No. 611,458. Patented Sept. 27, 1898.

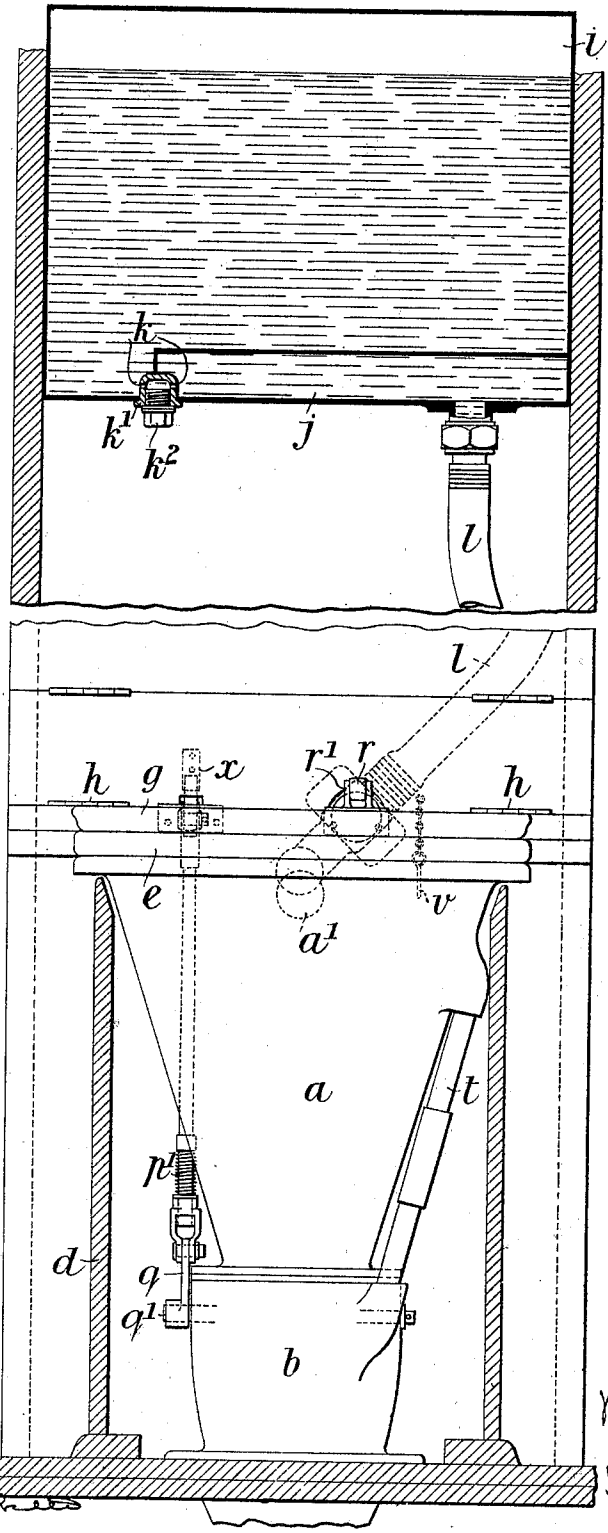
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AUTOMATIC WATER CLOSET FOR RAILWAY CARRIAGES, &c.

(Application filed Mar. 7, 1898.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.



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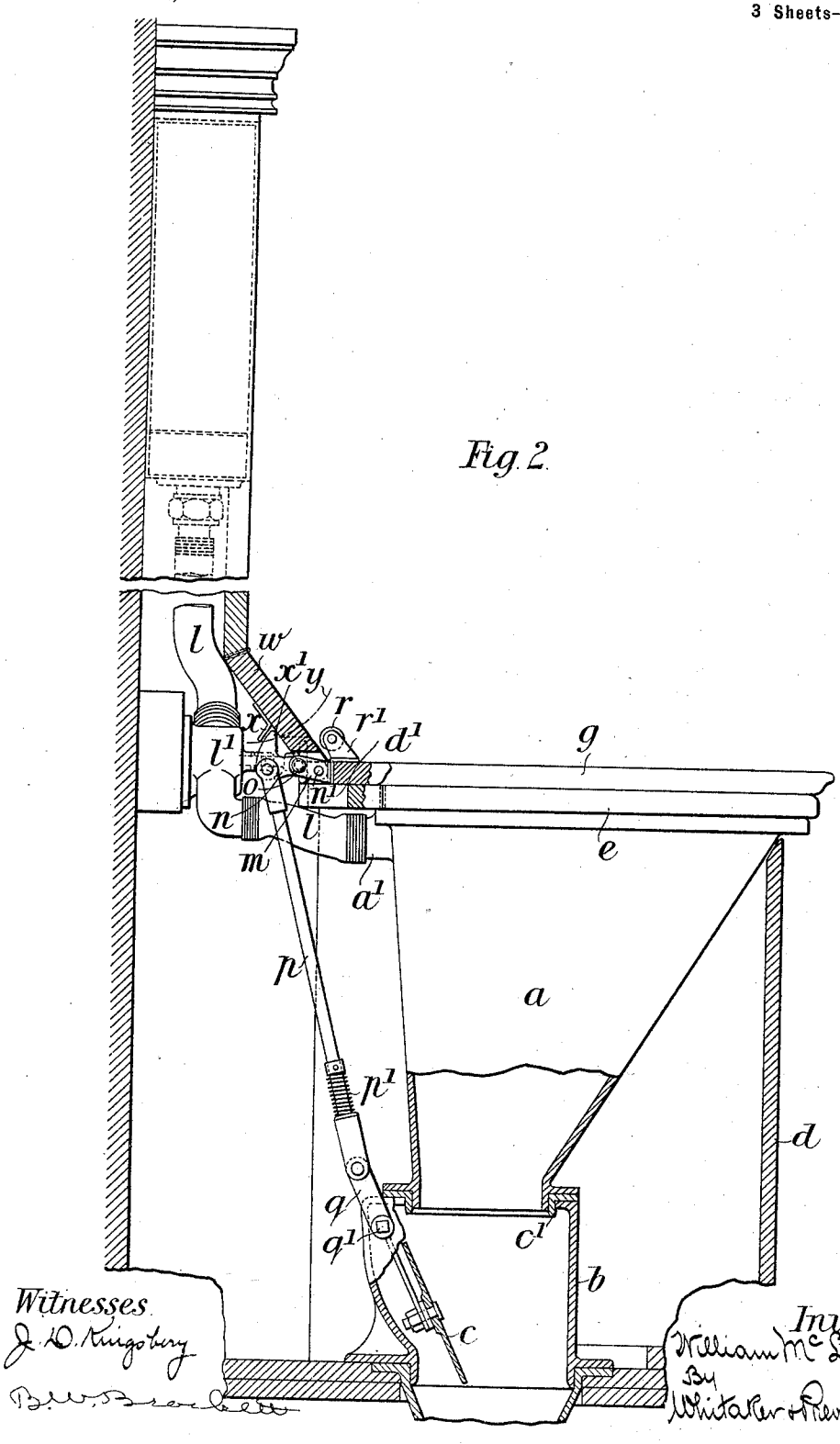
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Fig. 2.



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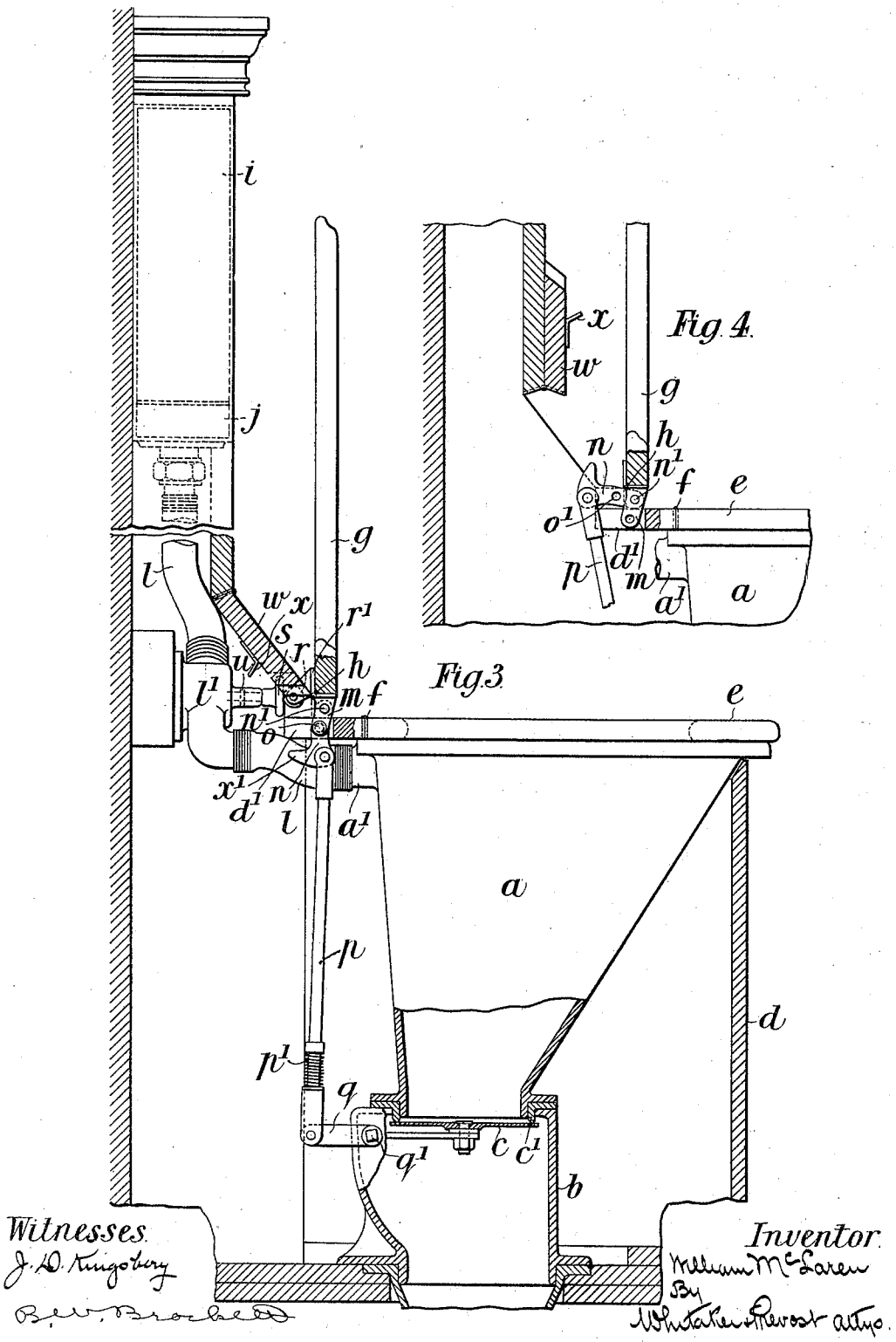
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(No Model.) 3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

WILLIAM McLAREN, OF LONDON, ENGLAND.

AUTOMATIC WATER-CLOSET FOR RAILWAY-CARRIAGES, &c.

SPECIFICATION forming part of Letters Patent No. 611,458, dated September 27, 1898.

Application filed March 7, 1898. Serial No. 672,945. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM McLAREN, a subject of the Queen of Great Britain, residing at London, England, have invented a new and useful Automatic Water-Closet for Railway-Carriages and the Like, (for which I have applied for a patent in Great Britain, No. 19,021, dated August 17, 1897,) of which the following is a specification.

This invention relates to an improved water-closet for railway-carriages and the like; and it comprises the novel features hereinafter described whereby the raising of the lid or cover of the closet serves to automatically admit a quantity of water into the pan and whereby the closing of the lid automatically causes the opening of the discharge-valve and the shutting off of the water-supply.

In the accompanying drawings, Figure 1 is a sectional front elevation of a water-closet arranged in accordance with my invention and showing the lid closed—that is to say, in the position which it normally occupies when the closet is not in use; and Fig. 2 is a sectional side elevation of the closet, the parts being in the position shown in Fig. 1. Fig. 3 is a view similar to Fig. 2, but showing the parts in the position when the closet is in use; and Fig. 4 is a sectional side elevation of some of the parts shown in Fig. 3 in the position which they occupy during the cleaning of the closet.

a is the pan of the closet, which, as shown, is mounted upon the top of a box *b*, in which works the valve *c*, the said pan, as shown in the drawings, being inclosed in a casing *d*.

e is a slop-seat, which is hinged at *f* to the back part *d'* of the casing, and *g* is the lid or cover, hinged at *h* to the casing, and the lowering and raising of which serves to operate the valve and water-supply cock, as hereinafter described.

i is the main water-cistern, which is suitably inclosed, and *j* is a small cistern which is arranged inside the cistern *i* and is in open communication therewith through the aperture *k*, the said small cistern *j* being connected with the nozzle *a'* of the pan by the pipe *l*, in which a supply-valve *l'* is arranged. By preference the small cistern *j* holds about two quarts of water, and the hole *k* through which the water enters the said cistern *j* from the cistern *i* has a diameter of, say, one-sixteenth of an inch, so that the water will only flow through it slowly.

In Fig. 1 the hole *k* is represented as being formed through a kind of small dome *k'*, closed by a screw-plug k^2. With this arrangement if the hole *k* becomes clogged the removal of the plug k^2 will permit of ready access to the said hole *k* in order to unstop it.

The lid *g* has affixed to it a small bracket *m*, in which an arm *n* is pivoted upon a pin *n'*, for a purpose hereinafter described, the said arm *n* being normally held rigid relatively with the bracket *m* by a pin *o*, which passes through the bracket and through a hole *o'* in the said arm *n*. To the free end of the arm *n* is attached one end of a rod *p*, the other end of which is attached to a lever *q*, mounted upon a spindle *q'*, which carries the valve *c*, the relative lengths of the arm *n* and lever *q* being such that when the lid is in the position shown in Fig. 2 the valve *c* will be opened and that when the lid is opened in the position shown in Fig. 3 the said valve *c* will be closed against its seating *c'*. In order that the valve *c* shall always bear against its seating *c'* with a spring-pressure, the rod *p* is preferably formed in two parts, with a spring *p'* between them, the said spring serving normally to slightly lengthen the rod *p*, so that when the seat is raised the said valve *c* will come against its seating just before the lid or cover *g* reaches its uppermost position, whereby the spring *p'* will be slightly compressed and so produce the desired pressure between the valve *c* and seating *c'*.

The operation of the valve *l'*, which, as shown in the drawings, is an ordinary push-valve normally held closed by a spring, is effected through the medium of a roller *r*, carried by a bracket *r'* upon the lid *g* and so arranged that as the lid is lifted the said roller strikes against the head *s* of the stem of the valve *l'* and pushes in the said stem to open the valve.

With the construction of closet hereinbefore described it will be seen that when the

lid of the closet is closed down upon the seat the valve *c* will be open and that the lifting or turning up of the lid from the position shown in Figs. 1 and 2 to that shown in Fig. 3 closes the valve *c* at the bottom of the pan and also at the same moment operates the valve *l'* and allows the water from the cistern to flow into the pan. While the closet is in use and the valve *l'* is held open water from the cistern will continue to enter the pan at the rate at which the water flows from the cistern *i* into the cistern *j* through the hole *k*, so that an ample supply of water for properly flushing the pan is provided. In order, however, to prevent the pan from getting too full, an overflow-pipe *t*, Fig. 1, is arranged between the pan and box *b*. The shutting down of the lid opens the valve *c* at the bottom to discharge the contents of the pan and also allows the closing of the valve *l'*, so that the cistern *j* will again become full of water for future use.

To prevent the freezing of water in wintertime, I preferably form in the casing and stem of the valve *l'* a hole *u*, Fig. 3, into which a pin *v* (shown in dotted lines in Fig. 1) can be inserted in order to hold the said valve open and allow the water to trickle through into the pan when the lid *g* is closed down.

The mechanism hereinbefore described is inclosed within a casing which practically forms part of the casing *d* around the pan. In order, however, to obtain ready access to the mechanism, the part of the casing immediately behind the seat is formed as a hinge-lid *w*, which can be raised to the position shown in Fig. 4. In order to lock this lid so that it cannot be easily opened, I form upon the back of the lid a tongue *x*, and upon the arm *n*, hereinbefore described, I form the horn *x'*, which horn, when the lid is in its closed position, intersects the arc of the circle through which the said tongue moves, as indicated by the dotted line *y* in Fig. 2. This horn *x'* is disengaged from the tongue *x* when the lid is in its open position; but in this open position of the lid obviously the part *w* of the casing cannot be opened, the lid being in the way. To open the said part *w*, it is necessary that the lid *g* should be placed at such an angle as will move the said horn out of the path of the tongue *x*.

In order that for cleaning purposes the lid *g* and valve *c* may be opened simultaneously, I remove the pin *o* from the bracket *m*, so that while the lid is open the arm *n* and the connecting parts may be moved to the position which they occupy when the valve is open, as indicated in Fig. 4.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In a water-closet for railway-carriages and the like, the combination with the pivoted lid, of a valve for closing the bottom of the pan, a bracket secured to the lid, an arm pivoted to said bracket and operatively connected with said valve to raise the valve when the lid is raised, and a removable pin passing through said bracket and engaging said arm at a distance from its point of pivoting, whereby by removing said pin the said arm and valve will not be operated by the bracket in raising the lid, substantially as described.

2. In a water-closet for railway-carriages and the like, the combination with the pivoted lid, of a valve for closing the bottom of the pan, a flushing device provided with a controlling-valve operated by the raising of the lid to flush the pan, a bracket upon the lid, an arm pivoted to said bracket and operatively connected with the valve for closing the pan to cause the same to move into closed position when the lid is raised, and a removable pin connecting said arm and said bracket at a distance from the point of pivoting of said arm whereby by removing said pin, said arm and the valve for closing the pan will not be operated when the lid is raised while the flush-pipe-controlling valve will be operated, substantially as described.

3. In a water-closet for railway-carriages and the like, the combination with the pan, the pivoted lid, the flush-pipe provided with a valve operated by said lid, and a flush tank or reservoir provided within the same with a compartment separate from the rest of the tank communicating with the flush-pipe, said compartment communicating with the other part of the tank by a minute opening, substantially as described.

4. In a water-closet for railway-carriages and the like, the combination with the pan, the pivoted lid, the flush-pipe provided with a valve operated by said lid, and a flush tank or reservoir provided within the same with a compartment separate from the rest of the tank communicating with the flush-pipe, a casing extending to the outside of the tank, communicating with the main portion of the tank and having a small opening communicating with the said compartment, and a removable plug for closing the outer end of said casing, whereby said plug can be removed to discharge sediment from said casing, substantially as described.

5. In a water-closet for railway-carriages and the like, the combination with a pan, the pivoted lid, a flush-pipe connected with said pan and a valve in said pipe adapted to be operated by said lid, of a flush-tank provided with a measuring-compartment, communicating with said flush-pipe and with said tank by a small opening of less diameter than said pipe, and an independent device for holding the valve in the flush-pipe continually in open position, substantially as described.

6. In a water-closet for railway-carriages and the like wherein the discharge-valve at the bottom of the pan is interlocked with the

lid or cover of the closet in such a manner that when the lid is raised the valve is closed and vice versa, a casing inclosing the mechanism of the said closet and having one portion *w* thereof hinged, a tongue *x* upon the said hinged portion of the cover and a horn upon the back of the lid of the closet, the said parts being arranged and operating to prevent the unauthorized opening of the said hinged part *w* of the casing, substantially as described.

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Witnesses:
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