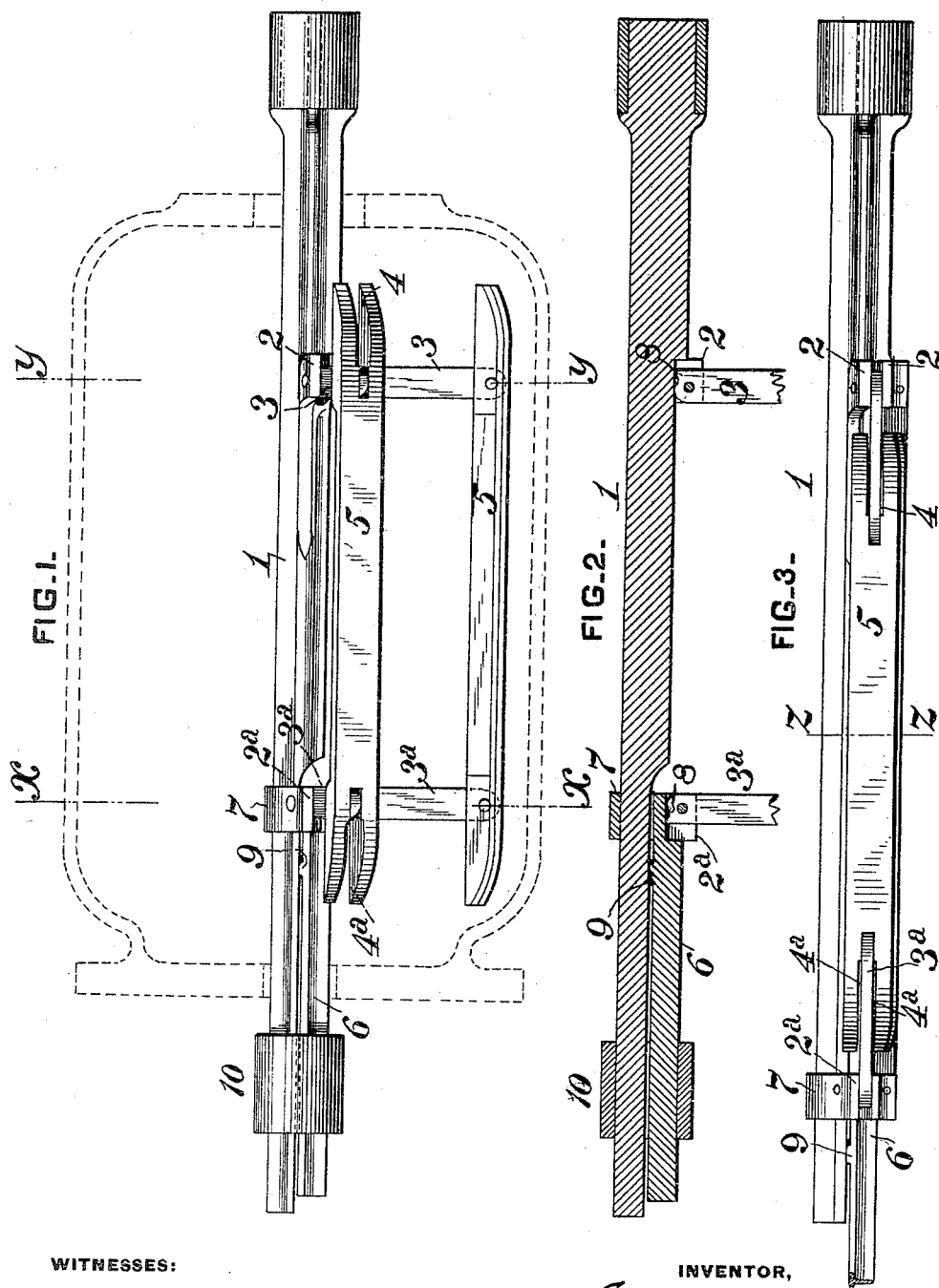


F. L. CLARK.  
CORE BAR.

No. 491,470.

Patented Feb. 7, 1893.



WITNESSES:

Daniel S. Walcott  
F. O. Gaither.

INVENTOR,

Francis L. Clark,  
by George H. Christy  
Att'y.

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FIG. 4.

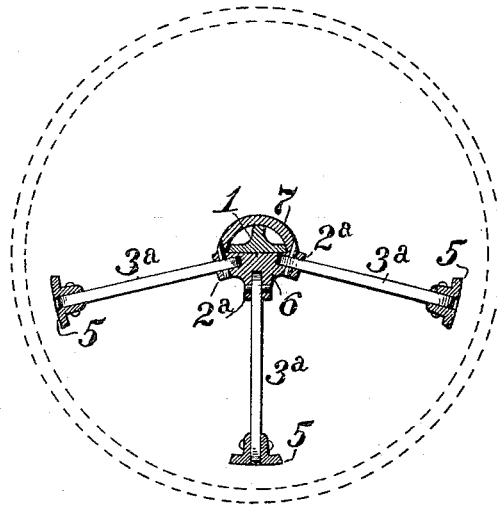


FIG. 5.

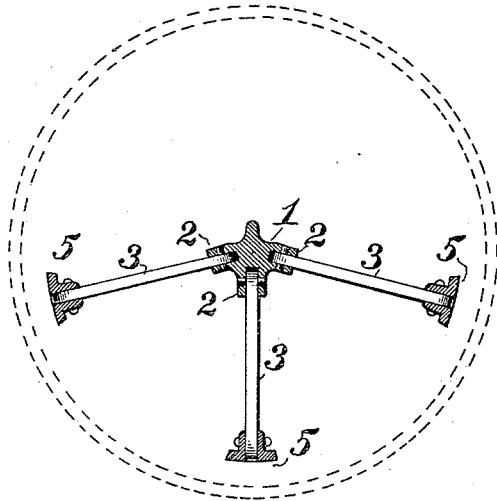


FIG. 6.



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# UNITED STATES PATENT OFFICE.

FRANCIS L. CLARK, OF WILKINSBURG, ASSIGNOR TO THE WESTINGHOUSE  
AIR BRAKE COMPANY, OF PITTSBURG, PENNSYLVANIA.

## CORE-BAR.

SPECIFICATION forming part of Letters Patent No. 491,470, dated February 7, 1893.

Application filed June 27, 1892. Serial No. 438,151. (No model.)

### *To all whom it may concern:*

Be it known that I, FRANCIS L. CLARK, a citizen of the United States, residing at Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Core-Bars, of which improvements the following is a specification.

The invention described herein relates to certain improvements in core bars of that class or kind which are designed for supporting the cores of molds for hollow articles such as reservoirs for air brakes, having comparatively large internal dimensions and a contracted opening through which the bar is withdrawn.

In general terms the invention consists in the construction and combination substantially as hereinafter more particularly described and claimed.

In the accompanying drawings forming a part of this specification, Figure 1 is a view in elevation of my improved core bar expanded, the article to be formed being indicated by dotted lines, Fig. 2 is a longitudinal section through the supporting shaft, showing the manner of connecting the links to the shaft; Fig. 3 is a view in elevation of the bar when collapsed; Figs. 4 and 5 are sectional views, the planes of section being indicated by the lines *x, x*, and *y, y*, respectively, and; Fig. 6 is a transverse section on the line *z, z*, Fig. 3.

In the practice of my invention the supporting shaft 1 is preferably made star-shaped in cross-section as shown in Figs. 1, 3, 4 and 5, and at a suitable point in its length is provided with slotted lugs 2, between which are pivoted the inner ends of the links 3. The outer ends of these links are pivoted in slots 4 formed in one end of the bars 5. The opposite ends of these bars are provided with similar slots 4<sup>a</sup> in which are pivoted the outer ends of the links 3<sup>a</sup>. The inner ends of these links 3<sup>a</sup> are pivoted in slotted lugs 2<sup>a</sup> on the inner end of the slide 6, which is preferably constructed to fit within a recess formed on one side of the shaft 1 and extending from one end thereof toward middle, as shown in Figs. 1 and 2. The inner end of the slide is held in position in the recess in the shaft by

a strap 7 passing around the shaft. By reference to Fig. 3, it will be observed, that by pulling the slide out along the shaft, the inner ends of the links 3<sup>a</sup> are drawn toward one end of the shaft and that the bars 5 and the outer ends of the links 3 are drawn in the same direction thus causing the bars and link to lie close against the shaft, the links passing into the slots in the ends of the bars. By shifting the slide in toward the middle of the shaft, the outer ends of the links and the bars are forced outwardly to operative position as shown in Fig. 1. As shown in Fig. 2 the inner ends of the links are provided with shoulders 8, adapted when the links have reached a position at right angles or approximately so, to the shaft, to bear upon the shaft and slide, and as said shoulders are on opposite edges of the links, to hold the latter as against any movement, as long as the slide is held stationary. In order to hold the slide stationary when the bars and links are in operative position, an abutment 9 preferably formed on the slide 6, is interposed between the adjacent faces of the slide and shaft, as shown in Figs. 1 and 2, near the inner end of the slide. By pressing the outer ends of the shaft and slide together when the latter is in the position shown in Figs. 1 and 2, the slight pivotal motion of the slide on the abutment will cause the strap 7 to bind tightly against the shaft and lock the slide as against outward movement. The parts are held in this position by means of a ring 10, slipped over the ends of the shaft and slide, or by any other suitable clamping device. When articles are cast horizontally it is preferred to employ bars on the lower side of the shaft, as it is only necessary to provide a sufficient support for the body of the core and to anchor the same as against being lifted by the molten metal. It is preferred to form the bars with a rib on their inner faces or of any other irregular shape in order to provide a hold for the core material.

I claim herein as my invention:

1. In a core bar, the combination of a shaft, a slide movable along the shaft, bars forming the outer supports for the core material, and links connecting the bars with the shaft and slide respectively, and adapted to support the

bars when shifted outwardly to operative position, said parts being so constructed and connected as to permit of the bars being folded down upon or approximately upon the shaft, substantially as set forth.

2. In a core bar, the combination of a shaft, a slide movable along the shaft, bars forming the outer supports for the core material and having slotted ends and links connecting the ends of the bars with the shaft and slide respectively and adapted to enter the slots in the bars, when the latter is closed against the shaft, substantially as set forth.

3. In a core bar, the combination of a shaft, a slide movable along the shaft, bars forming the outer supports for the core material and links connecting the ends of the bars with the shaft and slide respectively, the links being provided with shoulders for holding the links rigidly in operative position, substantially as set forth.

4. In a core bar, the combination of a shaft, a slide movable along the shaft, bars forming the outer supports for the core material, links

connecting the bars with the shaft and slide respectively, and adapted to support the bars when shifted outwardly to operative position, said parts being so constructed and connected as to permit of the bars being folded down upon or approximately upon the shaft, and a lock for holding the bars in position when shifted outwardly, substantially as set forth.

5. In a core bar, the combination of a shaft, a slide movable along the shaft and held thereto by a strap, bars forming the outer supports for the core material, links connecting the bars with the shaft and slide respectively, an abutment interposed between the slide and shaft and a clamping device for drawing together the portions of the shaft and slide outside of the abutment, substantially as set forth.

In testimony whereof I have hereunto set my hand.

FRANCIS L. CLARK.

Witnesses:

DARWIN S. WOLCOTT,  
R. H. WHITTLESEY.