

No. 898,203.

PATENTED SEPT. 8, 1908.

J. W. FAESSLER.
BOILER TUBE EXPANDER.
APPLICATION FILED JAN. 11, 1908.

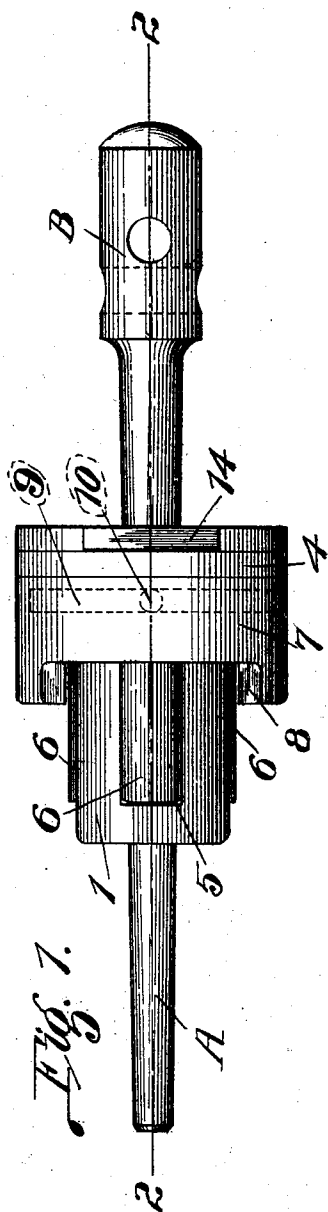


Fig. 1.

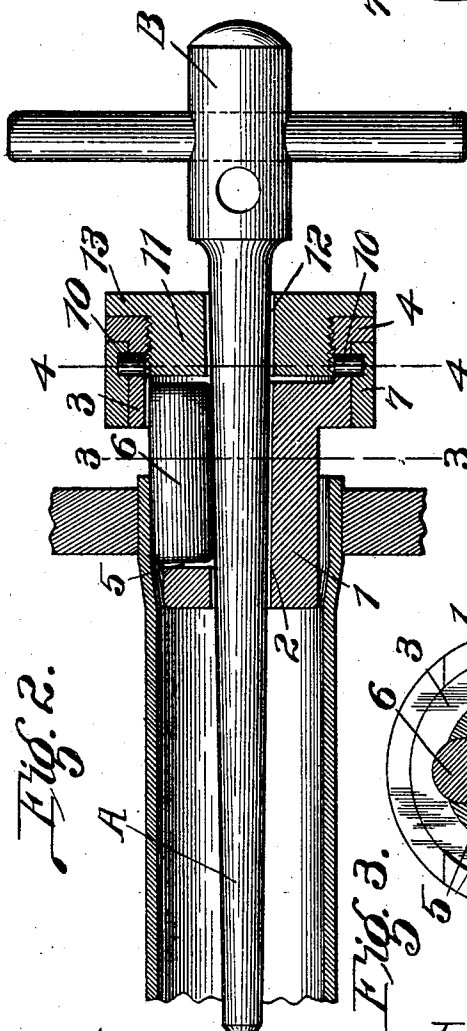


Fig. 2.

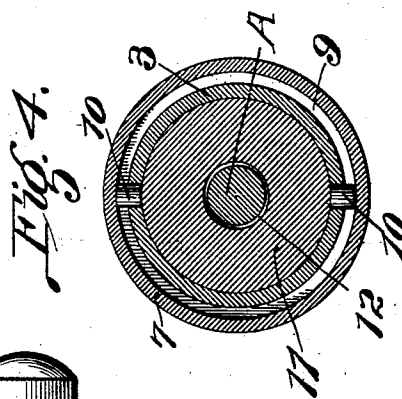


Fig. 4.

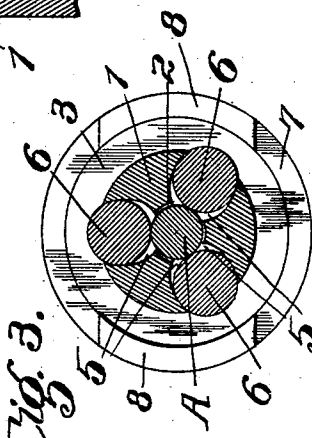


Fig. 3.

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BOILER-TUBE EXPANDER.

No. 898,203.

Specification of Letters Patent.

Patented Sept. 8, 1908.

Application filed January 11, 1908. Serial No. 410,448.

To all whom it may concern:

Be it known that I, JOHN W. FAESSLER, a citizen of the United States, and resident of Moberly, Randolph county, Missouri, have invented certain new and useful Improvements in Boiler-Tube Expanders, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to a boiler tube expander, the object of my invention being to construct a simple, inexpensive device for expanding the ends of boiler tubes in flue sheets, and which expander comprises a minimum number of parts, which, when assembled and in operation, will not readily come apart.

To the above purposes, my invention consists in certain novel features of construction and arrangement of parts, which will be hereinafter more fully set forth, pointed out in the claims, and illustrated in the accompanying drawings, in which:—

Figure 1 is a plan view of a tube expander of my improved construction; Fig. 2 is a vertical section taken on the line 2—2 of Fig. 1; Fig. 3 is a transverse section taken on the line 3—3 of Fig. 2; Fig. 4 is a transverse section taken on the line 4—4 of Fig. 2.

The cage or holder for the rollers of the expander comprises a cylindrical body 1, through the center of which is formed a longitudinally disposed opening 2, and integral with the rear end of said body is a ring 3, which is interiorly screw threaded; and formed integral with the rear end of said ring is an outwardly projecting flange 4.

Formed in the body 1 is a plurality of longitudinally disposed slots or openings 5, which are oval in cross section, which slots or openings communicate with the opening 2, and also with the space within the ring 3. These openings are adapted to receive hardened metal rollers 6, of such size as that they will freely rotate, and owing to the oval shape of the openings 5 said rollers are prevented from becoming accidentally detached from the cage or holder after being placed in position.

7 designates a bearing ring which is mounted for rotation on the ring 3, the rear end of said ring bearing against the flange 4; and formed integral with the forward portion of said bearing ring is a pair of lugs 8, which serve as stops to engage against the flue sheet

and limit the travel of the tool into the end of the boiler tube.

Formed on the inner face of the ring 7 is a groove 9, and detachably seated in the ring 3 and entering this ring 9 are pins 10, which maintain the ring 7 on the ring 3 and permit the same to rotate thereon.

11 designates a plug which is adapted to be screwed into the ring 3, in the center of which plug is formed an aperture 12, which coincides with the opening 2 through the body 1; and formed integral with the outer end of this plug is a flange 13, provided with a plurality of flat faces, such as 14, on which may be engaged a wrench, or like tool used in manipulating said plug. When this plug is properly seated in the ring 3, it covers the inner ends of the pins 10, thus preventing their accidental displacement, and the inner end of said plug forms a back for the rear ends of the rollers 6.

When an expander of my improved construction is in use, the forward end of the body 1 and the forward portions of the rollers 6 are inserted into the end of the tube to be expanded, and a tapered mandrel A, provided on its rear end with a head B, is inserted through the openings 12 and 2; and as said mandrel is forced inward and rotated, the rollers 6 are frictionally engaged and rotated within the tube, and the end of the same is expanded in the flue sheet as desired.

In some instances the head B may be made non-circular so as to be engaged and driven by a socket on the end of a flexible shaft or the like.

The screw plug 11 holds the various parts of the device together and prevents the accidental displacement of any of said parts; and, by the removal of said plug, the pins 10, ring 7, and rollers 6 can be easily removed from the body or cage of the device.

I claim:—

1. A tube expander, comprising a cylindrical body, through the center of which is formed a longitudinally extending opening and said body being provided with a plurality of roller openings, rollers located in said openings, an internally screw threaded ring integral with the rear end of the body, a portion of which ring incloses the rear ends of the rollers; a ring arranged for rotation on the first mentioned ring, there being a continuous

annular groove formed in the inner face of the second mentioned ring, a pair of oppositely arranged pins passing through the first mentioned ring and engaging in the groove, 5 and a screw plug seated in the screw threaded ring, the inner end of which screw plug normally covers the inner ends of the pins.

2. A tube expander, comprising a cylindrical body, through the center of which is 10 formed a longitudinally extending opening and said body being provided with a plurality of roller openings, rollers located in said openings; an internally screw threaded ring integral with the rear end of the body, a portion of which ring incloses the rear ends of 15 the rollers; a ring arranged for rotation on the first mentioned ring, there being a continuous annular groove formed in the inner face of the second mentioned ring, a pair of oppositely arranged pins passing through the first 20 mentioned ring and the outer ends of which pins engage in the groove, a screw plug seated in the screw threaded ring, the inner end of which screw plug normally covers the inner 25 ends of the pins; there being an opening in the center of the screw plug, and a mandrel

adapted to pass through the openings in the screw plug and the body of the tool for engaging the rollers.

3. A tool of the class described, comprising 30 a cylindrical body through the center of which is formed a longitudinally disposed opening, a series of rollers carried by the body, a ring integral with the rear end of the body, a portion of which ring incloses the rear 35 ends of the rollers; a second ring arranged for rotation on the first mentioned ring, there being a continuous annular groove formed in the inner face of the second mentioned ring, a pair of oppositely arranged pins passing 40 through the first mentioned ring and engaging in the groove in the second mentioned ring, and a plug seated in the first mentioned ring and covering the inner ends of the pins.

In testimony whereof, I have signed my 45 name to this specification, in presence of two subscribing witnesses.

JOHN W. FAESSLER.

Witnesses:

S. W. KELLY,
G. R. MAUPIN.