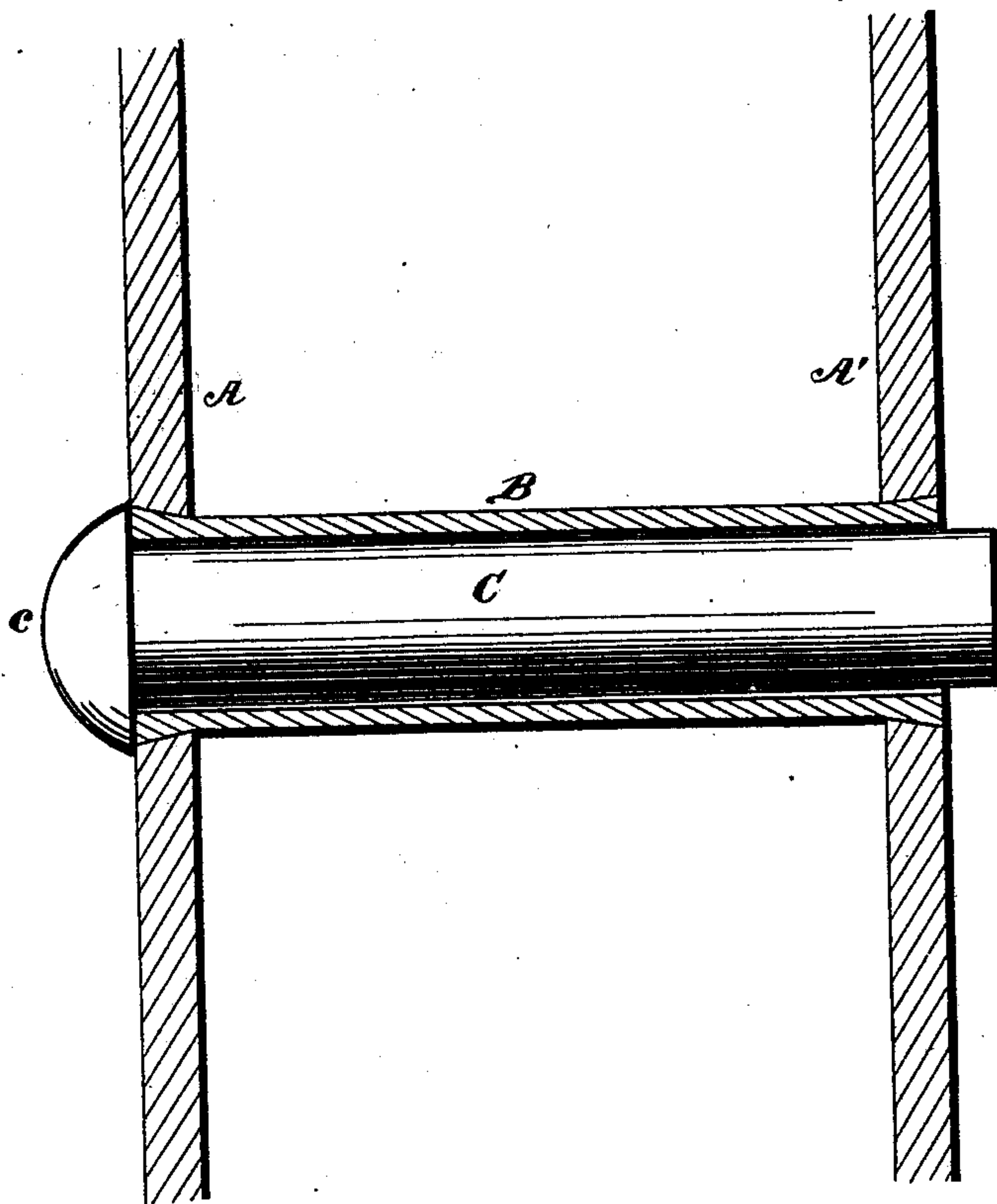


T. M. LEDDY.  
Stay-Bolts for Boilers.

No. 206,801.

Patented Aug. 6, 1878.



WITNESSES

*Robert Smith*  
*James J. Sheehy*

INVENTOR.

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*Gilmore Smith & Co.*

ATTORNEYS.

# UNITED STATES PATENT OFFICE.

THOMAS M. LEDDY, OF McCOMB CITY, MISSISSIPPI.

## IMPROVEMENT IN STAY-BOLTS FOR BOILERS.

Specification forming part of Letters Patent No. **206,801**, dated August 6, 1878; application filed June 22, 1878.

*To all whom it may concern:*

Be it known that I, THOMAS M. LEDDY, of McComb City, in the county of Pike and State of Mississippi, have invented a new and valuable Improvement in Stay-Bolts for Boilers; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

The drawing is a representation of a transverse vertical section of boiler-plates, showing my boiler stay-bolt.

My invention relates to the construction of the fire-box in a locomotive steam-boiler.

It is customary to use a stay-bolt threaded and tapped in both plates, then riveted. In such construction the corroding action of the steam, water, &c., eats away, weakens, and ultimately destroys the bolt.

The object of my invention is to protect these stay-bolts from destruction by inclosing or incasing them in copper tubes, preventing the corroding steam, water, &c., from coming in contact with the stay-bolt. Copper is not stiff enough to be used as the staying material, or it might be employed by itself, as it effectually resists the corroding action of steam and water.

My invention consists in a copper tube of proper size to receive a suitable stay-bolt, said tube being connected at each end to the plates

by being passed through the plate-holes, and then expanded at those points. The stay-bolt proper, of wrought-iron, is then passed through the copper tube and riveted. The copper, being of softer material, is, by the riveting of the bolt, battered down so as to fill the joint and make a tight connection. This construction prevents the corrosion of the stay-bolts, and herein lies the gist of my invention.

Referring to the drawings, A A' represent the plates, and B the copper connecting-tube, secured at both ends in the apertures in the plates, and expanded at those points to hold them in position, and also to make a tight joint. C represents the stay-bolt, of wrought metal, having usual head *c*, and this stay-bolt passes through the tube B until the head engages with one end of the tube. The other end of the bolt is then riveted down in the usual manner. The space between the plates is known as the "water-space."

What I claim as new, and desire to secure by Letters Patent, is—

The combination of the plates A A' and bolt C *c* with the copper tube B, as and for the purposes specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

THOMAS MATHEW LEDDY.

Witnesses:

JAMES F. PHELPS,  
CHAS. C. NEVILLE.