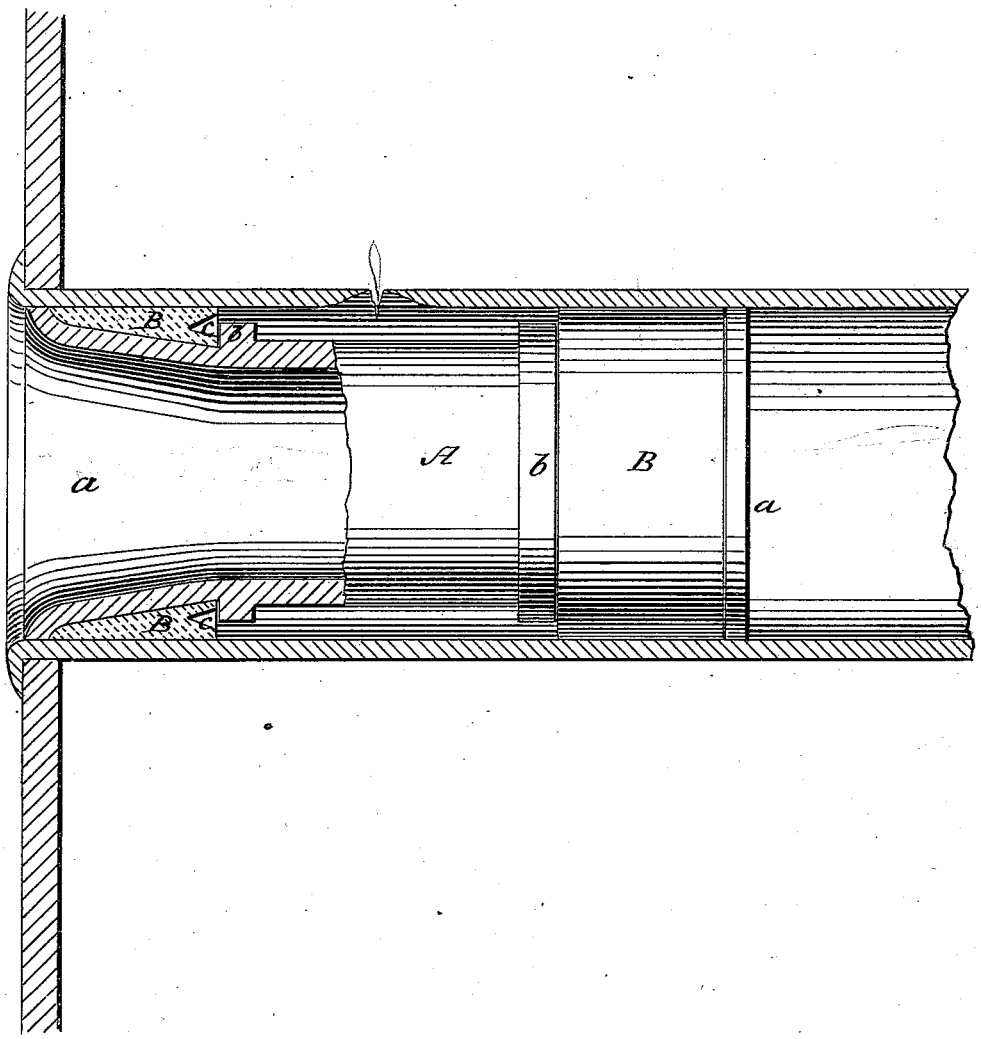
J. McCONNELL.

LEAK-STOPPER FOR BOILER-TUBES.

No. 184,790. Patented Nov. 28, 1876.



WITNESSES:

E. Wolff

John Goetzals.

INVENTOR:

J. McConnell

BY

ATTORNEYS.

UNITED STATES PATENT OFFICE

JOHN McCONNELL, OF GLASGOW, SCOTLAND.

IMPROVEMENT IN LEAK-STOPPERS FOR BOILER-TUBES.

Specification forming part of Letters Patent No. **184,790**, dated November 28, 1876; application filed September 9, 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:

My invention consists of a tube that is bell-shaped or enlarged at each end, and provided with elastic packing-rings that are V-shaped in cross-section, placed on the enlarged end of the tube, with their annular V-grooves facing each other, and capable of being expanded against the sides of the boiler-tube and the enlarged or bell-shaped portion of the stopper by pressure of steam or water, the object being to provide a leak-stopper that may be placed in a boiler-tube for stopping a leak without materially interfering with the efficiency of the tube.

Referring to the drawing, which is a longitudinal section, A is a tube of iron or other suitable material, which is bell-shaped at each end *a*, and is provided with the collars *b*, which surround the tube at the juncture of the bell-shaped and straight portions of the tube, and are somewhat less in diameter than the interior of the tube to which the stopper is applied. B B are rings or gaskets of rubber, which have a form adapted to the space between the bell-shaped portion of the tube and the inner surface of the boiler-tube, and are provided with a V-groove, C, in their thicker or inner edges.

The stopper is applied to the boiler-tube by moving it by any convenient means to the leak, and placing it so that one of the collars *b* is on each side of the leak, as shown in the drawing, when the pressure of the steam or water will force the rubber rings B B outward, and throw the lips or flanges formed by the grooves C against the inner surface of the boiler-tube and the stopper, thus confining the leakage to the small annular space that surrounds the stopper.

The advantages claimed for this stopper are, that it is inexpensive to manufacture, and may be placed in a boiler-tube when the boiler is under full working pressure. Another advantage is, that it does not materially impair the efficiency of the tube to which it is applied.

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

1. A leak-stopper for boiler-tubes, consisting of a tube that is bell-shaped or enlarged at each end, and provided with elastic packing-rings, which are V-shaped in cross-section, placed on the enlarged ends of the tube, with their annular V-grooves facing each other, and capable of being forced between, and expanded against, the sides of the boiler-tube and the enlarged or bell-shaped portion of the stopper by pressure of steam or water, substantially as shown and described.

2. A packing-ring for leak-stoppers, consisting of elastic material, and provided with a V-shaped groove in one of its sides, substantially as shown and described.

JOHN MCCONNELL.

Witnesses:

C. SEDGWICK,

ALEX. F. ROBERTS.