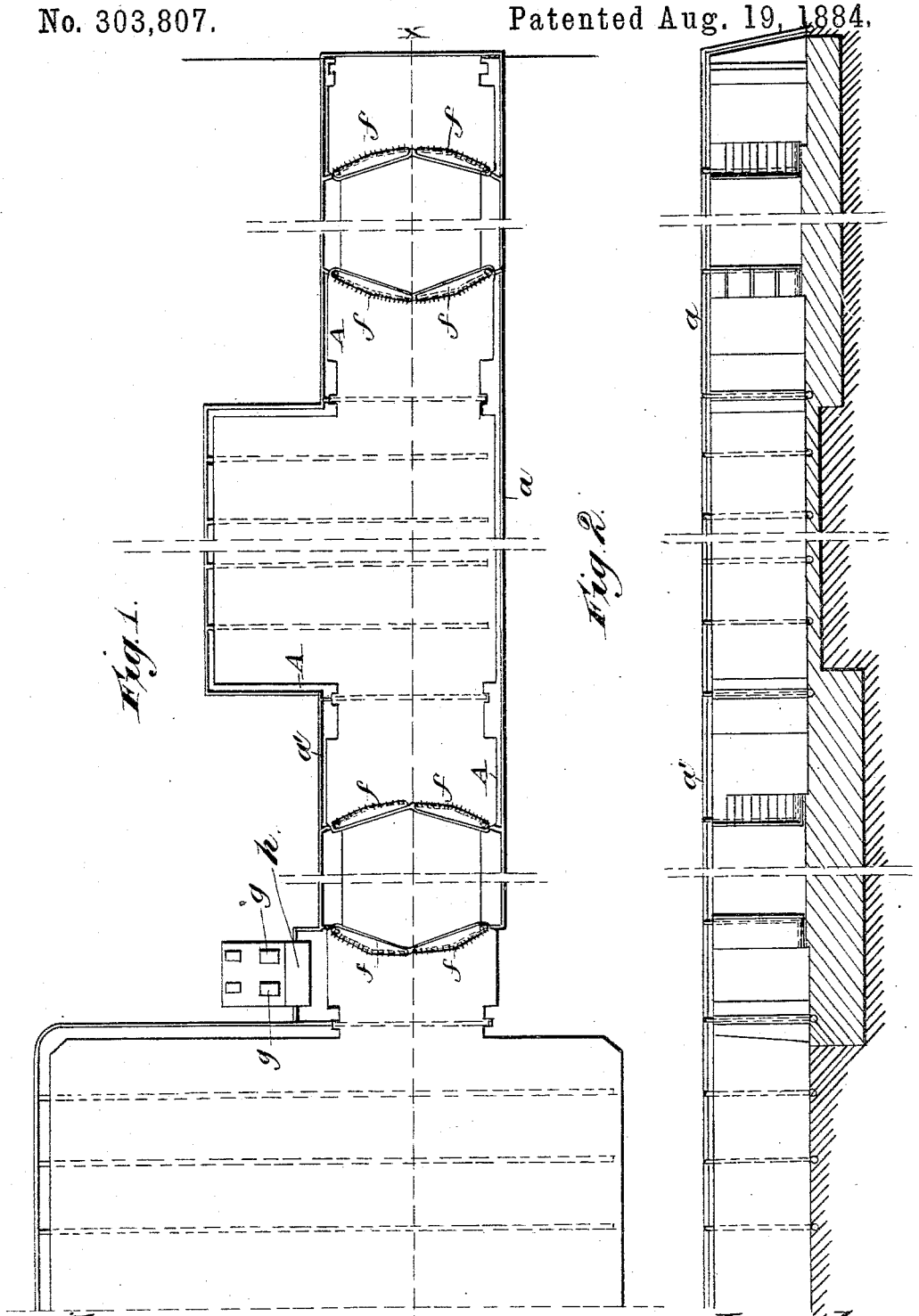
(No Model.) 2 Sheets—Sheet 1.

L. COISEAU.

LOCK AND LOCK GATE FOR CANALS, &c.

No. 303,807. Patented Aug. 19, 1884.



Witnesses:
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(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

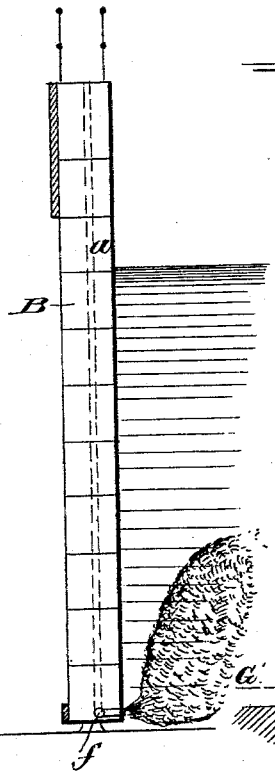


Fig. 3.

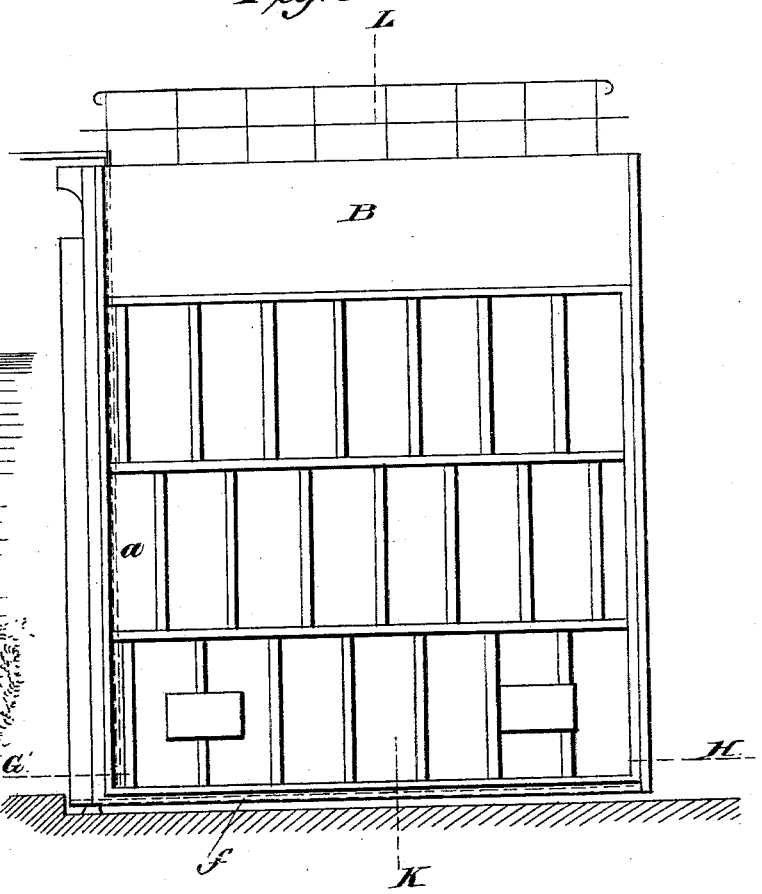
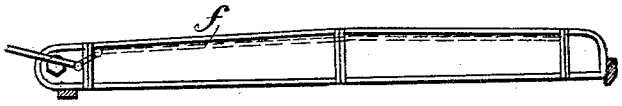


Fig. 5.



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UNITED STATES PATENT OFFICE.

LOUIS COISEAU, OF ANTWERP, BELGIUM.

LOCK AND LOCK-GATE FOR CANALS, &c.

SPECIFICATION forming part of Letters Patent No. 303,807, dated August 19, 1884.

Application filed March 13, 1884. (No model.) Patented in England April 5, 1883, No. 1,724.

To all whom it may concern:

Be it known that I, LOUIS COISEAU, of Antwerp, in the Kingdom of Belgium, (civil engineer,) have invented new and useful Improvements in and Relating to Locks and Lock-Gates for Canals or other Water-Channels, (for which I have obtained Letters Patent in Great Britain dated the 5th day of April, 1883, No. 1,724,) of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to improvements in that class of locks and lock-gates in which hollow gates are employed, which are rendered more or less buoyant by the admission or expulsion of water in operating them; and, as is well known to those skilled in the art, such gates often become inoperative by the accumulation of mud, sand, &c., on the floor and around the pintles or pivots upon which they move; and the object of my invention is to provide an efficient and reliable means by which such mud, sand, &c., can be readily cleared away, and the necessity of changing the height or level of the floor is obviated, and it can be lowered according to the requirements of navigation.

Heretofore various means have been adopted to remedy these defects, such as dredging by means of steam-dredges, and more frequently by hand, which was expensive and slow; also, by converting the sliding or frictional strains on the collars around the pivot into rolling strains by introducing into them friction-rollers, adding a bearing-roller in the miter-post; or by using scrapers, iron gates, or springs to keep the parts of the lock-gate water-tight.

The invention consists in introducing into the lock-gates a vertical pipe connected to an air-compressing apparatus, arranged either in or along the heel or quoin post of the gate, the said pipe communicating at its lower end with horizontal pipes provided with a large number of perforations or nipples directed toward the floors of the lock. The horizontal pipes may be arranged inside or outside of the lock-gates.

It also consists in the construction and arrangement of certain details, as will be more fully described hereinafter, and more specifically pointed out in the claims, reference being had to the accompanying drawings, and the letters of reference marked thereon.

In the accompanying drawings, Figure 1 represents a plan view of a canal-lock with my lock-gates in position. Fig. 2 is a longitudinal section of the same on line *x x*. Fig. 3 is an enlarged side elevation of one of the gates. Fig. 4 is a vertical section on line L K of Fig. 3; and Fig. 5 is a horizontal section on line G H of Fig. 3.

In the accompanying drawings, A A indicate the outer walls of the canal-lock, in which the gates B are arranged. In the gates are placed the vertical pipes *a a*, either in or along the heel or quoin post, and connected by suitable pipes *a' a'* to a compressing apparatus of any kind. The vertical pipes communicate with horizontal pipes *f*, arranged either inside or outside of the lock-gates, and are provided with numerous perforations or nipples. The joints of the vertical and horizontal pipes are preferably made of the swivel kind, so that the gates can freely turn on them, and said pipes *a* may be placed along the edges of the walls of the lock and connected to a common or separate compressing apparatus.

The gates may be made of wood or iron and of any of the ordinary constructions, placed either vertically or inclined, so that they can swing on pintles placed above and below in the walls, or horizontally in the sides of the bottom of the lock.

It will be readily seen that in case the floor of the lock has become covered with mud, sand, &c., which has accumulated there, as is often the case, and the gates are apt to bind or move hard, it is only necessary to start the compressing apparatus, when the compressed air, passing through the system of horizontal and vertical pipes and out through the perforations or nipples, will agitate and disintegrate the particles of mud, sand, &c., which causes them to be suspended in the water, and, as the gates are opened, to flow off with the water, thus perfectly cleaning the floor of all accumulated mud, sand, &c.

If desired, water or steam may be employed instead of compressed air.

I am aware that lock-gates have been made hollow, and that water has been admitted into them to render them buoyant, so as to operate

them more easily, and also that such gates have been connected to air-compressing apparatus by which, through the medium of the compressed air, the water contained in said gates has been forced out, as required, and also that various devices have been used to render the joints of the gates tight; also, that it has been proposed to remove mud from the maneuvering axle of a gate by means of water falling from a higher level through vertical pipes, and thence through horizontal pipes to the clogged parts, and by the same means to remove an accumulation of mud from the space below the gate occupied by the rods and operating-drums, and I disclaim all such; but,

Having thus described my invention, what I claim is—

1. In canal-locks, the lock-gates provided with horizontal pipes having numerous perforations, and arranged near the bottom of the gates, said pipes connected by suitable pipes with air-compressing apparatus, for ejecting compressed air against the mud, sand, &c., substantially as shown and described.

2. The combination, with a canal-lock, of the hollow gates provided with horizontal perforated pipes, connected to an air-compressing apparatus by suitable pipes, all arranged as shown, and for the purpose set forth.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

L. COISEAU.

Witnesses:
R. POTTIER,
W. WESTLAKE.