

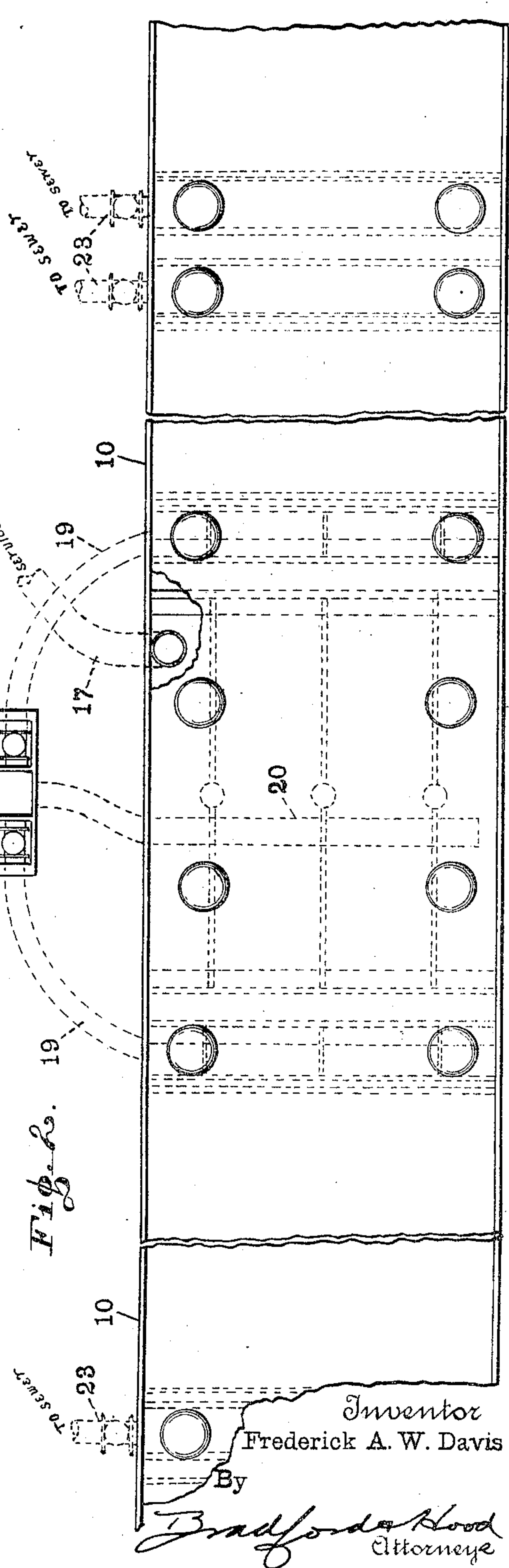
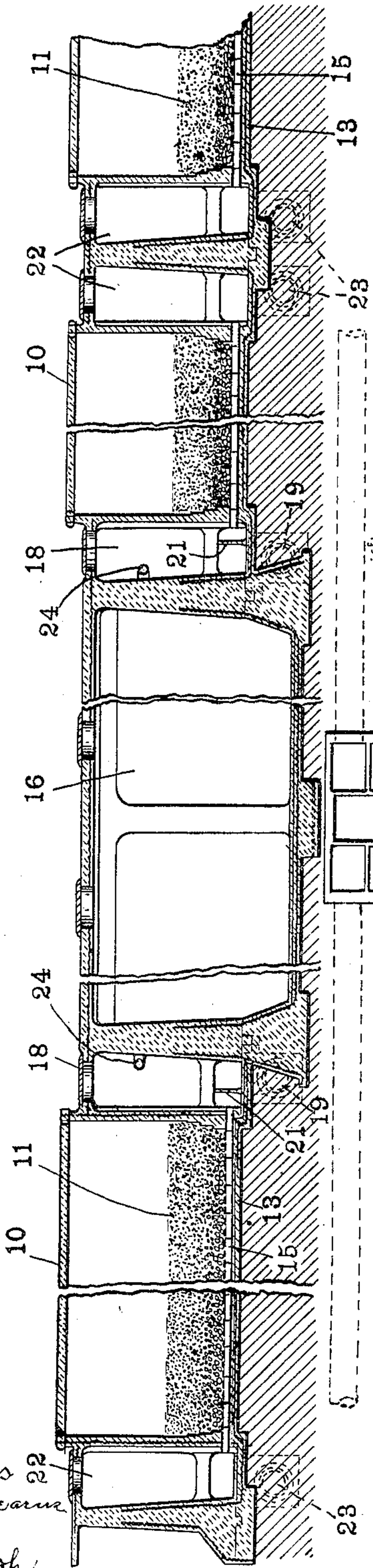
No. 803,096.

PATENTED OCT. 31, 1905.

F. A. W. DAVIS.
FILTERING SYSTEM.

APPLICATION FILED SEPT. 26, 1904.

Fig. 1.



Witnesses
Adelaide Kearns
J. A. Walsh,

Inventor
Frederick A. W. Davis

By
Bradford Hood
Attorney

UNITED STATES PATENT OFFICE.

FREDERICK A. W. DAVIS, OF INDIANAPOLIS, INDIANA.

FILTERING SYSTEM.

No. 803,096.

Specification of Letters Patent.

Patented Oct. 31, 1905.

Application filed September 26, 1904. Serial No. 225,901.

To all whom it may concern:

Be it known that I, FREDERICK A. W. DAVIS, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Filtering Systems, of which the following is a specification.

The object of my invention is to provide an apparatus for filtering water for use of water-works systems and the like which shall be capable of being easily kept clean and in such manner as not to interfere with the clear-water supply or reservoir.

To this end the system consists, preferably, of a main clear-water basin, upon each side of which is arranged a filter-bed, which filter-bed discharges first into a collecting-gallery, which in turn discharges into the clear-water reservoir, and each of the filter-beds also communicating with a collecting or cleaning gallery which is provided with a valved connection with a sewer or other outflow whereby any filter-bed may be separately cut off from the clear-water basin and then flushed to the sewer or other outlet.

The accompanying drawings illustrate my invention.

Figure 1 is a central vertical section of a series of filter-beds, collecting-galleries, and clear-water reservoir embodying my invention; and Fig. 2 is a plan thereof.

In the drawings, 10 indicates a filter-bed holder having an impervious bottom 13, upon which is arranged a plurality of transverse conduits 15, having perforated tops, as described in my Patent No. 730,518, the filtering material 11 lying on top of said transverse conduits. Arranged between a pair of filter-beds, such as described, is a clear-water basin or reservoir 16, from one end of which leads the discharge-pipe 17, which leads to the service pipes of the water system.

Arranged between each filter-bed and the clear-water reservoir is a collecting-gallery 18, which extends alongside the clear-water basin and into which the transverse conduits 15 will discharge. The water from each gallery 18 is conveyed therefrom through a valved pipe 19 to a suitable gate-house and from thence through pipe 20 along the bottom of the clear-water basin 16 to the end opposite from the end from which the pipe 17 leads. In order to guard against sediment reaching the clear-water basin, I arrange in the bottom of each collecting-gallery 18 parallel with the discharge ends of the transverse passages 15 a

vertical baffle-plate 21. The opposite ends of the transverse passages 15 discharge into a gallery 22, which is similar to the gallery 18, except that there are no baffle-plates, and instead of discharging into the clear-water basin each of these galleries discharges through a valved pipe 23 to a sewer or other suitable outflow.

The galleries 18 and 22 and the clear-water basin 16 are preferably provided with permanent covers through which suitable covered manholes extend, as shown, and each gallery 18 is preferably provided with a high-pressure water-pipe 24.

In operation under normal conditions the valves in pipes 23 are closed and the valves in pipes 19 are opened. Raw water deposited upon the filter-beds 11 passes down there-through and into the transverse passages 15, as described in the patent already mentioned, and from thence passes into the galleries 18 and 22, the water passing from gallery 18 through pipes 19 and 20 into one end of the clear-water basin 16 and from thence traveling the entire length of the clear-water basin to the discharge-pipe 17, so that there is no possibility of the accumulation of any dead-water in the clear-water basin.

When it is desired to flush any filter-bed, the valve in the pipe 19, leading from the collecting-gallery 18 of said filter-bed, is closed and the valve in pipe 23 of the collecting-gallery 22 of this bed is opened. The remaining water in the two galleries 18 and 22 will then drain to the outflow, and the operator may then enter gallery 18 and by attaching a hose to the high-pressure pipe 24 thoroughly cleanse the transverse passages 15 and the two galleries 18 and 22.

In the operation of any filter while presumably the water coming from the filter is pure, yet it is a well-known fact that in the course of time living organisms are found in the clear-water basins and passages. It is also well known that the filtering material gradually works down into the passages. It is for these reasons that I provide the galleries 18 and 22, for, as already pointed out, by shutting the connection between the gallery 18 and the clear-water basin an operator may enter the gallery 18 and by means of a high-pressure stream of water sluice out the transverse passages 15, driving the filtering material which has worked downward thereinto over into the gallery 22 and from thence to the sewer. The walls of the gallery 18 may

also be readily cleansed and the material sluiced over through the passages 15 into the gallery 22 and from thence to the sewer. These operations may be accomplished without requiring the long and tedious cleansing of the filter-bed proper and because the operation may be accomplished so readily and without materially stopping operations it makes it possible to repeat the cleaning operations very frequently.

I claim as my invention—

1. A filtering system consisting of a clear-water basin, a filter-bed having clear-water channels at its bottom, a collecting-gallery arranged between the filter-bed and clear-water basin and communicating with the clear-water channels of the filter-bed, a valved passage forming a communication between said collecting-gallery and clear-water basin, a second collecting-gallery, of a size sufficient to permit the entrance of a person, arranged across the opposite side of the filter-bed and also communicating with the transverse clear-water channels thereof, and a valved passage leading from said second collecting-gallery.

2. A filtering system consisting of, a filter-bed having transverse effluent passages arranged at its bottom, a collecting-gallery communicating with one end of said passages, a valved outflow communicating with the opposite end of said passages, a high-pressure water-service arranged in said collecting-gallery, a clear-water basin, and a valved passage forming a communication between said collecting-gallery and the clear-water basin.

3. A filtering system consisting of, a filter-bed having transverse effluent passages at its bottom, a collecting-gallery communicating with one end of said passages, a cleaning-gallery communicating with the other end of said

passages, a valved discharge-passage leading from said cleaning-gallery, a clear-water basin, a valved passage forming a communication between said collecting-gallery and the clear-water basin, and a high-pressure water-service arranged in said collecting-gallery.

4. A filtering system consisting of, a filter-bed having transverse effluent passages at its bottom, a collecting-gallery communicating with one end of said passages, a cleaning-gallery of a size sufficient to permit the entrance of a person and communicating with the other ends of said passages, a valved discharge-passage leading from said cleaning-gallery, a clear-water basin, and a valved passage forming a communication between said collecting-gallery and the clear-water basin.

5. A filtering system consisting of, a clear-water basin, a pair of filter-beds flanking said basin on two sides and each having transverse effluent passages at its bottom, a pair of collecting-galleries one interposed between each filter-bed and the clear-water basin and communicating with one end of the transverse passages of the adjacent filter-bed, a pair of cleaning-galleries one arranged adjacent each filter-bed upon the side opposite the collecting-gallery thereof and also communicating with the transverse effluent passages, a valved outlet for each of said cleaning-galleries, and a pair of passages one forming a communication between each collecting-gallery and the clear-water basin.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 22d day of September, A. D. 1904.

FREDERICK A. W. DAVIS. [L. s.]

Witnesses:

ARTHUR M. HOOD,
JAMES A. WALSH