No. 754,733. PATENTED MAR. 15, 1904.

P. A. ALLEN.

WATER CLOSET.

APPLICATION FILED JULY 9, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

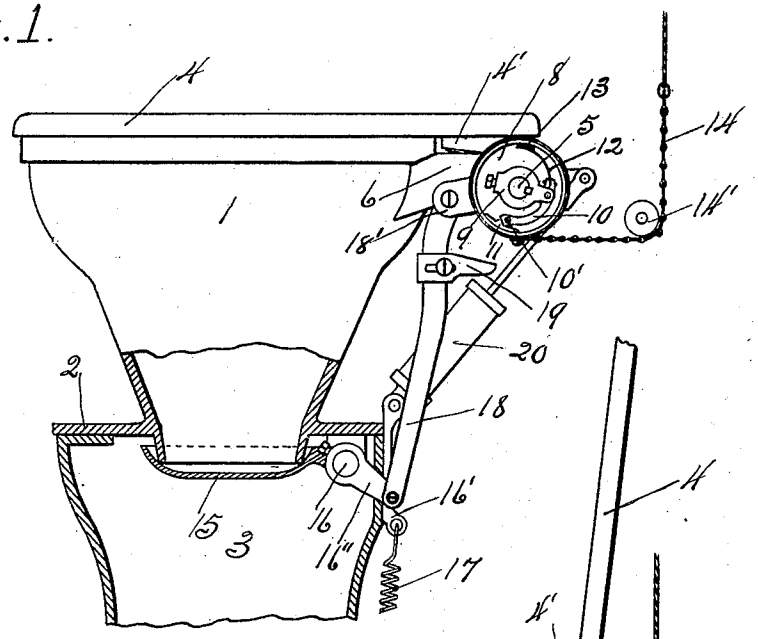
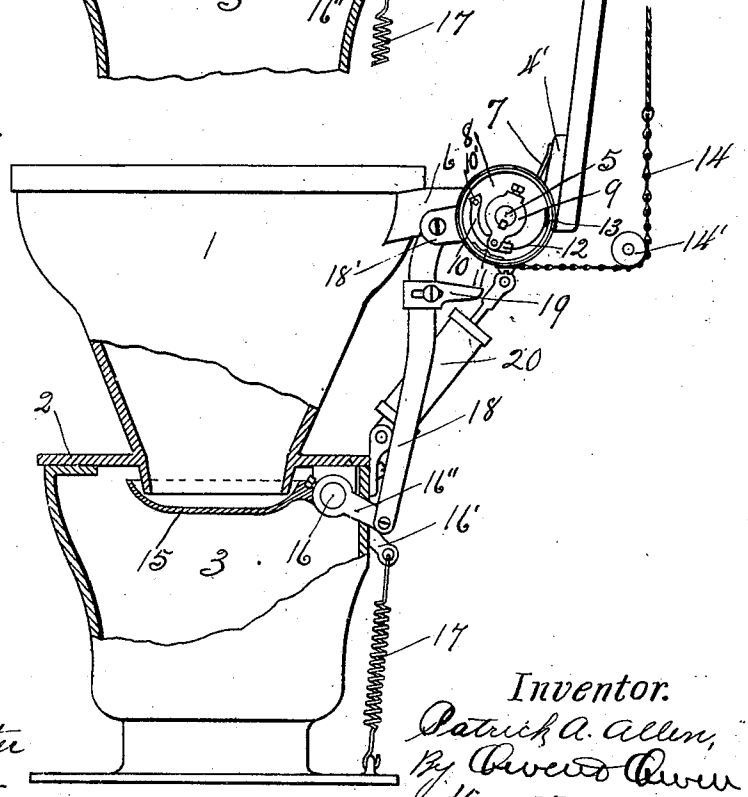


Fig. 2.



Witnesses:

David C. Walter

Ernest Roberts.

Inventor.

Patrick A. Allen,

By Church & Church

His attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 754,733. PATENTED MAR. 15, 1904.

P. A. ALLEN.

WATER CLOSET.

APPLICATION FILED JULY 9, 1903.

NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.

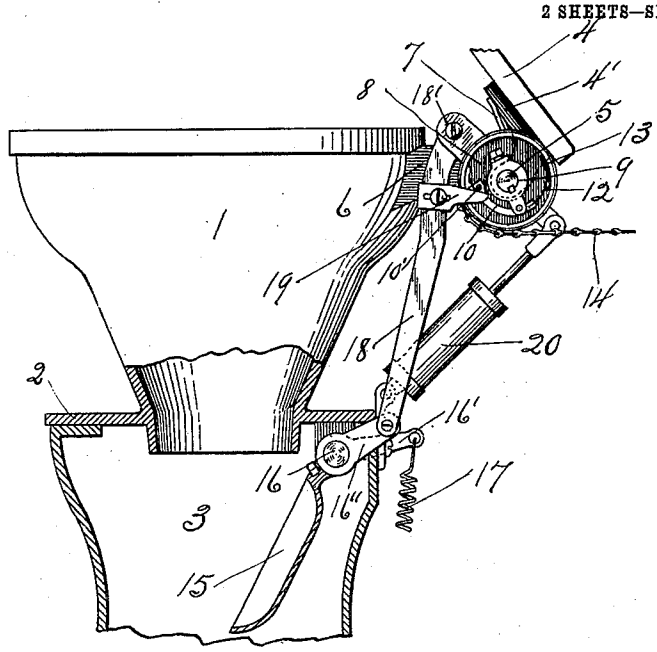
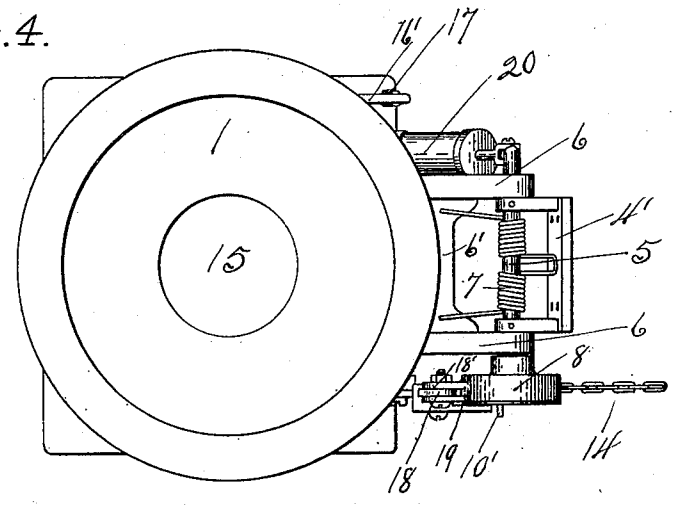


Fig. 4.



Witnesses:

David C. Walter

Ernest Rosenbo.

Inventor.

Patrick A. Allen,

By Church & Church

His attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 754,733. Patented March 15, 1904.

UNITED STATES PATENT OFFICE.

PATRICK A. ALLEN, OF TOLEDO, OHIO.

WATER-CLOSET.

SPECIFICATION forming part of Letters Patent No. 754,733, dated March 15, 1904.

Application filed July 9, 1903. Serial No. 164,764. (No model.)

To all whom it may concern:

Be it known that I, PATRICK A. ALLEN, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful improvements in Water-Closets; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to automatic dumping and flushing mechanism for water-closets, and has particular reference to improvements on the mechanism described and claimed in United States Letters Patent No. 717,651, granted to me January 6, 1903.

The object of my invention is to reduce to a minimum the quantity of water used in the flushing of water-closets and to cause an automatic flushing of the hopper and dumping of the excretions therein as the seat rises to a perpendicular position after it has been released, thus providing a water-closet particularly adapted for use on railway-cars and in other places where the facilities for carrying water or retaining excrement are limited.

While the essential features of my invention are necessarily susceptible of modification, the preferred embodiment thereof is illustrated in the accompanying drawings, in which—

Figure 1 is a partly-vertical sectional side elevation of my improved closet, showing the position of the several parts when the seat is in closed position. Fig. 2 is a similar view showing the positions of the parts when the seat is in open vertical position. Fig. 3 is a view similar to Fig. 1, showing the positions of the parts when the seat has raised sufficiently to cause the dog to be released to allow the flushing and dumping mechanisms to return to their normal positions; and Fig. 4 is a plan view of Fig. 2, showing the seat removed.

In the drawings, 1 represents the hopper or bowl of my closet, which is provided with a flange 2 to adapt it to be supported by the enlarged chute or housing 3 and has its lower or contracted portion extended a short distance within said chute. The seat 4 has its supporting-bracket 4′ rigidly secured to the shaft 5, journaled to the lugs 6 6 of the hopper and is adapted to be automatically raised and normally retained in vertical or open position by means of the coiled spring 7, mounted on said shaft and bearing against the bracket 4′ of the seat and the web 6′, interposed between the lugs 6 6.

A disk 8, having its periphery laterally flanged, as shown, is loosely mounted on one end of the shaft 5 and incloses the sleeve 9, which is made rigid to said shaft and provided with a boss to form a fulcrum for the dog 10. The dog 10 when the seat is down is adapted to engage with a rack or tooth 11, secured to or formed integral with the inner periphery of the flange of the disk 8 and is adapted to be held in engagement therewith by means of the spring 12. The free end of said spring is provided with a shoe 13 to adapt it to have a sliding engagement with the inner periphery of said flange and cause said disk to have a retarded movement when moving independent of and in the opposite direction to said shaft 5. Other suitable retarding means may be used, however, for this purpose.

A trip-chain 14, which leads to and operates a flushing-tank, (not shown,) passes under the pulley 14′, secured to the wall or other stationary object and has its end attached to the periphery of said disk 8, thus causing the same to be pulled and the hopper to be flushed when the disk 8 is rotated by the raising of the seat 4.

A concave or cup-like trap 15 is rigidly secured to the shaft 16, mounted within the enlarged chute 3 in adjacent position to the throat of the hopper 1 and is adapted to fit loosely around the projecting end of said hopper and form an air-tight seal for the same when said trap is closed and filled with water. The trap 15 is normally retained in closed position, as shown in Figs. 1 and 2, by means of a coiled contraction-spring 17, which engages at one end with an arm 16′ on one end of the shaft 16 and at its other end with the floor or other stationary object. An arm 16″ is secured to the other projecting end of the

shaft 16 and is connected to the disk 8 by means of the rod 18, which is pivotally attached to the boss 18′, projecting from the periphery of said disk.

19 is an arm adjustably secured to the rod 18 and adapted at a predetermined point in the ascending movement of said rod to engage with a stud 10′, mounted on the dog 10, and cause said dog to be released from the rack 11, thus enabling the disk to return to its normal position and causing the flushing to cease and the trap 15 to close.

I have found in the operation of my invention that more satisfactory results are obtained by causing the seat 4 to have a retarded ascending movement after it has been released, as otherwise the spring 7 causes a too rapid movement of the seat and consequent stopping of the flush before it has thoroughly performed its work. I have therefore provided an oil or air cushion 20 of the ordinary type, one end of which is connected to a stationary object and the other to a crank-arm secured to or formed on the free end of the shaft 5.

It will be apparent that my invention will normally remain in the position shown in Fig. 2, the trap 15 being closed to form a water seal and the seat in elevated position. When it is desired to use the closet for other than urinal purposes, the seat is drawn down, thereby causing the shaft 5 and sleeve 9 to be turned to the left within the disk 8 and the dog 10 to engage with the rack or tooth 11, as shown in Fig. 1. The seat 4 on being released has a retarded ascending movement, and the disk 8 is slowly turned, by reason of the dog 10 engaging therewith, until the ascending movement of the rod 18 has been sufficient to cause the arm 19 to engage the stud 10′, as shown in Fig. 3, and release the dog 10 from the rack 11, permitting the disk 8 and connected parts to return to their normal positions, the return movement of said disk being retarded by means of the spring-pressed shoe 13, engaging with the flange of said disk. It will be understood that the rotation of the disk 8 as the seat is raised causes a simultaneous opening of the trap 15 and flushing of the hopper of the closet, the said flushing operation continuing until the disk has returned to its normal position on the release of the dog 10, the said trap closing in time to catch a supply of water to form a seal.

It will be understood from the above description that the flushing of my closet will require a very small quantity of water, which may be regulated by the adjustment of the arm 19 on the rod 18, thus making it possible to equip cars and other places having limited water-supplies with sanitary water-closets.

It is obvious that such changes in the form, proportion, and minor details of construction of the parts as fairly fall within the scope of my invention may be made without departing from the spirit or sacrificing any of the advantages thereof.

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

1. A water-closet having a hopper, a seat pivotally attached thereto, a trap adapted to normally close the throat of said hopper, a loosely-mounted member having connection with said trap, means rigidly connected to the pivot of said seat adapted to engage and move said member and cause said trap to open when said seat is raised, and adjustable means for releasing said engaging means at a predetermined point to permit said trap to return to its normal position.

2. A water-closet having a hopper, a seat pivotally attached thereto and adapted to be automatically raised when released, a trap pivotally mounted adjacent to and adapted to close the throat of said hopper, a disk loosely mounted on the pivot of said seat and connected to said trap, a dog attached to said pivot and adapted to engage said disk and cause a limited rotary movement thereof and said trap to be opened when said seat is raised, and means for releasing said dog to permit said disk and trap to return to their normal positions.

3. A water-closet having a hopper, a seat pivoted thereto, a rotatable member, a trip-chain attached to said member and adapted to be tripped by a movement thereof, a dog movable with the pivot of said seat and adapted to engage and move said member, and adjustable means movable with said member and adapted to trip said dog at a predetermined point.

4. A water-closet having a hopper, a seat pivoted thereto and adapted to be automatically raised, a disk loosely mounted on the pivot of said seat, a trip-chain attached to said disk, a dog attached to said pivot and adapted to engage said disk and cause a limited rotary movement thereof and said chain to be tripped when said seat is raised, and means for tripping said dog at a predetermined point.

5. In a water-closet, a hopper, a seat pivotally attached thereto and adapted to automatically rise when released, a disk mounted adjacent to said seat, a trip-chain connected to said disk, a trap adapted to close the throat of said hopper and having connection with said disk, means rigidly connected to and moved by the pivot of said seat for causing a rotary movement of said disk and movements of said trap and trip-chain, and adjustable means adapted to limit the movement of said disk and means, substantially as described.

6. A water-closet having a hopper, a seat pivoted thereto and adapted to be automatically raised, a trap for closing the throat of said hopper, a trip-chain for causing a flush of water in said hopper, a movable member having connection with said trap and chain,

means connected to the pivot of said seat for engaging and causing a movement of said member when said seat is raised and a simultaneous flushing of said hopper and opening of said trap, and a member adapted to engage and release said means and permit said movable parts to return to their normal positions.

7. A water-closet having a hopper, a seat pivoted thereto and adapted to automatically rise, a trap for closing the throat of said hopper, a trip-chain for causing a flush of water in said hopper, a movable member having connection with said trap and chain adapted to be normally retained in one position, a dog, movable with said seat, attached to the pivot thereof and adapted to engage said member and cause a desired movement thereof and a simultaneous flushing of the hopper and opening of said trap when said seat is raised, means for releasing said member, and means for causing a retarded movement of said parts.

8. A water-closet having a hopper, a seat pivoted thereto and adapted to automatically rise, a trap adapted to normally close the throat of said hopper, a trip-chain, a disk in connection with said trap and chain, a spring-pressed dog movable with said seat and adapted to engage said disk and cause a simultaneous movement of said trap and chain when said seat is raised, a member to release said dog, means engaging with said disk for causing a retarded movement thereof, and means for causing a retarded movement of said seat.

9. The combination in a water-closet of a hopper, a seat, pivoted thereto, a member loosely mounted on the pivot of said seat, a dog rigid to said pivot and adapted to move said member, a trip-chain connected to and adapted to be pulled by the movement of said member and adjustable means for tripping said dog at a predetermined point.

10. The combination in a water-closet, of a hopper, a seat pivoted thereto, a member loosely mounted on the pivot of said seat, a pawl secured to and adapted to be turned by a movement of said pivot and to engage and rotate said member, a trap adapted to close the throat of said hopper, connection between said trap and member for causing a movement of the latter to move the former and means for tripping said pawl at a predetermined point in its movement, substantially as described.

11. The combination with a water-closet having a hopper, a seat pivoted thereto, a trap adapted to normally close the throat of said hopper, and flushing means, of a rotatable disk having connection with said trap and flushing means, a dog adapted to be moved by an upward movement of said seat and to rotate said disk and cause a simultaneous movement of said trap and flushing means and means adapted to coact with and trip said dog in its upward movement, substantially as described.

12. The combination with a water-closet having a hopper, a seat, a trap adapted to normally close the throat of said hopper, and flushing means, of a rotatable member having connection with said trap and flushing means, a ratchet member having a common axis with said seat and moved thereby, said ratchet adapted to engage and rotate said rotatable member a desired distance in one direction causing said trap to open and said hopper to be flushed, and automatic releasing means for said ratchet member.

13. The combination with a water-closet having a hopper, a seat, a trap adapted to normally close the throat of said hopper, and flushing means, of a disk having connection with said trap and flushing means and adapted to move the same, a ratchet member adapted to be moved by said seat and cause said disk to rotate a desired distance, said disk, seat and ratchet member having a common axis, and means for releasing said ratchet member and permitting said parts to return to their normal positions.

14. The combination with a water-closet having a hopper, a seat, a trap adapted to fit loosely around the throat of said hopper and normally close the same, and flushing means, of a disk and a ratchet member mounted on a common axis, said disk having connection with said trap and flushing means and adapted to move the same when said seat is raised causing said hopper to be flushed and said trap opened, releasing means to cause said parts to return to their normal positions, and separate means for causing retarded movements of said disk and seat, substantially as described.

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

PATRICK A. ALLEN.

Witnesses:
C. W. OWEN,
CORNELL SCHREIBER.