A. B. JONES & J. F. LYNCH.

LEAK STOPPERS FOR BOILER TUBES.

No. 183,942. Patented Oct. 31, 1876.

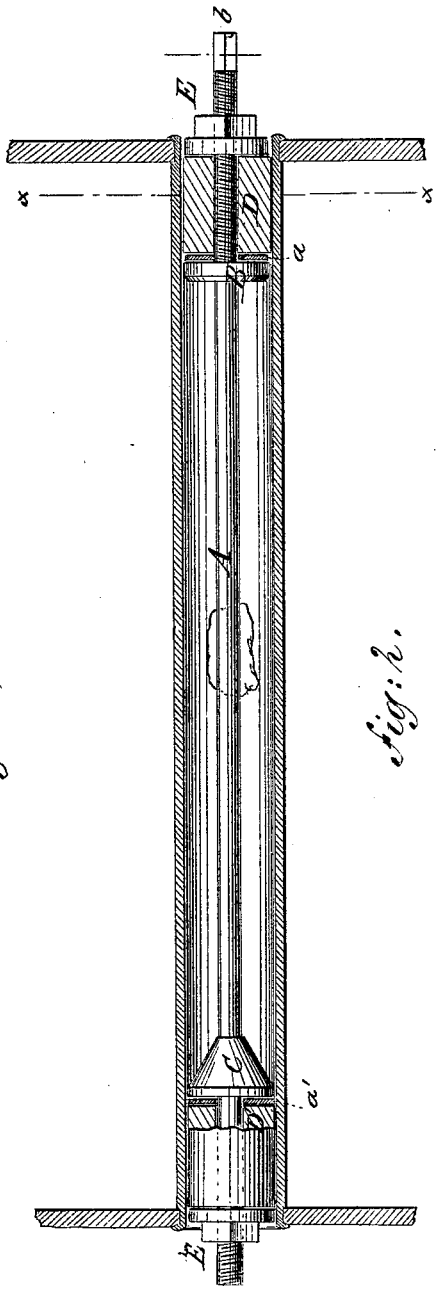

Fig: 1.

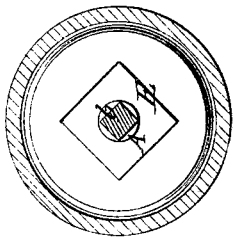

Fig: 2.

WITNESSES:

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UNITED STATES PATENT OFFICE.

ABRAHAM B. JONES AND JOHN F. LYNCH, OF PHILADELPHIA, PA.

IMPROVEMENT IN LEAK-STOPPERS FOR BOILER-TUBES.

Specification forming part of Letters Patent No. **183,942**, dated October 31, 1876; application filed September 16, 1876.

To all whom it may concern:

Be it known that we, ABRAHAM B. JONES and JOHN F. LYNCH, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and Improved Leak-Stopper for Boiler-Tubes, of which the following is a specification:

Figure 1 is a side elevation, in part section, showing the manner of attaching our improved leak-stopper. Fig. 2 is a section on line *x x* in Fig. 1.

Similar letters of reference indicate corresponding parts.

The object of our invention is to furnish an improved device for stopping the ends of leaky boiler-flues; and the invention consists in the construction and combination of parts, as herein described and claimed.

A is a metallic rod a little longer than the tube to which the stopper is to be applied, which is threaded for a short distance at one end with a right-hand thread and at the other with a left-hand thread, and is provided near its ends with the fixed collars B C, which are of such diameter as will permit of being readily introduced into the boiler-tube. The collar C is made conical in form, so that it may be readily drawn back into the tube if it should be pushed through too far. The washers *a a'* are placed on the rod A just outside of the collars B C, and the rubber cylinders D D' rest against the washers *a a'*, and are compressed by the nuts E, which engage with the threads on the rod A. The rod A is squared at *b* to receive a wrench.

In applying the stopper to a tube the nuts are turned, compressing the rubber cylinders endwise and expanding them diametrically until they snugly fit the boiler-tube. It is then placed in the boiler-tube with one of the rubber-cylinders on each side of the leak or at each end of the tube. The rod is then turned while the nuts are stationary, being held by friction against the rubber cylinders, which are prevented from turning by friction between them and the inner surface of the boiler-tube. The rubber cylinders are in this manner expanded, filling the tube and confining the escaping steam and water between them.

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

The combination of the rod A, collar B, conical collar C, washers *a a'*, elastic cylinders D D', and nuts E, substantially as shown and described.

ABRAHAM B. JONES.
JOHN F. LYNCH.

Witnesses:
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