The specification on this patent is not in print.

C. W. Williams.

Canal Lock.

No. 26,314. Patented Nov. 29, 1859.

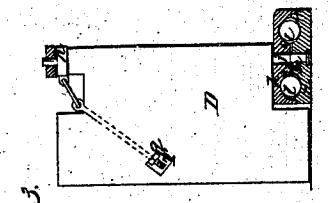


Fig. 3.

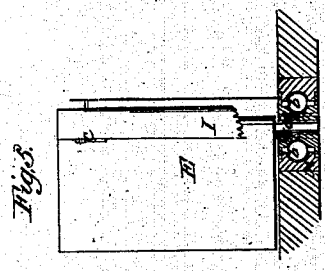


Fig. 5.

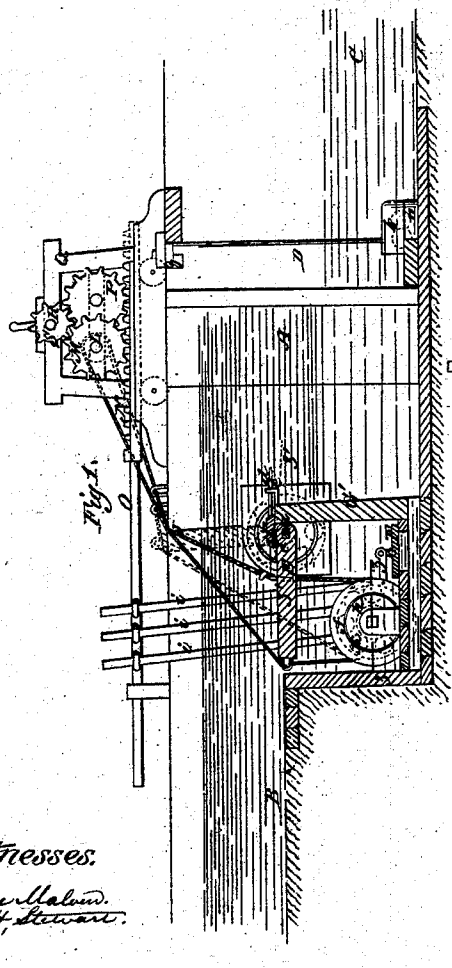


Fig. 1.



Fig. 4.

Fig. 2.

Witnesses.

George Mahon.

A. H. Stewart.

Inventor.

C. W. Williams.

UNITED STATES PATENT OFFICE.

C. W. WILLIAMS, OF PORT JERVIS, NEW YORK.

CANAL-LOCK.

Specification of Letters Patent No. 26,314, dated November 29, 1859.

To all whom it may concern:

Be it known that I, C. W. WILLIAMS, of Port Jervis, in the county of Orange and State of New York, have invented certain new and useful Improvements Pertaining to Canal-Locks; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a side sectional view of a canal lock of my invention taken in the line *x*, *x*, Fig. 2. Fig. 2, is a plan or top view of ditto. Fig. 3, is a detached view of one of the gates of ditto, the lower step of which is in section, *y*, *y*, Fig. 2, indicating the line of section. Fig. 4, is a section of a friction pulley of ditto, taken in the line *z*, *z*, Fig. 1. Fig. 5, is a plan or top view of a gate of ditto, partially bisected and having one of its bearings bisected as indicated by the line *z'*, *z'*, Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to facilitate the manipulation of the gates and wickets of the lock so that an attendant can, from a single spot, operate the whole of them in passing about up or down.

The invention consists in a peculiar mechanism employed for operating the upper wickets and gate and also in a guard attachment applied to the upper gate, substantially as hereinafter described, whereby the desired end is attained.

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

A, represents a canal lock.

B, is the upper and C, the lower level of the canal.

D, D, represent the lower gate of the lock which gate is formed of two parts as usual.

E, is the upper gate of the lock. This gate is a rising and falling one, and moves in the arc of a circle.

F, are wickets by which the water is let into the lower level from the upper level when the gate E, is closed.

The gate E, has a journal *a*, at each side at its lower part. These journals are of rectangular form and are fitted in rollers G. Each roller being inserted in a box H, and encompassed by balls or spheres *b*, which are fitted in a groove in the periphery of each roller and in a corresponding groove in each box, as will be clearly understood by referring to Fig. 5. The rollers G, may be formed of two parts and connected by screws. To the lower part of the gate E, a longitudinal strip I, is attached by hinges *c*. The strip I, extends the whole length of the gate E, and it has a guide pin *d*, near each end, said pins passing through eyes *e*, *e*, attached to an upright partition G', in the lock. The strip I, covers the joint between the lower end of the gate E, and the upper end of the partition G, when said gate is down or open and effectually prevents the passing down of gravel and other obstructions into the joint whereby the free working of the gate is prevented the strip passing over on the top of partition G', when the gate is raised and closed. The arrangement of the journals *a*, of said gate within the rollers G, and the encompassing of the same with the balls *b*, in the boxes H, permit the gate to rise and fall freely, but little friction being created by its operation.

To the upper part of the gate E, a chain or rope J, is attached. This rope or chain passes around a pulley K, below the gate E, and its ends are attached to a shaft L, near the lower gate D, D, of the lock, said ends of the rope or chain being so attached to the shaft that one will be wound on it as the other is unwound as shown clearly in Fig. 2. The pulley K, like the journals of the gate E, has an antifriction arrangement, as shown in Fig. 4, said pulley being formed of a rim *f*, which encompasses a series of spheres *g*, that are fitted within a stationary box *h*.

To the inner end of the shaft L, a toothed wheel M, is attached and just below the wheel M, at one side of it there is a sliding rack N, to which a rod O, is attached, said rod being connected to the upper ends of rods *i*, which are connected to the wickets F. Into the rack N, a toothed wheel P, gears, and on the upper part of the framing Q, which supports the gearing M, a shaft R, is placed, said shaft having a pinion S, on its inner end and allowed a longitudinal play in its bearings so that the pinion S, may be made to gear either into the wheel M, or P, as may be desired.

The lower gate D, D, of the lock have their lower journals *j*, of rectangular form and fitted each in circular disks *k*, which rest on balls or spheres *b*, said balls or spheres being placed in an annular groove *m*, in a block *n*, and fitting in an annular groove *o*,

in the disk *k*, as shown clearly in Fig. 3. Each part or half D, of the gate is prevented from sagging by means of a straining rod T. These straining rods extend from the upper journal *p*, of each part D, diagonally down into the parts and have nuts *q*, on their lower ends, by adjusting which, the tension of rods T, may be regulated as occasion may require. The upper journals *p*, of the gate D, D, may be arranged precisely the same as shown in the patent granted to me April 12th 1859.

From the above description it will be seen that both gates may be operated by the attendant near the framing Q. In locking down a boat, the wickets F, are opened by sliding the shaft R, so that its pinion S, will gear into the wheel P, and then turning said shaft so as to actuate the rods O, *i*, *i*, *i*, and open the wickets F, the water in consequence passing down into the lock till it reaches a level with that in the upper level B, of the canal, it being understood that the gate D, D, is closed. The operator then shifts the pinion S, so that it will gear into the wheel M, and thereby rotate the shaft L, so that the chain or rope J, will lower the gate E, and allow the boat to pass into the lock. The gate E, is then raised by turning the shaft L, in a reverse direction, the pinion S, shifted into gear with the wheel P, and the wickets F, closed. The wickets of the gate D, D, which wickets are arranged and operated as usual or as shown in my former patent of April 12, 1859, are then opened and finally the gate D, D. In locking a boat up the manipulation is of course reversed.

In order to carry out this invention it is necessary that the gates work freely, hence the employment of the anti-friction devices and the means to prevent the passing of foreign substances into the joint of gate E.

I claim as new and desire to secure by Letters Patent,

1. The arrangement of the sliding shaft R, gearing S, M, P, sliding rack N, rods O, *i*, *i*, *i*, wickets F, and gate E, applied to a canal lock, substantially as and for the purpose set forth.

2. The employment or use of the guard strip I, applied to the gate E, and arranged substantially as and for the purpose set forth.

C. W. WILLIAMS.

Witnesses:
GEORGE MALVEN,
H. H. STEWART.