

R. A. COPELAND.
Plugs or Ferrules for Stopping Leaks in the Tubes
of Steam-Boilers.

No. 145,631.

Patented Dec. 16, 1873.

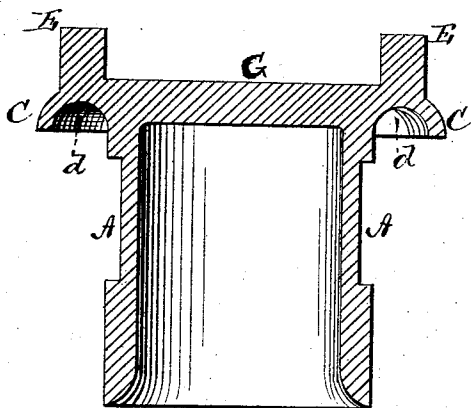


Fig. 1

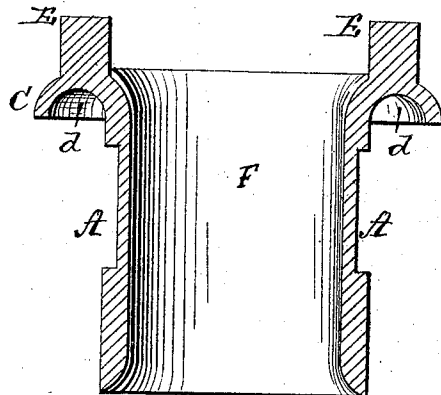


Fig. 3

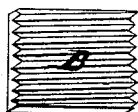


Fig. 5. Fig. 6

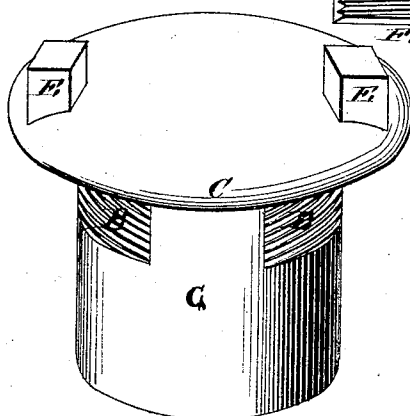
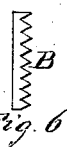


Fig. 2

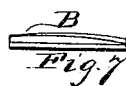
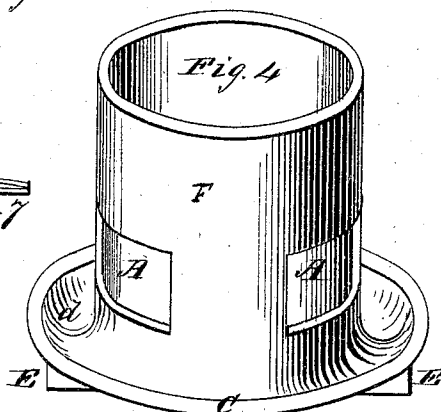


Fig. 7



Inventor

Witnesses
R. M. Murray
David H. Cosgrove

Robert A. Copeland.

UNITED STATES PATENT OFFICE.

ROBERT A. COPELAND, OF BROOKLYN, ASSIGNOR TO BENJAMIN COLLINS,
OF NEW YORK, N. Y.

IMPROVEMENT IN PLUGS OR FERRULES FOR STOPPING LEAKS IN THE TUBES OF STEAM-BOILERS.

Specification forming part of Letters Patent No. **145,631**, dated December 16, 1873; application filed
October 24, 1873.

To all whom it may concern:

Be it known that I, ROBERT AVIS COPELAND, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Devices for Stopping Leaks in the Tubes of Steam-Boilers; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

The nature of my invention consists in the construction of plugs or ferrules with recesses in their outer surfaces, in combination with screw-threaded dies placed in said recesses, for the purpose of fastening said plug or ferrule in the tubes of steam-boilers, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a longitudinal section of a plug embodying my invention. Fig. 2 is a perspective view of the same. Fig. 3 is a longitudinal section of a ferrule, also embodying my invention. Fig. 4 is a perspective view of the same; and Figs. 5, 6, and 7 show the threaded dies.

G represents a plug of any suitable dimensions and construction, provided at its outer end with a circumferential flange, C, having a groove, d, on its inner side for the reception of suitable packing. On the end of the plug are lugs E E, for the attachment of a wrench

or lever to turn the plug. In the exterior surface of the plug G are formed recesses A A, of suitable size, to receive steel dies B B. On the outer surface of these dies are formed screw-threads, as shown in the drawing. In place of the plug G, a ferrule, F, may be used, constructed in the same manner, and a plug then inserted to stop the opening in the ferrule.

In a former patent, granted to me for a similar device, wedge-shaped blocks are used, whereas in this case I use screw-threaded dies.

In the former case the operation is negative, as the steel chips become stationary the moment the plug or ferrule is revolved in the tube, and is fastened by expanding the tube in the seat of such chips, while in this case the motion is positive, as the chips or dies cut their thread as they enter. The advantage hereof obviates the possibility of a faulty joint, which I have found is a serious objection against the old one, and always liable to occur if not entered perfectly straight.

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

A plug or ferrule provided with recesses A A in its exterior surface, in combination with the screw-threaded dies B B, placed in said recesses, substantially as and for the purposes herein set forth.

ROBERT AVIS COPELAND.

Witnesses:

J. MORLEY, Jr.,

JOHN H. BROWN, Jr.