C. HODGES & H. JACKSON.

FLUSHING OF WATER CLOSET BASINS AND THE LIKE.

APPLICATION FILED OCT. 27, 1916.

1,292,776. Patented Jan. 28, 1919.

FIG. 1

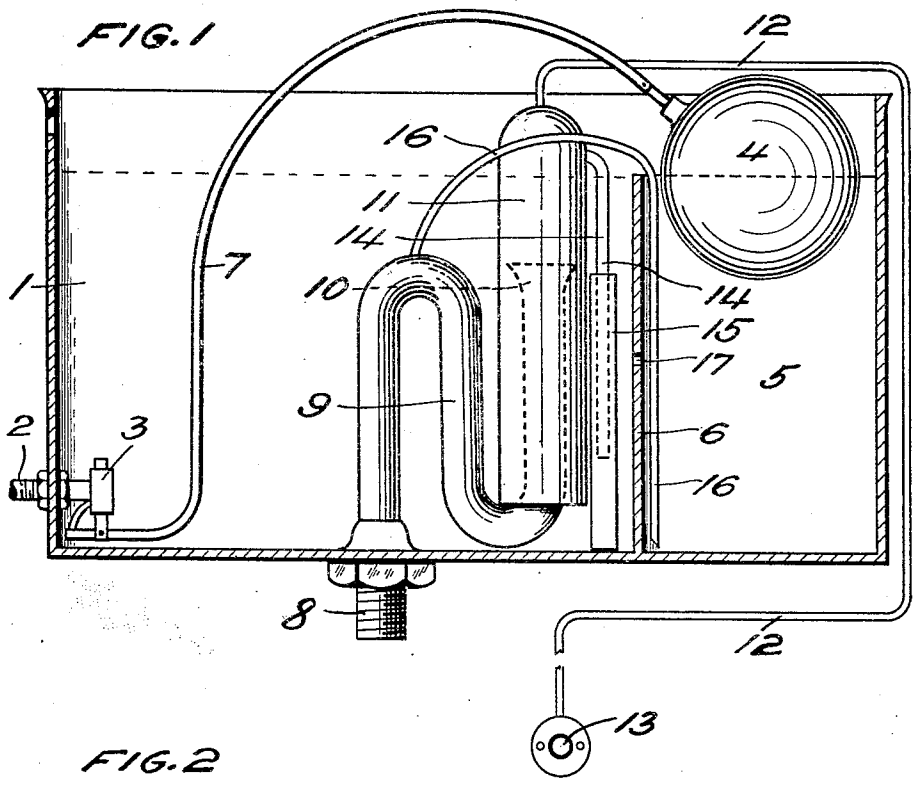
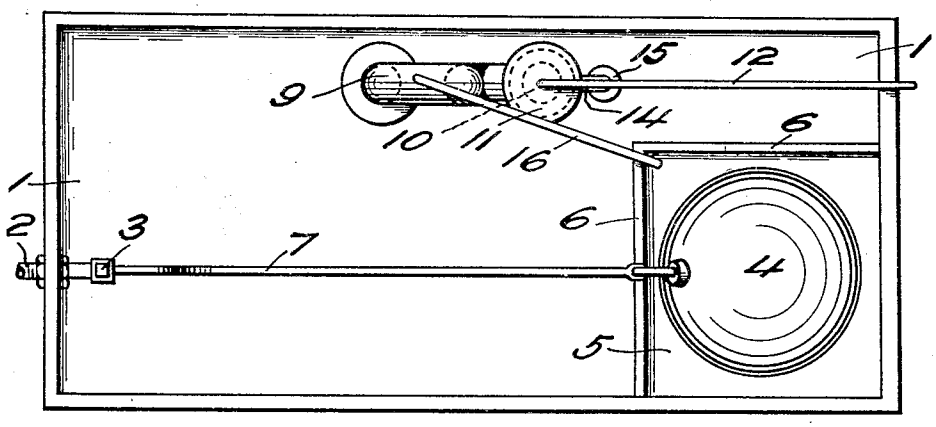


FIG. 2



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CHARLES HODGES AND HENRY JACKSON, OF WAIMATE, NEW ZEALAND.

FLUSHING OF WATER-CLOSET BASINS AND THE LIKE.

1,292,776. Specification of Letters Patent. **Patented Jan. 28, 1919.**

Application filed October 27, 1916. Serial No. 127,982.

To all whom it may concern:

Be it known that we, CHARLES HODGES, a subject of the King of Great Britain, residing at High street, Waimate, New Zealand, and HENRY JACKSON, a subject of the King of Great Britain, residing at Manse street, Waimate, New Zealand, have invented new and useful Improvements in and Relating to the Flushing of Water-Closet Basins and the like, of which the following is a specification.

This invention relates to the flushing of water-closet basins, its object being to provide a flushing means which will combine the advantages of silence in action, cheapness of cost, and convenience and efficiency in use, while the invention is such that no valves are employed in the cistern to control the action of the flush.

In carrying this object into effect the invention consists essentially in the provision of an air-lock by means of which the siphonic action of the flush is controlled and a special construction and arrangement of the cistern whereby a silent and efficient admission of water thereto is obtained.

In order that the nature of the invention and its construction may be fully understood, reference will now be made to the accompanying sheet of drawings in which:—

Figure 1.—is a sectional elevation of a cistern and other portions of the system connected therewith constructed in accordance with the present invention, and,

Fig. 2.—is a plan view of the same.

1 is a cistern which may be of the same dimensions as those hitherto in use or slightly larger in order to contain the necessary quantity of water for the flush. Into the said cistern 1 water is admitted from the service-pipe 2 automatically by means of a ball-cock 3, as customary.

According to the present invention the ball-cock 3 is positioned at a point near the bottom of the cistern in order that it may at all times be submerged by the water which will therefore serve to muffle the sound of the admission. To produce a quick and positive action in cutting-off the ball 4 controlling the said cock the ball is arranged to float in a small compartment or chamber 5 which is separated from the main portion of the cistern 1 by a wall or partition 6, the arm or lever 7 connecting the cock with the ball being suitably bent or cranked to pass over the top of the wall 6.

According to the present invention also the upper end of the flush-pipe 8 terminates within the cistern 1 in an S-strap 9, the mouth or orifice 10 of which extends upward to the desired height within a siphon-bell 11.

The arrangement is such that an air-lock is produced in the top of the bell 11 which air-lock normally prevents the siphonic action from taking place. To release the air-lock and so produce the siphonage when a flush is required therefore, a pipe 12 is led from the top of the bell 11 to any convenient point where it terminates in a valve adapted to be opened by the action of a press-button 13 in order to establish communication between the upper portion of the bell and the atmosphere.

This press-button 13 may be positioned at any convenient point so that it may be operated by the hand, foot, knee or other portion of the operator.

To cause the siphonage to be broken when the desired amount of water has been discharged, a break-pipe 14 is arranged to communicate between the upper portion of the bell 11 and the cistern 1 at a point near the bottom of the latter. In order to secure a sudden and positive breaking of the siphon and to provide means of escape for the surplus air which would otherwise accumulate and become compressed in the bell during the filling of the cistern, the lower end of the said break-pipe is surrounded by a sleeve or pocket 15, the lower end of which is closed and rests upon the bottom of the cistern while its upper end is open and extends upward to a point a slight distance below the level of the mouth 10 of the trap. The arrangement is such that during the flush, upon the water-level of the cistern 1 becoming lower than the orifice of the break-pipe 14, the water contained in the pocket 15 will be suddenly induced or sucked up the break-pipe 14 and discharged into the bell 11, thus causing the siphon to be broken and leaving the bell in free communication with the atmosphere. During the refilling of the cistern therefore the bell will remain in this condition until the water-level again reaches the level of the top of the pocket, thus allowing the surplus air to escape from the bell instead of becoming compressed and so giving rise to noise.

In operation, water from the service-pipe 2 is admitted by the ball-cock 3 to the main

portion of the cistern and such water, upon rising to the level of the top of the partition 6, overflows the latter and so fills the chamber 5, thus raising the ball 4 and so closing the cock 3. It will be understood therefore that, as the chamber 5 maintains its lowest water-level up to the point at which the water overflows the partition, the cock will remain fully open up to this stage and consequently a rapid admission will be obtained. Again the overflowing of a large quantity of water into the comparatively small chamber will produce an equally sudden rise of the ball which will in consequence close the cock quickly and positively so that it will be unaffected by any subsequent alterations in the water-pressure of the service-pipe.

As previously mentioned, the action of the siphon is normally restrained, so as to prevent a discharge of water from the cistern 1 down the flush-pipe 8, by reason of the air-lock in the bell 11. Upon the button 13 being pressed however the top of the bell will be placed in communication with the atmosphere through the pipe 12, thus breaking the air-lock.

The siphon will thus be permitted to operate and discharge the water from the cistern down the flush-pipe to the basin in the required manner.

To cause the water to be discharged from the chamber 5, a pipe 16 is arranged to communicate between the top bend of the trap 9 and the chamber at a point near the bottom of the latter. Thus when the siphonic action commences, the rush of water through the trap 9 will set up an induction in the said pipe 16 which causes the water in the chamber to rise and enter the top bend of the trap thereby commencing siphonage which completes the emptying of the chamber to the required level. In order to guard against the reduction of the water-level in the chamber below the minimum determined upon, the said pipe is made of sufficiently small bore to insure its taking an appreciable time to discharge the water from the chamber and a small hole 17 is formed through the partition at a desired height. The arrangement is such that, should the button 13 be again pressed before the cistern is filled, the slow action of the pipe 16 and the influx of water through the hole 17 will serve to prevent emptying of the chamber below the minimum level determined upon. The said hole 17 is however so small that it will not appreciably affect the ordinary action of the apparatus as above described.

We claim:—

1. In apparatus of the character indicated the combination with a cistern having a siphon discharge, a siphon-bell constituting an air lock for controlling said siphon discharge, a break-pipe adapted to break the siphon when the desired amount of water has been discharged, said break-pipe connecting with the upper portion of the siphon-bell and extending downward within the cistern to the required point and a pocket inclosing the lower portion of said break-pipe, such pocket being closed at its lower end while its upper end is open and extends upward to the desired level, substantially as and for the purpose set forth.

2. A closet cistern having a siphon discharge, an air lock for controlling said siphon discharge, and means for preventing undue compression of air within said air lock during filling of the cistern to prevent objectionable noises usually accompanying the filling operation.

3. A closet cistern having a siphon discharge, an air lock for controlling said siphon discharge, means for breaking the said air lock, and means coöperating with said means for preventing compression of air within said air lock during partial filling of the cistern.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

CHARLES HODGES.
HENRY JACKSON.

Witnesses:
CYRIL CARLYN COATES,
SIDNEY JAMES TRELEAVEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."