(No Model.)

F. H. PARADICE.

AUTOMATICALLY OPERATING FLUSHING TANKS FOR CLOSETS.

No. 385,823. Patented July 10, 1888.

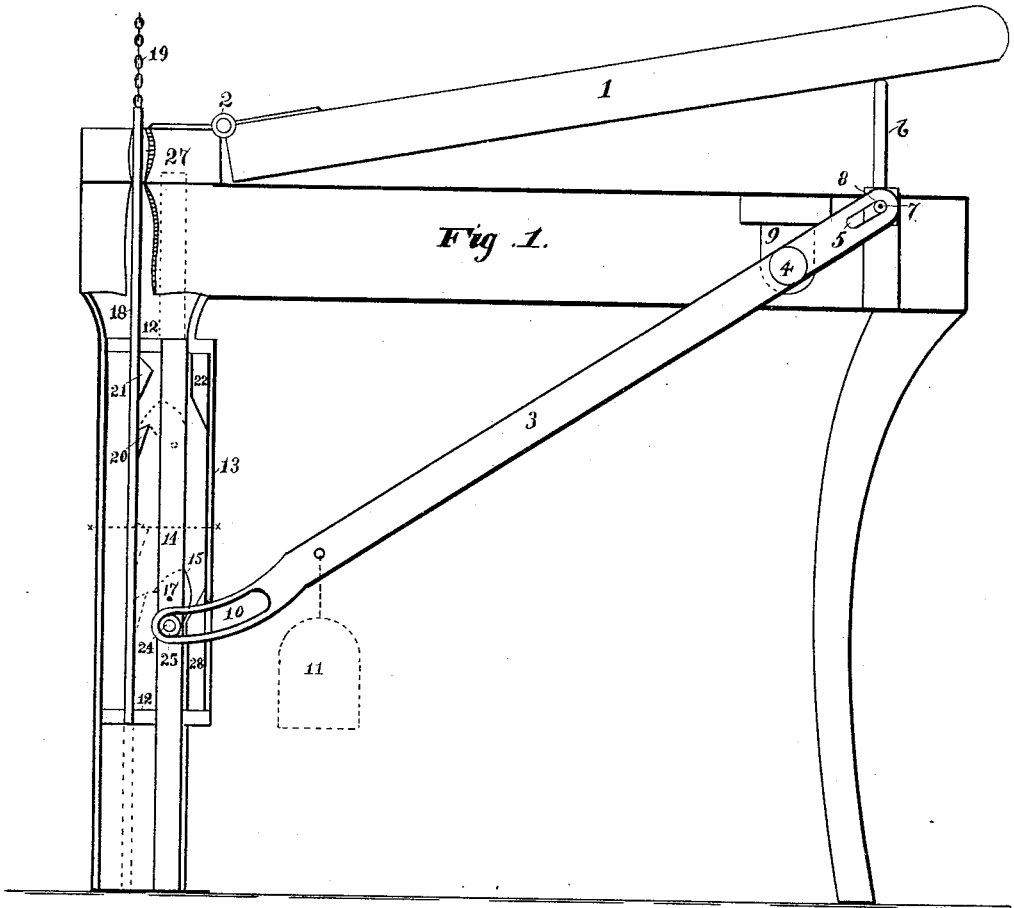

Fig. 1.

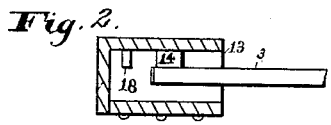

Fig. 2.

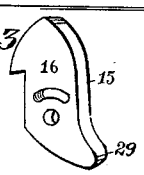

Fig. 3.

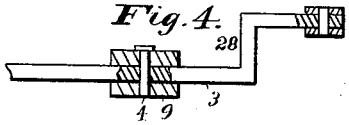

Fig. 4.

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FRANK H. PARADICE, OF DENVER, COLORADO.

AUTOMATICALLY-OPERATING FLUSHING-TANK FOR CLOSETS.

SPECIFICATION forming part of Letters Patent No. 385,823, dated July 10, 1888.

Application filed December 27, 1887. Serial No. 259,102. (No model.)

To all whom it may concern:

Be it known that I, FRANK H. PARADICE, a subject of the Queen of Great Britain, residing at Denver, in the county of Arapahoe and State of Colorado, have invented a new and useful Mechanism for Automatically Operating Flushing-Tanks for Closets, of which the following is a specification.

My invention relates to mechanism for operating the flushing-tanks for water-closets and for automatically throwing the same into operation whenever and as soon as the seat is relieved of the weight of the user; and its objects are to furnish a simple and reliable mechanism, controlled automatically from the seat, for giving the necessary movement to such device in the flushing-tank as may be used to start the discharge therefrom into operation; to which ends it consists in the features more particularly hereinafter described and claimed. Mechanism by which I attain these ends and embodying my invention is illustrated in the drawings accompanying and forming part of this specification, in which—

Figure 1 is a side view of such mechanism; Fig. 2, a cross-section on line *x x*, Fig. 1; Fig. 3, a perspective view of a detail of construction, and Fig. 4 a top view of a portion of the lever 3 in Fig. 1.

In these figures the reference-numeral 1 indicates the ordinary seat of a water-closet, hinged at the back to the framing 27, the side portions of the framing not being shown. Beneath the side framing is a lever, 3, pivoted near the front of the seat by a pivot, 4, in a lug or bracket secured on a suitable support beneath the side framing. It is so located thereunder that it may work clear of the bowl and also be brought in line with the rod 14, to be hereinafter described. In order to bring the front and shorter end of the lever beneath the edge of the seat, it is bent just in advance of the pivot 4, as shown at 28 in Fig. 4. At its front end is a slot, 5, engaging with a pin, 7, in an upright arm, 6, whose upper and free end takes beneath the seat 1 and by which it may be depressed. To lessen friction and give greater ease of movement, a roller, 8, may be placed on pin 7, interposed between it and the walls of the slot 5. The lever 3 is either made heavy enough at its longer end or it is weighted thereat sufficiently, as at 11, to normally drop at such end to the limit of its movement, the other end being elevated and raising the seat slightly off of its bed, as shown in full lines in Fig. 1. At its lower end the lever is provided with a slot, 10, which takes upon a pin, 24, projecting from the hook-carrier 14. For ease of movement this pin may also be provided with an anti-friction roller, as shown at 25.

Attached to one of the rear supports of the seat or its framing, or to any other suitable support, is a framing for supporting and carrying the reciprocating parts 14 18. Such framing may be the ends 12 and sides 13, 14, and 18, passing through and being guided by apertures in 12 12, as shown in Fig. 2. 14 may be termed the "hook-carrier," as seated in a slot therein is the hook 15, which is pivoted at its lower end in the slot, so that its upper or hook end may be projected beyond the face of 18, opposite to 14, or withdrawn within the slot, the body of the hook being somewhat broader than is the carrier 14, so that as the hook is withdrawn into the slot the back projects therefrom, and vice versa. The body of the hook is slotted at 16, a pin, 17, passing through 14 and such slot. The function of this slot and pin is to limit the movement of the hook, which function may be accomplished in many other ways. The top or upper portion of the front and back of this hook should be inclined or rounded, as shown in Fig. 3, for a purpose hereinafter mentioned.

Sliding in the apertures formed in 12 12, and contiguous to 14, is the reciprocating piece or slide 18, connected at its upper end by the pull chain or cord 19 to the devices in a flushing-tank, by which the discharge from the tank to the bowl is started or controlled. Upon the side or face of 18, adjacent to 14, is a hook, 20, and immediately above the same is a cam or cam-face, 21. 18 and 14 are placed at such distance apart and the projection of 20 upon 18 and of the hook on 15 from 14 so calculated, relatively, that the hook 15, when projected to the limit permitted it, shall engage or be positioned to engage with 20. Upon the side 13, and at the upper limit of movement of the hook-carrier 14 and just above the normal position of hook 20, a projection, 22, forming a cam-face, is arranged, lying in the path of travel of the hook 15.

In a prior application by me, bearing Serial No. 256,150, filed November 25, 1887, I have shown a water or flushing tank for water-clos-

ets in which the discharge is a siphon, the depression or submergence of a float to a proper depth in the water raising the level of the water in the tank sufficiently to throw the siphon into operation and effect the flushing. While the mechanism herein shown and described has been devised with reference to its use for automatically controlling the discharge from such tank, and while it is especially valuable, useful, and efficient with that tank, its use is not confined thereto, for it is of great value and use with any other style of tank which it is desired to operate automatically by a downward pull of a cord or chain when the seat is freed of any extraneous weight, as will be apparent from a description of the operation of the mechanism.

The operation is as follows: The parts in their normal position are as shown in full lines, the long end of lever at its lower limit, the short end elevated, raising the seat, and the slide 18 being at its upper limit of movement. If now weight sufficient be placed upon the seat to depress it—say the weight of a person—the long end of lever 3 is thrown up, carrying with it the hook-carrier 14. As the latter rises, the curved or inclined back of 15 strikes against 22 and is thrown forward out of the slot in position to engage with the hook 20, and the parts remain in this position and relation so long as the weight remains on the seat and the seat is depressed. The weight removed from the seat, the longer and heavy end of the lever falls, raising the seat, bringing down the hook-carrier 14, and, through the engagement of 15 with 20, the slide-rod 18, this pulling the chain 19, so that the latter pulls on whatever it may be attached to at its other end. A float or a lever, controlling a valve or a float, 18, is arranged to have a somewhat greater extent of downward motion than 14, so that when 14 is stopped 18 moves a distance farther by momentum. This brings the face of cam 21 against the beveled or curved front of the top of hook 15, throwing it back into the slot and out of position for engagement with 20. 18, with hook 20, is then raised to its normal position by the action thereon of the float or lever or whatever pull cord or chain 19 may be attached to at its upper end. The normal position of the parts is shown in full lines, while the changes occurring in operation are shown in dotted lines.

From this description of the mechanism and its mode of operation it is seen that it is composed of two distinct mechanisms normally disconnected—first, the "seat" mechanism, as it may be termed, consisting of the lever and attached hook-carrier; second, the pull mechanism, consisting of the slide with the fixed hook and the attached pull cord or chain—and that the depression of the seat throws these two disconnected mechanisms into operative connection, and its raising causes them first to operate together, then to separate and resume their normal positions and conditions.

In may be deemed desirable in some positions or with some forms of flushing-tanks to have the hook 15 thrown out of position for engagement with 20 by a positive action thereon without depending upon the momentum of 18 to bring cam-face 18 against 15 therefor. In such case the hook may be made with a prolongation below its pivot, preferably extending rearwardly, as shown at 29 in Fig. 3, while upon the lower part of 13 a projecting or cam face, 28, is fixed, similar to 22 at the top. Then as 14 comes down to its normal position the projecting part 27 of 15 will strike against 28 and the hook be thrown into the slot and out of position for connection with 20.

This apparatus forms an efficient and reliable means for the accomplishment of the ends and objects noted, involving but few parts, so insuring simplicity and economy of construction, while the motive power used being the positively-acting force of gravity only, the use of springs and kindred devices liable at all times to fail in their work is obviated, and danger of getting out of order and repair or of failure in operation is reduced to a minimum.

Having thus described my invention, what I claim is—

1. The combination of a pivoted lever having its shorter end connected to an arm taking beneath the seat, a hook-carrier attached to the longer end thereof and carrying a pivoted hook, a slide connected to the pull cord or chain and carrying a fixed hook, and cam-faces, arranged as described, for throwing the pivoted and fixed hooks into and out of engagement, substantially as set forth.

2. The combination, in or with a suitable framing or support, of the slide carrying a fixed hook and a cam-face or projection above such hook, a sliding hook-carrier carrying a pivoted hook, a cam-face upon the framing to throw the pivoted hook forward into position for engagement with the fixed hook, and a lever having one end attached to the hook-carrier and the other attached to an arm beneath the seat, substantially as set forth.

3. The combination of a slide connected to the pull cord or chain and carrying a fixed hook, a hook-carrier connected to the end of a lever and carrying a hook, said hook being pivoted on or in its carrier, and provided with means for limiting its movement, and having its top portion beveled or curved on both front and back edges, cam-faces, as described, for throwing the hooks into and out of engagement, and the lever connected to an arm taking beneath the seat, substantially as set forth.

In testimony whereof I have hereunto affixed my signature this 17th day of December, 1887.

FRANK H. PARADICE.

Witnesses:
Z. F. WILBER,
L. S. LULL.