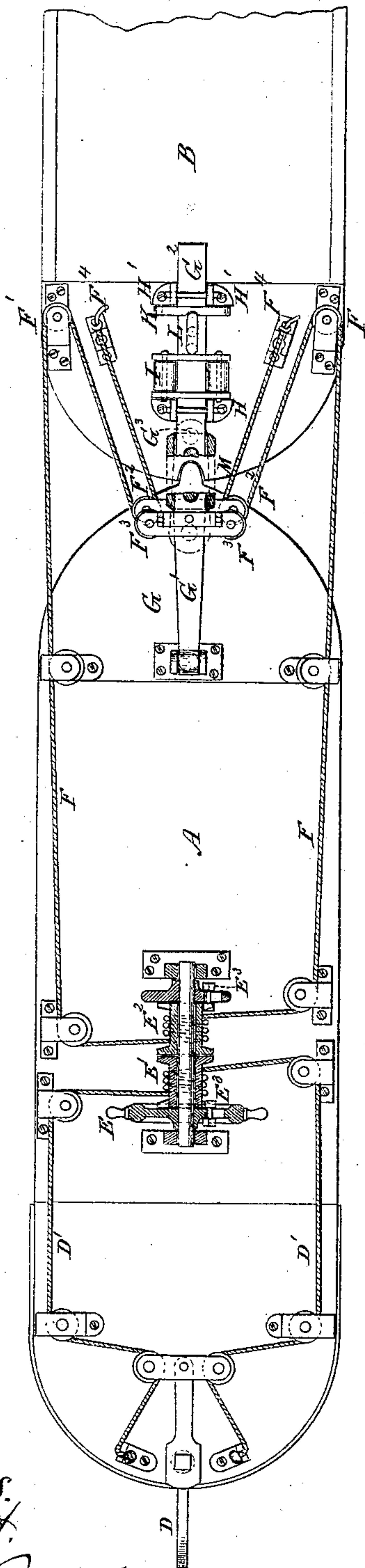


W. FRICK.

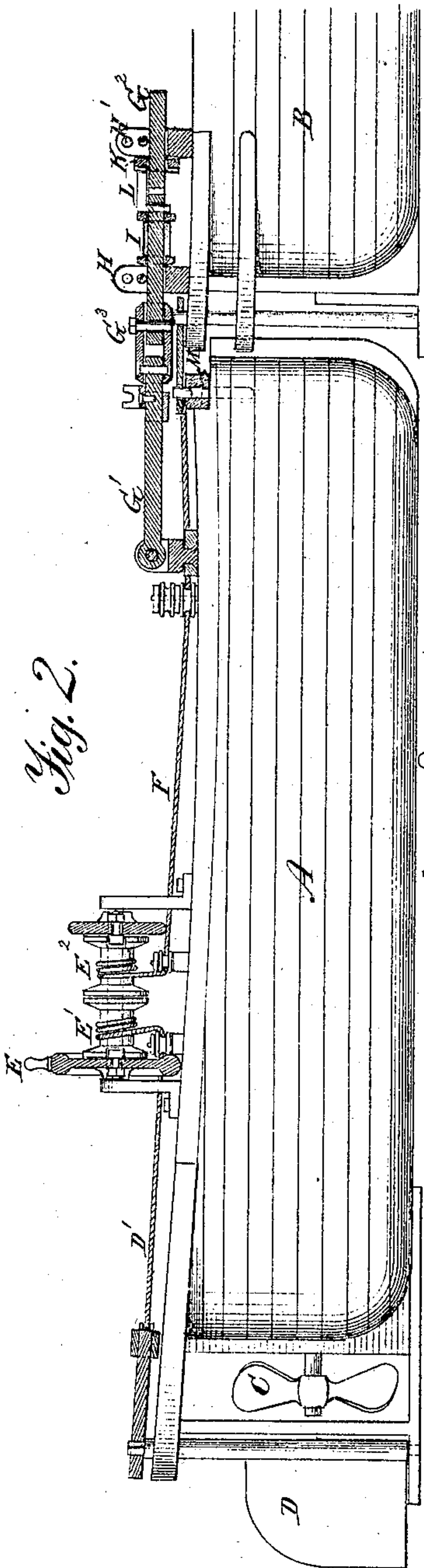
Means for Steering Boats in Train.

No. 152,099.

Patented June 16, 1874.



Witnesses.
A. Ruppert.
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UNITED STATES PATENT OFFICE.

WILLIAM FRICK, OF NORFOLK, VIRGINIA.

IMPROVEMENT IN THE MEANS FOR STEERING BOATS IN TRAIN.

Specification forming part of Letters Patent No. **152,099**, dated June 16, 1874; application filed March 26, 1873.

To all whom it may concern:

Be it known that I, WILLIAM FRICK, of Norfolk, in the county of Norfolk and State of Virginia, have invented new and useful Improvements in Mechanism for Steering Canal-Boats in Train; 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.

Figure 1 is a plan view of two boats with my improvements applied. Fig. 2 is an elevation partly in section. Fig. 3 is a section and elevation of the tiller.

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

I have heretofore taken out Letters Patent for improvements in the method of steering boats coupled in train, and my present invention includes devices for perfecting the system, which I have found, in practice, to be important for adapting it to the various conditions encountered in practice of running the boats, light or loaded, on straight or crooked canals or on the open waters, when steam is used as a motor. When the boats are running light, as the engine and fuel are in the stern of the hindmost boat, the draft at the stern will remain nearly constant, while the bow will be elevated. As the foremost boat runs upon an even keel, light or loaded, it follows that the two boats cannot be connected by the rigid coupling-bar set forth in said former Letters Patent. One part of my present invention relates to a flexible coupling which may be used in combination with the rigid bar or alone, according to circumstances. In this system the boats are so coupled and operated that one is used as a rudder for the other. There are conditions in which it is desirable to assist in steering by the use of an ordinary rudder, and when the boats are separated the boat carrying the propeller must be steered independently. Another of my improvements is intended to provide the means of operating the two boats and the rudder of one independently or together by means of a single steering-wheel. Another improvement is intended to provide the means of regulating the distance between the two boats, so that the prow of one shall engage the notch in the overhang of the other or not, as required.

In the annexed drawings, A is the boat which contains the propeller, and pushes another boat, B, or series of boats, arranged in front of it. The propeller C may be of any approved form, the motive power forming no part of my present application. This boat has a rudder, D, operated by the tiller-chain D' in the ordinary manner. E is the steering-wheel, fastened to the steering-wheel shaft, turning in suitable bearings in the ordinary manner and carrying two drums, E¹ and E², placed between the steering-wheel at one end of the shaft and a disk at the other. The wheel and disk are slotted radially to receive bolts with set-nuts passing through them, and also, when desired, through corresponding notches in the flanges at the adjoining ends of the drums. By means of these adjusting-bolts the drums may be either fastened to turn with the shaft, or either may be loosened, so that the shaft will turn without affecting the drums. By this means the tiller-chains D' and F may be both operated, or either may be operated, as it is desired. The chain F is carried around sheaves F¹ on the boat B, and then around sheaves F² on each side of the prow of boat A, or on the cross-arm of the bar G at F³, as will be explained hereafter, and then passed forward and fastened to the deck of the boat B at F⁴. By turning the steering-wheel E the tiller-chain will turn the boats A and B upon the fulcrum formed either by the connecting-bar or by the prow of A fitting into a recess formed in the overhanging deck at the stern of B. By this means the boats may be made to act one as a rudder for the other. The rudder D may be actuated at the same time, to assist in steering the train of boats, or independently. The boats are connected by a strong rigid bar, G, made in two parts, G¹, which has a socket on its front end, and G², which, when fitted into the socket, is secured by a coupling-pin, G³. The rigid bar G is secured by a swiveling-bolt to the deck of the boat A, and to the boat B by standards H H' H' H' bolted to the deck thereof. In order to sustain the draft without shock cross-plates are fastened on each side of springs, as shown at J. As set forth in my said former Letters Patent, another cross-plate, K, through which the bar G² passes, bears against the standards H' H', being confined by an adjust-

able key, L, bent at right angles, so that the short end passes into a hole in bar G², and the long arm extends between the plates I and K, holding the latter against the standards. There are two holes in the bar G². The forward one is intended to receive the key when the point presses against the plate, to force the prow out of the notch in the overhang, so that the boats may be steered by the bar G alone.

Taking out the key and the bolt G³ and tightening the chain so as to draw the prow into the notch in the overhang, the chain in such case passing around the sheaves F², the boat may be steered without the rigid bar. The vertically flexible connections of the auxiliary bar M permit it to be used to couple the boats when the boat A is light forward, the rigid bar G being removed, the chains F uniting the boats permitting the bow of boat A to rise without interfering with their operation.

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

1. In combination with the steering-wheel E, tiller-chains D' actuating the rudder D, and the chain F steering one boat by the other, and the drums E¹ E² attached to the shaft, so that they may be operated independently or together, substantially in the manner set forth.

2. The rigid bar G, constructed in two parts, in combination with the cross-plates and standards and adjustable key, by means of which the prows may be engaged or disengaged in relation to the notch in the overhang, substantially in the manner set forth.

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

WILLIAM FRICK.

Witnesses:

D. N. DEFORD,

P. H. WHITEHURST.