No. 882,501. PATENTED MAR. 17, 1908.

S. S. JAMISON.

CANAL LOCK.

APPLICATION FILED MAY 28, 1907.

Fig. 1.

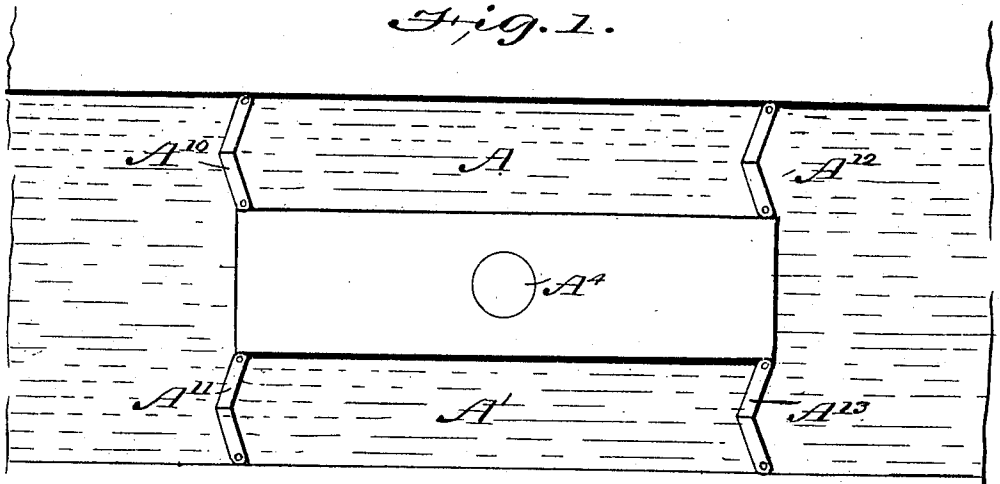
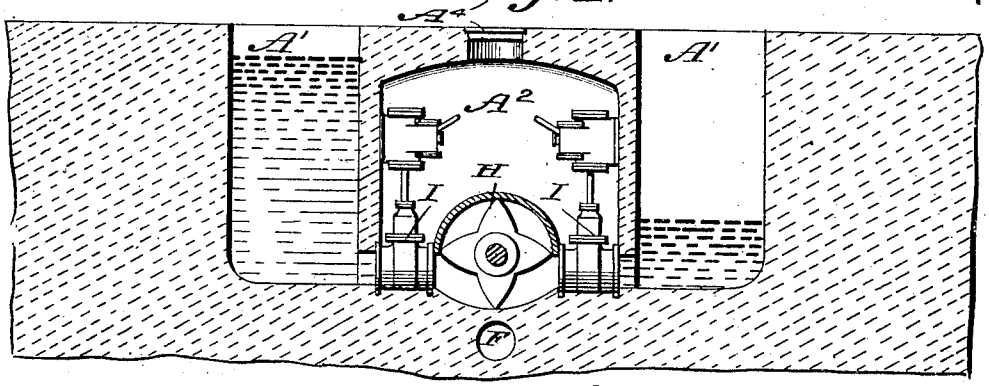


Fig. 2.



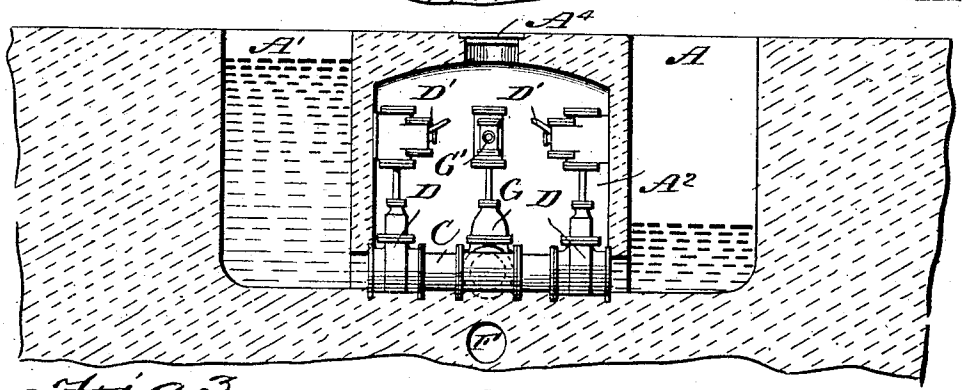


Fig. 3.

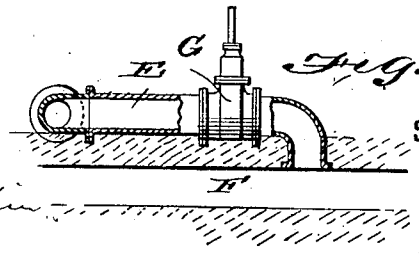


Fig. 4.

WITNESSES

T. C. Barry

Perry B. Durfee

INVENTOR

SAMUEL S. JAMISON

BY Munn & Co.

ATTORNEYS.

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

SAMUEL STEWART JAMISON, OF SALTSBURG, PENNSYLVANIA.

CANAL-LOCK.

No. 882,501. Specification of Letters Patent. Patented March 17, 1908.

Application filed May 28, 1907. Serial No. 376,052.

To all whom it may concern:

Be it known that I, SAMUEL STEWART JAMISON, a citizen of the United States, and a resident of Saltsburg, in the county of Indiana and State of Pennsylvania, have made certain new and useful Improvements in Canal-Locks, of which the following is a specification.

My invention is an improvement in canal locks and consists in certain novel constructions and combinations of parts as will be hereinafter described and claimed.

In the drawing—Figure 1 is a top plan view of a lock embodying my invention. Fig. 2 is a cross section thereof illustrating a pump construction whereby the water usually lost in the lock will be saved. Fig. 3 is a cross section illustrating a somewhat different construction from that shown in Fig. 2, and Fig. 4 is a detail section illustrating the outlet to the sewer.

By my invention I seek to avoid the loss of water resulting from the emptying of the lock chamber to a lower level at each locking operation. In carrying out this feature of my invention I provide the lock with two lock chambers A and A′, which may be alike, and be provided at their upper ends with suitable gates A^{10} and A^{11} communicating with the upper level and at their lower ends with suitable gates A^{12} and A^{13} communicating with the lower levels, so that a boat may be admitted to the proper lock chamber A or A′ from either the upper or lower level and discharged to the other level in the usual manner, either by raising the water in such lock chamber or by lowering the water therein as the case may be.

In saving the water I provide for the passage of the water in one chamber to the other chamber so that if one chamber is full and the other empty and it is desired to raise a boat from the lower level and to lower a boat from the upper level, the boat may be passed from the upper level to the full chamber and from the lower level to the empty chamber, the gates closed and the water permitted to pass from the full chamber to the empty chamber, thus lowering the boat in the full chamber and raising the boat in the previously empty chamber. This may be effected in a measure by simply providing a communication between the lower portions of the chambers A and A′, in which event the water will level in the two chambers and one half of the water be saved. This will be understood from Fig. 3, in which a connection C extends between the lower levels of the lock chambers and may be controlled by valves as shown at D, which valves may be ordinary gate valves and be operated pneumatically through pneumatic power applied at D′ to suitable chests and cylinders and this construction also includes a connection E with the sewer F controlled by a valve G, which may be operated pneumatically at G′ as will be understood from Fig. 3 of the drawing. It is preferred, however, to save practically all of the water and in doing this I provide a pump intermediate the lock chambers A and A′, which pump is illustrated at H in Fig. 2, intermediate the valves I and in the connection between the opposite lock chambers. This pump may be operated by any suitable power and is preferably constructed so it will pump from the suction pipe as well as the discharge pipe, so that by reversing the direction of the pump it may be operated to force the water from one lock chamber to the other as occasion may require. By this means if the water in the chamber A is at a low level and that in the chamber A′ is at a high level and it is desired to raise a boat from the low level to the high level, the boat may be locked into the chamber A from the low level and the pump H be set in operation to force the water from the chamber A′ to the chamber A to raise the boat from the low to the high level with the water within the lock. On the other hand, if the levels are as shown in Fig. 2, and it is desired to pass a boat from a high level to a low level, the boat may be locked from the high level into the chamber A′ and the water in said chamber A′ be pumped into the chamber A, thus lowering the boat from the high to the low level without discharging the water from the lock to the low level. If at the same time it is desired to lower a boat from the high level and raise a boat from the low level, the boats from the respective levels may be locked into the chambers A′ and A, the water being as shown in Fig. 2, and the water be pumped from the chamber A′ into the chamber A, thus raising the boat in the chamber A and lowering the boat in the chamber A′ to their respective levels without any loss of water.

It will be noticed that I provide between the lock chambers a room or chamber A^2 for

the valves and pumps and this chamber may be constructed of concrete and access may be had thereto through a suitable man-hole A^4, as shown in Fig. 1.

It will be understood that my invention will be found especially useful where the water supply is limited, as for instance in some parts of the territory to be traversed by the Panama canal, as the boats may be locked from level to level without any loss of water, except such as would result from leakage consequent on the construction of the apparatus.

Manifestly I may, if desired or necessary, employ several connections between the lock chambers, and pumps in the several connections.

It will also be understood that either of the lock chambers could be used as a dry dock without closing the operation of the canal.

I claim—

1. A lock substantially as herein described, comprising a pair of lock chambers side by side and having gates at their opposite ends and a connection between the bottoms of said chambers, valves controlling said connection with the respective chambers and a pump in the connection between the valves and adapted to pump the water from either chamber into the other substantially as and for the purpose set forth.

2. A lock comprising a pair of chambers connected together whereby water may be circulated from one to the other together with a pump whereby water may be forced from one chamber to the other.

3. A lock comprising a pair of lock chambers having gates at their opposite ends, means connecting said chambers whereby water may be circulated from one to the other and provided with valves corresponding to their respective chambers and a pump between the valves and adapted to be reversed for operation to pump the water from either chamber to the other.

4. The improvement in locks herein described, comprising a pair of lock chambers side by side, a valve chamber between the lock chambers, a connection extending within said valve chamber and between the opposite lock chambers, valves in said connection corresponding to their respective lock chambers and a pump in said connection between the said valves and arranged for operation, substantially as described.

SAMUEL STEWART JAMISON.

Witnesses:

R. G. MANGOLD,

SAMUEL B. FOIGHT.