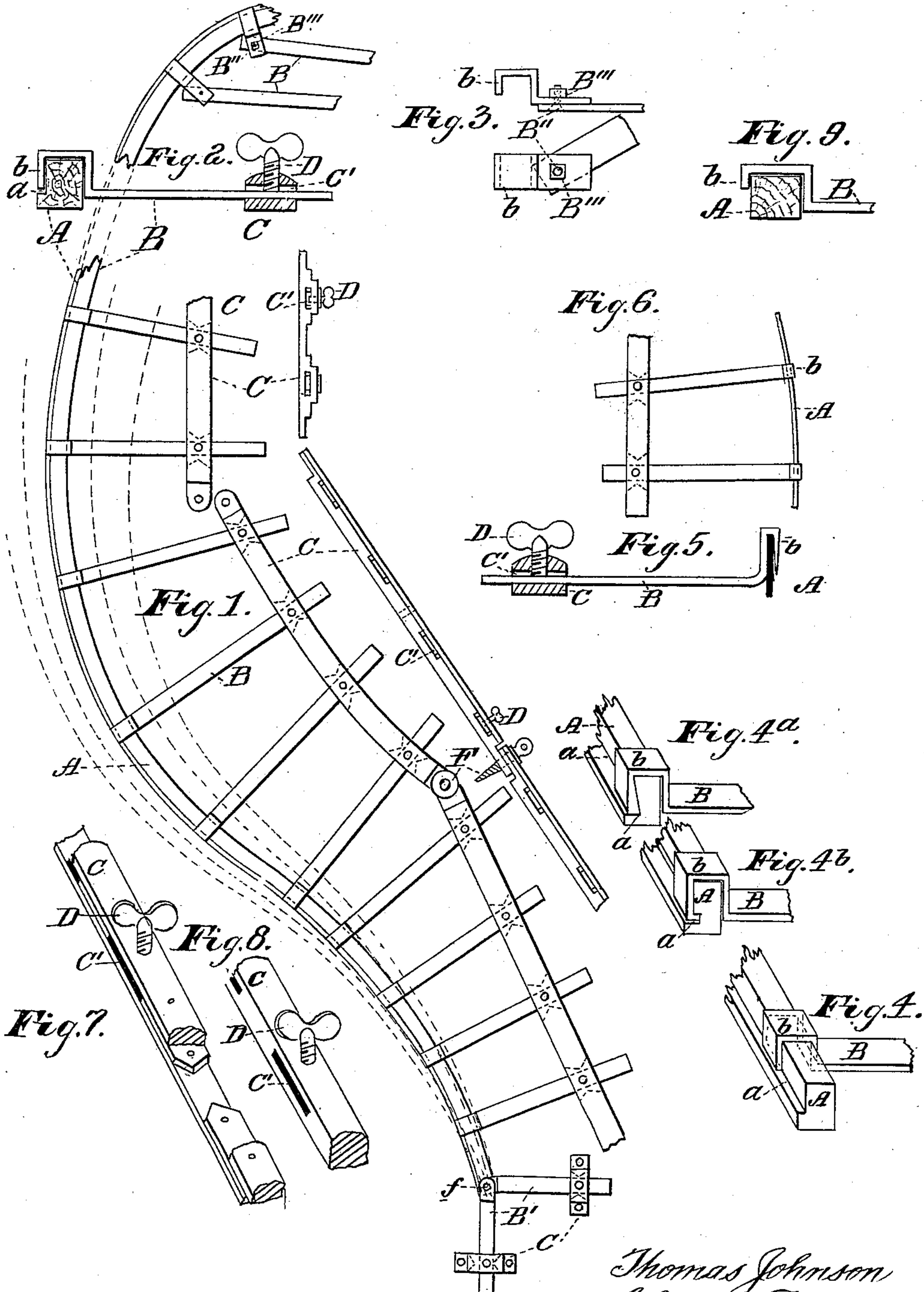


(No Model.)

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APPARATUS FOR MOLDING THE FRAMES OF SHIPS AND TRANSFERRING
CURVES.

No. 326,506.

Patented Sept. 15, 1885.



Attest
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UNITED STATES PATENT OFFICE.

THOMAS JOHNSON AND JOHN McDONNELL, OF WILMINGTON, DELAWARE.

APPARATUS FOR MOLDING THE FRAMES OF SHIPS AND TRANSFERRING CURVES.

SPECIFICATION forming part of Letters Patent No. 326,506, dated September 15, 1885.

Application filed December 16, 1884. (No model.)

To all whom it may concern:

Be it known that we, THOMAS JOHNSON and JOHN McDONNELL, citizens of the United States, and residents of Wilmington, in the county of New Castle and State of Delaware, have invented certain new and useful Improvements in Apparatus for Molding the Frames of Ships and Transferring Curves, of which the following is a description.

The invention relates to the class of apparatus which is used in a molding-loft for transferring lines, which have been laid down upon the floor thereof, from the model of the vessel to the boards, which are subsequently formed into molds which are to be used in shaping or conforming the lines of the vessel itself; and the invention consists in certain novel features and combinations in an apparatus of the character described, whereby the adjustment to the lines of curvature may be effected with great celerity and precision.

In United States Patent No. 306,081, issued to us on the 7th day of October, 1884, an apparatus is described which consists, essentially, of a series of keepers which are secured to the molding-floor, a flexible batten, and a series of flexible adjusting-bars, which at one end are pivoted to the batten and at the opposite end are adjustably secured to the keepers, the purpose being to adjust the batten toward or from the keepers by suitable manipulation of the adjusting-bars.

Under most conditions the apparatus described in the patent referred to may be operated with satisfactory results; but we have found that under some circumstances a saving of time and labor may be effected by making both, instead of one only, of the connections of the adjusting bar or rod adjustable. In other words, we dispense with the pivotal connection of the bar with the batten, and instead attach the bar to the batten in such a manner that while it shall securely grasp it it shall at the same time be readily movable, either to the right or to the left, along the batten.

In addition to this main feature of our improvement, we provide for the use of a two-part adjusting-bar, and for the use of keepers the weight of which shall be sufficient to re-

tain them in their position upon the floor against the strain of the batten.

In the drawings, Figure 1 is a plan view of the apparatus, the batten being represented as adjusted to one of the curved lines upon the molding-floor, and the curved dotted lines indicating the adjustment of the batten at other stages of the work. This figure represents also edge views of portions of the keepers and their attachments. Fig. 2 is an end view, drawn to an enlarged scale, the keeper being represented in vertical transverse section. Fig. 3 represents a plan view and also an edge view of a two-part adjusting-bar. Fig. 4 is an enlarged perspective view representing the adjusting-bar as in slidable relation with the batten, Figs. 4^a and 4^b being modifications of the same. Fig. 5 is an edge or end view similar to that seen in Fig. 2, but showing the batten as of ribbon form, as when composed of steel, and also representing the overhanging end of the adjusting-bar as beveled or cut away to accommodate the movement of the pencil or other marking implement. Fig. 6 is a plan view of the parts represented in Fig. 5, the thumb-screw being removed. Fig. 7 is an enlarged perspective view, showing a broken section of one of the keepers as when composed of horizontal sections placed one upon the other; and Fig. 8 is a detail perspective similar to that seen in Fig. 7, but representing the body of the keeper as composed of a single piece. Fig. 9 is a detail in which the batten is represented as rectangular in transverse section.

In all the figures A is the batten; B, the flexible adjusting-bars; C, the keepers; D, the thumb-screw; C', the slots or passages in the keepers; E, the screws for attaching the keepers to the floor; b, the hooked engaging ends of the adjusting-bars, and a the recess in the batten for receiving the depending end of the hook b.

In Fig. 1, B' are adjusting-bars, which, by a screw, f, are pivoted to one end of the batten to secure it firmly in position. B'' is a screw, and B''' is a nut, which may be provided with a thumb-piece for securing the sections of the two-part adjusting-bar B at any desired angle to each other. This latter construction (more fully represented in Fig. 3) is found serviceable

when it is necessary to adjust the batten to very short or "quick" curves, the play of the one-part adjusting-bar within its slot being sometimes insufficient to secure the required deflection of the batten.

The keepers may be of any suitable or convenient length, and may be separately secured to the floor, as in the upper portion of Fig. 1; or they may be made in sections to be connected together and to the floor, as represented in the lower portion of the same figure. The passages in the keepers will preferably be enlarged from the center toward the right, and toward the left on either face of the same, as seen in Figs. 1, 7, and 8, to permit the necessary lateral movement of the adjusting-bars within the passages.

The keepers may be composed either of wood or of metal. When of the former material, several horizontal sections may be suitably connected together, as in Fig. 7, and when metal is used the keepers, or each section thereof, may be of a single piece, the slots being cast or otherwise formed therein, as in Fig. 8. It is apparent that if metal be employed of suitable dimensions attachment of the keeper to the floor by screws will be rendered unnecessary. If desired, the keepers, when made of wood, may be so weighted that no positive mechanical connection of the keeper to the floor will be required. This means of securing the keeper to the floor is advantageous in that disfiguration of the floor by insertion and removal of the securing-screws is avoided.

In operation, the keepers being immovable under the utmost strain of the batten, the batten is readily adjusted to any desired line by moving the adjusting-bars toward or from the keepers, the thumb-screws being employed, when the adjustment is effected, to secure the bars in place. A board being then slid beneath the batten, the desired line is indicated upon the same by means of a pencil or other marking-instrument, which is moved along the two at their point of contact. The board

being then removed is converted into a mold by the removal of that portion of the same which is exterior to the line thus produced.

It will be observed that by reason of the provision of the slidable connection of the bar with the batten changes in the adjustment of the bar with the batten may within short distances be effected without change in the adjustment of the bar within the keepers, the hook engaging with the batten in such a manner as to prevent it from slipping within the grasp of the hook, and yet so loosely as to be freely slidable along the batten. The batten being first approximately adjusted by means of the connection of the adjusting-bars with the keepers, slight variations from the line may be corrected and the adjustment completed with entire accuracy by moving the hooked end of the bars, one or more, as may be necessary, along the batten.

In some instances it will be necessary, as already indicated, to bring into use the two-part adjusting-bars, (represented in Figs. 1 and 3;) but under ordinary circumstances the one-part bars will be sufficient for producing the necessary curvature of the batten.

Having described our invention, we claim—

1. The combination, with a molding-floor, of a series of keepers which are secured to the floor, a flexible batten, and a series of flexible bars which at one end are adjustably connected to the keepers, and at the opposite end are connected to the batten, and are slidable along the same.

2. The combination, with a molding-floor, of a series of keepers which are secured to the floor, a flexible batten, and flexible two-part bars which are adjustably connected to the keepers, and which are connected to the batten, and are slidable along the same.

THOMAS JOHNSON.
JOHN McDONNELL.

Witnesses:

HENRY R. PENINGTON,
HARRY EMMONS.