Dec. 31, 1940. C. CLERICI 2,226,968

BASIN FOR CLARIFYING AND CLEANSING DIRTY AND DRAIN WATERS

Filed Nov. 29, 1938

Fig. 1.

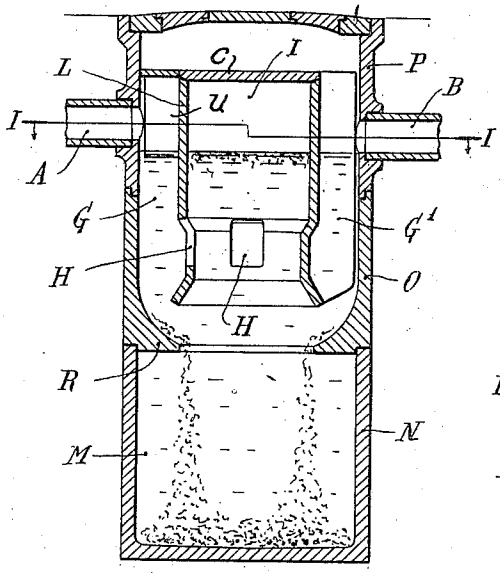


Fig. 2.

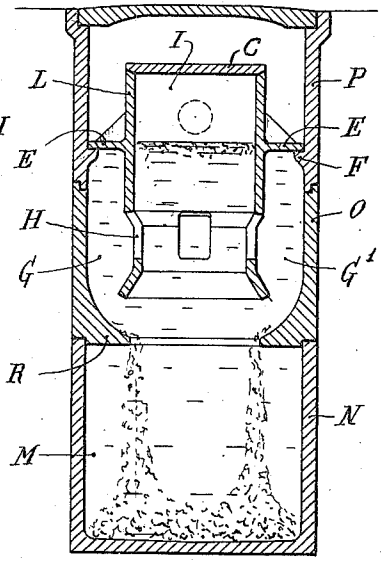
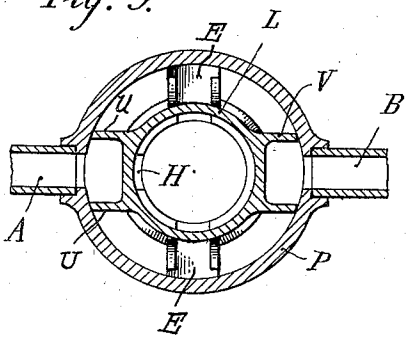


Fig. 3.



C. Clerici
Inventor

By: Glascock Downing & Seebold
Attys.

Patented Dec. 31, 1940 2,226,968

UNITED STATES PATENT OFFICE

2,226,968

BASIN FOR CLARIFYING AND CLEANSING DIRTY AND DRAIN WATERS

Carlo Clerici, Como, Italy

Application November 29, 1938, Serial No. 243,003
In Italy December 6, 1937

2 Claims. (Cl. 210—6)

The present invention relates to a basin for the clarification and purification of foul water and sewage.

The attached drawing shows schematically a practical construction of the basin according to the invention, for a simple demonstration, not limiting the construction to the example. In the said drawing are represented by: the Figures 1 and 2, two longitudinal sections; Figure 3 a horizontal section along the line I—I in Figure 1; Figure 4 a view from above.

The arrangement is formed and acts as follows:

The dirty waters enter, through an admitting mouth A directly into a clarifying chamber G—G', which is formed by an envelope, which in its turn is constituted by two surmounting parts O, P. The lower border of the lower part O presents a peripherical projecture R towards the inner side, in the shape of a funnel. Under the chamber G—G' there is placed a depositing chamber M, formed by an envelope N. In its own interior, the chamber G—G' presents a separating chamber I, formed by a casing L, open at the bottom and closed at the top by a removable lid C. This casing is provided with windows H on the part of its wall that faces the pipe A and on the lateral parts of the wall. Moreover it is provided at the top with horizontal fins E, serving to keep it suspended in the chamber G—G', and bearing upon projections F on the receptacle P. The receptacle L is moreover provided with two vertical fins U, arranged one on each side of the mouth of the pipe A, and with two vertical fins V arranged one on each side of the mouth of the pipe B. The fins U terminate at the level of the liquid, while the fins V descend to the lower edge of the receptacle L.

The heavy materials fall directly on the bottom of the chamber M, whilst instead the light materials are gathered in the chamber I, in passing either through the windows H, or under the lower border of the envelope L.

In the chamber I these materials are fermenting, decomposing through biochemical transformation and hemolyse process, then they too in a good proportion come to fall, in the form of flakes, on the bottom of the chamber M.

The muds gathered in M enter through an increased fermenting process, with overheating, and undergo, from the part of the developing micro-organisms, the known decomposing action, biochemical transformation, solubilization. In the same time they are developing abundant quantities of melan and carbonic gas, which in form of bubbles are ascending vertically and are gathered in the top space of the chamber I, above the liquid.

The micro-organisms, after having finished their above said dissolving action on the heavy materials gathered on the bottom of the chamber M are dragged by the said bubbles into the chamber I, where they repeat their action on the light materials, which there remain still in suspense. Reaching then the surface of the liquid in the chamber I, above which there are the aforesaid melan and carbonic gas with an almost absolute absence of oxygen, the said micro-organisms are put in impossible conditions of life and then must die.

To the discharging mouth B the waters arrive clear, fresh, not putrescent, harmless to animal life and can therefore plainly and without danger of defilement be put into the waters of underground pipes, lakes, rivers, torrents, covered and discovered brooks, absorbing wells, etc.

Considering the minimum percentage of the heavy materials, which are practically ascertained in the dirty and drain waters; the considerable reduction of the materials themselves owing to the yeasts, to which they have been repeatedly submitted; the quantity of materials, which are conveyed in a colloidal form by the discharging waters and which are rendered harmless by the biochemical decomposition and transformation, the deposits which are to be mechanically removed from the basin M are very small. According to the practice their extraction can be effected every two or three years (after inspection), and this by special shovels, and better still, if possible, by the ordinary hydro-barometric system in use for expurging common sewers.

The basin's capacity will be calculated every time according to the prescriptions of biologists in this matter, and according to the quality of the waters.

The advantages offered by the invention are of a technical-economical, and of a hygienal order. The first ones are given by the greater simplicity of building up and acting, and by the difficulty of clogging and obstructing, whereby its action might be impaired. The other advantage is afforded by the good protection granted by the double closure.

The various constituting parts can be conveniently built up by cement, eventually water-

proof and armoured cement, or by any other suitable stuff.

What I claim is:

1. Basin for the clarification of impure water, comprising a lower receptacle in which the sludge and heavy materials are deposited, a receptacle above and of the same diameter as the lower receptacle and having a bottom in the shape of a hopper apertured at the center, a tubular envelope above and of the same diameter as the hopper-shaped bottom, a removable cover, said envelope being closed at the top by said removable cover and provided in its wall with an inlet aperture and an outlet aperture for water arranged at about the same level and in diametrically opposite positions, projections internally of said envelope at about the height of the upper surface level of the water, a bell-like casing within the receptacle and envelope having a removable lid and a mouth directed towards the aperture of the hopper-shaped bottom, external fins on the bell-shaped casing bearing upon the said projections, four vertical fins on the bell-shaped casing, two of said fins extending downwardly from the upper edge of the bell-shaped casing and arranged on both sides of the said water inlet aperture, the two other fins extending downwardly from the upper edge of the bell-shaped casing as far as its lower edge and arranged on the two sides of the said outlet aperture for the water, and windows in the vertical wall of the bell-shaped casing arranged only below the inlet aperture and upon the sides of the bell.

2. A basin as claimed in claim 1, characterized in that the two first mentioned fins extend from the upper edge of the bell-shaped casing to the level of the water.

CARLO CLERICI.