To all whom it may concern:

Be it known that I, ROCCO OSVALDELLA, subject of the Emperor of Austria-Hungary, residing at Trieste, Austria-Hungary, have invented certain new and useful Improvements in Self-Closing Valves, of which the following is a specification, reference being had therein to the accompanying drawings:

This invention has for its object improvements in self-closing valves particularly adapted for supplying and measuring flushing water for water closets.

According to the invention the valve is lifted from its seat by the complete rotation of a crank which automatically returns to its lowest position, this valve being immediately afterwards exposed to the closing action of the flowing water so that the quantity of liquid flowing through the valve is determined by the time (which is controlled by a hydraulic brake) occupied by the valve in returning to its normal position.

The accompanying drawings illustrate the invention, in which—

Figure 1 is a side elevation thereof. Fig. 2 is a vertical section on the line A—A of Fig. 1. Figs. 3 and 4, illustrate in the closed and open positions respectively, the valve shown in Figs. 1 and 2. Fig. 3 is a partial, horizontal section on the line C, C, of Fig. 3.

The various features of the drawings are referred to by letters and figures, similar reference characters denoting corresponding parts in the several views.

The piston-like valve a is guided in a portion of the cylindrical casing n located above the inlet v and closed by a cap m and on its lower side it is engaged by a crank rod b the forked end of which rests freely upon the pin f of a crank shaft d mounted in the casing n. Upon this shaft d a crank p provided with a heavy handle s is keyed in such a manner that the crank hangs vertically downward in the lowest position of the pin f (Fig. 1); accordingly in this embodiment of the invention the pin f automatically under the influence of the weight of the crank assumes the position in which the piston valve a can reach its closed position (Fig. 3).

In that portion of the piston valve a connected with the inlet v a horizontal passage h is provided and communicates with the space o located behind the piston through a vertical bore provided with helical threads and a semicircular channel 2 (Fig. 5); this bore is closed by a screw l upon the periphery of which a semicircular channel 3 is provided (Fig. 5) so that by appropriately rotating the screw l the two semicircular channels 2 and 3 can be wholly or partially opened and the size of the cross section of the passage formed by them thereby modified.

The portion of the casing which merges into the discharge w carries a tubular projection q (Figs. 1 and 2) the mouth of which is closed by an inwardly opening valve r.

The device is fitted and operates in the following manner: In installing the apparatus, the inlet v is connected with the supply pipe and the outlet w with the flushing pipe. In order to produce the flush, it is only necessary to impart a complete revolution to the heavy crank p. Owing to the action of the heavy handle s arranged at its end it automatically returns to the position shown in Fig. 1. By this rotation the piston valve a has been caused to move from the position shown in Fig. 3 to that shown in Figs. 2 and 4, whereby the water that has been inclosed in the space o behind the valve has been ejected through the passage 2, 3; as the crank p has automatically returned to the normal position represented in Fig. 1, the piston valve a is now subjected only to the action of the water under pressure and while it now passes through the feed valve aperture into the discharge, it also flows through the passage 2, 3 communicating with the delivery pipe behind the valve a and forces the latter back into the closed position. In order to prevent the formation of a vacuum in the casing n under the influence of the suction of the flowing water, which vacuum would produce a jerky closing of the valve, the air valve r previously referred to is provided and when a partial vacuum is formed this valve automatically rises and allows air to flow into the casing n.

What I claim and desire to secure by Letters Patent of the United States is:—

A casing having an inlet, an outlet, an intermediate valve seat and a chamber disposed above said valve seat, a piston valve adapted to seat on said valve seat and to reciprocate in said chamber, an adjustable screw threaded into said piston valve, a
restricted passage way connecting said inlet and said chamber, said passage way comprising cooperating channels in said screw and the wall of the opening receiving said screw, each channel being semi-circular in transverse section, a link depending from said piston valve, said link being bifurcated at its lower end, a shaft journaled centrally of said outlet and provided with a crank pin loosely receiving the bifurcated end of said link, and a crank secured to said shaft exteriorly of the casing and provided at its outer end with a weighted handle, said crank being normally disposed in a vertical line with the weighted handle lowermost and adapted to describe a complete revolution in the opening of the piston valve.

In testimony whereof I affix my signature in the presence of two witnesses.

ROCCO OSVALDELLA.

Witnesses:
FRANCESCO OBRY,
VINCENT BURZ.

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