

(No Model.)

J. A. BOWDEN.
FILTER.

No. 455,526.

Patented July 7, 1891.

Fig. 1-

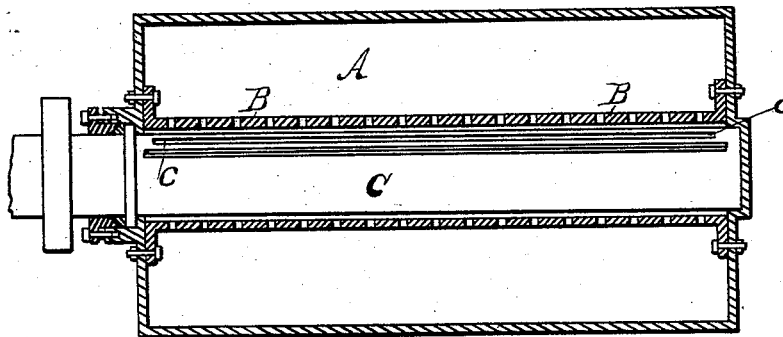
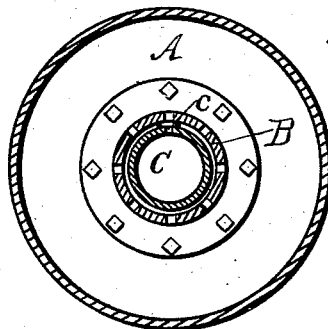


Fig. 2-



WITNESSES

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UNITED STATES PATENT OFFICE.

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FILTER.

SPECIFICATION forming part of Letters Patent No. 455,526, dated July 7, 1891.

Application filed May 28, 1890. Serial No. 353,408. (No model.)

To all whom it may concern:

Be it known that I, JUNIUS A. BOWDEN, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Filters; and I 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

In the art of filtration by means of granular filter-beds various devices have been employed, whereby the current of water which is utilized to cleanse the bed may be forced with a strong pressure into the bed, so that it will thoroughly loosen the granular particles composing the bed, and thus allow the impurities which have gathered therein to be carried off with the current of water.

My invention is designed to produce an apparatus improved, by which this cleansing process may be effectually carried out; and it consists in the construction, combination, and relative arrangement of parts hereinafter described.

In the drawings, Figure 1 is a horizontal section of the apparatus embodying my invention. Fig. 2 is a section at right angles to Fig. 1.

In carrying out my invention I have shown in Fig. 1 what may be termed a "horizontal filter"—that is, a filter in which the horizontal dimension is greater than the vertical. In this figure, A represents the case, and B a suitable perforated pipe within the same. This perforated pipe I have in this case located within the center of the bed; but it is obvious that it can be located in any part of the bed desired. Within this perforated pipe is another pipe C, mounted in suitable bearings, whereby it may revolve at will. Through this pipe C the cleansing-stream is admitted, and by the opening or openings *c* from the pipe into the bed the full current of the stream will rush through the perforated pipe and into that portion of the bed adjacent to the opening. Thus the full force of the stream acts upon a small portion of the bed only and thoroughly loosens the granular

particles composing the bed and allows the impurities to be carried off. When one portion of the bed has been cleaned, the pipe is revolved slightly or kept continually revolving during the cleaning process, so that the stream is directed into another part of the bed, and so on until the entire bed has been cleansed. The rotating pipe C constitutes a movable diverter for diverting or directing the inflowing water to different portions of the filtering-bed.

As will be seen, I have illustrated only one form of apparatus in which my invention is embodied; but other forms will readily suggest themselves to one skilled in the art without departing from the spirit of my invention, which consists, essentially, in the arrangement within a filter-case of a stationary perforated pipe having inclosed therein a rotatable pipe that is provided with openings through which by rotating said inner pipe a stream of water can be directed into and through any part of the filter-bed for the purpose of cleansing and renovating such bed.

I am aware that it is not new to provide a stationary pipe in the body of the filtering material with branches leading therefrom to perforated strainers located at different points in the filter-bed, and such stationary pipe has been provided with an interior closely-fitting rotatable pipe having openings corresponding with these branches, so that by rotating the inner pipe wash-water may be discharged therefrom into these branches successively as each branch is brought opposite its corresponding opening in the rotatable pipe. In this way wash-water is directed successively into one or the other of these perforated strainers and caused to wash the portion of the filter-bed adjacent to any such particular strainer. Such a construction is shown in the patent to Hyatt, No. 402,738, of May 7, 1889; but I do not claim such a construction. My own construction differs therefrom in the fact that in my device my rotatable pipe is located immediately within my strainer, so that as the interior pipe is rotated the wash-water issuing therefrom will be directed through that portion of the strainer which lies directly opposite the perforations in the rotatable pipe, and as the strainer is perforated through-

out its entire circumference it is manifest that as the interior pipe is rotated the wash-
ing-stream will issue successively in all radial
directions, thus operating not only to cleanse
5 successively all parts of the strainer but to
wash effectually that immediate portion of
the filter-bed which may rest against that
portion of the strainer opposite the issuing
water. It is manifest that by my device each
10 part of the strainer throughout its whole cir-
cumference will be successively cleansed,
while by the Hyatt construction above de-
scribed the whole surface throughout of any
particular strainer is acted upon simulta-
15 neously by the wash-water, which cannot be
concentrated, as in my device, upon each part
of the strainer successively until all has been
cleansed. My construction gives me the ad-
vantage of a concentrated stream upon each
20 part of a strainer in contradistinction to a
stream the strength of which is greatly weak-
ened by the fact that it is obliged to act si-
multaneously upon all parts of the strainer.

What I claim is—

- 25 1. In a filter, a strainer located within and
immediately surrounded by the filtering mate-
rial, said strainer having upon its interior a

rotatable water-pipe having an opening or se-
ries of openings, as explained, through which
wash-water may be discharged, and means 30
extending to the exterior of the filter for ro-
tating said interior pipe, said interior pipe
adapted as the same is rotated to concentrate
and discharge its wash-water directly through
the opposite portion of the immediately sur- 35
rounding strainer into the adjacent filter-bed,
whereby in the course of revolution all parts
of this incasing strainer will be successively
cleansed, substantially as described.

2. In a filter, the combination, with the 40
case A and the perforated pipe B, located in
said case, of the rotatable pipe C, inclosed in
the pipe B and provided with the elongated
opening or openings c, whereby by the rota-
tion of the inner pipe a cleansing stream of 45
water may be directed through said pipe into
any portion of the filter-bed, substantially as
described.

In testimony whereof I sign this specifica-
tion in the presence of two witnesses.

JUNIUS A. BOWDEN.

Witnesses:

MARION A. REEVE,
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