G. E. EMANUEL.

CLARIFYING DEVICE.

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1,158,034.

Patented Oct. 26, 1915.

Fig. 1.

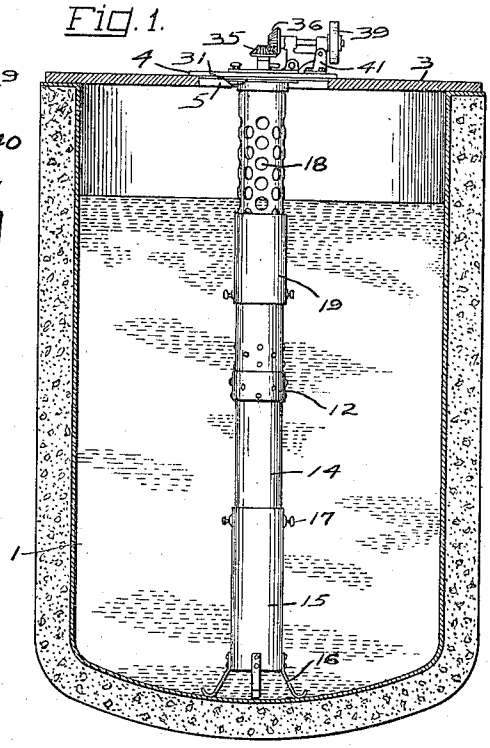


Fig. 2.

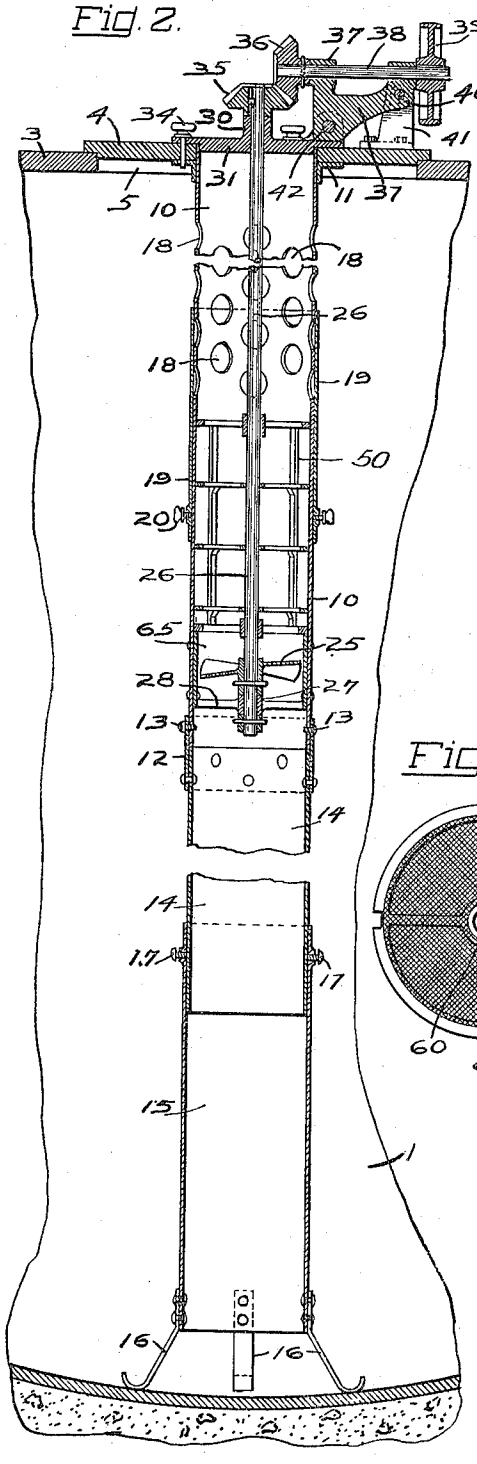


Fig. 4.

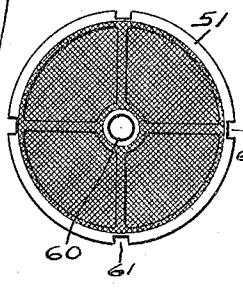
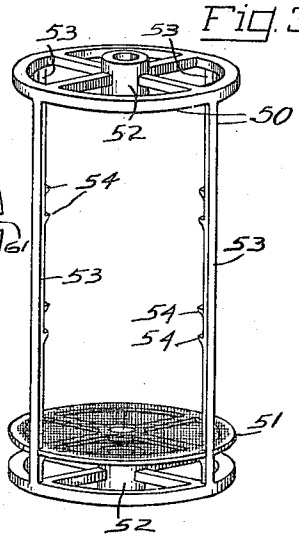


Fig. 3.



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CLARIFYING DEVICE.

1,158,034. Specification of Letters Patent. Patented Oct. 26, 1915.

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To all whom it may concern:

Be it known that I, GERRY E. EMANUEL, a citizen of the United States, and a resident of Edgerton, in the county of Williams and State of Ohio, have invented a certain new and useful Clarifying Device; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

My invention relates to means for manipulating fluids whereby they may be treated, modified or solutions may be formed. The invention may be used for a great variety of purposes where liquids are to be treated, such as, filtered, or salts contained in a solution are to be gradually precipitated or where water is to be purified or clarified.

I have shown the invention as used in connection with cleaning the water of cisterns without the necessity of removal of the water. By my invention the water is circulated and agitated and caused to pass through one or more filters whereby the walls of the cistern are cleaned and the water is clarified. Also, deodorizing or disinfecting compounds may be added to the water or the water may be otherwise treated as may be desired within the limitations of my invention.

The invention may be contained in many forms of constructions, usable for different purposes all of which come within the purview of my claims hereinafter appended. To show the practicability of my invention, I have selected one of such constructions as an example and shall describe it hereinafter.

The construction selected is illustrated in the accompanying drawings.

Figure 1 of the drawings illustrates a side view of a cistern cleaner containing the invention. Fig. 2 illustrates a sectional view of the device illustrated in Fig. 1, and Fig. 3 illustrates the filter frame for containing and supporting filter plates or receptacles containing filter materials, such as, charcoal and sand or other materials, such as, salts, according to the use to which my invention may be put. Fig. 4 illustrates a filter plate.

1, Fig. 1 of the drawing, is a vat or other container or receptacle. In the form of the invention illustrated, it is a cistern containing water. It is provided with a cover 3. The apparatus used for cleaning the water contained in the cistern is secured to or mounted upon a plate 4 which may be so made as to cover the opening 5 formed in the top or cover 3 of cisterns. A pipe 10 is secured to the plate 4 by means of a collar 11 and threaded screws 34. It has an extension 14. A third pipe 15 may telescope over the pipe 14 for the purpose of varying the length of the connecting pipes according to the depth of the cistern. The pipe 15 may be secured in its adjusted position along the pipe 14 by means of the screws 17. The pipes may also be supported by means of the legs 16.

The upper end of the pipe 10 is provided with a plurality of openings 18. The openings 18 cover considerable length of the pipe 10. Also, the upper end of the pipe 10 is provided with a shield 19 which covers the perforated portion of the pipe 10 to a more or less extent according to the position in which the shield 19 is placed. The shield 19 is provided with screws 20 for locking the shield 19 in its position on the pipe 10. The shield 19 is adjusted according to the depth of the water in the cistern so as to allow the surface water to pass into the connected pipes.

A means is provided for causing the circulation of the water through the connected pipes. By the construction of the pipes the water will pass from near the surface, downward to the bottom of the cistern or the reverse may be performed, if desired. The water, while so circulating through the pipes and the cistern, is stirred and agitated and washes the bottom and walls of the cistern gathering material and collecting vegetable or organic sediments as well as mineral or in-organic deposits.

To produce circulation of the water through the pipes. I have provided a propeller 25 which is keyed to a shaft 26. The shaft 26 is supported in a bearing 27 which is secured by a spider 28 to the pipe 10 and in the bearing 30 which is formed in a boss on the plate or disk 31 which fits into the end of the pipe 10 and is secured to the cover 4 by means of the screws 34 which also secures the collar 11 to the cover 4. The propeller 25 and bearing 27 are located near the collar 12 affording access thereto by unscrewing the screws 13, and disconnecting the parts of the pipe.

A suitable means is provided for causing

the rotation of the propeller 25 and the shaft 26. In the drawing is shown a bevel gear 35 which is keyed to the shaft 26 and also a bevel gear 36 which is supported on a hinged frame 37. The gear wheel 36 is keyed to the shaft 38 and is rotated by the pulley wheel 39 which is also keyed to the shaft 38. The frame 37 is pivoted by a pin 40 to two uprights 41 located on opposite sides of the frame 37. Also, the frame 37 is secured to the plate 31 by means of the pin 42 which extends through a pair of ears or lugs formed on the top of the plate 31. This also keeps the shaft 38 in alinement with the axis of the shaft 26 for proper operation of the gear wheels. When it is desired to remove the pipes 10 or otherwise manipulate with the apparatus without removal of the cover 4, all that is necessary is to remove the pin 42 and the screws 34 whereupon the hinged frame 37 may be swung back on the pivot 40 while the wheel 39 passes between the supports 41 and the gear wheel 36 is thrown upward and outward. This permits the lifting of the pipes 10 a short distance. Also, if desired, the gear wheel 35 may be removed from the shaft 26 and the plate 31 may be removed from the cover 4.

A filtering means is shown in the particular embodiment of the invention illustrated in the drawing. 50 is a frame which may be used for supporting filter plates or receptacles 51. The frame 50 fits the interior of the pipe 10 and is provided with hubs 52 which fits over the shaft 26. The frame 50 is provided with four vertical rods 53 having lugs 54 which engage the edges of the filter plates or recetpacles 51. As many filter plates or receptacles as may be desired may be inserted in the frame and supported by the lugs 54. The filter plates or receptacles may be made of any form and may have different filtration effects upon the liquid that is circulated through the frame. One of the plates or receptacles may contain charcoal. Another of the plates or receptacles may contain sand. Also, the plates may be made of different materials or fabrics and may have different degrees of fineness, according to the various conditions that may be met with and according to the uses to which the invention may be put. Each of the plates or receptacles 51 is provided with a hub 60 which fits around the shaft 26. Also, each plate or receptacle is provided with notches 61 which fit over the vertical rods 53 so as to close the outer edge of the plates or receptacles 51 and prevent the escape of the liquid by the plate at the periphery thereof.

The pipe 10 may be provided with a collar 65 which is secured within the pipe 10 and may be riveted thereto. The frame 50 rests upon the collar 65. If it is desired to clean or change the filters, the frame may be removed by removing the plate 31 from the upper end of the pipe 10 and then lifting by means of a hooked wire or rod the frame 50, which will slip along the shaft 26. The plates or receptacles 51 may be replaced or cleaned or altered, or new material may be inserted therein and the frame containing the plates may be again dropped to position within the pipe 10 and allowed to rest on the collar 65. The plate 31 may then be replaced on the shaft 26 and the gear wheel 35 keyed to the shaft whereupon the gear wheel 36 and the frame 37 may be dropped to position and secured therein by means of the pin 42. The wheel 39 and the gear 36 may then be rotated which will cause the propeller 25 to circulate the liquid through the connected pipes 10, 14 and 15 and cause the liquid to wash the bottom of the cistern and circulate to the surface of the liquid and pass down through such opening 18 as may be located above the upper end of the shield 19 and into the pipe 10 and through the filters located therein until the water is clarified and purified.

The invention may be greatly modified by those skilled in the art without departing from the spirit thereof. Also, the particular construction selected and described may be greatly varied in the arrangement and manufacture of its parts and in the substitution of elements having equivalent functions and such constructions may be used for many varied purposes and still contain the invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is,—

1. The combination of a pipe having perforations at the upper end thereof, an adjustable shield for closing a part of the perforated portion of the pipe, the lower end of the pipe having a telescoping pipe, a propeller located within the pipe, and means for treating the fluid as it passes from the surface of the liquid through the pipe to the bottom of the container.

2. The combination of a pipe having at one end a perforated portion and an adjustable shield for covering more or less of the perforated portion, a telescoping pipe located at the lower end, a propeller located within the pipe, a filter located above the propeller, a removable plate for closing one end of the pipe, bevel gear wheels for driving the propeller, a hinged frame, one of the gear wheels rotatably mounted on the said hinged frame whereby the other gear wheel and plate may be removed.

3. The combination of a pipe, a shaft supported in the pipe, a propeller secured to the shaft, a shiftable filter frame surrounding the shaft and movable along the shaft and the pipe.

4. The combination of a pipe, a shaft sup-

ported in the pipe, a propeller secured to the shaft, a shiftable filter frame surrounding the shaft and fitting the shaft and the interior of the pipe.

5. The combination of an adjustable telescoping pipe, a shaft supported in the pipe, and having bearings in one of the parts of the pipe, a propeller secured to the shaft, a shiftable filter frame surrounding the shaft.

6. The combination of an adjustable telescoping pipe, one of the parts of the pipe having port openings, a shiftable shield surrounding the part having the openings, a shaft supported in the pipe, a propeller secured to the shaft, a shiftable filter frame located in the port having the openings and below the openings and surrounding the shaft and fitting the shaft and pipe.

In testimony whereof I have hereunto signed my name to this specification.

GERRY E. EMANUEL.

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