C. E. GILLETTE.

CANAL LOCK.

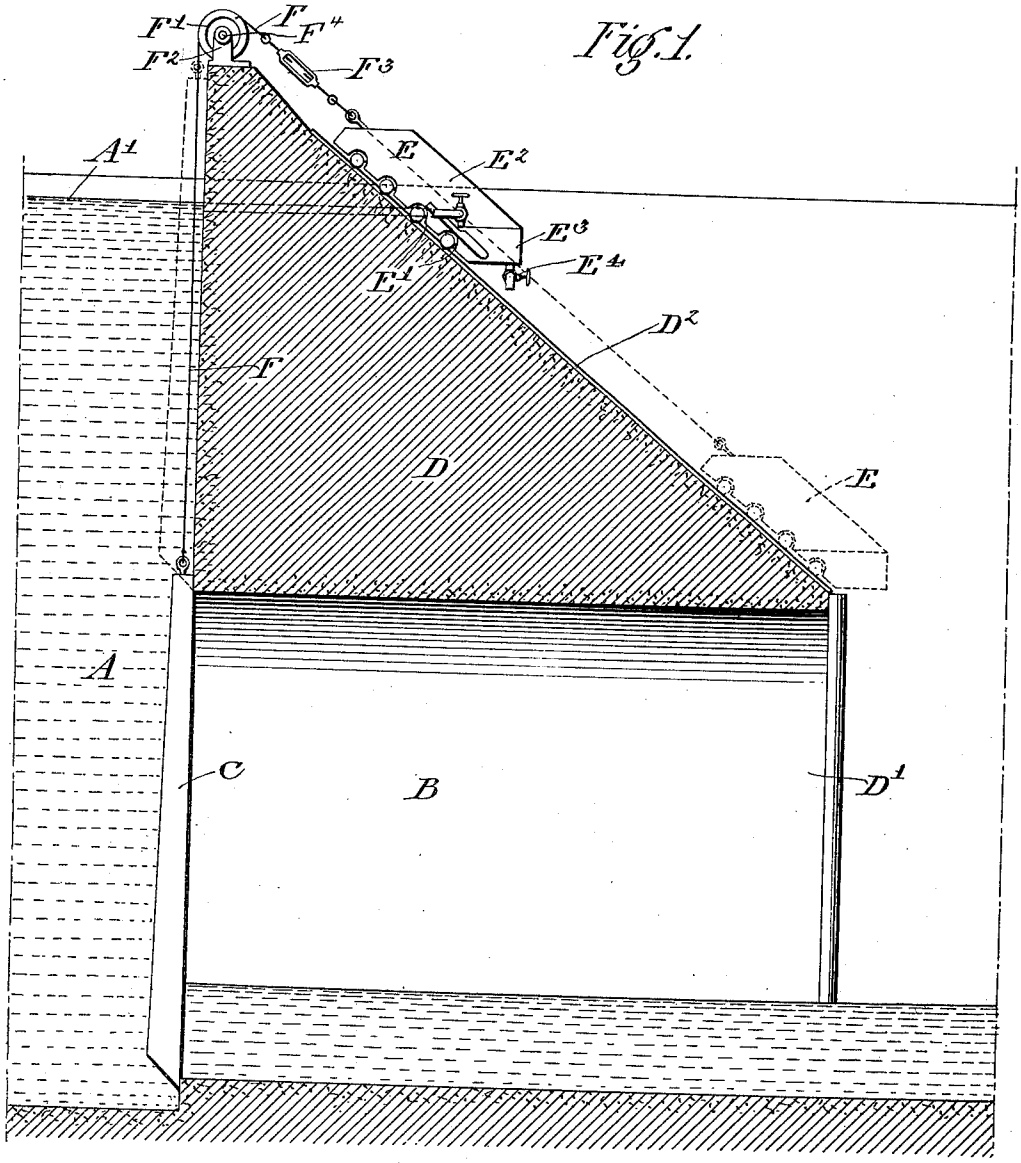
APPLICATION FILED JUNE 16, 1908. RENEWED JULY 13, 1911.

1,067,242.

Patented July 15, 1913.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

Stewart

D. W. Williams

INVENTOR

Carmi E. Gillette

BY

Francis D. Chamberlin

his ATTORNEY.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

C. E. GILLETTE.

CANAL LOCK.

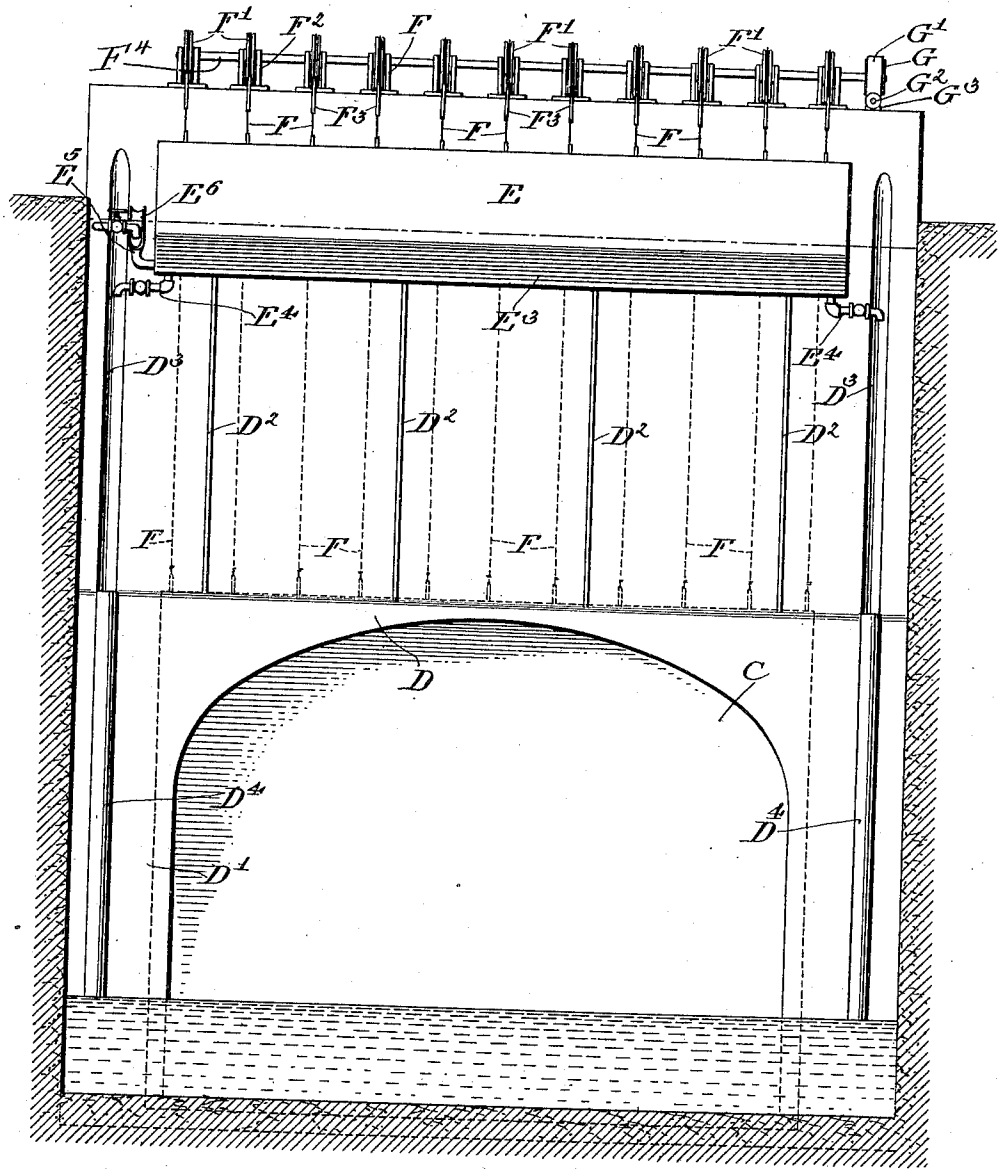
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2 SHEETS—SHEET 2.

Fig. 2.

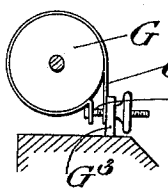


WITNESSES:

Stewart

L. L. Williams

Fig. 3.



INVENTOR

Carrie E. Gillette

BY

Francis D. Chambers,

Li ATTORNEY.

UNITED STATES PATENT OFFICE.

CASSIUS E. GILLETTE, OF PHILADELPHIA, PENNSYLVANIA.

CANAL-LOCK.

1,067,242. Specification of Letters Patent. Patented July 15, 1913.

Application filed June 16, 1908, Serial No. 438,697. Renewed July 13, 1911. Serial No. 638,395.

To all whom it may concern:

Be it known that I, CASSIUS E. GILLETTE, a citizen of the United States, residing in the city and county of Philadelphia, in the State of Pennsylvania, have invented a certain new and useful Improvement in Canal-Locks, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

My present invention relates to canal locks and has for its objects the provision of a canal lock structure in which the gate at the lock entrance and the operating mechanism for the gate are so constructed and arranged that the gate may be readily moved into and out of the position in which it closes the canal lock entrance, regardless of the weight of the gate; and in which the gate and its operating mechanism require a minimum of skill on the part of the operator, and in which the operating parts are comparatively few, simple and durable and require little adjustment or repair.

One important feature of the invention consists in the arrangements made whereby I am enabled to use a vertically movable lock gate.

Another important feature of the invention consists in the arrangement which I have devised of a bridge over the lower entrance of the canal, which bridge forms a part of the end wall of the lock and permits a simplification of the corresponding gate and operating connection.

Other important features of the invention consist in the arrangements which I have provided for counterbalancing and operating the gate.

The various features of novelty which characterize the invention are pointed out with particularity in the claims annexed to and forming a part of this specification. For a better understanding of the invention, however, and the advantages possessed by it, reference may be had to the accompanying drawing and descriptive matter in which I have illustrated and described one of the forms in which the invention may be embodied.

Of the drawings: Figure 1 is a sectional elevation of the lower end of a canal lock equipped with my invention, the section being taken parallel to the length of the lock. Fig. 2 is an elevation taken at right angles to Fig. 1. Fig. 3 is an elevation of the locking device for the gate.

In the drawings: A represents the canal lock proper, B the lower entrance to the lock, and C the vertically sliding gate at the lower end of the lock. This gate may be made of any suitable construction. A bridge D extends over the gateway and in the construction shown this bridge is in the form of a masonry arch which is carried by the masonry walls D^1, which form the side walls of the lock entrance. This bridge forms a portion of the end wall of the lock proper. The upper surface of the bridge D is inclined downward from the lock edge of the bridge and is provided with track rails D^2 to form a trackway for a counterweight E for the gate. The counterweight E is in the form of a carriage provided with wheels E^1 running on the track rails D^2. The counterweight E comprises a body portion E^2 of heavy material, as iron, and a water tank E^3. The gate is connected to the counterweight by flexible members F which may be either ropes or chains and which run over suitable guides supported by the bridge D at its lock edge. As shown these guides are formed by pulleys F^1 secured to a shaft F^4, journaled in brackets F^2 suitably anchored in place on the bridge. It will be observed that the upper edge of the counterweight is parallel to the upper edge of the gate and that the pulleys are all alike and are coaxial. In consequence the flexible members may all be similar to each other and of equal length so that the load carried by them is equally divided between the various members. To adjust the lengths each flexible member includes a turnbuckle F^3 by which the desired uniformity of length may be obtained.

By preference the parts are so arranged that when the counterweight is at its upper position with the gate in place to close the gateway the tank is below the upper water level A^1 of the canal at the lock so that water may run into the tank by gravity from the lock. By preference also the counterweight when the tank is empty is insufficient to counterbalance the gate, while when the tank is full it is sufficient to counterbalance and move the gate. In consequence, by running water into or out of the tank the gate may be moved and, preferably, the tank is of such capacity that a certain regu-

lation of the rate of movement of the gate can be had by regulating the amount of water in the tank. Any suitable means may be provided for running water into and out of the tank. In the particular form disclosed gutters D^3 are formed in the inclined upper surface of the bridge which lead at the lower end of this surface into pipes D^4 which discharge into the lower level of the canal. Valve controlled pipe connections E^4 extend from the tank into position to discharge into these gutters. To one end of the tank is secured a trough E^5. A valved pipe connection E^6 having its lower end arranged to discharge into the trough E^5, serves to convey water by gravity from the upper level of the canal into the tank E to increase the weight of the counterweight when the canal gate is to be lifted.

To lock the gate in any position desired a drum G is secured to the shaft F^4 and about this shaft is secured a friction band G^1 the ends of which may be drawn together with a varying force by the bolt G^2 passing through the bridge abutment or bracket G^3.

It will be observed that the invention described is characterized by its extreme simplicity and reliability in construction and operation and by the ease with which the gate may be operated and by the small likelihood of parts getting out of order.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a canal lock, in combination a bridge extending over the lower entrance to the lock and forming a portion of the end wall thereof, a gate and means for moving said gate vertically to open and close said lock entrance.

2. In a canal, the combination with the walls forming the lower entrance to the lock of a bridge extending over said lower entrance and forming a part of the end wall of the lock.

3. In a canal lock, the combination with the walls forming the lower entrance to the lock, of a bridge extending over said lower entrance, a vertically movable gate for opening and closing said entrance, a counterweight for said gate, flexible connections between said gate and counterweight, and guides provided on said bridge for said counterweight.

4. In a canal lock, the combination of a vertically movable gate, an inclined track way, a counterweight including a water tank running on said track way, flexible members connecting said gate and counterweight, said members and said track way being so arranged and said members being of such length that when the counterweight is in its upper position the tank is below the upper water level of the canal at the lock.

5. In a canal lock, the combination of a bridge extending over the lower entrance to the lock and formed with an inclined trackway, guides mounted on said bridge above the trackway, a vertically movable gate, an elongated counterweight running on said trackway, flexible members running over said guides and connecting said gate and counterweight.

6. In a canal lock, the combination of a bridge extending over the lower entrance to the lock and formed with an inclined trackway, guides mounted on said bridge above said trackway, a vertically movable gate, an elongated counterweight running on said trackway, flexible members running over said guides and connecting said gate and counterweight, said members being of substantially equal lengths, and means for adjusting the lengths of said members.

CASSIUS E. GILLETTE.

Witnesses:
KATHERINE M. COLLINS,
ELIZABETH LIGGETT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."