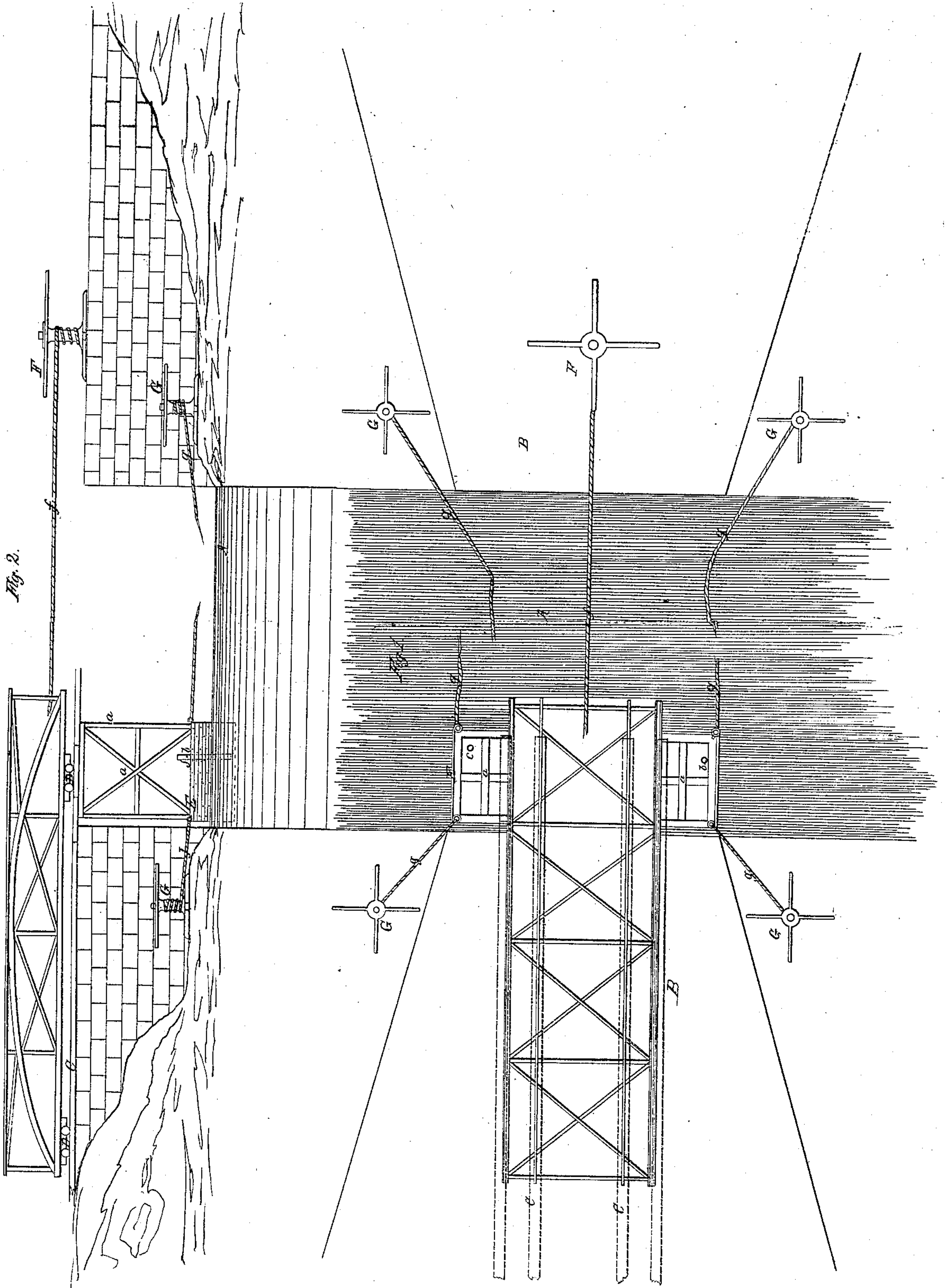


*S. & T. Champion.*

*Draw Bridge.*

*N<sup>o</sup> 10,250.*

*Patented Nov. 22, 1853.*





# UNITED STATES PATENT OFFICE.

SAML. CHAMPION AND THOMAS CHAMPION, OF WASHINGTON, DISTRICT OF COLUMBIA.

## TRANSPORTING BRIDGES.

Specification of Letters Patent No. 10,250, dated November 22, 1853; Antedated May 22, 1853.

*To all whom it may concern:*

Be it known that we, SAMUEL CHAMPION and THOMAS CHAMPION, of the city of Washington, in the District of Columbia, have invented a new and useful method of transporting bridges or centers for bridges from the banks or shore where they are built to their proper position over the water on the piers or abutments placed for their support, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, which makes part of this specification, and in which—

Figure 1 represents a plan of a stream with an abutment on each side and a bridge in the act of being laid over the stream upon the abutments; Fig. 2 is a side elevation of the same.

Preparatory to building the bridge or arch proper we proceed to build the abutments, and to form the roadways on each side by which the bridge is to be approached; we then select that bank of the stream which is most convenient for the purpose, and level a space on the roadway contiguous to the abutment, and if possible in a line with the two abutments somewhat longer and wider than the required bridge; upon this leveled space we first lay down timbers or stout plank, and on these place rollers or trucks; and on these rollers or trucks we erect the bridge. After the bridge has thus been erected on the shore, the next thing is to place it over the stream on the abutments, and this is accomplished by moving it forward on the rollers or trucks, until its end overhangs the first abutment, and then placing beneath it a vessel having a frame erected upon its deck, which reaches up to the underside of the bridge. This vessel when first placed beneath the bridge should be ballasted by water, sand stone, or other material, but we recommend water, equal in weight to a little more than half the weight of the bridge, so that as the latter begins to bear upon it with more weight as it projects more beyond the abutment, by pumping out the water or transferring other ballast into another vessel, the buoyancy of the vessel will be increased and it will hold up the end of the bridge at the same level as at first or higher if necessary. By thus graduating the quantity of the ballast inversely to the weight of the load the proper elevation of the projecting end of the bridge can be maintained during its progress across the stream. When one end of the

bridge has thus been placed upon the vessel and raised up, the bridge is again urged forward until its front end has reached the proper position over the further abutment when water is again pumped or led into the vessel by a valve to increase its load and settle it and thus lower the bridge to its place, by continuing the admission of the water until the vessel is lowered sufficiently to be relieved of the weight of the bridge, it can then be floated away and the bridge left in its place. The boat in passing the bridge across the stream should be guided by guy ropes on each side of the piers, controlled by capstans, and the bridge could also in most cases be conveniently towed across by tackle and a capstan.

The accompanying drawing represents one of the many arrangements that might be adopted for building a bridge and setting it in place by our method. In this drawing A denotes the stream, or water, to be bridged, B the abutments, C the bed timbers on which the trucks rest, D the trucks on which the bridge is built, E the vessel by which the forward end of the bridge is carried across from one abutment to the other.

*a*, is the frame extending from the deck of the vessel to the under side of the bridge.

*b*, is the pump for pumping water into or out of the vessel to regulate its buoyancy, and *c*, is a valve to admit water into the vessel instead of pumping it in.

F is the capstan, and *f* the rope by which the bridge is drawn across from one abutment to the other; G the capstans and *g* the guy ropes by which the vessel is guided and steadied as it floats the end of the bridge across the water.

If it should be deemed advisable in any case to employ more than one vessel, it is obvious that they must be applied and worked in the same manner already described for the working and managing of one vessel. Care being taken to impose upon each its due proportion of the load. The abutments, railways, bridge, vessel, capstans and tackle are all things so well known that we deem a particular description of them unnecessary.

By thus building bridges on shore and on the same lever or thereabout, at which they are destined to stand, all the difficulties incident to building bridges over the water, or of elevating them from the level of the water to the top of the abutments as has

heretofore been done when they have been built on shore and afterward floated to the abutments are raised by hydraulic presses or ponderous and expensive machinery to the required elevation, are avoided.

Therefore we claim—

The improved method of operation herein described viz:—building bridges on shore, on a level, or thereabout with their resting

places on the abutments, and then setting them in place by moving them into position substantially as set forth.

SAMUEL CHAMPION.  
THOMAS CHAMPION.

Witnesses:

L. C. DONN,  
WM. COX.