

(No Model.)

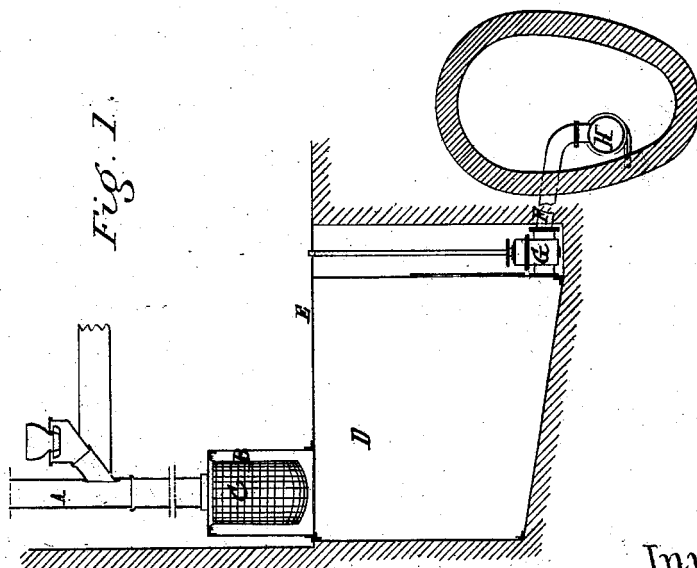
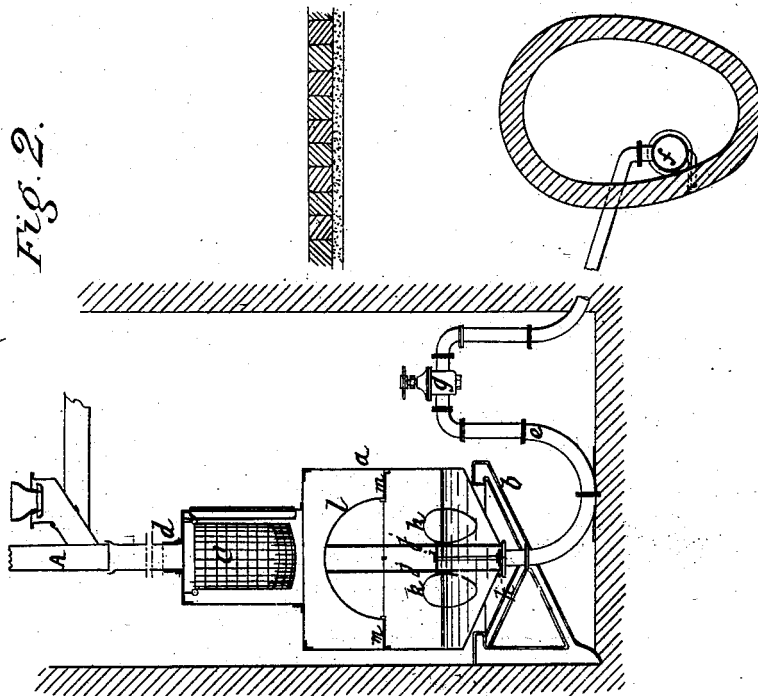
3 Sheets—Sheet 1.

J. B. BERLIER.

WATER CLOSET, URINAL, AND CESSPOOL.

No. 272,405.

Patented Feb. 20, 1883.



Witnesses:

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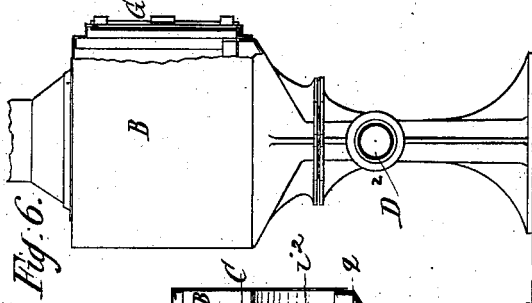


Fig. 6.

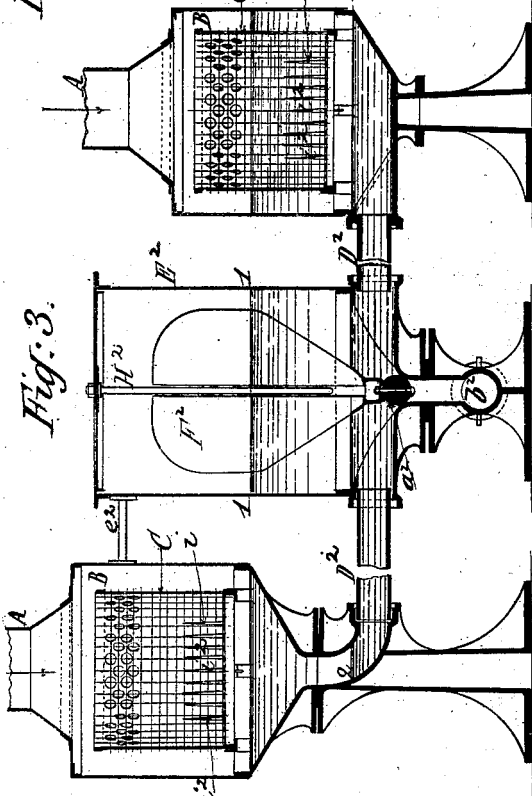


Fig. 3.

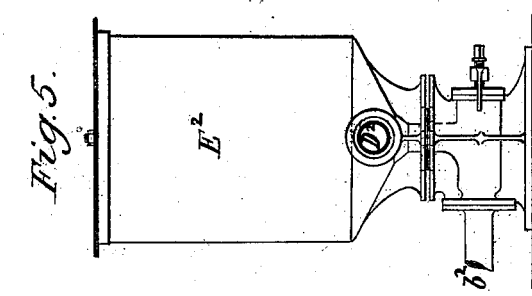


Fig. 5.

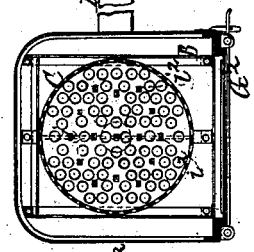
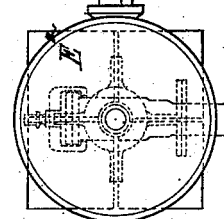
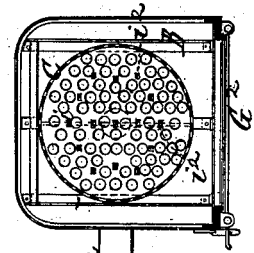


Fig. 4.

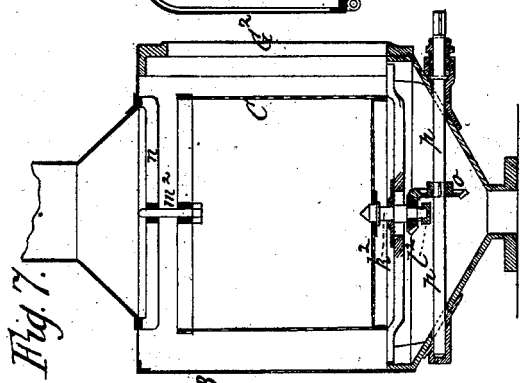


Fig. 7.

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(No Model.)

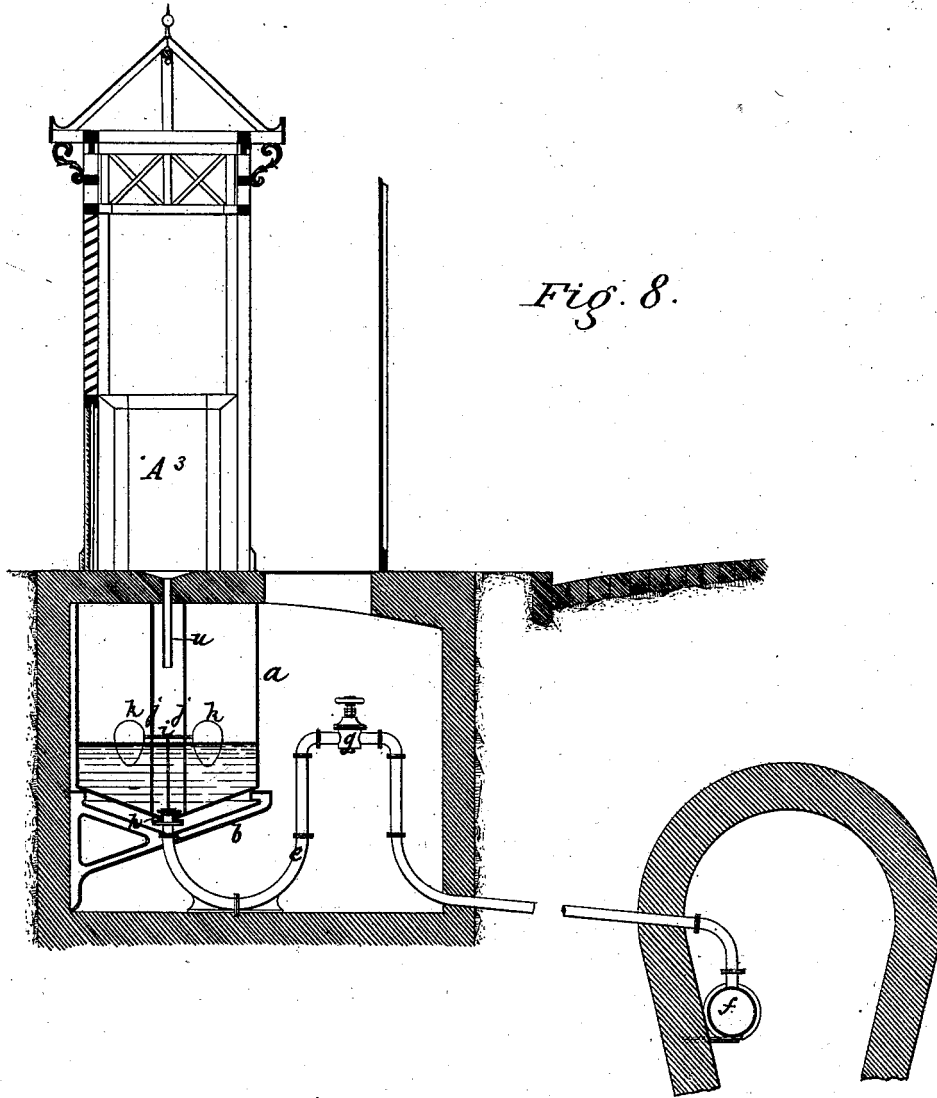
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UNITED STATES PATENT OFFICE.

JEAN BAPTISTE BERLIER, OF PARIS, FRANCE, ASSIGNOR TO THE COMPAGNIE GÉNÉRALE DE SALUBRITÉ, OF SAME PLACE.

WATER-CLOSET, URINAL, AND CESSPOOL.

SPECIFICATION forming part of Letters Patent No. 272,405, dated February 20, 1883.

Application filed August 9, 1882. (No model.) Patented in France March 14, 1881, No. 141,763; in Belgium October 31, 1881, No. 56,103; in England November 2, 1881, No. 4,800, and in Italy June 30, 1882, XXVIII, 306.

To all whom it may concern:

Be it known that I, JEAN BAPTISTE BERLIER, director of the Compagnie Générale de Salubrité, residing at Paris, France, have invented Improvements in Water-Closets, Urinals, and their Cesspools; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed sheet of drawings, making a part of the same.

I also declare that the invention has been patented in the following countries, to wit: In France, by Patent No. 141,763, for fifteen years from March 14, 1881; in Belgium, by Patent No. 56,103, for fifteen years from October 31, 1881; in England, by Patent No. 4,800, for fourteen years from November 2, 1881; and in Italy, by Patent No. 306, Vol. 28, for fifteen years from June 30, 1882.

This invention consists in improvements in water-closets, urinals, and their cesspools, made with the intention of applying them concurrently with the system of emptying by means of a pneumatic tube, which was the object of an application for a patent made by me the 12th January, 1882, Serial No. 49,932. Instead of conveying the tanks filled with night-soil to a special place to be emptied by means of the pneumatic tube, as has been stated in the preceding application, the said tube may be laid in the ground or in the sewers in proximity to the houses, to which the tanks and strainers of this invention may be connected by means of pipes, the tanks and strainers being placed in the cesspools of the houses and underneath the public urinals. With this end in view, I can either suppress or improve the permanent cesspools established in houses, where, under the present system, the night-soil accumulates and rests for a too long period of time. I also employ some novel arrangements for preserving the urine, from which various useful products may be obtained, and for preventing it being lost in the sewers, where at the present time it is a source of infection.

In the drawings, Figure 1 represents a vertical cross-section of a tank for receiving the night-soil. Fig. 2 is a similar section of the same parts when the lower cesspool is pro-

vided with a self-acting valve. Figs. 3 to 8 represent modifications hereinafter more fully described.

The cesspool or tank B, (shown in Fig. 1,) for the reception of the night-soil, can be placed above ground, as represented in the figure; or the tank and chamber B can be placed in the old-existing cesspools, in order to take advantage of them after they have been properly repaired.

The soil-pipe A, Fig. 1, discharges into a perforated cage, C, which is contained in a chamber or tank, B. Said chamber B has an open bottom, and is fitted on top with an air-tight door, through which the cage may be withdrawn. This cage C is made of metallic lattice-work in such a manner as to allow the liquids and semi-solid matters to pass, and to retain only the solid matters. Within this grating or cage points are fixed, which catch and tear the wet paper. From the cage C the liquid and semi-liquid matter passes through chamber B into the wrought-iron cesspool D, which is provided with an air-tight man-hole, E, and which is connected by pipe F to the pneumatic tube H, passing into the sewer.

G is a sluice serving to control the communication of the cesspool D with the conduit H. By this new arrangement of fixed cesspool the solid matters remain in the cage C, and the semi-solid bodies or liquids fall into the iron cesspool D, which may be emptied as often as may be desired by simply opening the sluice G. The lower cesspool may have a self-acting valve, as shown in Fig. 2. In this figure the letter *a* represents the lower metal tank fixed upon a supporting-frame, *b*, and surmounted by a cage, C.

To the bottom of the tank *a*, which is conical, is attached the pipe or siphon *e*, which is in communication with the exhausting discharge-tube *f*. The valve *g* interrupts or establishes at will the emptying action into the siphon. The mouth of the tube *e* in the bottom of the tank *a* is closed by a valve, *h*, whose stem has a cross-head, *i*, sliding upon guide-rods *j*, and provided at its two ends, outside the guide-rods *j*, with floats *k*, of an ovoid form, the use of which will be explained farther on. Lastly, the tank *a* contains a hemispherical

shield or spreader, l , placed directly underneath the cage C , and supported by books or brackets m , so that the night-soil falling from the cage is thrown against the sides of the tank, and is thus prevented from clogging the valve h or in any way preventing its working. When the level of the mass has risen nearly to the thickest part of the floats k , as represented on the drawings, they are raised and lift with them the valve h , which thus opens the orifice of the siphone e , into which the matter immediately passes, owing to the exhausting action of the pneumatic discharge-tube, the valve g having been previously opened. The floats k are made of an ovoid form in order to obtain as large a space as possible between the mouth of the pipe e and the valve h when raised, as the opening necessary for the passage of the semi-solid matters requires to be comparatively large. The sectional area of the floats k is calculated in such a manner that they will, when their buoyancy causes them to rise to a certain height, overcome both the pressure upon the valve h , caused by the liquid mass in the tank, and also the atmospheric pressure upon it, due to the vacuum in the pipe e . As this pressure diminishes immediately the valve rises, the floats k will rise to a point where their displacement will be sufficient to balance the system, such rise necessarily lifting the valve h to a corresponding extent. A urinal, A^3 , may be erected on the tank a , as shown in Fig. 8.

Fig. 3 is a vertical section of a modified arrangement of receiving and discharging apparatus, based upon the same principle, but arranged laterally side by side, instead of being superposed in the way that has just been described. In this figure is shown a modification in the receiving apparatus on the right with regard to the position of the cage. Fig. 4 is a corresponding plan view. Fig. 5 represents an exterior elevation of the discharger. Fig. 6 represents a similar elevation of the receiver. Fig. 7 represents a vertical section of another arrangement of the cage, mounted upon a pivot in such a way that a rotary movement more or less rapid can be given to it at will.

As in the preceding manner, the soil-pipe A opens into the receiving apparatus B , which contains the cage C , and which is closed by a door, G^2 , allowing this cage to be inspected and foreign bodies to be removed. The receiving apparatus B is in communication with the discharging apparatus E^2 by means of a pipe, D^2 , placed at its lower part. The apparatus E^2 is intended to take the place of the tank D . (Shown in Fig. 1.) The discharger E^2 has within it the metal float F^2 , maintained and guided in its vertical movement by a bar, H^2 . This float has at its lower part a valve, a^2 , of india-rubber or other suitable material, closing the orifice of communication, b^2 , with the sewer. When the semi-liquid and solid matters reach the level 11 in the discharger the float F^2 is raised and allows the matter to pass into the conduit until the liquid reaches the lower level, 22.

e^2 is a metal tube establishing communication between the receiver B and the discharger E^2 at their upper parts. The object of the cage or grating C is to prevent the passage into the conduit of any foreign or solid bodies which might have found their way into the soil-pipe without in any way preventing the passage of the liquid and semi-solid matters. The bottom of the cage is provided with points i^2 , which divide and tear such foreign bodies as paper, thus aiding in their decomposition, and in consequence their escape from the cage into the conduit. The arrangement of the receiver represented at the right of Fig. 3 is intended to aid this decomposition of the foreign bodies, and this by partly immersing the cage C in the liquid matter.

I succeed in avoiding the frequent blocking up of the cage C by mounting it upon a pivot, which transforms it into a kind of hydro-extractor, as represented in Fig. 7. For this purpose the bottom of the cage is provided with a pivot, k^2 , which is seated in a socket, l^2 , and this pivot is provided with a bevel-pinion, which gears with a conical wheel, o , on the shaft p . This shaft, which finishes off square in order that a handle may be fixed to it, is hung in the lower part of the receiving-tank B , and works through an air-tight stuffing-box in order to prevent any escape from the said apparatus or any dismounting taking place. At its upper part the rotary cage is guided and maintained in position by a gudgeon, m^2 , turning freely in a hub of the iron cross n . It is easy to understand that by this arrangement I can give a rotary movement to the cage C , which will vary in speed according to the difference that there is between the diameters of the toothed wheels. The action of the centrifugal force will produce a sieving action upon the bodies inclosed within the cage, which will only retain the matters that absolutely cannot be decomposed or that cannot be sufficiently divided. By this last-named arrangement, and by turning the cage at suitable intervals, I reduce the necessity of frequent inspections of the basket, and thus obtain a result as near perfect as possible.

I claim—

1. The combination of the tank B with soil-pipe A , inner perforated cage, C , lower discharging-tank, and communicating pneumatic suction-pipe, substantially as herein shown and described.

2. The chamber B , combined with inner perforated cage, C , having internal prongs, i , substantially as and for the purposes herein shown and described.

3. The discharge-tank, combined with the exhausting discharge-pipe, upper supply-tank, and valve h , carrying a float or floats, substantially as and for the purpose specified.

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