

N. Macneale,
Draw Bridge.

No. 100,910.

Patented Mar. 15. 1870

FIG. 1.

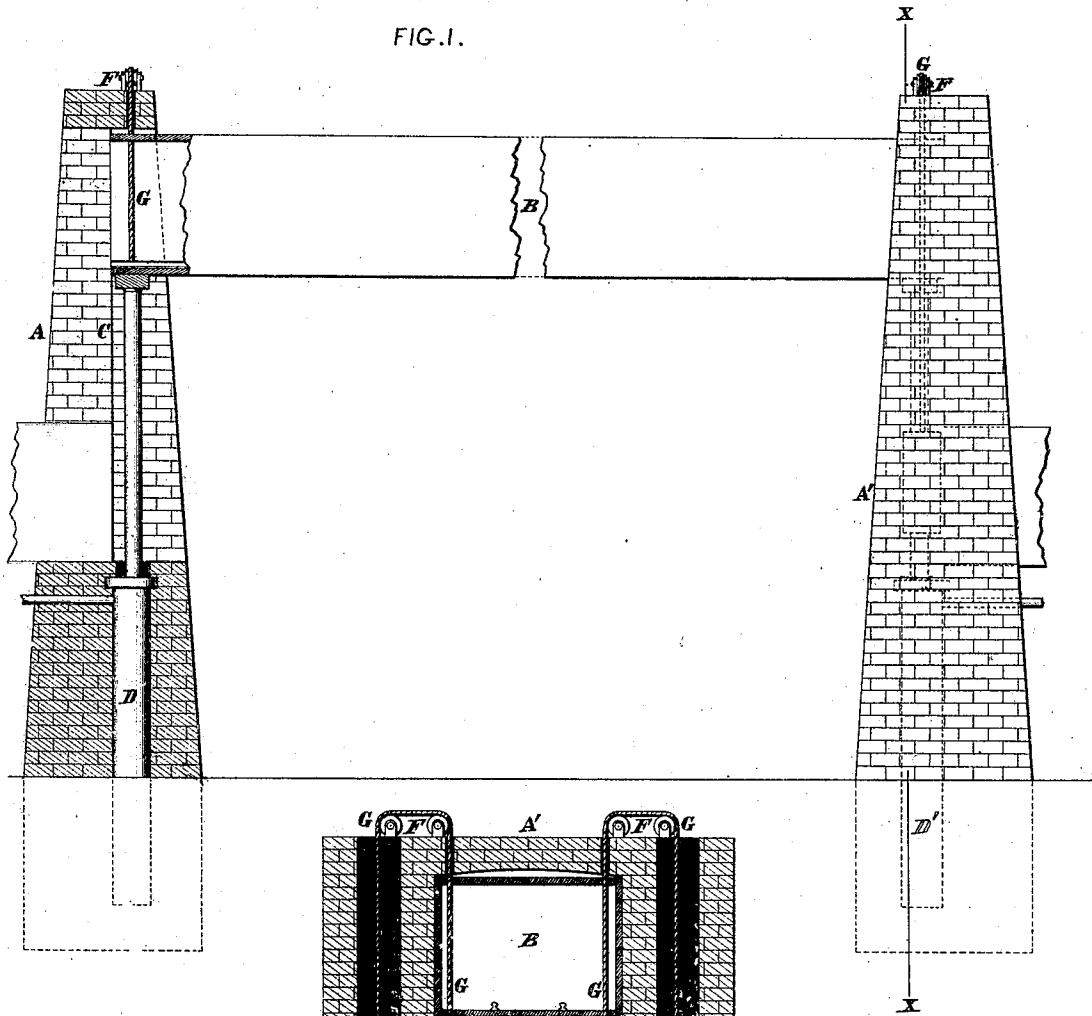
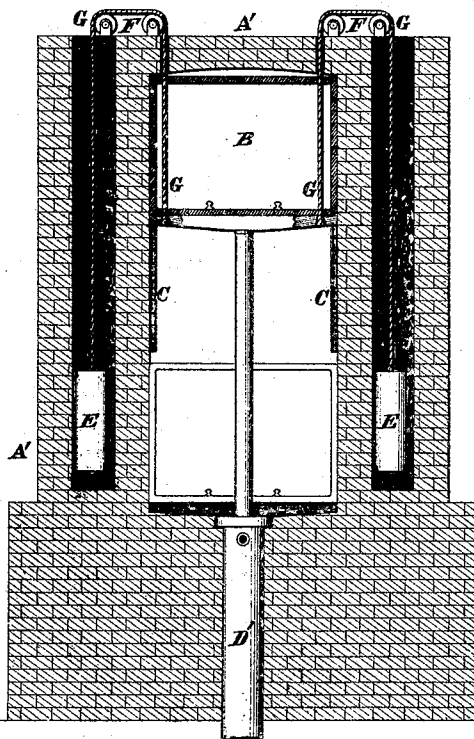


FIG. 2.



ATTEST.

Jas. H. Layman,
 Clerk

Knight Bros
 Atty for
 N. Macneale

United States Patent Office.

NEIL MACNEALE, OF CINCINNATI, OHIO.

Letters Patent No. 100,910, dated March 15, 1870.

IMPROVED DRAW-BRIDGE.

The Schedule referred to in these Letters Patent and making part of the same.

To whom it may concern :

Be it known that I, NEIL MACNEALE, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Improvement in Draw-Bridges; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings making part of this specification.

My improvement consists essentially of a tubular or other bridge section or sections, which, when greater headway is desired, is capable of being elevated bodily by hydraulic cylinders, or other mechanical devices.

Figure 1 is a partly sectionized longitudinal elevation of a bridge-span with my supporting and elevating devices.

Figure 2 is a vertical section at the line $x-x$.

A A' represent two piers.

B is a bridge-span or section, and may be a metallic or wooden truss-trunk or tube of any one of the rigid forms now customarily employed.

The section B, when in its normal or lowest position, rests on suitable shoulders, a , in the piers, and when elevated from said shoulders is confined in vertical guides C, in said piers.

D D' are hydraulic cylinders or jacks, of which there is one or more under each end of the span.

These jacks, being operated by a steam-engine or other suitable power, are employed to elevate the section bodily whenever a greater headway is desired below the bridge.

Counterbalances E, attached to the movable span

B by chains or wire cables G, passing over pulleys F, may be employed to relieve the elevating mechanism of unnecessary labor.

While preferring the hydraulic jack for the elevating instrumentality, it is proper to state that the object may be accomplished by means of screws, or the direct action of steam itself.

Two or more elevatable sections may be used in one bridge.

My drawer has, over the customary form of swinging draw-bridge, several advantages, among the most prominent of which is the avoidance of a pivot-pier, which, in the common form, diminishes the available passage more than one-half, and is costly of construction.

Another advantage of my form exists in the fact of its greater security against winds, &c., because of its ends being always securely held by the piers when elevated, as much as in its resting position.

I claim herein as new and of my invention—

1. A draw-bridge, consisting of a rigid and elevatable section, guided and operated substantially as set forth.

2. A bridge, having one or more sections capable of temporary elevation, as and for the purpose set forth. In testimony of which invention I have hereunto set my hand.

NEIL MACNEALE.

Witnesses :

GEO. H. KNIGHT,
JAMES H. LAYMAN.