

(No Model.)

J. P. ADAMS.
FLUE THIMBLE.

No. 476,111.

Patented May 31, 1892.

Fig. 1.

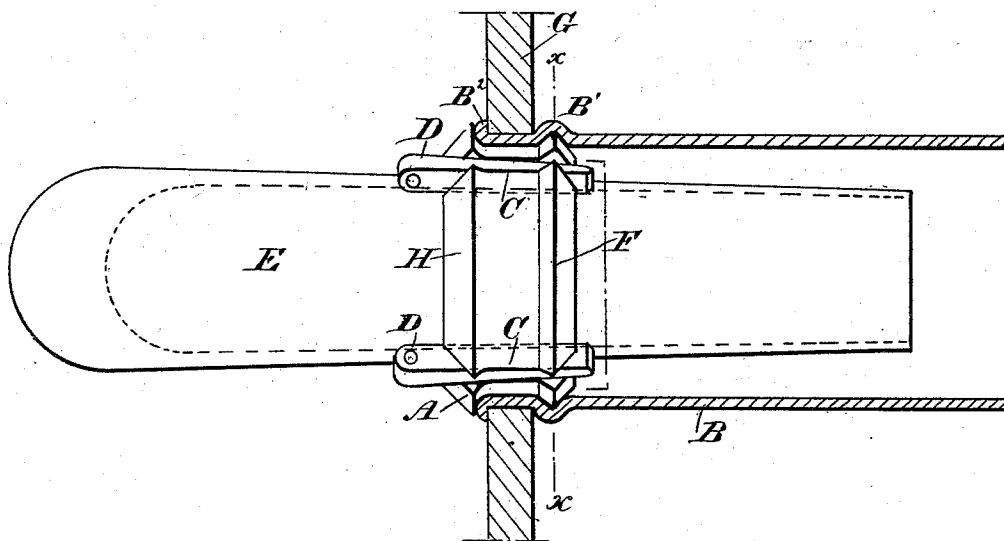


Fig. 3.

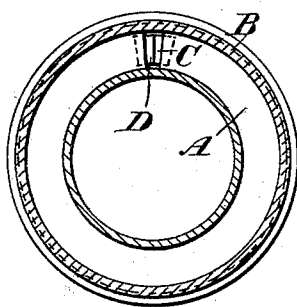
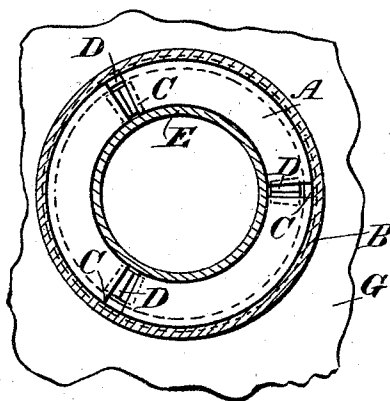


Fig. 2.



WITNESSES:

Donn Twitchell
C. Sedgwick

INVENTOR:

J. P. Adams
BY *Munn & Co.*
ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN P. ADAMS, OF FARGO, NORTH DAKOTA.

FLUE-THIMBLE.

SPECIFICATION forming part of Letters Patent No. 476,111, dated May 31, 1892.

Application filed June 11, 1891. Serial No. 395,962. (No model.)

To all whom it may concern:

Be it known that I, JOHN P. ADAMS, of Fargo, in the county of Cass and State of North Dakota, have invented a new and improved Flue-Thimble, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved flue-thimble designed for use on boiler and other flues to stop leaks and which is simple and durable in construction and can be readily applied.

The invention consists of a ring having one or more splits extending lengthwise and wedges adapted to be driven into the splits to hold the ring in place in the flue.

The invention further consists of a hollow mandrel having a yielding wall.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improvement as applied, the flue and boiler head being in section. Fig. 2 is a transverse section of the same on the line *xx* of Fig. 1, and Fig. 3 is a like view of a modified form of the improvement.

The improved flue-thimble is provided with a ring A, adapted to engage at its periphery the flue B and formed with one, two, or more splits C, extending longitudinally, as is plainly indicated in the drawings. The several splits are adapted to be engaged by wedges D, serving to force the ring-sections in firm contact with the inner surface of the flue B and also to hold the ring-sections in place. The opening of the ring A is adapted to be engaged by a mandrel E, preferably made of steel and hollow, so that its wall yields to unevenness in the flues to be operated on. The ring A is formed on its periphery at the rear edge with a V-shaped annular offset F, adapted to form a bead or shoulder B' in the flue B at the inner surface of the boiler-head G. A similar offset H is formed on the front edge of the ring A and is adapted to form an offset B² on the outer end of the flue B on the front surface of the boiler-head G.

In order to use this device, the ring A is placed on the small end of the mandrel E and is then, with the latter, inserted in the end of the flue B, after which the operator turns and pushes on the mandrel E, so that the ring is expanded and by its offsets F and H forms the bead B' and the annular offset B². At the same time the operator passes the wedges D into the splits, so that the several sections are forced tightly in contact with the flue B, at the same time preventing the latter from being displaced or becoming loose when the mandrel E is withdrawn. It will be seen that in case of any unevenness in the flue B the mandrel E, on account of being yielding in its wall, will readily adapt itself to the unevenness and assume another than a circular cross-section until the unevenness has been smoothed by the ring coming in contact with the flue. The expansive flue-thimble is preferably designed for the use of engineers in charge of the boiler to readily expand a leaking flue and to hold the flue in the expanded condition until it is convenient to take the old flue out and insert a new one. It is understood that the mandrel is withdrawn after the thimble is in place; but the thimble remains in the flue until the latter is removed and a new flue is inserted.

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

1. A flue-thimble comprising a ring having one or more splits extending lengthwise and wedges driven lengthwise into the said splits, substantially as shown and described.
2. In a flue-thimble, the combination, with a ring having one or more splits extending lengthwise to permit the ring to yield, of a mandrel adapted to pass in the said ring and made conical and hollow and formed with a yielding wall adapted to engage the said ring, substantially as shown and described.
3. In a flue-thimble, the combination, with a ring having splits extending lengthwise to form sections, of wedges engaging the said splits to hold the ring-sections in place in the tube, substantially as shown and described.
4. In a flue-thimble, the combination, with a ring having splits extending lengthwise to form sections, of wedges engaging the said splits to hold the ring-sections in place in the

tube and a hollow conical mandrel having a yielding wall and adapted to pass into the ring, substantially as shown and described.

5 a ring having longitudinal splits to form sections and segmental projections formed on the periphery of the said ring-sections, of wedges

engaging the said splits to hold the ring in place in the tube, substantially as shown and described.

JOHN P. ADAMS.

Witnesses:

G. H. PHELPS,

MILES J. MAHUKEN.