Nov. 10, 1925. 1,561,296

J. M. ANDREW ET AL

APPARATUS FOR REPAIRING FURNACE ROOFS

Original Filed Sept. 17, 1923 2 Sheets-Sheet 1

Fig. 1.

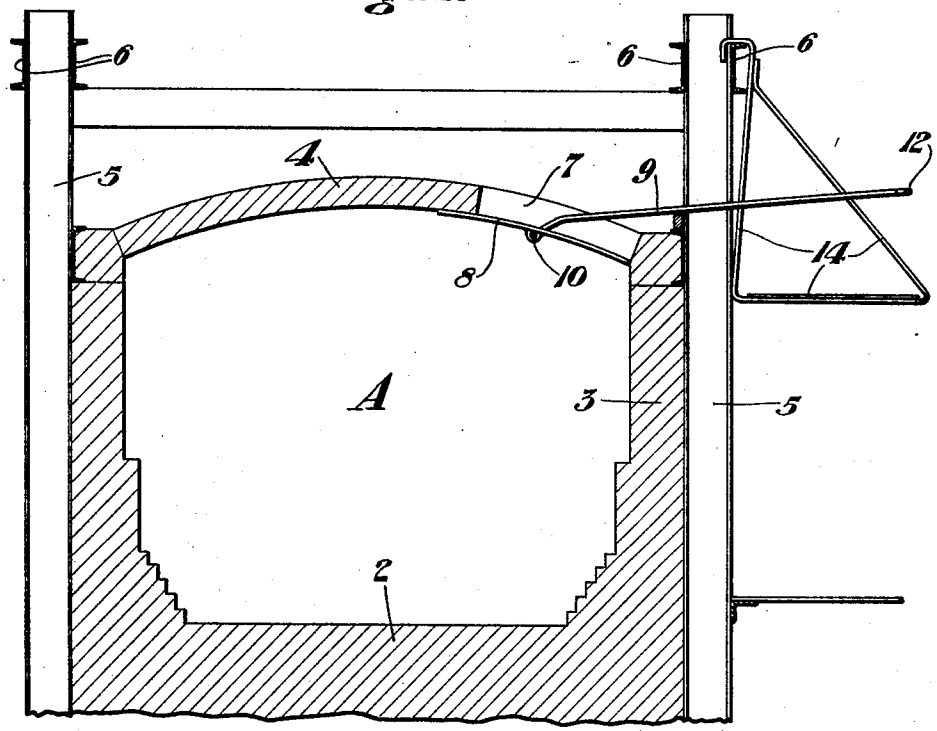
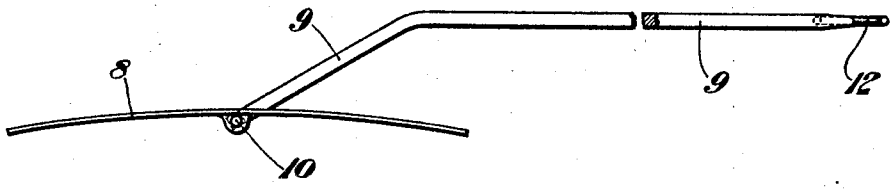


Fig. 3.



Witnesses:
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Fig. 2.

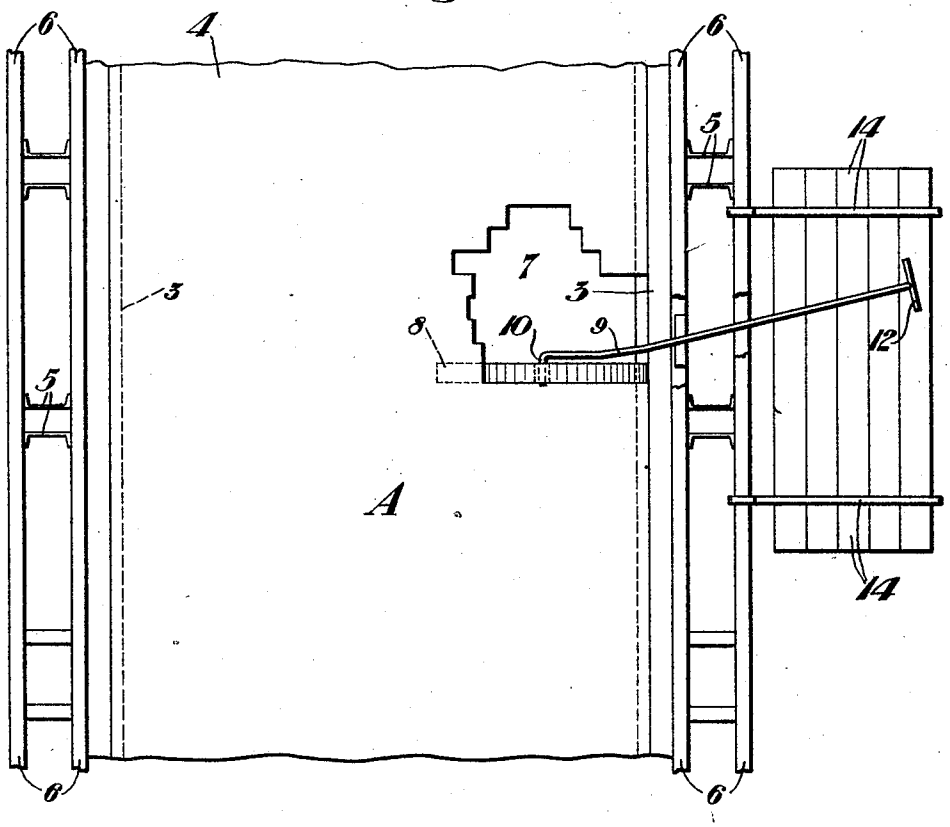
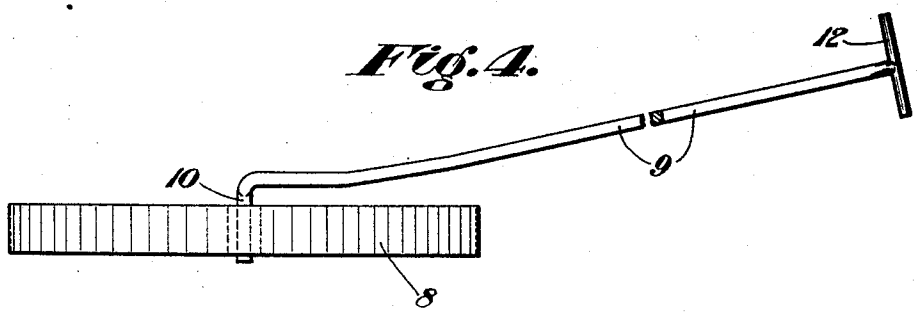


Fig. 4.



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UNITED STATES PATENT OFFICE.

JAMES M. ANDREW, OF FARRELL, AND RALPH T. HADLEY, OF SHARON, PENNSYLVANIA.

APPARATUS FOR REPAIRING FURNACE ROOFS.

Original application filed September 17, 1923, Serial No. 663,153. Divided and this application filed March 28, 1925. Serial No. 18,985.

To all whom it may concern:

Be it known that we, JAMES M. ANDREW and RALPH T. HADLEY, citizens of the United States, and residents, respectively, of Farrell and Sharon, both in the county of Mercer and State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Repairing Furnace Roofs, of which the following is a specification.

This invention relates to apparatus for repairing holes in self-supporting brick roof structures, such as open-hearth furnace roofs and the like, in accordance with the method described and claimed in United States Patent No. 1,542,351, dated June 16, 1925, resulting from an application Serial No. 663,153, filed September 17, 1923, which application was divided to form the subject matter of the present application.

One object of this invention is to provide a novel apparatus which will eliminate the necessity for workmen being below or on top of the roof being repaired, thus preventing the injury of workmen.

Another object is to provide apparatus by which the roof of an open-hearth furnace or the like may be repaired as soon as a heat is tapped out and the furnace partly charged up.

A further object is to provide apparatus which will greatly reduce the labor necessary under all the previous methods, thus greatly reducing the cost of the repairs.

A still further object is the provision of a novel apparatus composed of the novel combination of parts, which are clearly described in the following specification and illustrated in the accompanying drawings.

In the drawings, Figure 1 is a transverse sectional elevation through an open-hearth furnace, showing a break or hole being repaired by our improved method.

Figure 2 is a top plan of a portion of an open-hearth furnace, likewise illustrating the practice of our improved method.

Figures 3 and 4 are, respectively, a side elevation and top plan of the patching or supporting tool used in carrying out our invention.

Referring more particularly to the drawings, the letter A designates the open-hearth furnace of Figures 1 and 2 as a whole, which is of an ordinary and well known form, and comprises a hearth 2, side walls 3 and top 4. The usual buckstays 5 are shown supporting the side walls, and tie beams 6 are secured along the upper ends of the buckstays.

The roof 4 of the furnace A is shown with a break or hole 7 about to be repaired.

Our improved repairing tool B comprises an elongated plate 8 for supporting the bricks used to fill the hole 7, and a lever 9 for supporting and manipulating the plate.

The plate 8 is preferably curved longitudinally to correspond with the curvature of the roof, is of greater length than the aperture, and at least as wide as a single row of bricks. The lever 9 is bent at right angles adjacent its lower end so that its bent end forms a bearing portion 10 which is pivotally secured to the under side of the plate 8 at 10^a, while the main portion thereof extends along the side of the plate 8 and projects an appreciable distance beyond the end of the plate and terminates in a handle 12.

When a furnace roof is to be repaired the scaffold 14 is first mounted in position to support the workmen. The repair tool B is then mounted so that the plate 8 extends across the hole in the direction of the rows of brick and is positioned so as to support the first row of bricks to be laid, the lever 9 being projected out over the side wall of the furnace and held by one of the workmen. By bearing down on the lever the workman, due to the fulcruming of the lever on the side of the furnace, is enabled to hold the plate in position and support the whole row of bricks. The bricks are laid up on the plate 8 in the usual manner, and as the first row is completed so that it will support itself, the tool B is moved forward and the next row laid up, and this operation is repeated until all but the last row is laid up. When sufficient space only for the last row remains the tool B is removed and the last row is laid up with wedge shaped bricks or in any other usual or suitable way.

It will be understood that a row of bricks, as the term is used herein, may include either a single or a multiple row, the plate 8, of course, being made of corresponding width to accommodate the number of single rows or lines. Also the row of bricks is not necessarily limited to bricks arranged in alinement with one another, but may be a row of bricks with their ends curved or staggered in various ways.

It will be readily appreciated that the use of this apparatus, while illustrated in connection with an open-hearth furnace, is not limited to such use but may be used for repairing holes in other self supporting or arched roof structures and may be used to support other material than bricks.

We claim:

1. A repair tool for supporting bricks and the like when repairing holes in self-supporting roof structures such as the roofs of open-hearth furnaces, comprising an elongated plate for supporting the bricks, said plate being curved longitudinally and a supporting lever pivotally secured to the under side of said plate, said lever being bent at right angles adjacent its pivoted end so as to project outwardly from under said plate and being of such length that it will extend without the structure being repaired.

2. A repair tool for supporting bricks and the like when repairing holes in self-supporting roof structures such as the roofs of open-hearth furnaces, comprising a plate for supporting the bricks, and a supporting lever pivotally secured to the underside of said plate, said lever being bent at right angles adjacent its pivoted end so as to project outwardly from under said plate and being of such length that it will extend without the structure being repaired.

In testimony whereof, we have hereunto set our hands.

JAMES M. ANDREW.
RALPH T. HADLEY.