IMPROVEMENT IN WATER-CLOSETS FOR RAILROAD-CARS.

Figure 1 shows the apparatus in sectional elevation. Fig. 2 is a sectional plan of the bottom of the hopper.

(a) denotes the floor of the car; (b), the hopper; (c), the seat, and (d) the seat-cover. Under the hopper, and closing its end, is seen the bottom or receiving and discharging plate (f). This plate is hung on its center, as seen at (g), and in such manner that one edge laps under one side of the hopper-tube, as seen at (k), while the opposite edge (seen at (l)) is in position to turn up into the tube. On one of the gudgeons (g) is a pinion, (k), into which meshes the teeth of a gear-bar, (l), which bar, at its upper end, is joined to an arm projecting from the rear edge of the seat-cover (m), as seen at (n), the seat-cover being hinged at (u), and the arm extending beyond the hinge, and turning down, as seen by the dotted lines, when the seat-cover is turned up. The turning down of the arm when the seat-cover is raised forces down the gear-bar (l), which is guided by a bearing (o), causing the bar to turn the pinion (k), thereby reversing the position of the plate (f). Leading into the upper part of the hopper is seen the spout (p) of an earth-reservoir (q), and in the spout are two valves, (r), joined to a lever, (s), one arm of which lever, by a link, (u), is connected to the seat-cover, the valves and their method of operation being the same as in many earth-closets.

Each valve slides under, or rests upon, a valve-seat, and has a suitable passage, connecting, at proper time, with a corresponding passage through its valve-seat, and the movements imparted to the respective valves are such that at each time the seat-cover is shut down the lower valve is closed and the upper one opened, thereby letting the earth from the reservoir (q) down through the upper valve, to lodge upon the lower one; while, when the seat is raised, the upper valve is closed, to stop the supply from the reservoir, and the lower one is opened, to let the earth lodged upon the
valve or valve-seat down through the spout into the hopper, and down upon the receiver-plate, the connections being such that the earth does not fall to the plate until the latter reaches a position to retain it. When the seat-cover has been thus raised, and the apparatus has been used, the excrement will lodge upon the earth-covered receiving-plate; and, when the seat-cover is closed, the plate is reversed in position, discharging the earth and excrement, and closing the hopper tube, the earth preventing any adhesion of the excrement, and causing the apparatus to be kept entirely free from foulishness.

The plate may be operated by a hand-pull, but not with so good results as when connected to and operated by the seat, as described.

Although modifications may be made, as we have generally described, the construction and arrangement substantially as shown is preferred.

The upper valve may be made with an ori-