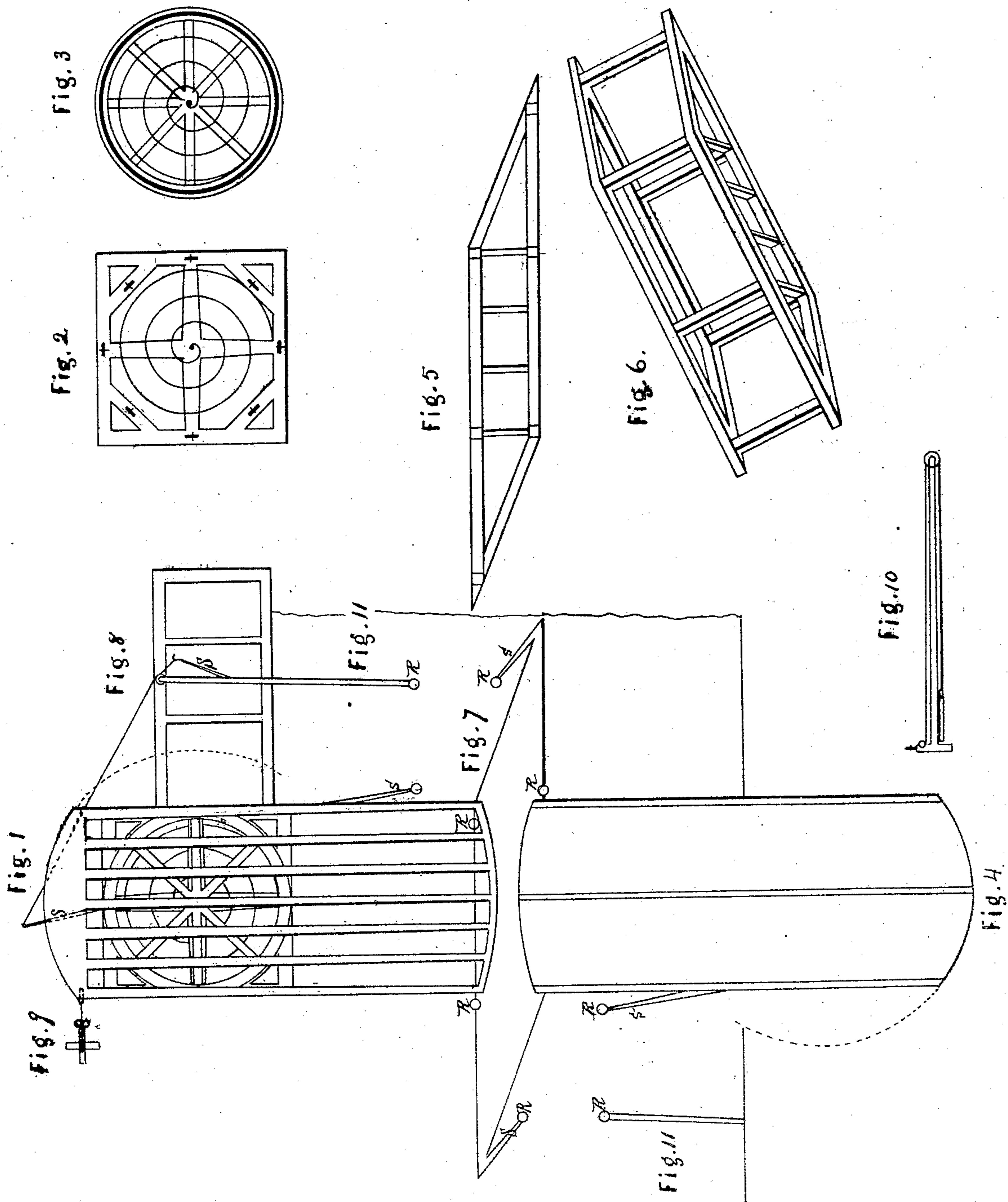


# A. Ring Swinging Bridge.

Patented Nov. 9. 1838.

N<sup>o</sup> 1004



# UNITED STATES PATENT OFFICE.

ABNER R. RING, OF PARMA, NEW YORK.

## SWINGING BRIDGE.

Specification of Letters Patent No. 1,004, dated November 9, 1838.

*To all whom it may concern:*

Be it known that I, ABNER R. RING, of Parma, in the county of Monroe and State of New York, have invented a new and useful Improvement on Swing-Bridges; and I do hereby declare that the following is a full and exact description.

The nature of my invention consists in the application of swing bridges over canals, feeders or streams where boats or water-crafts are used in such a manner as to have the boat or water-craft, open the bridge, and after it has passed, the bridge adjust itself.

To enable others skilled in the arts to make and use my invention I will proceed to describe its construction and operation.

It consists of a bridge made in two parts which rests on a metal pivot in the center of a crab or square abutment which stands on each shore, the diameter of which is equal to the width of the bridge. At eight points from the center are placed eight iron wheels (see Figure 2 on the drawing) which supports the bridge in a horizontally position when it turns on the pivot. On the under side of the bridge and fastened to the string-pieces is an iron circular railway to play exactly on the wheels set in the crab. Also in the center of the railway is a metal step to receive the pivot (see Fig. 3). Near the pivot in the center of the crab is fastened one end of a scrawl spring; the other end is attached to the rail-way and assists the weight and pulley to close the bridge after the boat has passed. (See the spring represented in Figs. 1, 2 and 3.) In the center of the canal between the two crabs is a stone or wooden pier (see Fig. 7) which receives and supports the ends of both parts of the bridge when closed. The pier is of sufficient length to receive the necessary springs and rollers attached to it. Fig. 5 shows the ground frame of the pier marked 7. Fig. 6 shows the perspective of the same. Attached to the side on which the boat enters the bridge is a frame (see Fig. 8) about eleven feet wide from twenty to twenty-five long to support the lever which is a timber (see Fig. 11) of sufficient strength to start open the bridge when operated upon. It is of some convenient length between twenty and twenty five feet and fastened to the frame by a strong iron gudgeon passing

through it on which it turns with a lever purchase of about eight to twelve. On the short end of it is fastened a steel spring which will play about one foot barely stiff enough to straighten the chain attached to it; the other end of the chain (see drawing connecting Fig. 1 with Fig. 11) is fastened to a spring attached to the under side of the shore end of the bridge which will play about as far as the former, and of sufficient elastic strength to start the bridge when bent. These springs together with the lever power will let the boat proceed nearly five feet ahead after it comes in contact with the lever with a steady increasing draft on the bridge before it starts, thus effectually preventing any jar on the boat in operating on the bridge.

On the long end of the lever extending over the water is affixed a roller which is a cylinder, eight inches in diameter about four feet long. Standing perpendicular the lower end being level with the top of low water. All the rollers on the drawing are marked (CR) and are similar to the one above described. More of them may be necessary in practically steering a boat into and easing it through the bridge than are shown on the drawing. The lever is secured in a horizontal direction by a small iron sheave on the short end of it which plays under a quadrant rail as shown by a dotted quarter circle on Fig. 8. Figs. 9 and 10 are different views of the post and pulley, which will stand in the most convenient place to assist the scrawl spring in closing the bridge. Fig. 1 represents the frame of one part of a bridge in its proper place resting on the crab and pier the railway and springs show between the timbers. Fig. 4 represents one part of the bridge finished.

Operation: The boat enters between a friction roller affixed to a spring marked (S) on the end of the pin (see Fig. 1) and the roller on the end of the lever; the spring bends a few inches while the lever is carried onward as the boat proceeds opening the bridge far enough to let the boat enter between another set of friction rollers, one on the pier the other on the end of a spring marked (S) affixed to the side of the bridge (see Fig. 1) through which it is eased along till it finally leaves the bridge which instantly

closes by means of the spring and pulley before described. Note: All boats enter on the right hand side of the pier.

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

The combination of the lever and springs for giving the first impulse to the opening of the bridge. The mode of preventing the jar when the boat comes in contact with the

bridge and guiding the boat through by 10 means of the springs and rollers and the mode of closing the bridges by means of the combination of the volute spring and counter weight, all as above described.

ABNER R. RING.

Witnesses:

F. THOMSON,  
SAML. DOLL.