

S. T. WILLIAMS.
Duct for Filter Beds.

No. 231,131.

Patented Aug. 10, 1880.

Figure 1.

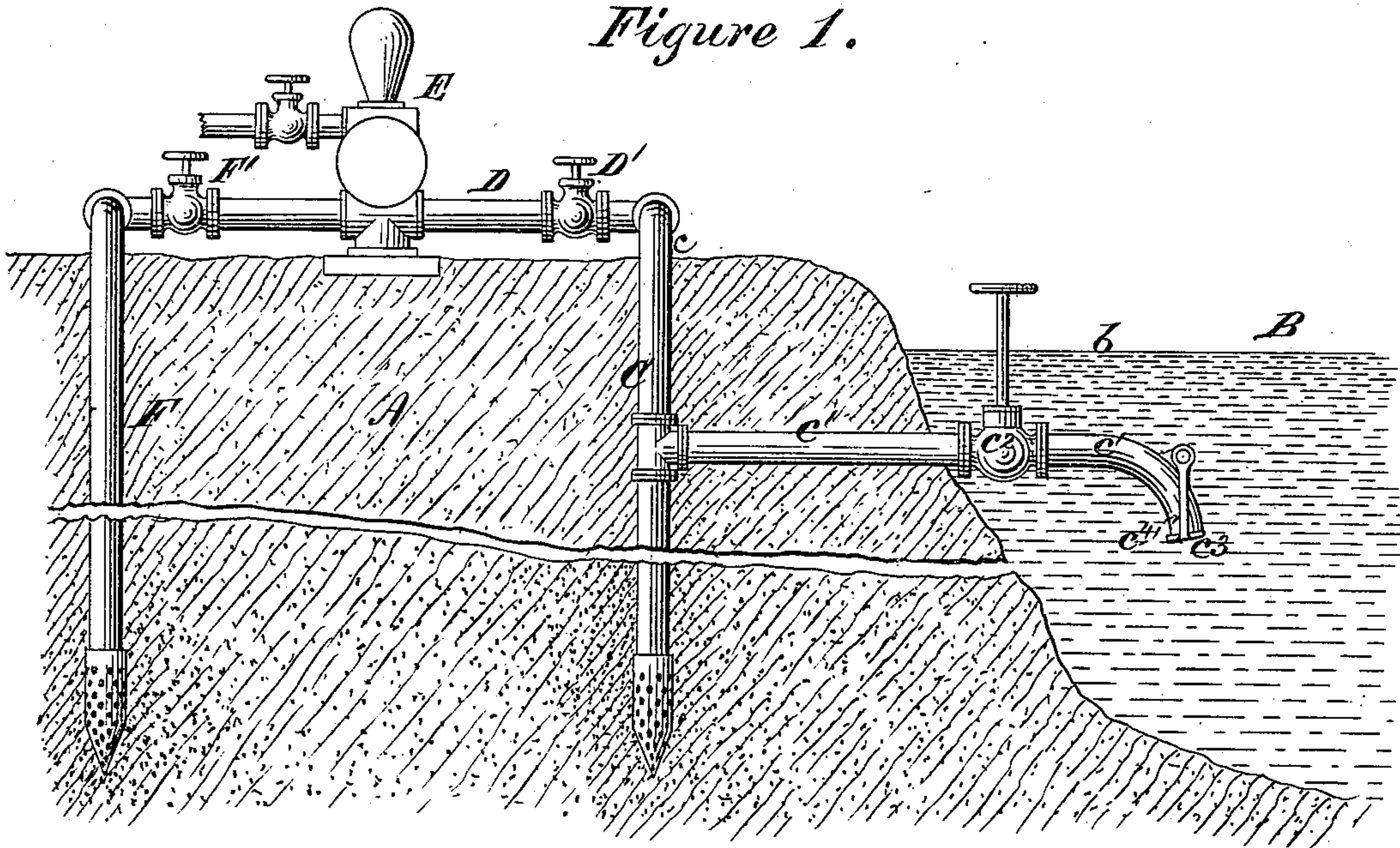
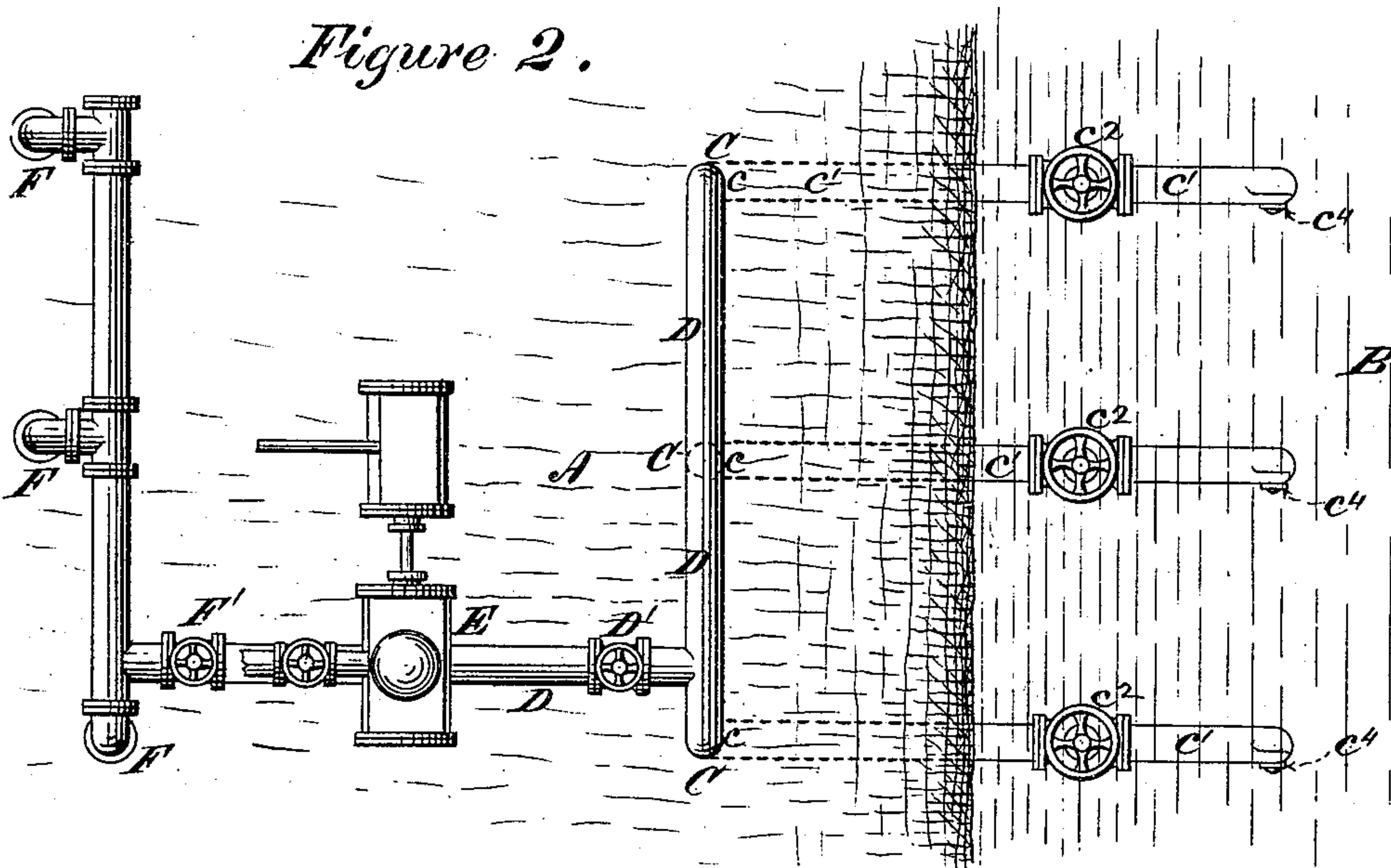


Figure 2.



Witnesses:

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att'y.

UNITED STATES PATENT OFFICE.

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DUCT FOR FILTER-BEDS.

SPECIFICATION forming part of Letters Patent No. 231,131, dated August 10, 1880.

Application filed January 5, 1880.

To all whom it may concern:

Be it known that I, SAMUEL T. WILLIAMS, of Red Bank, New Jersey, have invented certain Improvements in Ducts for Filter-Beds, of which the following is a specification.

It is a common practice to locate pumping-wells for the supply of water-works near rivers, ponds, or reservoirs, for the purpose of utilizing the earth or gravel of the river or reservoir bank as a filter-bed for purifying the water, which percolates through the earth or gravel to reach the wells. In such cases a sedimentary deposit is frequently found upon the surface of the filter-bed, which obstructs the admission of water into the filter-bed and requires removal at greater or less intervals. As the sediment frequently penetrates the surface of the river or reservoir bank or filter-bed to a depth of six inches or more, its removal is inconvenient and expensive.

It is the object of my invention to provide a simple and efficient means for conducting the water from a river, pond, or reservoir into the filter-bed, and for conveniently removing sedimentary deposits which tend to obstruct the supply of water to the filter-bed.

To this end my invention consists, first, in the insertion, to any required depth into the bank of the river, pond, or reservoir, of a suitable number of tubes having their receiving ends projecting from the bank and terminating beneath the surface of the water, and preferably turned vertically downward, and respectively provided with valves by means of which they may be closed; secondly, in connecting these several pipes with the induction-pipe of a pump, so that by closing the valves at the mouths of the pipes and operating the pump sedimentary deposits at the lower or discharging ends of the pipes can be pumped out. The object in bending the upper or receiving ends of the pipes downward is to enlist the force of gravity for diminishing the tendency to enter the pipes of the heavier sedimentary matter which may be contained in the river or pond water. This object is further promoted by means of a removable screen or coarse filter secured in or upon the downwardly-projecting receiving ends of the pipes. These pipes do not lead into the wells or basin from which the

water is to be pumped, but simply terminate in the stratum of earth which serves as the filter and through which the water percolates to reach the wells or basin from which it is pumped.

My invention is peculiarly applicable for the supply of water from a river, pond, or reservoir through a filter-bed to so-called "driven wells," in which the hydrostatic pressure, alone operating to fill ordinary wells, is re-enforced by the action of atmospheric pressure.

In the accompanying drawings, representing a system of filter-ducts embodying my invention, Figure 1 is an arbitrary representation of a transverse vertical section of a portion of a pond or river bank which constitutes a filter-bed, showing one of my filter-ducts provided with a valve at its receiving-end and connected with the induction-pipe of a pump, also showing a driven-well tube by means of which water is drawn from the filter-bed. Fig. 2 is a plan of my filter system, exhibiting a number of filter-ducts, each joined to a horizontal pipe leading to a pump, which is also connected with a system of driven wells, so that it may be used alternately to pump water from the driven wells or, by opening and closing the necessary valves, to pump out sedimentary deposits from the filter-ducts.

The drawings represent a filter-bed, A, forming a portion of the bank or bed of a river, pond, or reservoir of water, B.

Iron tubes, C, driven or otherwise inserted in the earth, form the ducts for the conveyance and introduction of water into the filter-bed at points which may be any required distance within or below the bank or bed of the pond or river.

The upper ends, *c*, of the pipes or ducts C are connected by means of the horizontal pipes D, provided with the valve D', with the pump E, which is also connected with the driven-well tubes F F F.

A downwardly-bent branch pipe, *c'*, constituting the receiving end of the duct, is affixed to each of the tubes C at or near the place of its connection with the horizontal pipe D. Each branch pipe terminates at any desired distance beneath the surface *b* of the water B, and is provided with a valve, *c'*, by means of

which it may be closed when it is desired to pump sedimentary deposits from the duct C. The open lower end of each branch pipe is provided with a removable guard, c^3 , which is composed of wire screens or other porous material.

In operating my apparatus, whenever the necessity arises for clearing the discharging ends C' of the filter-ducts from sedimentary deposits the valves c^2 are closed, the valve D' is opened, and the valve F' , connecting the pump E with the driven wells F, is closed. The pump being then started, the sedimentary deposits contained in the ducts are pumped out. All the valves are then reversed and the filter-ducts resume their function, as before, in conducting water from the river, pond, or reservoir into the filter-bed.

If the receiving end c' of the duct becomes clogged, the guard or screen c^3 is removed by means of the suspending-rod c^4 , and is then easily cleaned and replaced.

I claim as my invention—

1. A duct for a filter-bed, substantially such as described, provided with a valve at its receiving end and having a connection with a pump for pumping sedimentary deposits from the duct, substantially as set forth.

2. A pumping well, basin, or tank, in or near a filter-bed adjacent to a river or reservoir of water, in combination with a pipe or duct connected with a pump, such duct being inserted into the earth and terminating at its discharging end in or upon the filter-bed and having its receiving end beneath the surface of the water in the river or reservoir, substantially as and for the purpose described.

3. The combination of the filter-duct C, provided with the branch pipe C' , with the removable guard or screen c^3 , substantially as and for the purpose set forth.

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Witnesses:

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