No. 607,155. Patented July 12, 1898.

H. BLEAKLY & F. L. VESSERIAT.

FILTER.

(Application filed Dec. 18, 1897.)

(No Model.) 2 Sheets—Sheet 1.

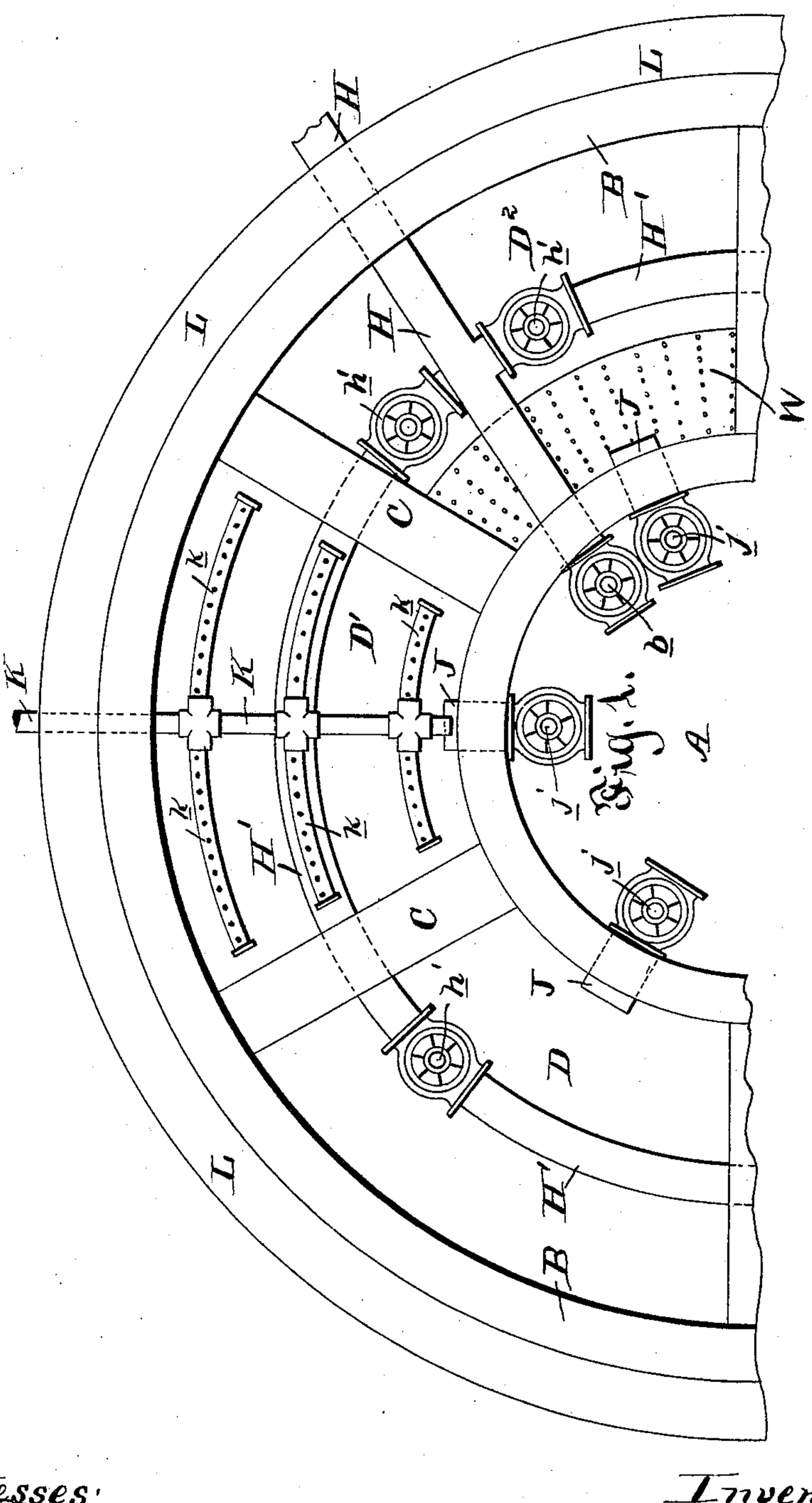

Fig. 1.

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By Miles B. Stevens & Co., Att'ys.

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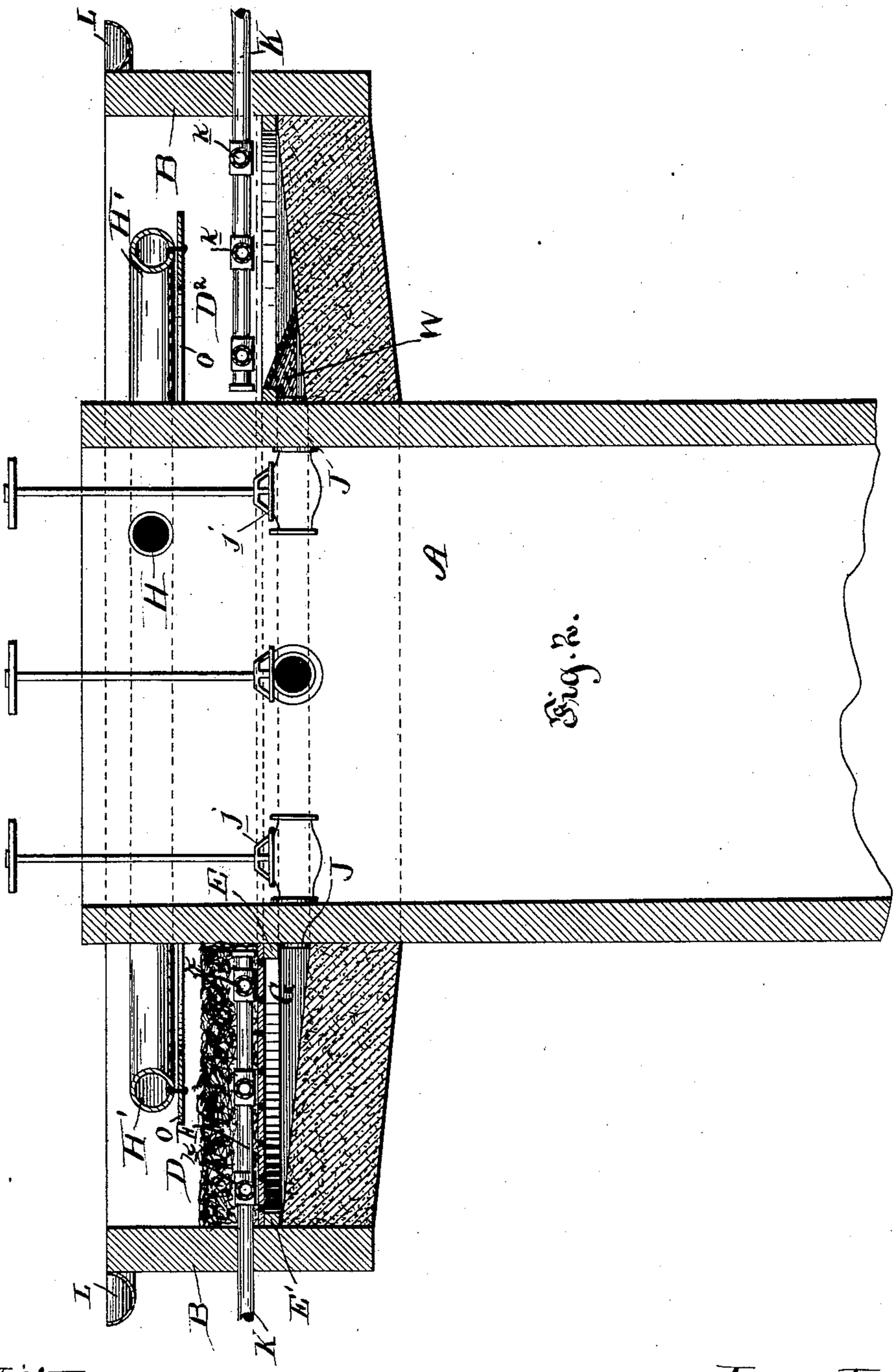

Fig. 2.

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UNITED STATES PATENT OFFICE.

HUGH BLEAKLY AND FRANK L. VESSERIAT, OF ALLIANCE, OHIO.

FILTER.

SPECIFICATION forming part of Letters Patent No. 607,155, dated July 12, 1898.

Application filed December 18, 1897. Serial No. 662,440. (No model.)

To all whom it may concern:

Be it known that we, HUGH BLEAKLY and FRANK L. VESSERIAT, citizens of the United States, residing at Alliance, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Filters; and we 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.

This invention relates to an improvement in filters designed more particularly for filtering the water of streams, rivers, and lakes prior to its introduction into the general distributing system.

Heretofore many systems for filtering water prior to its introduction into the mains of towns and cities have been suggested. As far as we are aware such suggestions or systems have been expensive, as well as quite extensive in their proportions and arrangements.

The object of our invention is to produce a very economical filter of relative small proportions and into which the muddy water of rivers, &c., can be introduced quickly and filtered and forced into the distributing system in a pure uncontaminated state.

A further object of the invention is the provision of means for rapidly cleansing the filter-bed without the necessity of removing the same.

The invention is embodied in the construction and arrangement hereinafter described, and defined in the claims.

In the drawings, wherein like letters of reference designate corresponding parts in both views, Figure 1 is a top plan of one-half of the filter, the portion not shown being in all material respects the same as that shown. In this figure the compartments are shown with the filling material removed. Fig. 2 is a vertical longitudinal section showing at one side a slightly-modified form of strainer.

The filter of our invention is designed to be arranged adjacent to the supply, the water flowing into the same by gravity.

In the preferred form we construct the filter circular; but we desire it understood that other shapes can be adopted.

A designates a central well from which the supply for the distributing-mains is pumped through any approved form of pipe connection. Surrounding the upper portion or curb of the well and located some distance therefrom is the outer wall B of the filter-compartments, the upper edge of which is below the plane of the top of the well-curb.

C designates division-walls dividing the space between the wall of the well and the wall B into compartments D D′ D². The bottoms of these compartments are cemented or sealed in any desirable manner, so that they will be water-tight, their upper surfaces being inclined toward the well. In the preferred form we construct ledges or shelves E E′ on the walls of the compartments and place thereon perforated plates F, the ledges being on the same plane, thereby forming inclined chambers, as G, below the plates. Above the plates are the filter-beds, of any suitable material.

H designates the supply-pipe, passing directly through one of the compartments above the bed and terminating in the well, at which point a valve *b* is placed. Within the compartment branch pipes H′ lead from the supply-pipe through the respective compartments. These pipes are perforated along their lower faces, so that the water escapes therefrom onto the beds. Valves *h′* are placed in the branch pipes at suitable points, so that certain of the compartments can be shut off from the supply.

Leading from the lower portions of chambers G into the well are pipes J, which are ontrolled by suitable valves *j*.

To clean the filter-beds, we arrange in each at or near the bottom a supply-pipe K, which has lateral branches *k*. These pipes are suitably perforated, and the pipe K is connected with a pump or other device for forcing water therethrough, so that the water issuing from the perforations will have sufficient force to dislodge all impurities. The valves *j* being closed, the impure cleansing-water will rise in the compartment and flow over the wall B into a gutter L at the edge of the wall.

In some instances we may desire to dispose of the perforated plates, in which case a wire-netting W is placed at an angle across the lower portion of the chambers, as shown at the right, Fig. 2, or we can arrange part of

the compartments with the plates and part with the wire-netting.

In operation when the supply is clear it can be introduced directly into the well by opening the valve *b* and closing valves *h'*; but should the water become foul or dirty the valve *b* is closed and valves *h'* opened, introducing the water to the beds.

By having the beds separated one or more can be cleansed at the same time that others are in use.

To prevent the incoming water disturbing the bed, we conveniently place below the outlets suitable deflector-plates O.

It is apparent that slight alterations and changes in the arrangement can be made without departing from the nature and principle of the invention.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In a filter of the kind described, the combination with a well, of a series of separated filter-bed compartments surrounding the upper portion thereof, valved discharges from the compartments into the well, a perforated supply-pipe extending through the compartments, valves for controlling the same, cleansing-pipes in the compartments the cleasing-water escaping from the compartments at points below the well-curb, substantially as described.

2. In a filter, the combination with a central well, of a series of independent filling-compartments at its upper end each having inclined bottoms, and valved discharge-pipes leading into the well, perforated partitions between the pipes and filtering material, a supply-pipe leading to the compartments, and water-pressure pipes located near the bottoms of the compartments and having jet perforations therein, substantially as described.

3. The combination with a well, of filter-compartments at the upper end thereof having inclined bottoms, horizontal plates spanning the compartments and supporting the filter-beds, a supply-pipe entering the well having a valve at its end, branch supply-pipes entering the compartments, valves in the branch and cleansing pipes in the compartments for introducing water into the filter-beds under pressure, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

HUGH BLEAKLY.
FRANK L. VESSERIAT.

Witnesses:
D. E. ROGERS,
WM. STALLCUP.