

J. P. HIGH.
 FLUE EXPANDER.
 APPLICATION FILED MAR. 30, 1909.

935,366.

Patented Sept. 28, 1909.

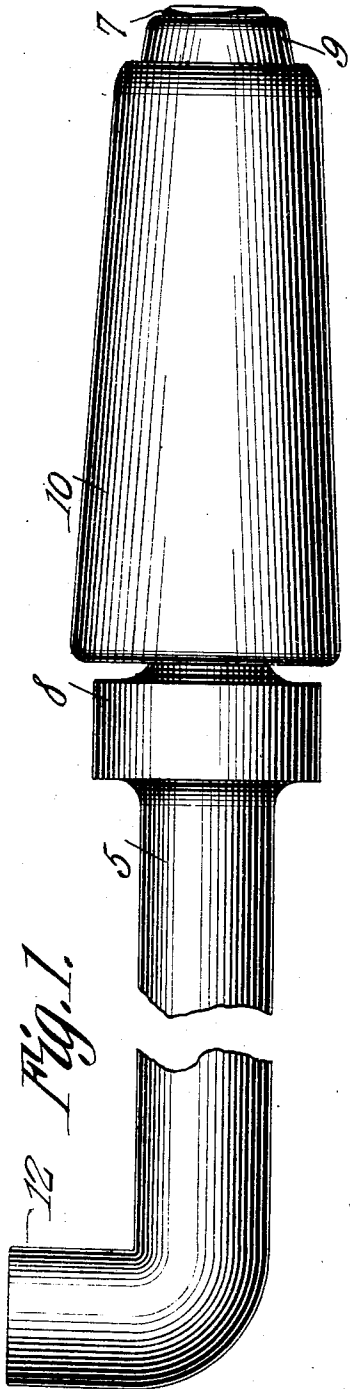


Fig. 1.

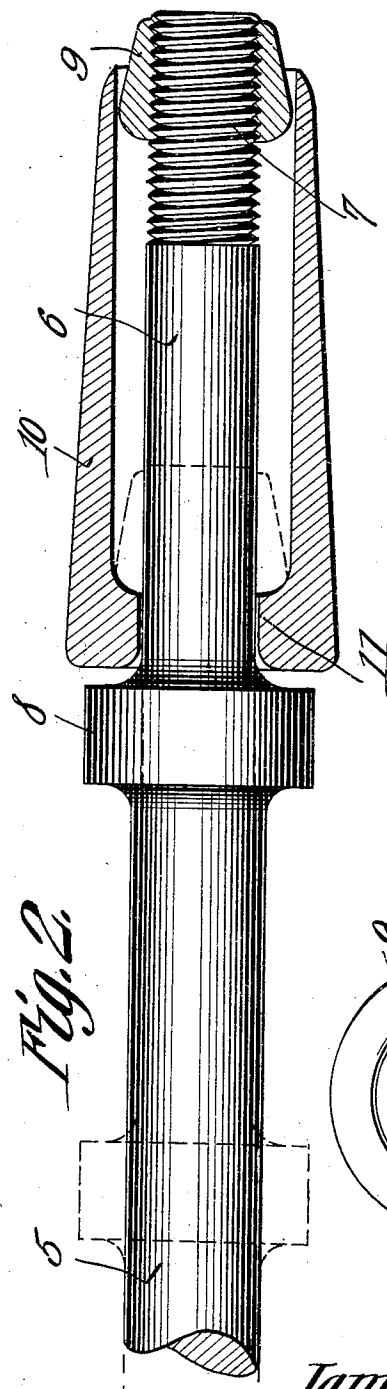


Fig. 2.

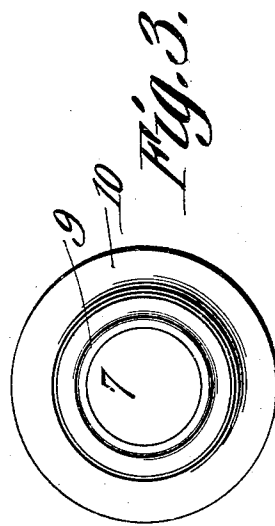


Fig. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

JAMES PAYTON HIGH, OF FAIRVIEW, OKLAHOMA.

FLUE-EXPANDER.

935,366.

Specification of Letters Patent. Patented Sept. 28, 1909.

Application filed March 30, 1909. Serial No. 486,746.

To all whom it may concern:

Be it known that I, JAMES PAYTON HIGH, a citizen of the United States, residing at Fairview, in the county of Major and State of Oklahoma, have invented a new and useful Flue-Expander, of which the following is a specification.

This invention relates to flue expanders of that type designed more particularly for use on locomotives to expand the flues in the event of leakage thereof, the implement disclosed in my patent of No. 908,669 dated January 5, 1909, being an example of this type of expander.

The present invention has for its object to improve the structure and efficiency of the expander disclosed in my former patent above referred to, and to this end it consists in a novel construction and arrangement of parts to be hereinafter described and claimed, reference being had to the drawing hereto annexed in which—

Figure 1 is an elevation of the implement. Fig. 2 is an elevation with the expanding member in section. Fig. 3 is an end view.

In the drawing 5 denotes a bar having at one end a short portion 6 of slightly reduced diameter, terminating in a screw-threaded portion 7. Between the main portion 5 and the reduced portion 6 of the bar is an impact collar 8 which is employed for driving the expanding member as will be hereinafter described. On the threaded portion 7 is screwed a nut 9 which is circular in cross-section, and tapered in the direction of its outer end.

The expanding member is an externally tapered hollow tubular body 10 through which the portion 6 of the bar 5 loosely extends, the member being slidable lengthwise thereon. The diameter of the bore of the member 10 is such that the nut 9 may enter thereinto.

At the end of the member 10, adjacent to the collar 8, said member is formed with an interior shoulder 11 having a central opening through which the part 6 loosely passes. This shoulder is engageable on one side by the collar 8, and on the opposite side by the inner end of the nut 9 for a purpose which will be presently made clear.

In the operation of the device, the bar 5 is inserted through the door of the fire-box, and the member 10 is inserted into the flue which is to be expanded. The outer end of the bar 5 is then struck with a sledge or the

like, whereupon the member 10 will be driven into the flue, and by reason of its tapering shape, expand the same, the collar 8 impacting against the shouldered end of the member 10, and thereby driving the same into the flue as stated. By providing a shoulder at the end of the member 10 which receives the impact of the collar, said member is strengthened and enabled to more successfully withstand the blows delivered by said collar. When the tube has been expanded, the bar 5 is jerked suddenly backward, whereupon the member 10 is pulled out of the flue, the inner end of the nut 9 striking the inner end of the shoulder 11 when the bar is jerked back as stated, and thus serving to drive the member out of the flue. The diameter at the widest portion of the nut 9 is greater than the diameter of the bore of the shoulder through which the part 6 extends by reason of which the member 10 will be prevented from slipping off said part when it is pulled out of the flue as stated. The nut 9 is made tapering in the direction of its front end in order that the implement may be more readily inserted into the tube, it being thus made self-centering. The rear end of the nut 9 is rounded off, and the inner face of the shoulder 11 is shaped to conform thereto, the object being to have these two surfaces snugly fit each other in order that the member 10 may be used as a flue stop in case the flue leaks so badly that leakage cannot be stopped by expanding the flue. Instead of using a sledge to drive the bar 5, the member 10 may be driven into the flue by moving said bar back and forth so that the collar 8 strikes repeated blows on the member. The butt end of the bar has a lateral bend 12 which may be hit by the sledge to remove the member if it should stick too tight in the flue.

What is claimed is:

1. A flue expander comprising a bar, an impact collar and an abutment thereon, and a hollow externally tapered expanding member slidably mounted on the bar, and having an interior shoulder, the bore of said member having a diameter permitting the abutment to enter the same and engage the shoulder.

2. A flue expander comprising a bar, an impact collar and an abutment thereon, and a hollow externally tapered expanding member slidably mounted on the bar, and having an interior shoulder located between the

abutment and the collar, the bore of the expanding member having a diameter permitting the abutment to enter the same and to engage the shoulder, that end of the shoulder opposite the abutment being shaped to fit the latter when in engagement therewith.

3. A flue expander comprising a bar, an impact collar thereon and an abutment, said abutment being tapered in the direction of the stroke of the bar, and a hollow externally tapered expanding member slidably mount-

ed on the bar, and having an interior shoulder engageable on one side by the collar and on the opposite side by the abutment.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JAMES PAYTON HIGH.

Witnesses:

EARL W. BOGGS,
PHIL. R. HAWKINS.