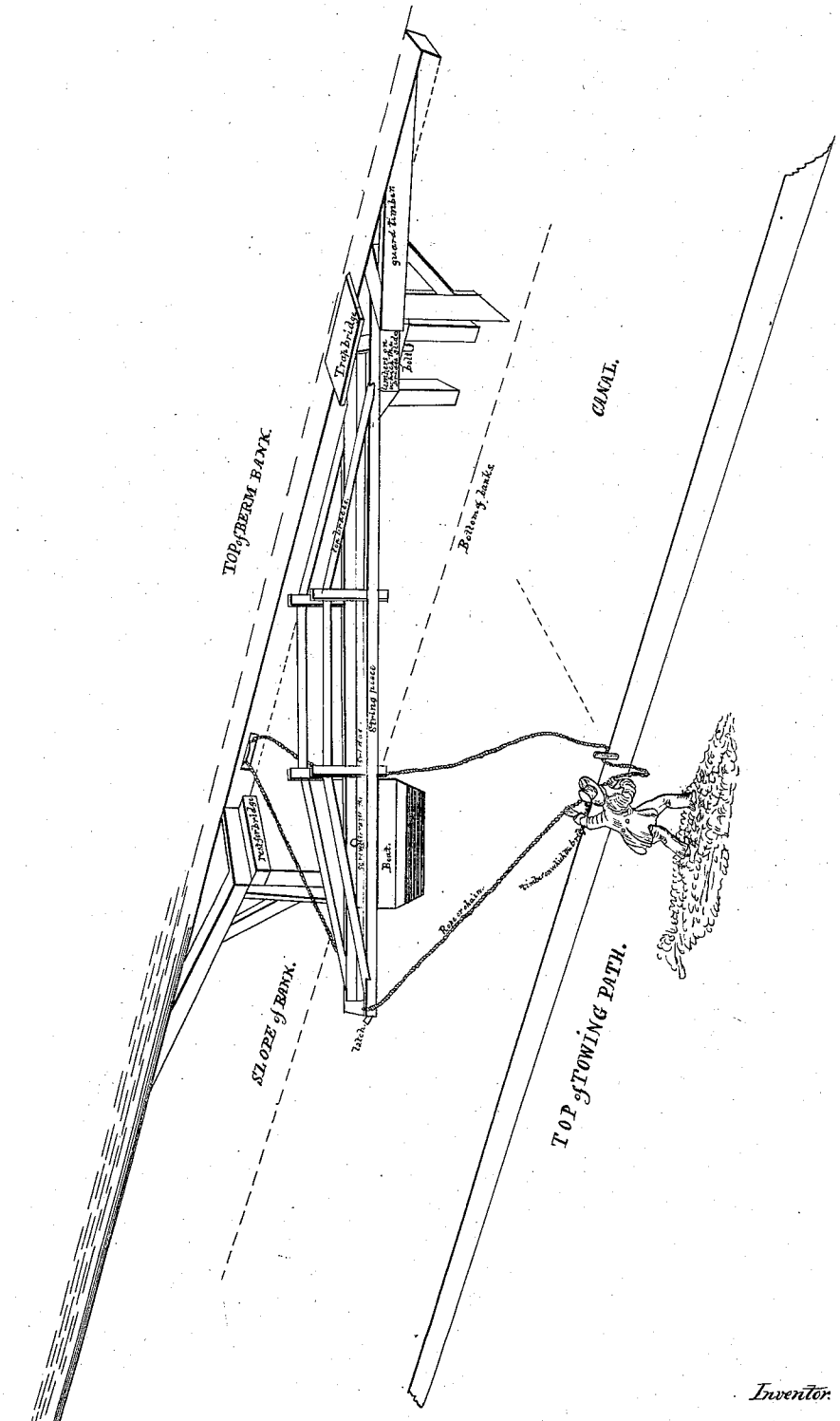
J. N. Vrooman.
Draw Bridge.

No. 1,551. Patented Apr. 15, 1840.



Witnesses.
Joseph Ingham.
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Inventor.
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UNITED STATES PATENT OFFICE.

JOHN N. VROOMAN, OF DANUBE, NEW YORK.

FLOATING SWING-BRIDGE.

Specification of Letters Patent No. 1,551, dated April 15, 1840.

To all whom it may concern:

Be it known that I, JOHN N. VROOMAN, residing at Danube, in the county of Herkimer and State of New York, have invented a floating swing-bridge, which is chiefly calculated for the crossing of streams or waters that are used for navigation, particularly canals; and I do hereby declare that the following is a full and exact description.

The nature of my invention consists in having one end of the bridge float and swing around and the other end stationary move on a pivot. The end that floats, rests on a boat or float or scow or buoy made for the purpose of sufficient dimensions to bear up the floating end of the bridge to which it is attached. The bank of the canal or stream which receives the floating end of the bridge (when thrown across canal or stream) is faced on the top with a flat piece of timber on which the floating end of the bridge rests. The boat, float, scow or buoy will bear up the floating end of the bridge several inches higher than the bank on which it is to rest. When loads are passing the bridge they will sink the floating end of the bridge down, so as to rest on the bank, and when the loads are passed the floating end will again rise up and float. The boat, float, scow or buoy on which the floating end of the bridge rests and which bears it up may be placed under other parts of the bridge and is considered by the undersigned to do best about one third distant from the floating end of the bridge. There may also be several boats, floats, scows or buoys placed under the bridge if desired. The boat, float, scow or buoy is fastened to the bridge by tenons passing through the outside string pieces of the bridge, which are keyed on the top of the string pieces. Through these string pieces pass on each side of the bridge above the boat, float, scow or buoy two screws which when screwed down on the boat, float, scow or buoy will raise the bridge, the screws to be of iron. The box or nut through which the screws pass are fixed fast in the string pieces, the floating end of the bridge resting its whole weight on the boat, float, scow or buoy. When the screws are screwed down they will press on the boat, float, scow or buoy without sinking it any deeper in the water and will thus raise the floating end of the bridge. These screws may also be made of wood, in which case the screw is cut through the string pieces. There may also four screws instead of two be made use of and these screws as well as the tenons may be made to pass through timbers laid across the boat, float, scow or buoy and fixed fast to the string pieces. The tenons and screws passing through these timbers will avoid weakening the string pieces by the passing through them. When the bridge is raised by the screws of sufficient height from the boat, float, scow or buoy a piece of timber is then slipped on the boat, float, scow or buoy for the bridge to rest on and the bridge again wedged fast through the tenons aforesaid. The object thus to raise the floating end of the bridge is when low water to have it float high enough to swing into its place on the towing path bank when the bridge is thrown across canal, stream or water. It will probably seldom happen that the water will be so low as to require the raising of the floating end of the bridge by the screws and thus the screws may be dispensed with, or the bank of the canal over which the floating end of the bridge swings may be faced with two or more flat pieces of timber placed on each other, so that when the water gets low one or more of these pieces of timber may be taken away so that the floating end of the bridge swings over those remaining and rests on them and when the water again rises replace the timbers. The other end of the bridge is stationary and moves on a pivot by an iron bolt that passes through the center of the stationary end of the bridge into a piece of timber fastened to the bank of the canal, stream or water.

The outside side sills of the stationary end of the bridge rest on long timbers, which timbers verge off horizontally upon the shore at an angle with the bridge of about forty-five degrees, on which timbers the stationary end of the bridge rests when the floating end is swinging from one side of the canal, stream or water to the other side. These timbers also assist in keeping the bridge from tarving.

At the stationary end of the bridge is a short trap bridge of the length of half the width of the main bridge. On the land side this trap bridge is fixed fast with iron hooks and eyes to a cross sill attached to the shore, while the other end drops on the floating bridge and covers it to about the extent of ten inches. This trap bridge is for the pur-

pose of getting on the main bridge and also assists in keeping the main bridge from tarving.

At the floating end of the bridge are ropes or chains attached by which to draw or swing the floating end of the bridge from one side of the canal, stream or water to the other side. These ropes or chains run on pulleys. One of these pulleys is fixed on the bank of the canal, stream or water opposite the stationary end of the bridge. The other pulley is fixed on the bank on the same side of the canal, stream or water with the stationary end of the bridge distant from the stationary end the length of the bridge. Thus after a person has passed the bridge he can take hold of the rope or chain and draw it back to its place to lay up, the chain or rope dropping to the bottom of the canal, stream or water, so that boats and craft may pass without interruption, and when the person wishes to recross he can draw upon the other end of the rope or chain and draw the bridge to him and after passing may again draw the bridge back to the place to lay up out of the way of boats or craft.

There is a latch to the floating end of the bridge which when the bridge is drawn to the shore to lay up catches in notches cut in the timbers extending from the shore for fenders to the bridge, which latch is fixed to the side of the bridge that is off from the shore when the bridge lays up and on the inside of the string piece, and the rope or chain passing over the string piece is tied to the latch so that when the rope or chain is drawn to haul the bridge it also raises the latch. The rope or chain may also pass under the string piece and be tied to the back end of the latch. In that case the latch extends about a foot back from the pivot on which it moves and thus when the rope is drawn to haul the bridge it pulls down the back end of the latch and lifts the front end of the latch out of its notch and the bridge is hauled off. In either case when the latch is lifted out of its notch to its proper height the latch will strike a pin or block affixed to the string piece, so that it cannot rise higher than necessary. The rope or chain attached to the latch has a tendency to keep the latch up and prevent it from dropping into its notch. To obviate this a weight is affixed to the latch to make it drop into its notch.

At each end of the bridge when laid up are timbers extended from the shore facing the bridge and at the off side from the bridge verging off at an angle of about forty five degrees. These timbers defend the bridge from injury by craft passing the canal, stream or water. The end of the bridge when swinging around to lay up swings over a piece of timber extended from the shore on which the floating end of the bridge rests when laid up and in case the water is drawn off the bridge lays up in safety.

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

1. The employment of a boat, float, scow or buoy for the purpose of sustaining the swinging end of a bridge in the manner described.

2. I also claim the arrangement of ropes or chains by which the bridge can be opened or closed from either side of the canal or stream as described and in combination therewith the latch for retaining the bridge in its place when thrown back as described.

JOHN N. VROOMAN.

In presence of—
A. Loomis,
P. Sternberg.