

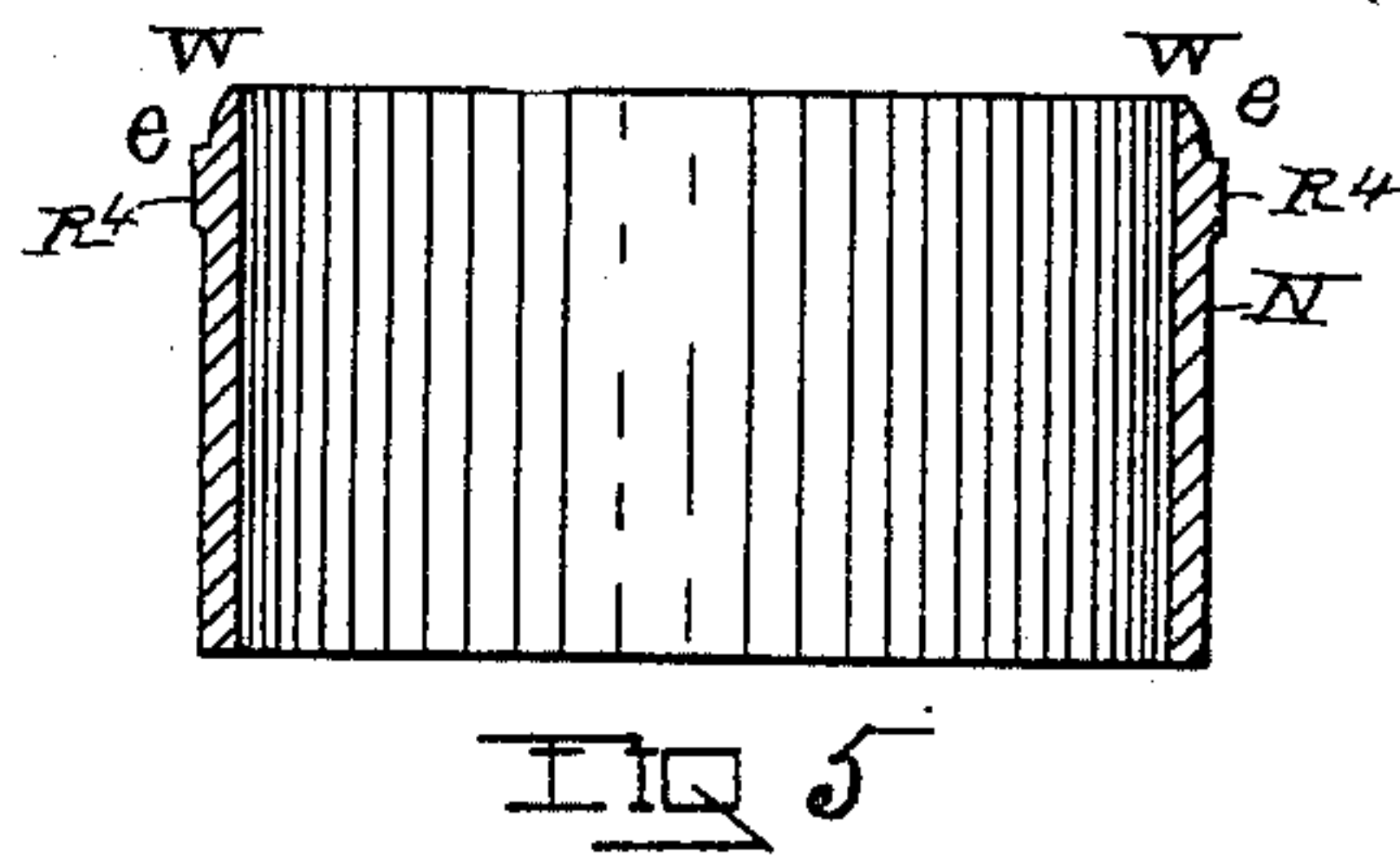
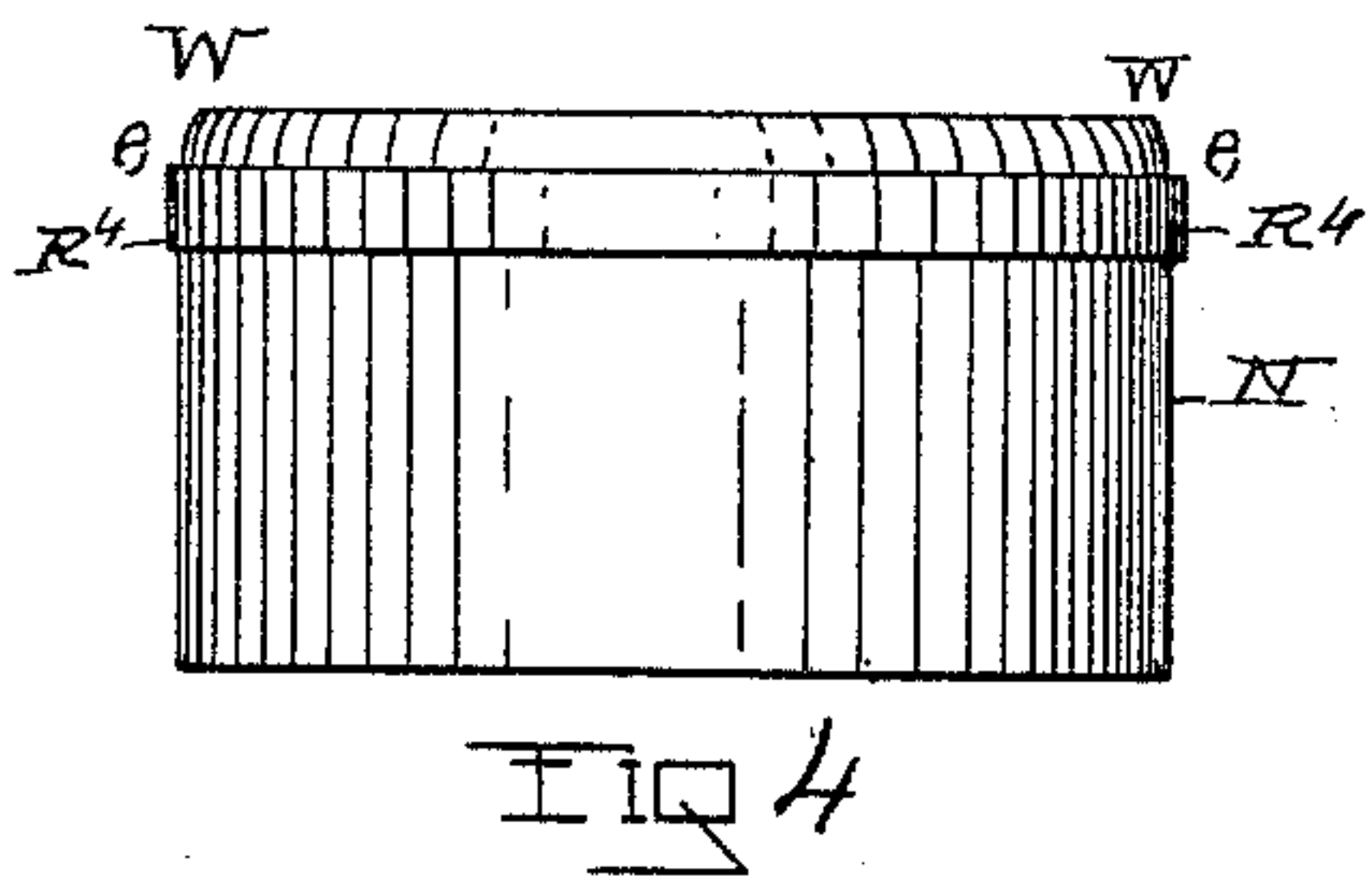
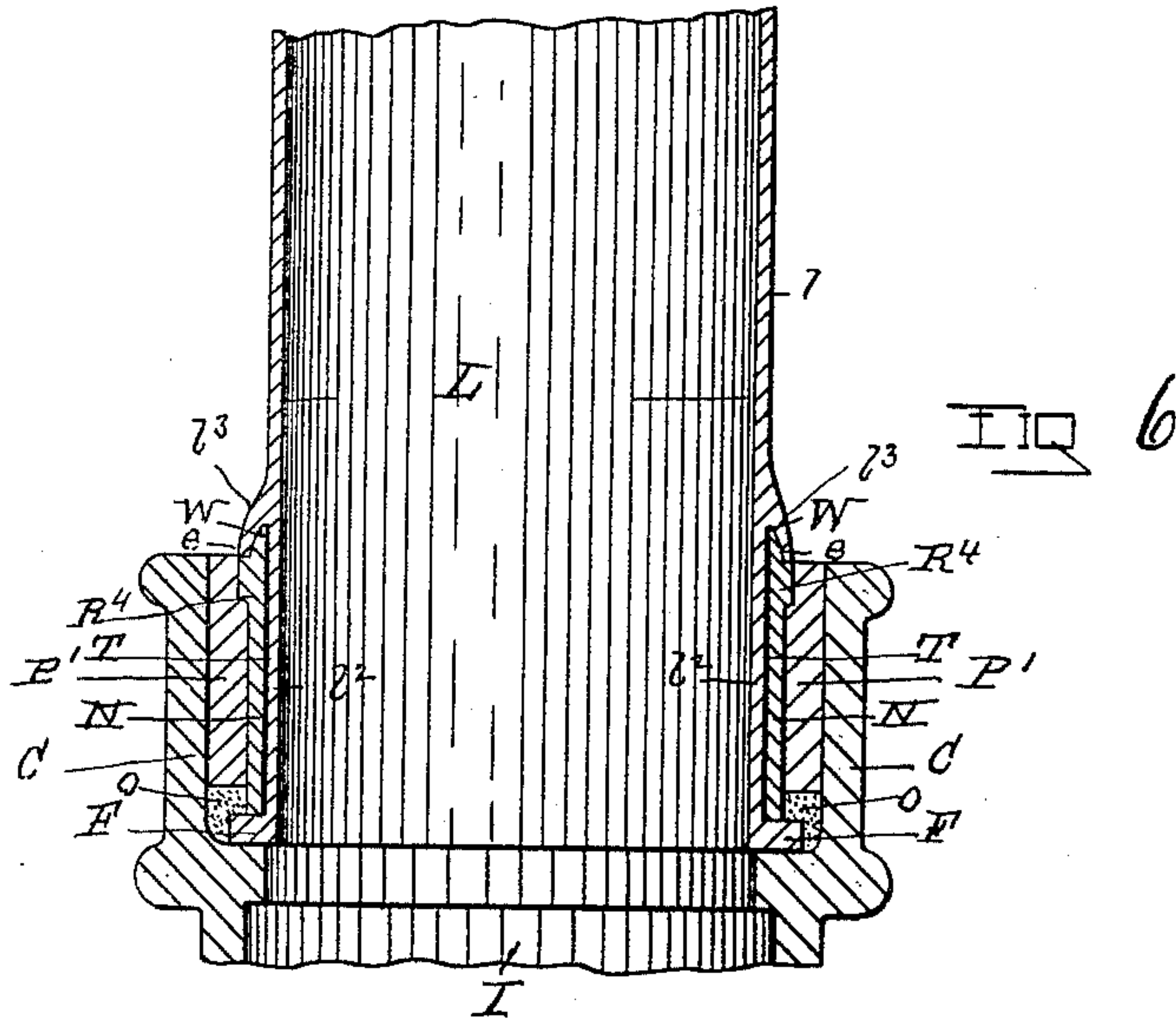
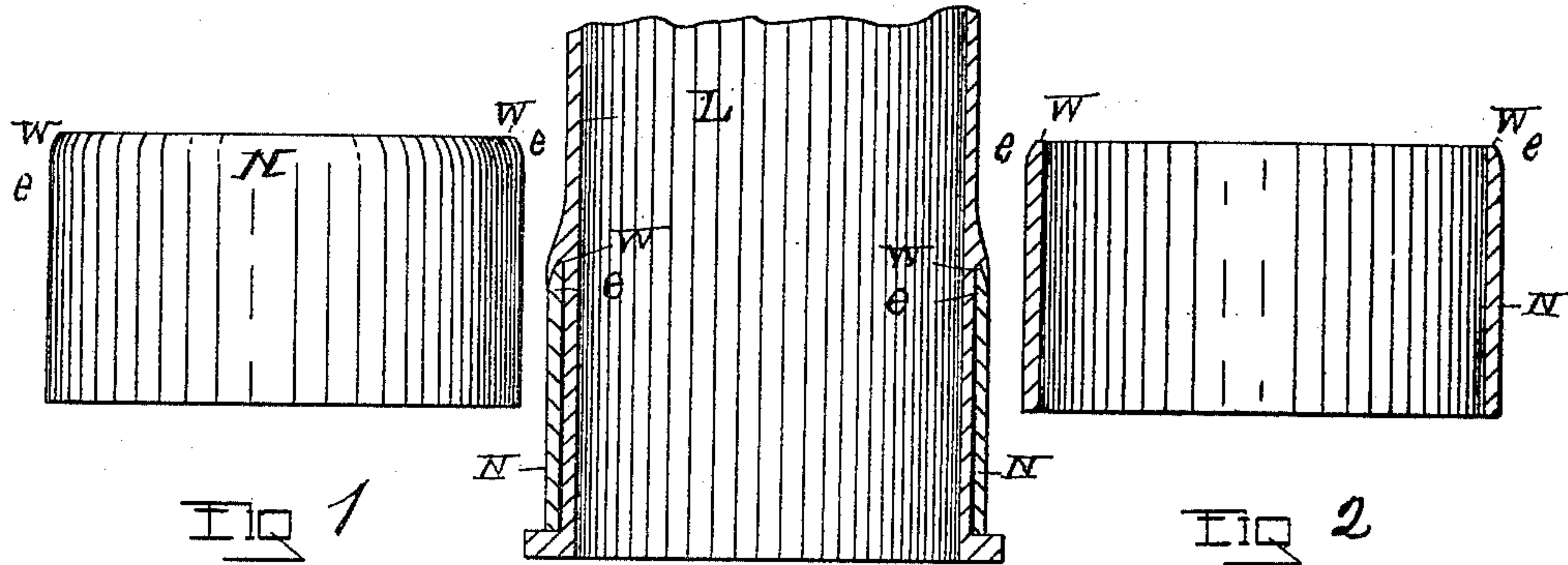
(No Model.)

J. W. DALY.

NIPPLE FOR CONNECTING IRON PIPES WITH LEAD PIPES.

No. 461,127.

Patented Oct. 13, 1891.



WITNESSES  
Charles S. Brintnall  
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Atty



# UNITED STATES PATENT OFFICE.

JAMES W. DALY, OF TROY, NEW YORK, ASSIGNOR OF TWO-THIRDS TO  
MARGARET A. BOTTUM AND JAMES T. HORAN, OF SAME PLACE.

## NIPPLE FOR CONNECTING IRON PIPES WITH LEAD PIPES.

SPECIFICATION forming part of Letters Patent No. 461,127, dated October 13, 1891.

Application filed March 1, 1890. Serial No. 342,190. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES W. DALY, of the city of Troy, county of Rensselaer, and State of New York, have invented a new and useful Improvement in Nipples for Connecting Iron Pipes with Lead Pipes, of which the following is a specification.

My invention relates to improvements upon that kind of nipples which are used in making a joint between lead and iron pipe, wherein a nipple of hard metal is used in connection with the entering end of the lead pipe to stiffen and make more durable the union of the lead pipe and iron pipe; and my invention relates, specifically, to an improved nipple of this class and as well to the process of producing it.

As heretofore practiced nipples of this class have been produced by placing a nipple of hard metal upon the inner face of the entering end of the lead pipe; but this method interfered with the proper calking of the joint. Another method consisted in making the hard-metal nipple of rolled or laminated metal with the nipple placed on the outside of the lead pipe, with a flange produced on the entering end of the lead pipe, so as to subtend the hard-metal nipple thereat, and with the outer end of the latter soldered to the lead pipe. I am also aware that a thin sheet iron or steel band that has been tinned has been cast into the outer face of a cast-iron nipple, when the latter was being molded in the sand, to produce a means for a soldering connection with the hard-metal band by retinning the same exteriorly.

My improvement upon these older methods of making this class of nipples consists in using a nipple made of brass or cast-iron, that has been made malleable to prevent its cracking when being calked and to close up all the sand-holes, so as to prevent its leaking gas, said nipple being tinned, so that when cast into the lead pipe the melted lead will adhere to the surface of the nipple and make a union therewith, with the hard-metal nipple at its upper end made so that when cast therein within an iron mold the lead will embrace its end edge and at the entering end of the hard-metal nipple will subtend the latter to form a flange thereon.

In the accompanying drawings, Figure 1 shows a side elevation of the hard-metal nipple; Fig. 2, a diametrical section of the same. Fig. 3 is a diametrical section with the nipple shown at Figs. 1 and 2 illustrated as connected to a piece of lead pipe. Fig. 4 shows a modified form of nipple in which a ring is produced on the nipple exterior inside of the beveled edge. Fig. 5 is a diametrical section of the modification shown at Fig. 4; and Fig. 6 is a diametrical section of the modified form of nipple illustrated at Figs. 4 and 5, shown as applied to and connected with a piece of lead pipe and with the combined nipple and lead pipe connected with the cup end of an iron pipe.

The several parts of the illustrations thus shown are designated by letter reference, and the function of the parts is described as follows:

The letter N designates the nipple proper, which at its upper edge *e* is made to taper, as indicated at W. The letter R<sup>1</sup> designates a ring made on the exterior of the nipple inside of its tapering end.

The letter L designates the lead pipe; *l*<sup>2</sup>, the latter when within the nipple, and *l*<sup>3</sup> an annular flange embracing the outer tapering edge of the nipple.

The letter F designates a flange made on the lead pipe to subtend laterally the end of the latter.

The letter T designates the tinned interior surface of the nipple.

The nipple N is molded into the outer face of the lead pipe, so that the lead when melted will where coming in contact with the tinned surface T unite therewith. Tinning the nipple makes the same gas-tight, and also causes the lead to adhere to the nipple. The nipple N is made of malleable iron or brass.

The letter C designates the cup end of an iron sewer-pipe I; P', the lead packing, and O the oakum packing, of the joint.

As thus made the nipple of hard metal is securely connected with the lead, and the combined nipple and lead pipe are well adapted for connection with iron sewer-pipe. By thus casting the lead around and so as to include the hard-metal nipple part the lead-pipe part of the nipple is adapted to connect

with the lead pipe instead of connecting with the band of hard metal that has been tinned and cast into the exterior of the nipple proper while being molded in the sand.

5 Where the hard-metal part of the nipple is merely bedded into the lead part, with the surfaces merely in close contact and without union, the lead part is liable to stretch away from the hard-metal part, which is objection-  
10 able.

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

15 1. The improved process of producing a combined lead and hard-metal nipple herein described, and consisting in tinning the hard-metal nipple part and then casting the latter into the lead part within an iron mold, so

that the tinned surfaces of the hard-metal part of the nipple will unite with the lead part at its outer surface and ends, for the purposes set forth. 20

2. A combined lead and hard-metal nipple consisting of the lead part L, formed with an end flange F and an annular flange <sup>l</sup> to overlap the hard-metal portion, which latter is tapering at its end and secured to the lead portion by a tinned union, substantially as described. 25

Signed at Troy, New York, this 21st day of December, 1889, and in the presence of two witnesses, whose names are hereto written. 30

JAMES W. DALY.

Witnesses:

GEO. L. COTTUM,

CHARLES S. BRINTNALL.