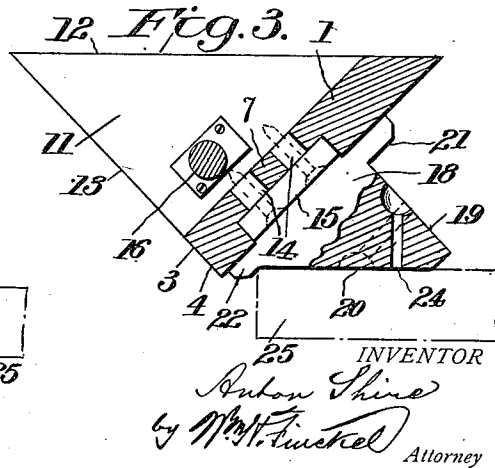
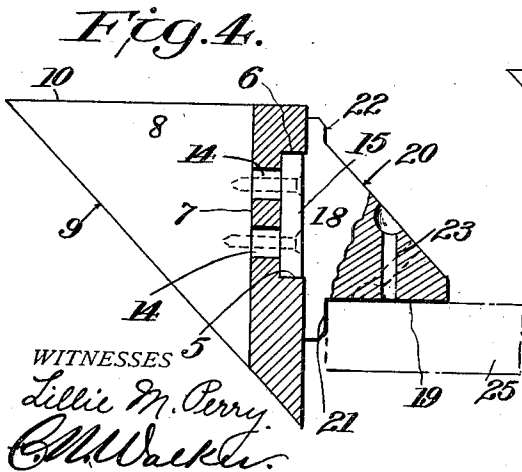
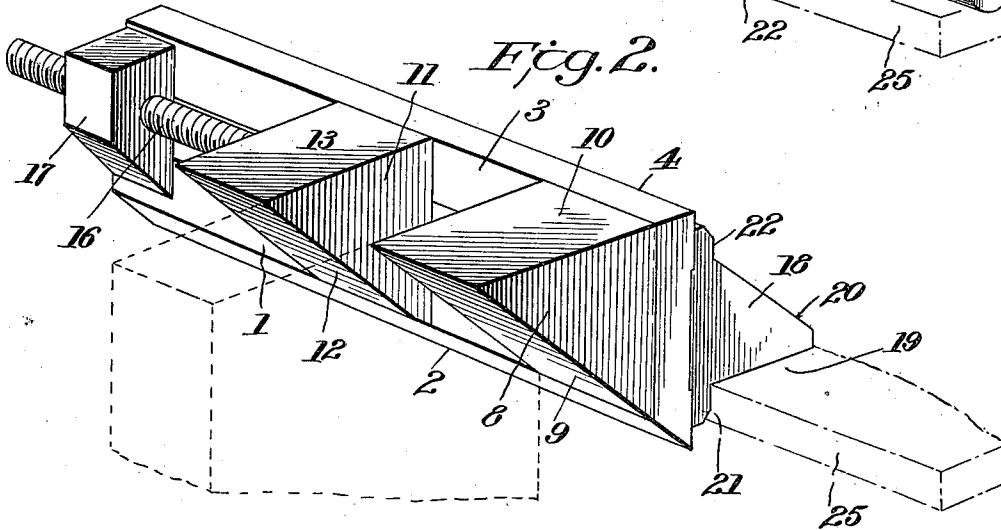
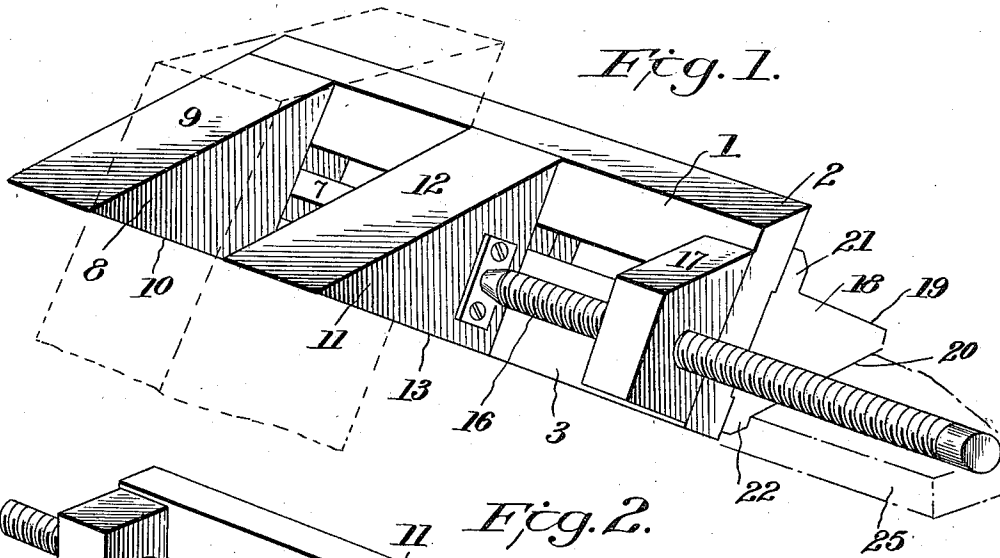


A. SHIRE.
 UNIVERSAL ADJUSTABLE MITER JACK AND VISE.
 APPLICATION FILED AUG. 1, 1911.

1,004,920.

Patented Oct. 3, 1911.



UNITED STATES PATENT OFFICE.

DAVID G. SHUGHART, OF CARLISLE, PENNSYLVANIA.

BOILER-TUBE SPREADER.

1,004,921.

Specification of Letters Patent.

Patented Oct. 3, 1911.

Application filed April 11, 1911. Serial No. 620,386.

To all whom it may concern:

Be it known that I, DAVID G. SHUGHART, a citizen of the United States, residing at Carlisle, county of Cumberland, and State of Pennsylvania, have invented certain new and useful Improvements in Boiler-Tube Spreaders, of which the following is a specification.

My invention relates to tools for spreading the tubes of water tube boilers in order to facilitate placing the tiles between them.

In water tube boilers baffle plates are provided for directing the hot gases from the furnace between the tubes, and to protect these plates from the intense heat they are faced or covered with tile of refractory material. The tile are of substantially diamond shape to fit between four adjacent tubes and their corners are concavely curved to snugly fit about the tubes so as to insure perfect covering of the baffle plates. When it is necessary to repair the boiler it is a difficult task to remove and insert the tiles, and without bending or spreading the tubes it is impossible to place the tile in position without partially cutting the same away on one or more of its edges. Such cutting away of the tile is objectionable as it leaves the baffle plates insufficiently protected.

I am aware that devices have been provided for spreading the tubes of water tube boilers to facilitate the insertion or placing of the tiles, but these are found more or less objectionable in practice from one cause or another. Some of these devices are too complicated and cumbersome for practical use, and all of the devices of this class, of which I am aware, are designed to spread no more than four tubes at one time for the insertion of a single tile.

The object of my invention is to provide a tool of the class under consideration by means of which a number of tubes may be spread with one operation for the insertion of a plurality of tiles without again operating the tool.

A further object of my invention is to provide a tool as mentioned which shall be of

simple construction, strong and durable and which may be manufactured at low cost.

Other objects will appear hereinafter.

With these objects in view my invention consists generally in a pair of substantially parallel members connected by a plurality of links pivotally connected thereto so that said members may have a limited movement longitudinally of each other and at the same time be moved toward and from each other by said links, means on the outer edges of said members for engaging the tubes of a boiler and means for moving the members longitudinally of each other.

My invention further consists in a device as above specified in which the parallel members are constructed to engage simultaneously a plurality of tubes each in order that after the tubes are spread thereby a plurality of tiles may be inserted without again operating the device.

My invention further consists in various details of construction and arrangements of parts all as will be fully described hereinafter and particularly pointed out in the claims.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification and in which—

Figure 1 is an elevation of the tool illustrating the same engaging six tubes of a boiler and in position ready to spread the tubes, Fig. 2 is a transverse section on the line $x-x$ of Fig. 1, and Fig. 3 is a detail view illustrating the connection between one of the parallel members and the operating mechanism.

Referring now to the drawings A—A—A indicate tubes of a water tube boiler in their usual relative positions.

The tool comprises a pair of substantially parallel members 1 and 2 connected by a plurality of links 3 which are pivotally connected to said members, and means for moving said members longitudinally of each other. The members 1 and 2 are preferably flat plates arranged in the same plane and having their outer edges serrated forming

jaws, the work may be cut on a bevel accurately, and without marking, as indicated in Figs. 1 and 3. If the device be arranged as shown in Figs. 2 and 4, the work may be cut off straight, or at right angles to its edge resting against the frame.

Obviously variations in the angle of cut may be made by appropriately shaped jaws, or by the location of the work between the jaws.

The device, and especially the jaws, may be made of any material most suitable for the work for which the device is designed, and so that while capable of holding the work firmly, they will not mar it.

What I claim is:—

1. In a miter jack and vise, the combination of a frame, a fixed jaw thereon, a movable jaw slidably mounted on the frame, the two jaws being otherwise alike and adapted to clamp a piece of work between themselves and the frame, and brackets on the frame having faces made at different angles relatively to the frame and capable of supporting the frame with its jaws reversed.

2. In a miter jack and vise, the combination of a frame, a fixed jaw thereon, a movable jaw slidably mounted on the frame, the two jaws being otherwise alike and adapted to clamp a piece of work between themselves and the frame, the faces of the jaws extending at different angles relatively to the frame, and brackets on the frame having faces extending from the frame at angles the same as the faces of the jaws but in re-

verse position and adapted to be fixed to a supporting surface.

3. In a miter jack and vise, the combination of a frame, a fixed jaw thereon, a movable jaw slidably mounted on the frame, the two jaws being otherwise alike and adapted to clamp a piece of work between themselves and the frame, the faces of the jaws extending at different angles relatively to the frame, and brackets on the frame having faces extending from the frame at angles the same as the faces of the jaws but in reverse position and having screw holes extending through them at right angles to their respective faces to fix the device in reverse positions.

4. In a miter jack and vise, the combination of a frame, a fixed jaw thereon, a movable jaw slidably mounted on the frame, the two jaws being otherwise alike and adapted to clamp a piece of work between themselves and the frame, the jaws having faces at different angles to the frame and the edges of the frame having faces corresponding to the adjacent faces of the jaws, and brackets on the frame having faces made at different angles relatively to the frame and capable of supporting the frame with its jaws reversed.

In testimony whereof I have hereunto set my hand this 29th day of July A. D. 1911.

ANTON SHIRE.

Witnesses:

C. C. BARNETT,
F. H. KETCHAM.

screws having their heads countersunk in one of said links of the pair and their opposite ends threaded into the other link, and means for moving said members longitudinally of each other, substantially as described.

name to this specification in the presence of two subscribing witnesses.

DAVID G. SHUGHART.

Witnesses:

FLORENCE M. WISENER,
H. S. AUSTIN.

In testimony whereof I have signed my

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
