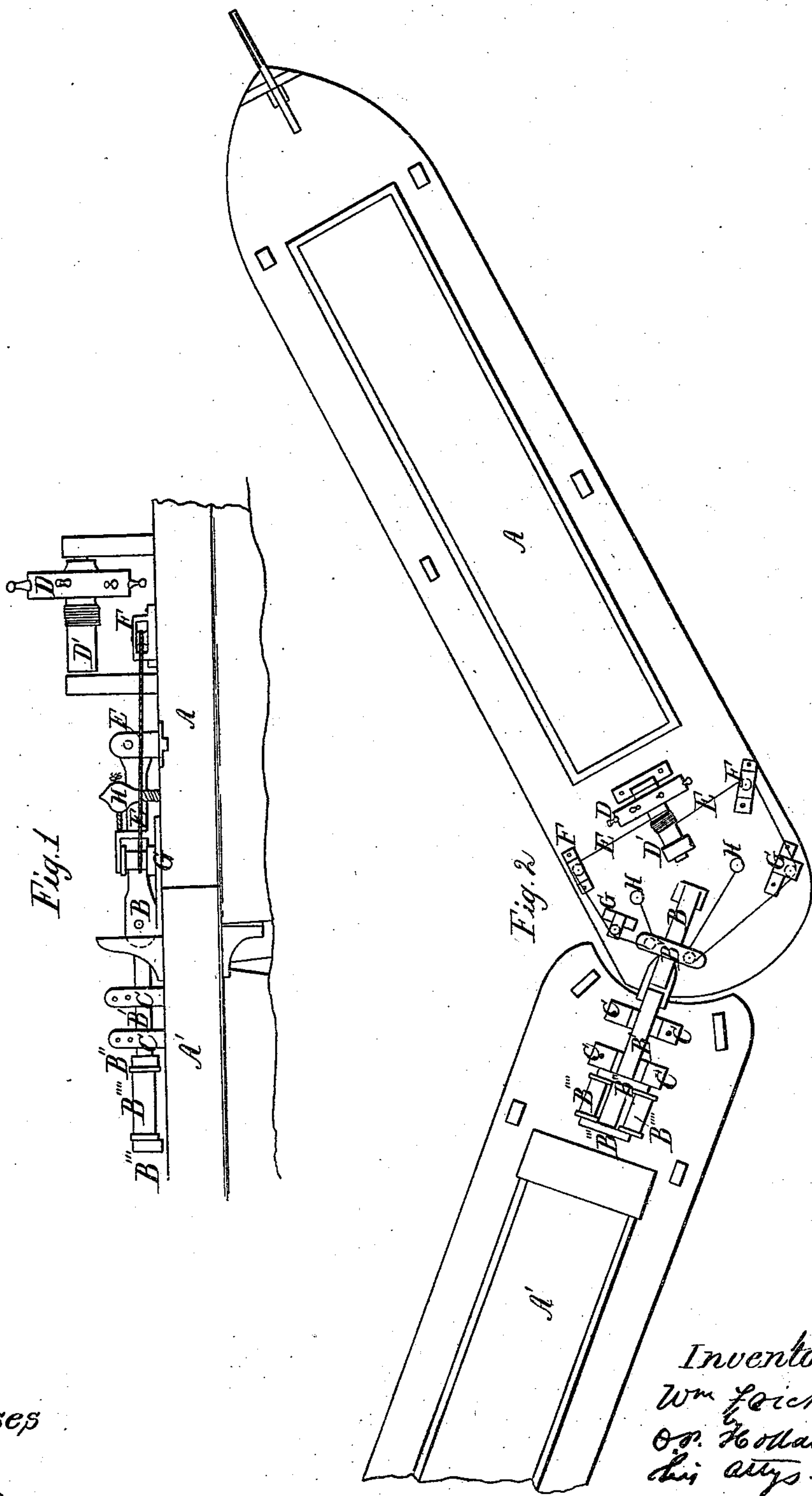


W. Frick.

Steering Sectional Boats.

N<sup>o</sup> 82,614.

Patented Sept. 29, 1868.



Witnesses

Chas. Hansen  
R. M. Allen

Inventor  
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his attys.



# UNITED STATES PATENT OFFICE.

WILLIAM FRICK, OF MIDDLETOWN, PENNSYLVANIA.

## IMPROVEMENT IN STEERING APPARATUS FOR SECTIONAL BOATS.

Specification forming part of Letters Patent No. 82,614, dated September 29, 1868.

*To all whom it may concern:*

Be it known that I, WILLIAM FRICK, of Middletown, in the county of Dauphin and State of Pennsylvania, have invented a new and Improved Mode of Connecting and Steering Boats, particularly adapted to canal-boats; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a side elevation, and Fig. 2 is a plan.

The same letters are employed in both figures in the designation of the same parts.

My improvement is especially adapted for application to canal-boats, and is intended for coupling together boats in such a manner that one boat shall act as a rudder for the other, thus enabling the boats to be turned in passing curves too short to permit a boat to pass having length enough to give it the tonnage capacity of the two combined, and also in the combination of the parts by which this result is accomplished, to be hereinafter explained.

In the annexed drawings, A A' represent two canal-boats, the hulls of which are of regular form, and so constructed that they may be used independently or connected. The overhang of the deck is cut away at the stern, so that one shall be concave and the other convex, as shown in Fig. 2, forming a bearing, upon which the boats, when coupled together, may turn, one against the other. The hulls of the boats ought not to touch one another below the water-line when coupled together, but a water-space left between them, as shown in Fig. 1, as I have found by experiments that the boats steer much more satisfactorily when thus connected than when the hulls are in such proximity that the current cannot flow between them in turning.

The boats are connected by a coupling-bar composed of two pieces, B B<sup>1</sup>, hinged together. The part B is permanently pivoted to one of the boats, A, and the part B<sup>1</sup> is attached to the other boat, A', by means of the standards C C, which are firmly bolted to the deck thereof, between which the bar B<sup>1</sup> is placed, in such manner that while the cross-head B<sup>2</sup> bears against one set of the standards, the bar B<sup>1</sup> shall bear against them all, so that it may act as a lever thereon to turn the boat, in the man-

ner to be described. The bar B<sup>1</sup> passes through a slot in the cross-head B<sup>2</sup>, which slides thereon. The cross-head B<sup>3</sup> is rigidly attached to the end of the bar B<sup>1</sup>, and springs B<sup>4</sup> are placed on pins attached to one of the cross-heads, and projecting through holes in the other, so that when in tow the strain on the line may be relieved, in case of sudden jerks, by the compression of the spring. This spring may be of india-rubber, as shown, or spiral, or in any other convenient form. This arrangement is especially necessary when a number of boats are in tow of a tug on wide sheets of water. The joint in the bar B B<sup>1</sup> allows free vertical oscillation in riding the swells; and as the bar B<sup>1</sup> turns freely on its own axis between the standards, the free rocking of the boats from side to side is permitted, while they are perfectly controlled in their relative alignment by the bar.

I have shown in the drawings stern-posts attached to one of the boats, for the purpose of attaching thereto a rudder; but this is only a precaution against accidents which might render it necessary to ship a rudder. The boats act, one as a rudder for the other, and are controlled in the following manner: D is the wheel, constructed in the ordinary manner of ships' wheels. D' is the axle, around which is coiled the tiller-rope E, which unwinds on one side as it is wound up on the other. The rope is passed over sheaves F F on each side of the deck, and thence around the sheaves G G, and thence around sheaves in the ends of the arms B<sup>5</sup>, rigidly attached on each side of the bar B, and then the ends are securely fastened to the posts H H.

As the wheel is turned in one direction, the rope on that side being wound around the axle D', the strain of the tiller-rope will be brought to bear on the arm B<sup>5</sup> of the rod B, which, acting as a lever, whose fulcrum is on one boat and the resistance in the other, will cause the two boats to deflect from a right line, the bow of one being inclined to the right, and that of the other to the left. By this means one boat is made to act as a rudder for the other, and the boats may be turned around curves precluding the use of large boats; and as the boats are detached simply by unshipping the connecting-bar, the boats may be passed through locks that would not permit larger



boats to pass. By this means much heavier freights may be drawn with the same team on canals too small to permit the use of the larger class of boats.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The hinged coupling-bar B B', when fastened permanently to one boat and attached to the other by standards C C, in such manner as to permit a free vertical, longitudinal, and lateral oscillation, but to confine at the same time the boats to their relative alignment fore and aft, substantially as set forth.

2. The combination of said hinged coupling-

bar, standards, and cross-heads C C, connected by springs B<sup>4</sup>, arranged to operate substantially as and for the purpose set forth.

3. The combination of the wheel, the tiller-rope, and the hinged bar connecting the two boats, when arranged to operate substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM FRICK.

Witnesses:

EDWIN JAMES,

JOHN S. HOLLINGSHEAD.