

J. McCONNELL.

LEAK-STOPPER FOR BOILER-TUBES.

No. 184,791.

Patented Nov. 28, 1876.

Fig: 1.

Fig: 2.

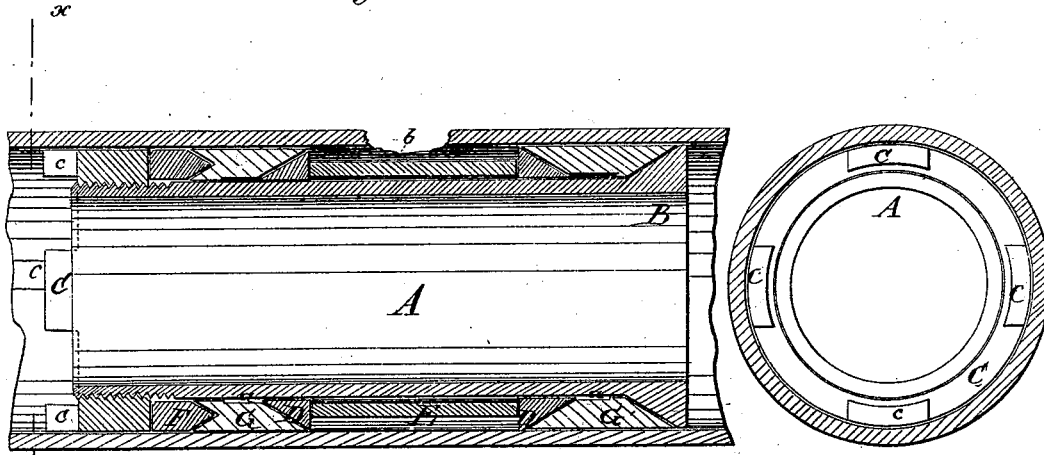


Fig: 3

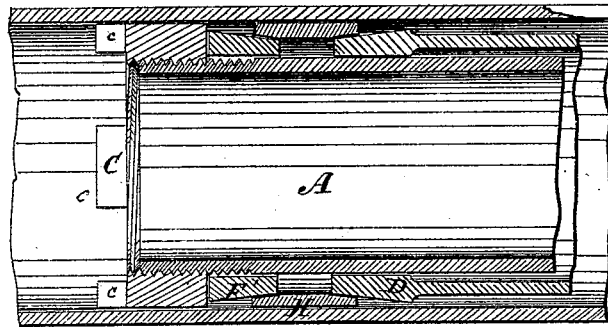
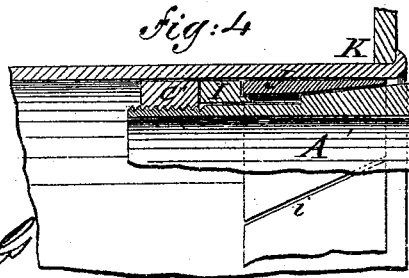


Fig: 4



WITNESSES:

Cross Nida
John ...

INVENTOR:

J. McConnell
BY *Merritt*

ATTORNEYS.

UNITED STATES PATENT OFFICE

JOHN McCONNELL, OF GLASGOW, SCOTLAND.

IMPROVEMENT IN LEAK-STOPPERS FOR BOILER-TUBES.

Specification forming part of Letters Patent No. 184,791, dated November 28, 1876; application filed May 27, 1876.

To all whom it may concern:

Be it known that I, JOHN McCONNELL, of Glasgow, Scotland, have invented a new and Improved Leak-Stopper for Boiler-Tubes, of which the following is a specification:

Figure 1 is a longitudinal section. Fig. 2 is a transverse section on line *x x*, Fig. 1. Fig. 3 is a longitudinal section, showing metallic packing, and Fig. 4 is a sectional view of a device for stopping leaks at the ends of tubes.

Similar letters of reference indicate corresponding parts.

My invention consists in the combination of a packing device with a short section of tube in such a manner that, when the tube is placed in the boiler-flue, packing-rings may be compressed between the exterior of the short section of the tube and the interior of the boiler-tube in such a way as to stop the leak and not impair the utility of the tubes.

A is a section of tube, which is provided with a beveled collar, B, in one end, and a thread and nut, C, upon the other end. D D are beveled rings or glands placed on the tube A, with their beveled sides toward the end of the tube. E is a sleeve, which is V-shaped on the side, which comes in contact with the packing-ring and flat upon the opposite side, which rests against the nut C. G G are packing rings or gaskets, which are provided with annular chambers *a a* to admit a small quantity of water, to prevent burning the packing.

Fig. 3 is a modification of the device shown in Fig. 1, which permits the use of metallic packing rings or gaskets H, the difference being mainly in the angle at which the rings D D' are beveled, it being more acute than in Fig. 1, giving the increased power required to force the metallic packing against the inner surface of the boiler-tube.

The ring F' in Fig. 3 is of the same form as those shown at D in the same figure.

In Fig. 4 the device is shown for expanding the end of the boiler-tube, thereby stopping leaks between the tube and tube-sheet. This device is similar to that shown in Fig. 3, and consists of a tube, A', which is provided with the beveled collar B' and nut C'.

I is a loose collar, having a shoulder, which receives the ring J. This ring is bored to fit upon the beveled collar B', and is split at *i*.

The manner of using this part of my invention is as follows: The device is placed at the end of a boiler-tube; the nut C is turned with a suitable wrench or spanner. This forces the ring J upon the beveled end of the tube A', thus expanding it, and also the tube K, in which it is placed.

The operation of the first part of my invention is as follows: The tube carrying the glands and packing-rings is adjusted to the boiler-tube, so that it will require some force to carry it to its place. It is then forced into the leaky tube until one of the gaskets G is on each side of the leak, as shown at *b* in Fig. 1. The nut C is then turned with a suitable wrench or spanner, which engages with the lugs C. This compresses the packing-rings G G', thereby stopping the leak.

The advantages claimed for my improved leak-stopper are, that it may be readily applied when the boiler is under working pressure, and it does not materially obstruct the tube or impair its utility.

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

The combination of the tube A, provided with the collar B and nut C; with the rings D D' and F, sleeve E, and packing-rings G G', as shown and described.

JOHN McCONNELL.

Witnesses:

T. B. MOSHER,
ALEX. F. ROBERTS.