R. English.

Canal Lock Gate.

No. 2,164. Patented Jul. 1, 1841.

Fig 1.

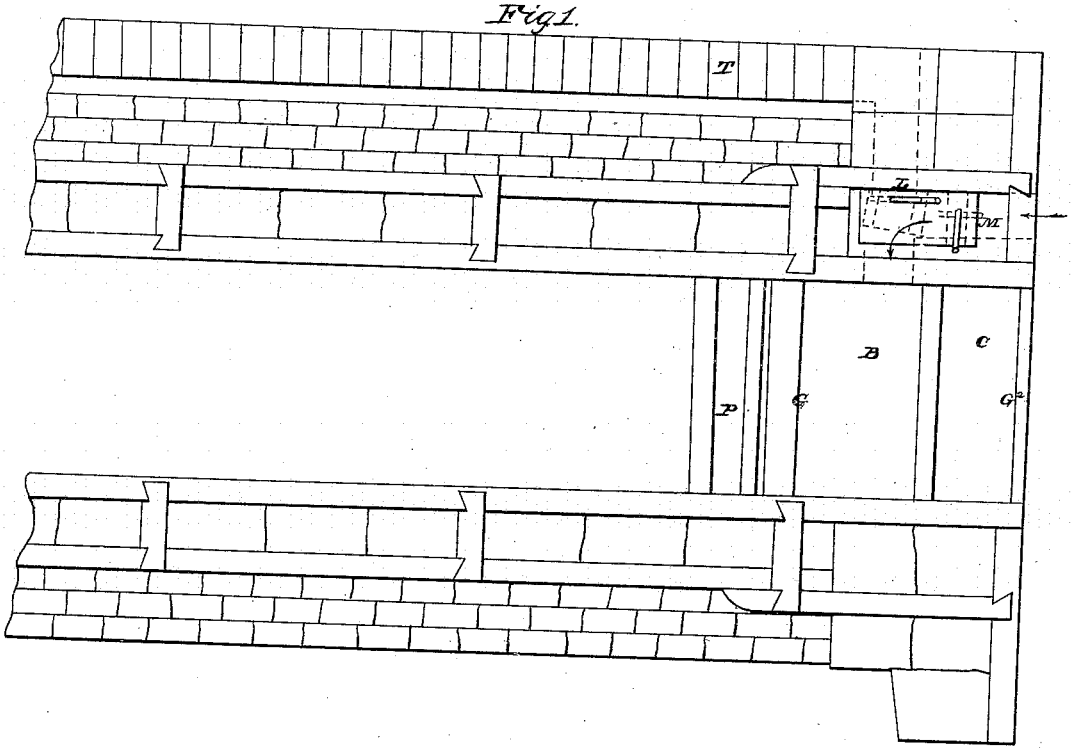
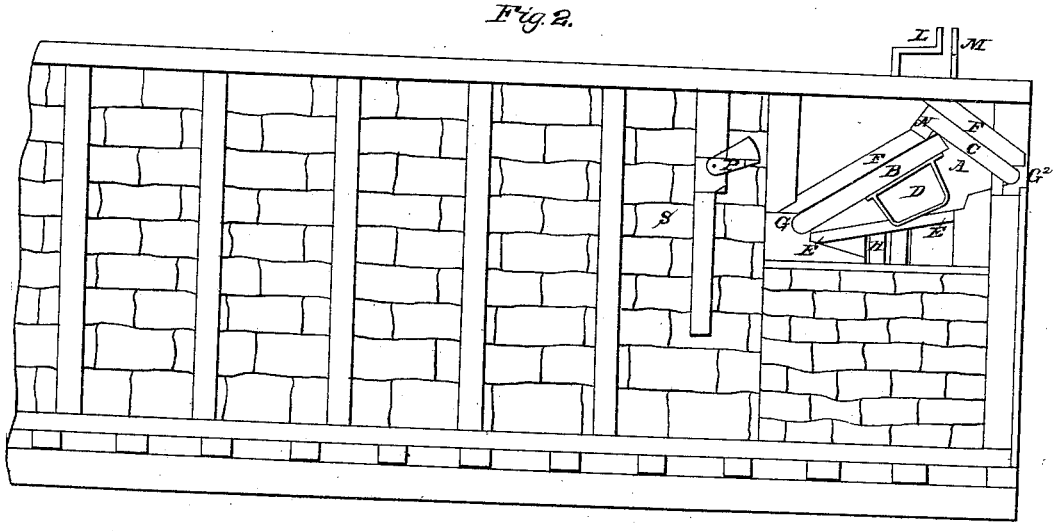


Fig 2.



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UNITED STATES PATENT OFFICE.

ROBERT ENGLISH, OF LAGRO, INDIANA.

CANAL-LOCK GATE.

Specification of Letters Patent No. 2,154, dated July 1, 1841.

To all whom it may concern:

Be it known that I, ROBERT ENGLISH, of Lagro, in the county of Wabash and State of Indiana, have invented a new and useful improvement in canal locks, particularly in the construction of the upper gate, called the "air and water acting sympathetic canal-lock gate," which is described as follows, reference being had to the annexed drawings, making part of this specification.

Figure 1 is a plan or top view of the lock. Fig. 2 is a vertical section through the center of the lock.

Similar letters refer to corresponding parts.

The nature of this invention and improvement consists in opening the gates vertically by a power produced by a combination of the two elements, air and water, instead of opening the gates horizontally by manual power as in the common mode, an air-tight float being used in combination with the gates in order to effect the object aimed at. For this purpose I construct a tight chamber A at the up stream end of the lock S for the sympathetic gates B, C, and air float D to work in, about fourteen feet deep (for a lock of 20 feet lift) from the top of the lock and in width a little over the width of the lock and about 12 feet long, around which, near the bottom, are formed ledges or offsets E for the gates to rest on when down, and other projecting courses or ledges F above the gates, placed in an inclining position, for the gates to press against, when up, by the rise of the water in the chamber to keep them tight and prevent them from rising too high. The lower gate under and to which the air float D is fixed is first fitted to its place by causing its round or quoin post to lie in a horizontal position in the hollow quoin G. The air tight float D should be made of sheet iron, or other suitable material, and be fitted to the under side of the lower gate in a permanent manner. The upper gate C is next fitted to its proper place in such manner as to rest upon the lower gate by fitting its quoin post to the hollow quoin G^2 at the upper end of the lock. A ledge or strip N is nailed to the under side of the upper gate C to prevent the lower gate B rising too far.

A communication is effected from the canal to the chamber by means of trunks or culverts through which the water is conducted to the chamber A, governed by horizontally moving valves H turned by vertical rods and cranks L, M. The bottom of these trunks should be about 6 inches below the bottom of the canal at the head of the lock.

In order to raise and lower or close and open these sympathetic gates the lower valve H must be closed by turning the crank L which prevents the escape of the water at the side culverts or escape trunk T. The upper valve is then opened by the crank M which lets the water into the chamber and causes the gates to rise by the action of the water on the air float D which lifts the under gate B and this lifts the upper gate C in which position it is held while the lock S is discharging its water, resting against the upper edge of the lower gate, which, in its raised position forms the abutment.

In order to let the gates down the lower valve H is opened by turning the handle L which allows the water to escape from the chamber through the side culverts T, the upper valve being at the same time shut to prevent the entrance of water from the canal, a partial vacuum is thus formed under the gates into which they descend, letting the water flow over them into the lock. Should the upper gate not be sufficiently heavy to cause it to descend it must be weighted for that purpose.

A vertically moving hinged guard or breakwater P is arranged in the rear of the gates to prevent the water from breaking or dashing over into the boats or doing any injury by a too sudden flow of the water—said breakwater being self adjustable by the action of the water.

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

1. The arrangement of the vertically moving gates B, C and air float D in combination with the chamber A, trunks T, and valves, H, as a substitute for the common horizontally moving gates—said gates B, C being opened and closed by the combined action of air and water, in the manner herein set forth, or any other substantially the same.

2. I also claim in combination with the foregoing the self acting breakwater P as described.

ROBERT ENGLISH.

Witnesses:

B. K. MORSELL,

H. B. ROBERTSON.