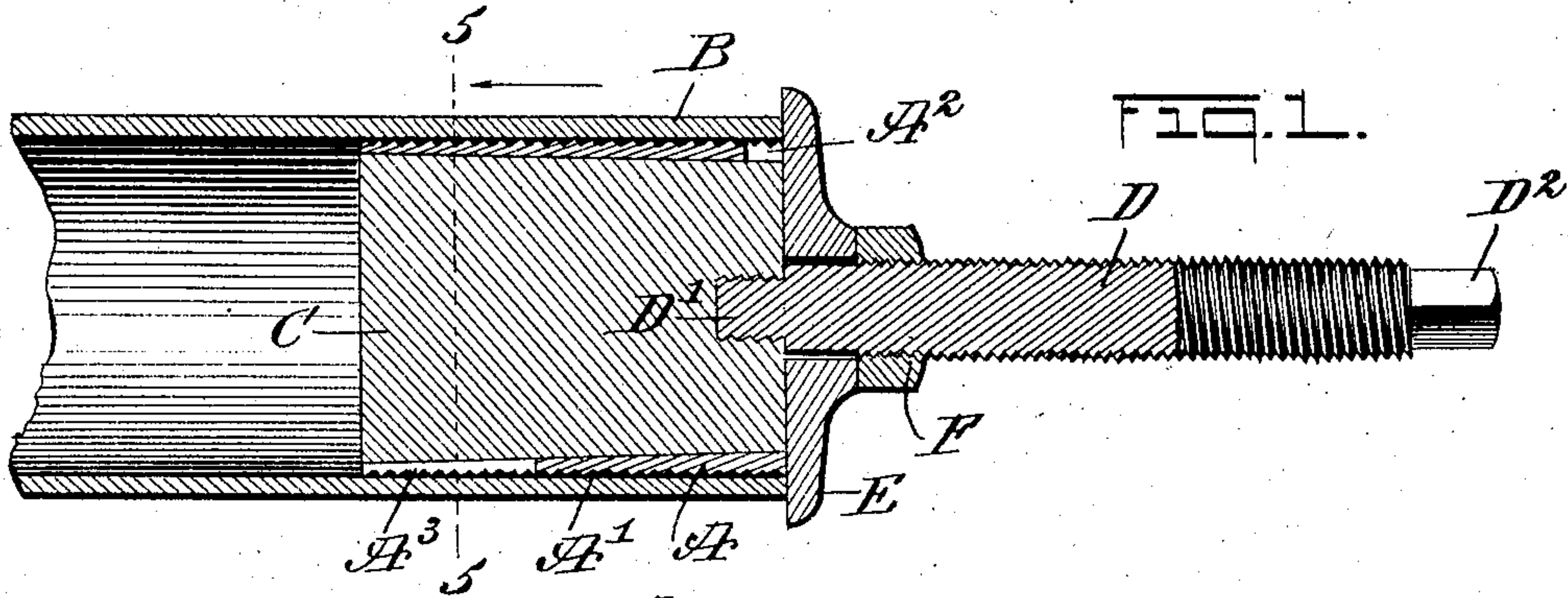


FIG. 3.

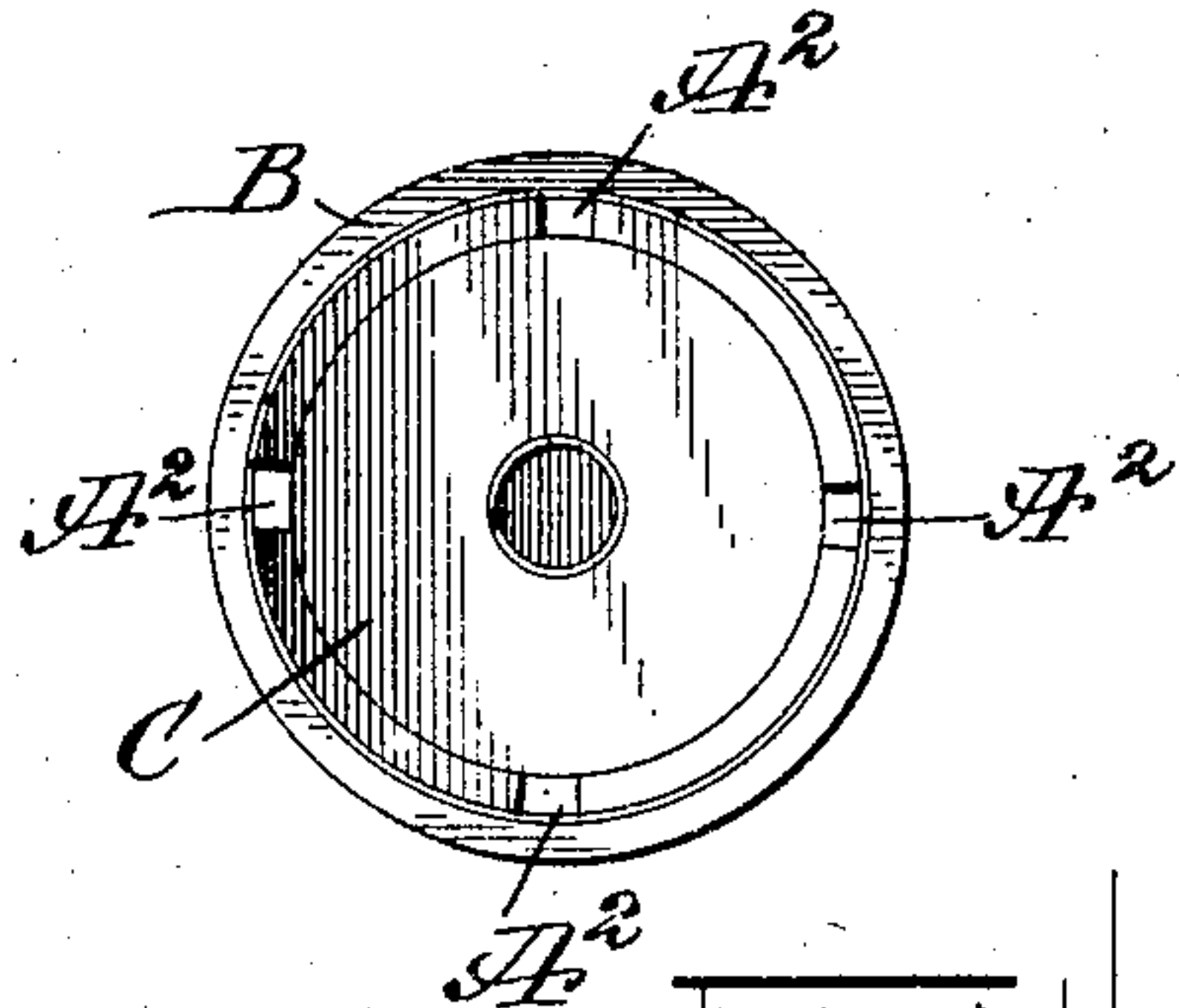


FIG. 4.

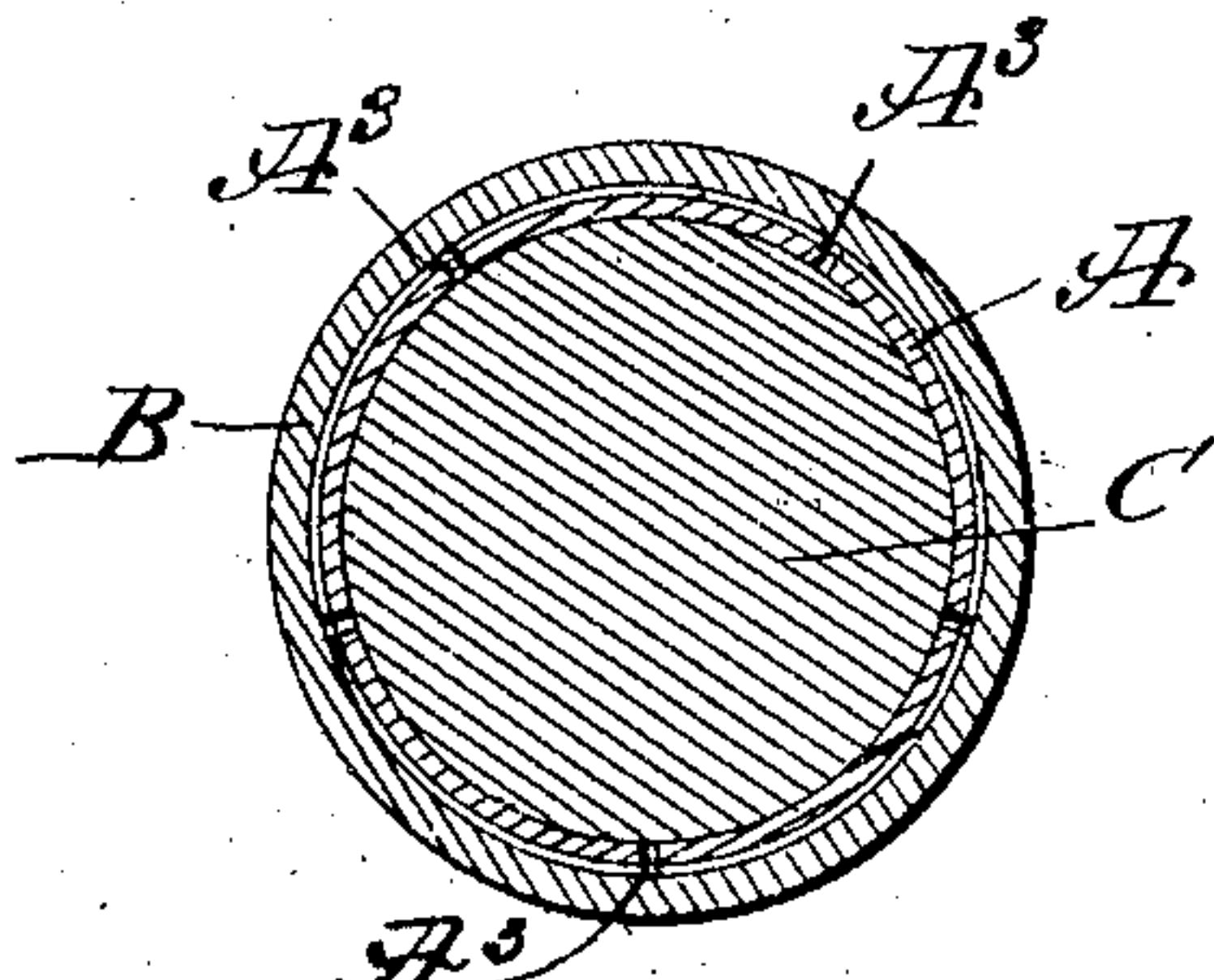


FIG. 5.

WITNESSES:

*Wm. H. H. H.*  
*Rev. J. H. H.*

INVENTOR  
*Gust Peterson.*

BY *Mum*

ATTORNEYS.



# UNITED STATES PATENT OFFICE.

GUST PETERSON, OF BIRMINGHAM, ALABAMA, ASSIGNOR OF ONE-FOURTH  
TO WILLIAM HADEN DAY, OF BIRMINGHAM, ALABAMA.

## EXPANSION-PLUG FOR BOILER-TUBES.

SPECIFICATION forming part of Letters Patent No. 778,068, dated December 20, 1904.

Application filed July 13, 1904. Serial No. 216,420.

*To all whom it may concern:*

Be it known that I, GUST PETERSON, a citizen of the United States, and a resident of Birmingham, in the county of Jefferson and State of Alabama, have invented a new and Improved Expansion-Plug for Boiler-Tubes, of which the following is a full, clear, and exact description.

The invention relates to devices for closing the ends of leaky boiler-tubes, pipes, and the like; and its object is to provide a new and improved expansion-plug which is simple and durable in construction, easily applied at any time without requiring shutting down of the furnace, and arranged to effectively close the end of the leaky tube or pipe and to allow of convenient removal and reuse of the device.

The invention consists of novel features and parts and combinations of the same, as will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a longitudinal sectional elevation of the improvement as applied. Fig. 2 is a like view of the same, showing the parts in a starting position. Fig. 3 is an end view of the improvement. Fig. 4 is an end view of the tube, the shell, and the plug; and Fig. 5 is a transverse section of the improvement on the line 5 5 of Fig. 1.

The tubular shell A is formed with a cylindrical bore and with a screw-thread A' at its tapering outer surface to permit of screwing the shell A into the boiler tube or pipe B to be closed. The outer large end of the shell A is provided with spaced recesses A<sup>2</sup> to permit the operator to conveniently apply a wrench or similar tool for screwing the shell A into the end of the boiler tube or pipe B. The inner small end of the shell A is provided with longitudinally-extending slits A<sup>3</sup>, and into this small inner end is adapted to pass the forward or small end of a tapering plug C to expand the rear or inner portion of the

shell A against the inner surface of the tube or pipe B.

In the forward small end of the tapering plug C screws the end D' of a screw-rod D, extending loosely through a washer E, adapted to abut against the outer end of the tube or pipe B, as plainly indicated in Figs. 1 and 2, and on the said screw-rod D screws a nut F, resting against the outer face of the washer E, so that when the nut F is turned after the parts are in position, as shown in Fig. 2, then the screw-rod D is drawn outwardly, and with it the plug C. The extreme outer end D<sup>2</sup> of the screw-rod D is made polygonal to permit of conveniently applying a wrench or like tool for unscrewing the end D' from the plug C after the latter has expanded the shell A and the tube or pipe B is closed.

In using the device the operator engages the small end of the plug C with the small end of the shell A and then screws the latter into the flue or tube B, after which the washer E is placed in position on the screw-rod D and against the tube B, and then the nut F is screwed up on the screw-rod D until it abuts against the washer E. Now the operator further turning the nut F causes the screw-rod D to move outwardly, and with it the plug C, so that the latter expands the inner or rear portion of the shell A against the inner surface of the flue or tube B. As the plug C moves forward it closes the bore of the shell A completely, and as the rear portion thereof is expanded against the inner surface of the flue or tube B it is evident that the latter is completely closed. When this has been done, the operator unscrews the nut F a short distance, then applies a wrench on the end D<sup>2</sup>, and unscrews the end D' from the plug C to permit of removing the screw-rod D, as well as the washer E and nut F, from the closed end of the tube B.

When it is desired to remove the shell A and the plug C from the tube or pipe B, it is only necessary for the operator to drive the plug C rearwardly to allow the rear portion of the shell A to return by its own resiliency to a normal position, and then the operator unscrews the shell A from the tube B.



The device is very simple and durable in construction and can be easily applied and removed and reused.

It is understood that for different-sized flues or tubes B different-sized shells A and corresponding plugs C are used.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. An expansion-plug comprising a shell for  
10 insertion in the tube or pipe to be closed, the shell being tapering externally and provided with longitudinal slits at its inner small end, the outer base end of the shell fitting the interior surface of the tube or pipe to be closed,  
15 and a tapering plug engaging the shell, for closing the same and for holding the slitted end expanded against the interior surface of the shell.

2. An expansion-plug comprising an exter-  
20 nally-threaded tapering shell having longitudinal slits at its inner small end, a tapering plug for engaging the slitted end of the shell, and means for drawing the tapering plug outward in the shell.

25 3. An expansion-plug comprising a shell having a tapering screw-threaded exterior and

slits at its inner small end, a tapering plug adapted to enter with its small end the shell at the latter's inner small end, a rod attached to the small end of the plug, and means for  
30 drawing the rod and the plug in an outward direction.

4. An expansion-plug comprising a shell having a tapering screw-threaded exterior and  
35 slits at its inner small end, a tapering plug adapted to enter with its small end the shell at the latter's inner small end, a screw-rod attached to the small end of the plug, a washer abutting against a fixed part, and a nut screw-  
40 ing on the said screw-rod and abutting against the said washer, the nut, when turned, causing the screw-rod and with it the plug to move outwardly, to expand the inner slitted portion of the said shell against the inner face of the  
45 boiler flue or tube.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GUST PETERSON.

Witnesses:

WM. HADEN DAY,

JO. G. CREWS.