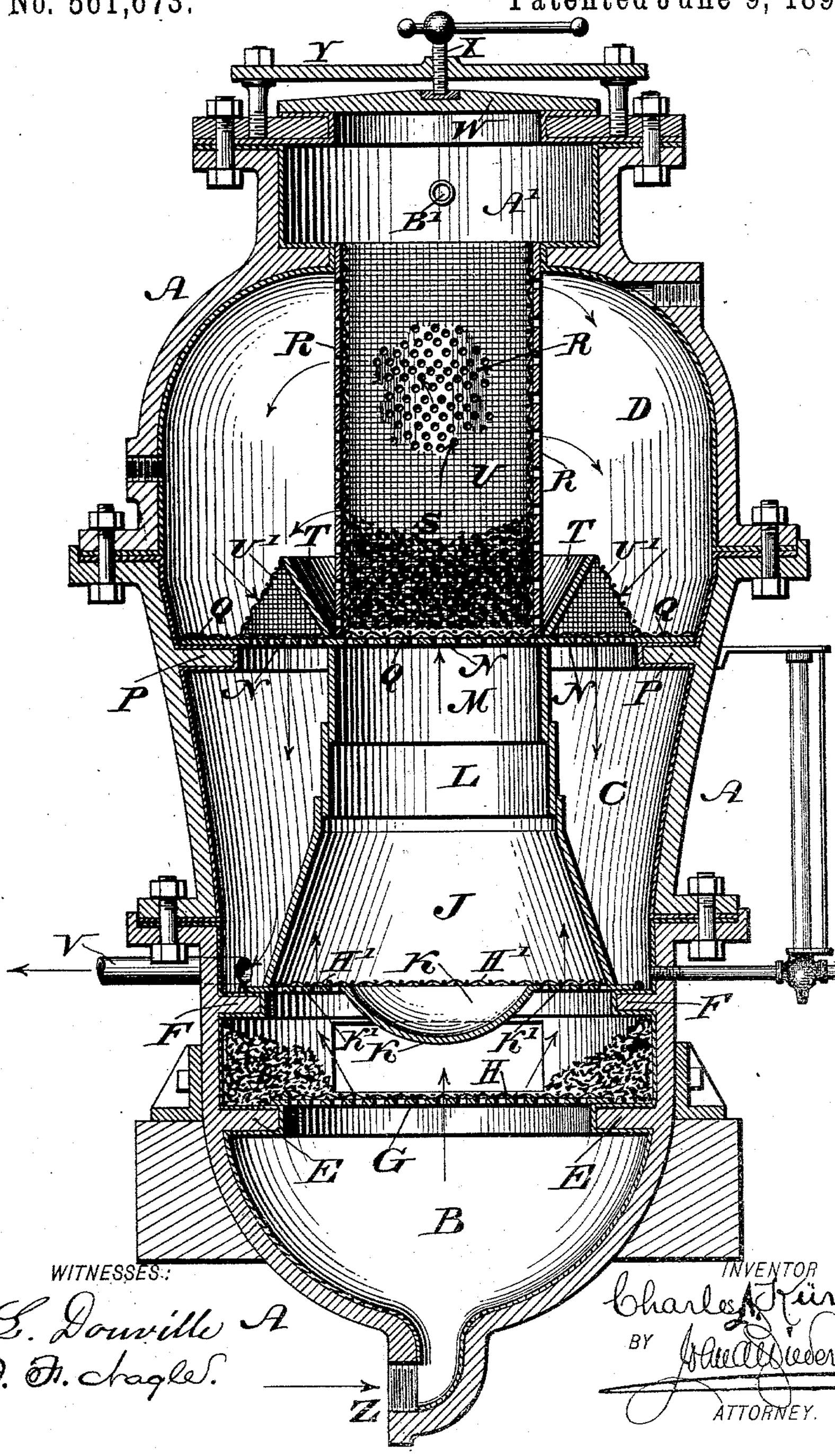
(No Model.)

C. A. KÜNZEL, Jr.

FILTER.

No. 561,673. Patented June 9, 1896.



WITNESSES:

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FILTER.

SPECIFICATION forming part of Letters Patent No. 561,673, dated June 9, 1896.

Application filed December 10, 1895. Serial No. 571,685. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. KÜNZEL, Jr., a citizen of the United States, residing at Hoboken, in the county of Hudson, State of New Jersey, have invented a new and useful Improvement in Filters, which improvement is fully set forth in the following specification and accompanying drawing.

My invention consists of an improvement in filters, whereby the fluid is subjected to a double filtration.

It also consists of a novel method of constructing the filter, whereby it may be easily cleansed.

The figure represents a vertical section of a filter embodying my invention.

Referring to the drawing, A designates the casing of a filter, having the compartments B, C, and D, the same being bolted or otherwise secured to each other. On the inner walls of the compartment B are the flanges E and F. The former supports the perforated diaphragm G, the same completely covering the opening and having on top the netting H, on which is charcoal or other filtering material. On the flange F is a diaphragm having at the center the convex projection K, forming a deflector, and the perforated rim K′, on which latter is netting H′, supported by the flange F, and inclosing the rim K′ is the conical vessel J, on the top of which are fitted the telescopic pipes L and M. On the inner wall of the casing, and between the compartments C and D, is a flange P, on which is sustained the diaphragm N, which is covered by netting Q. Supported on said diaphragm N, directly over the pipe M, is the pipe R, the wall of which is perforated and covered by netting U′, said pipe being supplied with any suitable filtering material, as at S. A cup T is placed around the bottom of the pipe R, closely fitting the same, and netting U′ secured to the upper edge of said cup and to the diaphragm N at a point over the flange P, said cup and netting being conical in reverse order.

V designates the outlet-pipe, which is connected with the wall of the compartment C. The top of the casing is closed by a cap W, which is held in place by the screw X and bridge Y, said cap being adapted to be loosened and removed, whereby the filter may be cleaned. The fluid is forced into the compartment B through the inlet Z and passes through the diaphragm G and netting thereon. It is then deflected by the projection K, and forced through the perforated rim K′ into the vessel J and pipes L and M, thence through the diaphragm N and netting thereon and the filtering substance S into the pipe R, from which it passes through the netting into the compartment D, and from thence through the strainer U′ and the portion of the diaphragm N below the same into the compartment C, from which it is withdrawn through the discharge or outlet V. It will be seen that the fluid is thus subjected to several filtering actions, while the device is of an inexpensive construction.

Between the opening of the casing and the pipe R is a chamber A′, having a pipe B′ leading thereto, through which water may be introduced to clean the filter, part of said water passing down the pipes R M L and the vessel J and through the various diaphragms and out at Z, while another part passes through the side of the pipe R, the strainer U′, and the diaphragm N into the chambers C and D, and passes out at the discharge-pipe V.

The various parts of the filter may be separated and removed for purpose of repairs, &c.

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

1. A filter having a casing with an inlet, upper and lower perforated diaphragms connected with said casing, forming a filtering-chamber, the upper one of said diaphragms having a perforated rim with an imperforated convex portion projecting into said chamber, forming a deflector, a vessel within said casing, receiving the fluid from said filtering-chamber, an upper filtering-chamber communicating with said filtering-chamber, and a discharge-pipe in communication with said upper filtering-chamber, said parts being combined substantially as described.

2. A filter having a casing with an inlet a vessel J with the pipes L, M, thereon open to said inlet, diaphragms above and below said pipes and vessel, and a perforated pipe supported on the upper diaphragm, said perforated pipe having communication with the

space in the casing outside of and adjacent to said vessel J substantially as described.

3. A filter having a casing with inlet upper and lower diaphragms, the vessel J with pipes L, M, between said diaphragms, the perforated pipe above said diaphragms, the cup T surrounding the pipe R, and the strainer U′, connected with the cup T and the upper diaphragm, said parts being combined, substantially as described.

4. A filter formed of compartments with diaphragms between the same, inlet and outlet pipes, the vessel J above the intermediate diaphragm with the communicating pipes L, M, a perforated pipe above the upper diaphragm which is in communication with said conveying-pipes and with the compartment surrounding the same, and a deflector with a perforated rim below said vessel, said parts being combined substantially as described.

5. A filter consisting of sections having flanges on their inner walls, diaphragms forming a filtering-chamber connected with the flanges on the lower section above an inlet thereon, a conical vessel on the upper one of said diaphragms, a perforated diaphragm above said conical vessel, a perforated pipe on said perforated diaphragm, and communicating with said vessel, a cup surrounding said perforated pipe, a strainer secured to said cup and perforated diaphragm, and a discharge-port in the casing of the filter adjacent to the base of the said conical vessel, said parts being combined substantially as described.

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