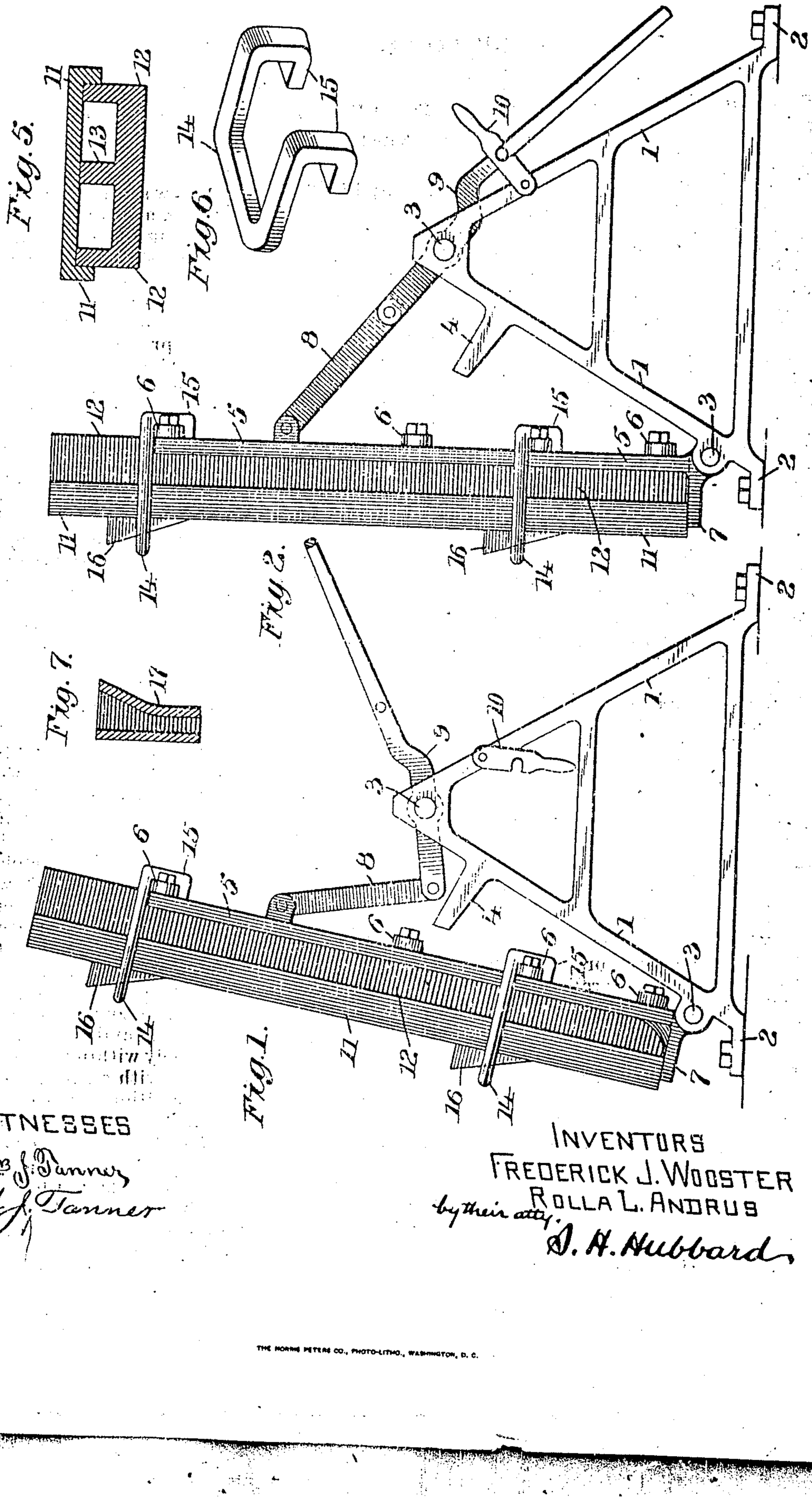
2 Sheets—Sheet 1.

F. J. WOOSTER & R. L. ANDRUS.

RACK FOR MOLDS.

No. 447,804. Patented Mar. 10, 1891.



WITNESSES

Wm. J. Tanner

A. J. Tanner

INVENTORS

FREDERICK J. WOOSTER

ROLLA L. ANDRUS

by their atty.

D. A. Hubbard

(No Model.) 2 Sheets—Sheet 2.

F. J. WOOSTER & R. L. ANDRUS.

RACK FOR MOLDS.

No. 447,804. Patented Mar. 10, 1891.

Fig. 4.

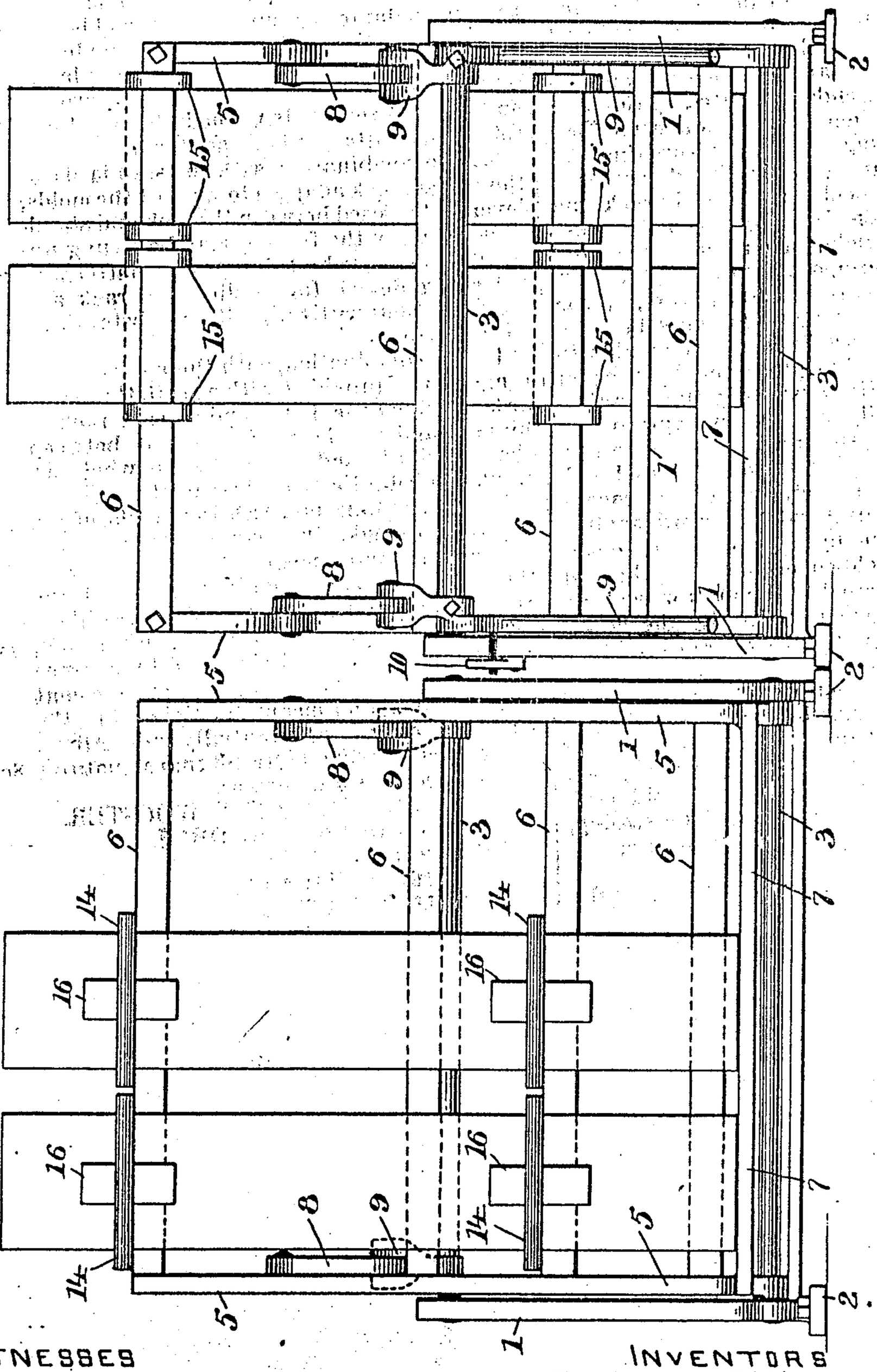


Fig. 3.

WITNESSES
Wm. J. Tanner
A. J. Tanner.

INVENTORS
FREDERICK J. WOOSTER
ROLLA L. ANDRUS
by their atty. D. A. Hubbard.

UNITED STATES PATENT OFFICE.

FREDERICK J. WOOSTER AND ROLLA L. ANDRUS, OF WATERBURY, CONNECTICUT.

RACK FOR MOLDS.

SPECIFICATION forming part of Letters Patent No. 447,804, dated March 10, 1891.

Application filed December 31, 1890. Serial No. 376,408. (No model.)

To all whom it may concern:

Be it known that we, FREDERICK J. WOOSTER and ROLLA L. ANDRUS, citizens of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Racks for Holding Molds; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to certain novel and useful improvements in apparatus for casting brass, copper, and other metals, and has for its object to provide means for holding and operating the mold in such manner that the product shall be homogeneous and free from flaws, air-holes, and similar imperfections. It is our design that the mold during the casting process shall be firmly held in a vertical position, so that by the use of feeders or similar devices the metal may be delivered centrally and evenly therein, and so that during the dressing of the mold prior to the casting and also during the cooling of the cast bars, ingots, or rods the mold shall be conveniently retained in an oblique or inclined position. Another object of our invention is to provide means for attachment by which the mold may be firmly held upon the support provided for it.

With the ends just set forth in view our invention consists in the novel form of mold-holding rack herein shown and described, in the means for operating the movable portion of the rack, in the devices for securing the molds to said rack, and generally in the details of construction and the several combinations of elements presently to be described, and then recited in the claims.

In order that those skilled in the art to which our invention appertains may fully understand its construction and method of operation, we will describe the same in detail, reference being had to the accompanying drawings and the numerals of reference marked thereon, which form a part of this specification.

Figure 1 is an end elevation showing the frame in the act of rising to its vertical position; Fig. 2, a similar view showing the mold ready for pouring; Fig. 3, a front elevation; Fig. 4, a rear elevation; Fig. 5, a detail transverse section through one of the molds; Fig. 6, a perspective of one of the bands, and Fig. 7 a detail section of one of the feeders.

The base portion of our device consists of a fixed frame, which we prefer to construct of two end standards 1, whose feet 2 may be bolted or otherwise firmly secured to the floor. These frames we secure together by two or more horizontal brace-rods 3, and each frame has a stop of some description—as, for instance, the outward projection 4. Hinged upon one of the brace-rods 3 is a rack adapted to support such number of molds as may be found convenient—say from one to twelve. This rack consists of bars 5, having rods or bars 6 at right angles thereto, and an outwardly-projecting shelf 7, on which the lower ends of the molds may rest. At each end this rack is connected to the fixed and immovable frames or to the upper brace-rod, as shown in the drawings, by means of toggle-levers 8 and 9, the latter fulcrumed on the base-rod and having an operating-handle. It is desirable that some means should be provided for locking the mold in the position shown at Fig. 2, and such a device is shown as consisting of a swinging hook 10, adapted to engage with the stud on the lever 9. Any system of levers competent to operate the rack and molds may be substituted for the combination shown without violating the essentials of our invention. While any ordinary mold may be used in connection with this rack, we prefer to employ molds capable of casting two or more slabs, rods, or bars at once. Such a mold is shown in section at Fig. 5 as consisting of a trough-shaped back portion 11 and a cover portion 12, whose edges fit closely within the parts 11, and which is provided with an inwardly-projecting partition or partitions 13, according as the mold is designed to cast two or more bars. The parts of the mold are fastened together and also secured to the rack by means of bands 14, each of which is adapted to rest astride one of the molds and has at its rear end a pair of hooks 15 at right angles to the body of the band, which latter are adapted to engage with the bars 6. Wedges 16 are

then driven in between the mold-cover and the bands, thereby firmly securing the parts of the mold together and securing the mold to the rack. The lower band may be of the ordinary type, the upper band being sufficient to hold the mold in place on the rack.

In the operation of our invention the rack is first dropped backward against the stops 4 by means of the toggle-jointed levers. The backs of the molds are then placed upon the rack, their lower ends supported by the shelf 7, and they are then dressed, as is usual, preparatory to casting. The covers are then put on, the hook-bearing bands placed over each mold, with their hooks engaging the rack, and the wedges driven tightly between the mold-faces and the bands. Then the caster and his helper, by the operation of the levers 9, raise the rack and the molds to the position shown at Fig. 2. The metal may be then poured from the crucibles into the molds in the usual manner, but preferably by a feeder 17, as shown at Fig. 7, whereby the metal is delivered centrally and is less apt to run down the sides of the mold and become partially chilled than if the mold were inclined. When the metal has set, the rack, by means of the levers, is dropped backward against the stops 4. Then by removing the wedges and bands the mold-covers may be taken off and the slabs exposed to the air for cooling. If the covers were removed while the molds were in vertical position, the bars would be likely to fall out.

In this our invention we do not wish to be confined to the precise details of construction herein shown and described, the gist of our invention resting in a rack for holding the molds and in means for holding said rack either in an inclined position for dressing, &c., or in a vertical position for pouring.

We claim—

1. The combination, with the molds, of the hinged rack for the support of said molds, standards to which the lower end of said rack is hinged, and the lifting-levers interposed between the standards and the rack, substantially as described.

2. The combination, with the standards, of the rack adapted to support the molds and hinged to said standards, and toggle-levers secured between the rack and standards, whereby the former may be swung forward and upward relatively to the latter and there retained, substantially as set forth.

3. The combination, with the standards, of the hinged rack adapted to support the molds, levers interposed between the rack and standards, whereby the former may be swung upward and forward relatively to the latter, and a locking device for holding the rack and molds in their vertical position, substantially as set forth.

4. The combination, with the molds, of the hinged rack provided with a shelf, the standards to which the lower end of said rack is hinged, and the levers interposed between the standards and the rack, the whole arranged substantially as described.

5. The combination, with the molds, of the supporting-rack, the bands engaging the molds and having means of connection with the rack, and wedges adapted to tighten the grasp of the bands, substantially as described.

6. The combination, with the hinged rack, of the molds, the bands adapted to embrace the molds and having hooks for engagement with the rack, and means for tightening the grasp of the bands, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

FREDERICK J. WOOSTER.
ROLLA L. ANDRUS.

Witnesses:
NATHL. R. BRONSON,
WILSON H. PIERCE.