(No Model.)

A. C. DINKEY.

GRIPPING MECHANISM.

No. 604,973. Patented May 31, 1898.

Fig. 1.

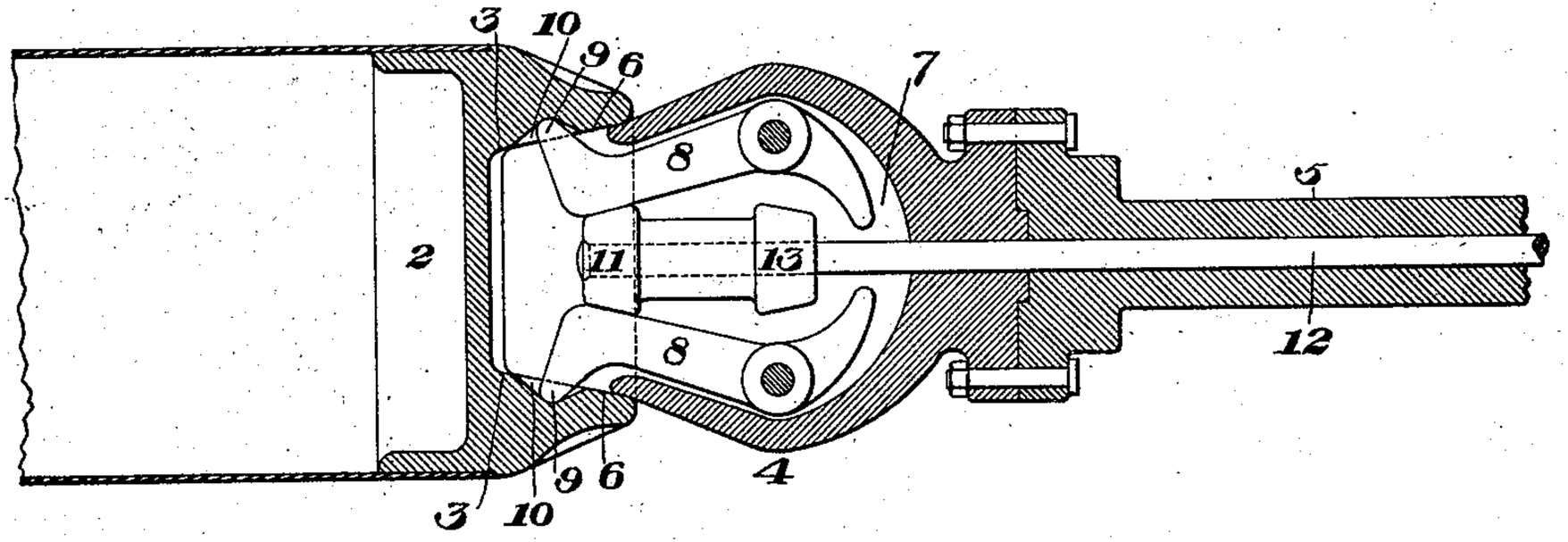


Fig. 2.

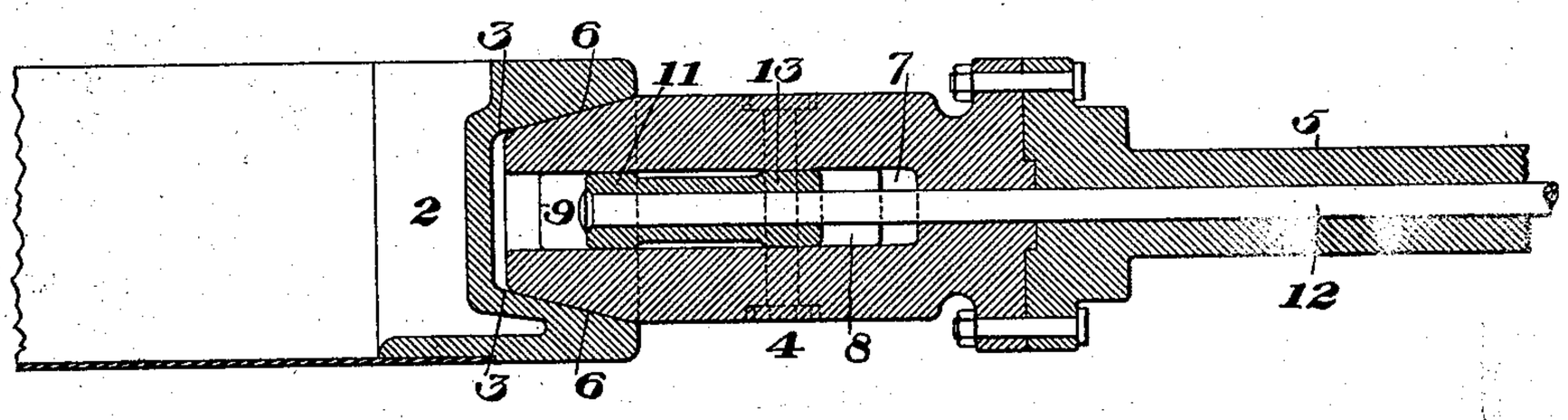


Fig. 3.

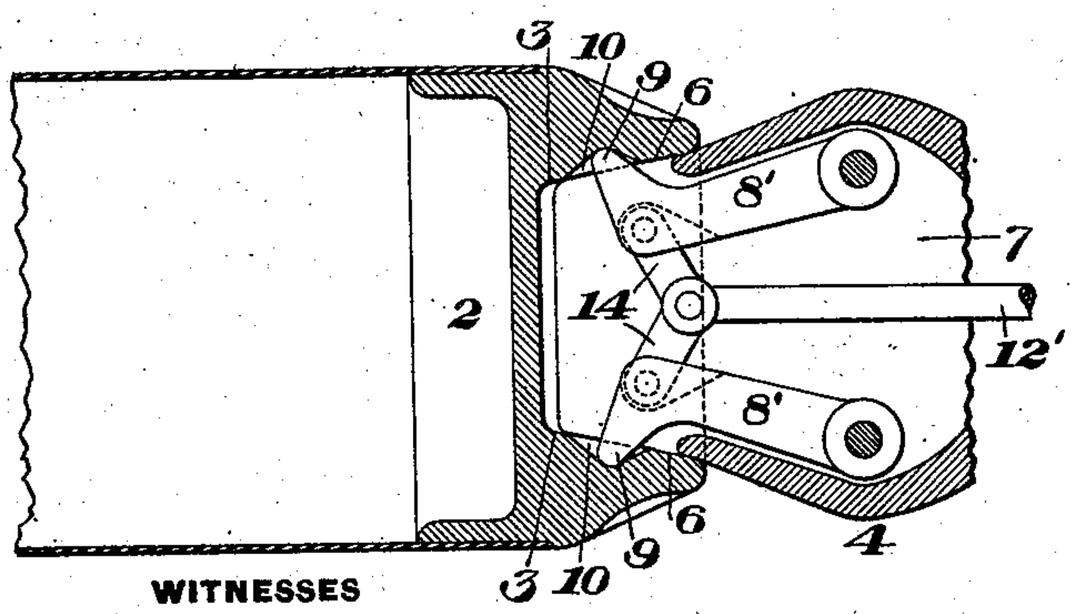
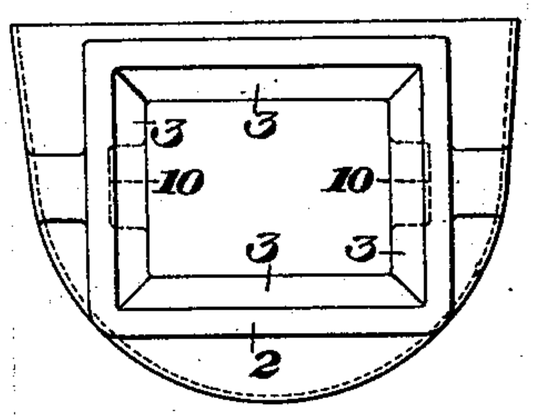


Fig. 4.



WITNESSES

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GRIPPING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 604,973, dated May 31, 1898.

Application filed February 23, 1897. Serial No. 624,686. (No model.)

To all whom it may concern:

Be it known that I, ALVA C. DINKEY, of Munhall, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Gripping Mechanism, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a partial horizontal sectional view showing my improved gripping mechanism as applied to apparatus for charging open-hearth furnaces. Fig. 2 is a vertical section of the same. Fig. 3 is a partial horizontal section of a modified form of mechanism; and Fig. 4 is an end view of the charging-box, showing the socket.

My invention relates to the means for detachably connecting an operating member, such as the charging-bar of a machine for charging open-hearth furnaces, with a part, such as the charging-box, which is to be operated. Heretofore these charging-boxes were necessarily placed in accurate alinement with each other by reason of the fact that the head of the charging-bar moved downwardly into a broad vertical slot in the end of the box, the flanges of the head fitting neatly within this socket, so that the box would not tilt. As the motions of the charging-bar are necessarily limited in character, the operation of attaching the bar to the boxes was a difficult and tedious one. My invention entirely overcomes these difficulties and enables a charging-bar to be used which can be moved endwise into an open-ended socket at the end of the charging-box without the necessity of accurate alinement of these boxes, while the head of the bar is quickly and easily secured to or disengaged from the box-socket.

In the drawings, in which similar numerals indicate corresponding parts, 2 represents the casting forming the end of a charging-box, this casting having an open-ended socket of general rectangular form, with its side 3 inclined or beveled outwardly, as shown. The head 4 of the charging-bar 5 is provided with inclined faces 6, which are arranged to slide over the inclined faces 3 of the charging-box socket and fit neatly within such socket. This head is provided with a horizontal slot 7, within which are pivoted levers 8, said levers having locking projections 9, arranged to enter recesses 10 in the end faces of the socket.

In the form of Figs. 1 and 2 the levers 8 are operated by a wedge 11, secured to the end of a rod 12, which passes longitudinally through the charging-bar and may be operated by an electric motor, a hydraulic cylinder, or any other suitable means. A second wedge 13 may be provided, which acts upon the rear ends of the levers 8 to positively move their outer ends inwardly, though this is not essential. I may use other means for operating these levers—such, for instance, as the toggle-links 14 of Fig. 3—which pivotally connect the levers 8′ with the end of the operating-rod 12′.

The operation of the device is apparent. The boxes are placed on a suitable support and do not need to be accurately alined, since the end of the charging-bar as it enters the socket by sliding over the inclined faces will move this end of the box, so as to allow the entrance of the charging-bar head. The levers 8 then being moved outwardly by the wedge or other device therefor, the head and the box are locked together, so that the box may be carried into and out of the furnace and turned at any point.

The advantages of the invention result from the fact that fewer movements of the charging-bar are needed, since its head moves endwise directly into the open-ended socket, and the head itself as it enters the socket will bring the box into proper position for locking. The locking and unlocking of the head to the box are easily performed, and the whole device is of few parts and not liable to get out of order.

Many variations in the form, construction, and relative arrangement of the parts of my device may be made by the skilled mechanic without departure from my invention, since

What I claim is—

1. The combination with an element having at one end an open-ended socket, of a movable bar having a head arranged to move endwise directly into the socket, and a locking mechanism arranged to rigidly connect the bar and socket.

2. The combination with an element to be operated, having at one end an open-ended socket with inclined inner faces, of a bar

movable endwise directly into the socket and having a head provided with inclined faces arranged to slide over the inclined faces of the socket and fit therein, a locking mechanism arranged to rigidly lock the head to the socket, and means for unlocking the head in any position of the element.

3. The combination with an element, having at one end an open-ended socket, of a bar having a head movable endwise directly into the socket, locking-levers in the head arranged to engage recesses in the sides of the socket and rigidly lock the head therein and means for positively moving said levers to lock or unlock the head in any position of the element.

4. The combination with a charging-box, having at one end an open-ended socket provided with inclined inner faces, of a charging-bar having a head provided with inclined outer faces arranged to fit within the socket, locking-levers pivoted within the head and arranged to enter recesses in the socket and rigidly lock the head therein, and means for positively moving said levers in any direction in any position of the box.

In testimony whereof I have hereunto set my hand.

ALVA C. DINKEY.

Witnesses:
H. H. HERVEY,
W. H. CORBETT.