No. 699,212. Patented May 6, 1902.

DE WITT C. MOSHER.

BARREL FILTER.

(Application filed Feb. 3, 1902.)

(No Model.)

Fig. 1.

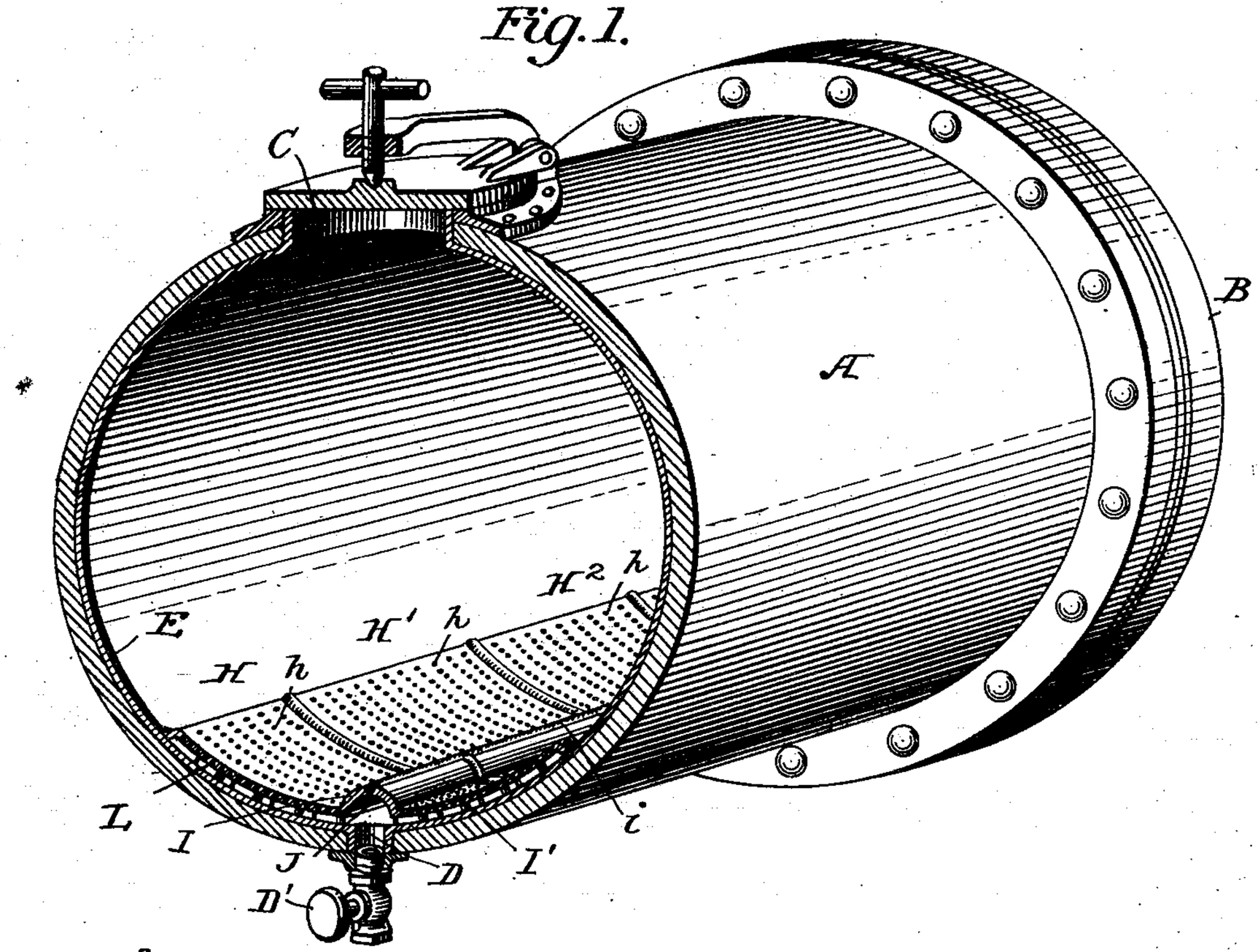


Fig. 2.

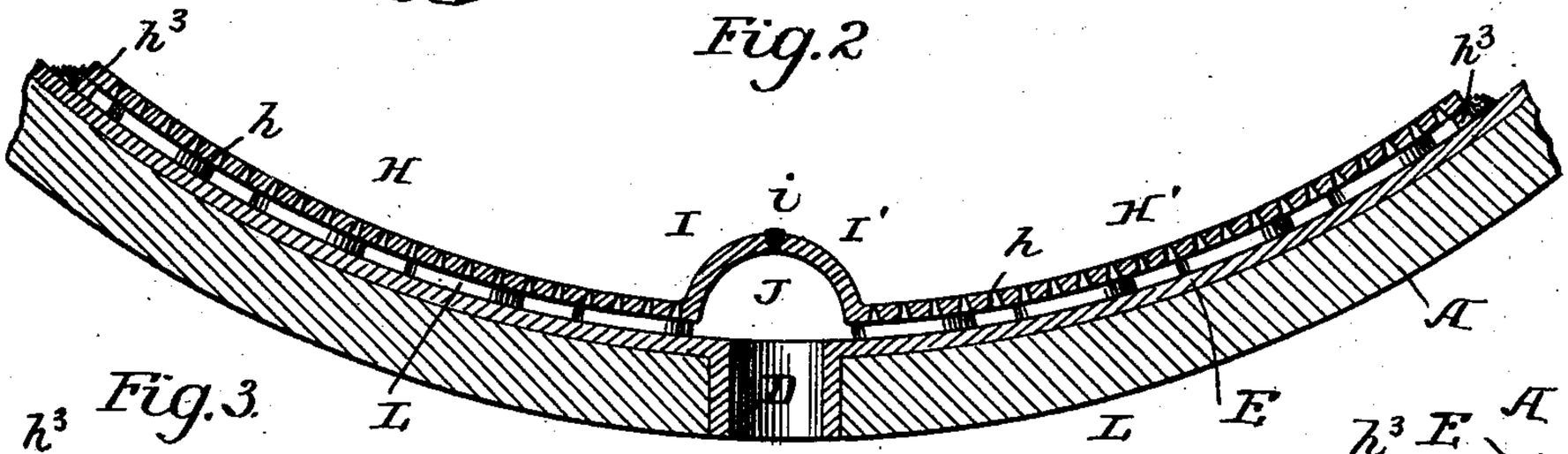


Fig. 3.

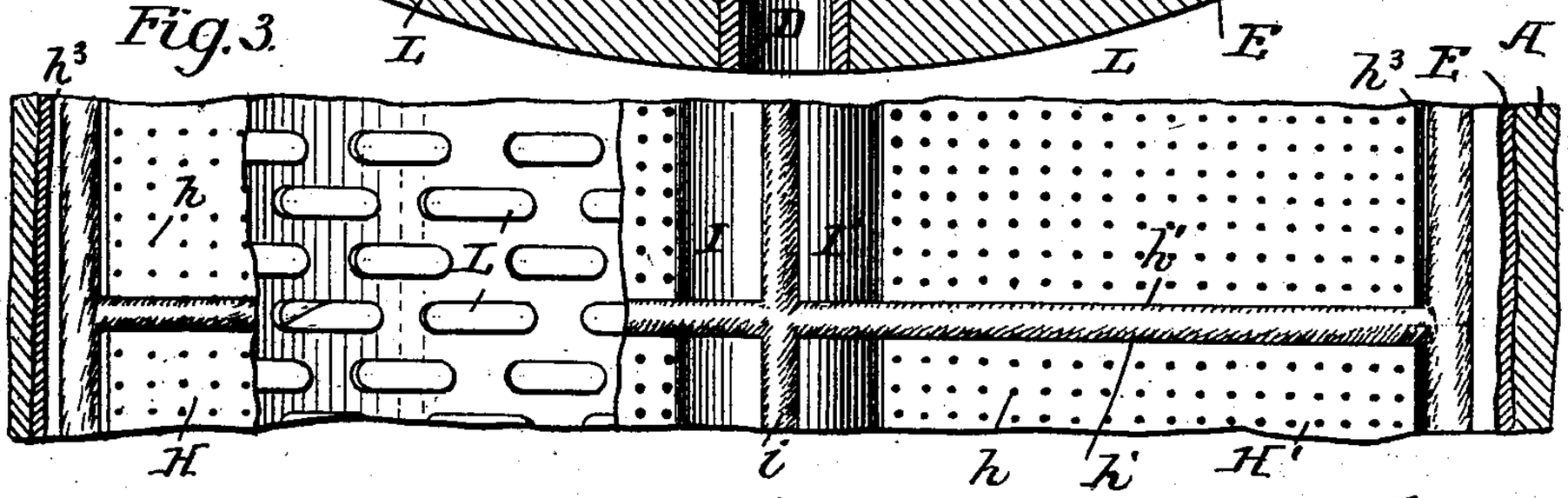
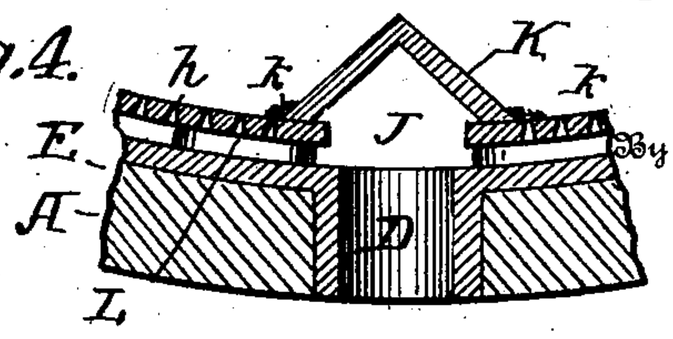


Fig. 4.



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BARREL-FILTER.

SPECIFICATION forming part of Letters Patent No. 699,212, dated May 6, 1902.

Application filed February 3, 1902. Serial No. 92,443. (No model.)

To all whom it may concern:

Be it known that I, DE WITT C. MOSHER, a citizen of the United States, residing at Colorado City, in the county of El Paso and State of Colorado, have invented certain new and useful Improvements in Barrel-Filters, of which the following is a specification.

My invention relates to barrel-filters, and has for its object to provide an improved and simplified construction of such filters; and to these ends my invention consists in the various features of construction and arrangement of parts having the general mode of operation substantially as hereinafter more particularly pointed out.

Referring to the accompanying drawings, Figure 1 is a sectional perspective view of a filter-barrel, showing my improved filter installed therein. Fig. 2 is an enlarged transverse section of a portion of the barrel and filter. Fig. 3 is an enlarged inside face view of a portion of the barrel, showing on one side the filter-surface proper and on the other the support for the filter-surface; and Fig. 4 is a sectional view of a modified form of my invention.

While my invention may be used for any purpose for which it is adapted and may be modified in details of structure and arrangement to adapt it for various purposes, it is primarily intended for use in connection with chlorination-barrels. The general purpose of the invention is to provide a simple, cheap, and effective structure which can be applied to and used in such barrels and which shall occupy relatively little space therein and still furnish a satisfactory means of filtering and one which is not liable to get out of order.

It is well known that chlorination-barrels as generally used are made of metal and are so arranged as to be bodily rotated and have means for introducing the ore and chemicals and for delivering the filtered material. These barrels are lined with some resisting material, usually lead, and the filter is arranged to extend lengthwise of the barrel and to occupy a position against the inside lining, which extends more or less around the inner circumference thereof, and the barrels most generally in use are provided with what is known as a "platform-filter," such platform-filter occupying a considerable space in the barrel, thereby reducing the amount of material which can be treated, and they are open to other objections, which need not be specified, but which it is desirable to overcome.

In my application Serial No. 92,442, filed concurrently herewith, I have illustrated, described, and claimed one form of filter adapted to produce the results desired, and my present invention relates to the same general subject-matter; but I provide somewhat-different means and arrangements of parts in carrying out my invention, which I will now describe in connection with the accompanying drawings, in which—

A represents the barrel, which, as before stated, may be of metal or other material and is provided with heads, one, B, of which is shown, and is also provided with suitable means of ingress for the material, as the manhole C, and a discharge-outlet, as D, controlled by a suitable valve, as D'. The barrel, as is well known, is usually provided with trunnions and means for rotating it, which are not shown in the drawings. The interior of the barrel is lined throughout with some resisting material E, as lead, and the barrel as thus far described is of the usual construction.

My improved filter comprises a number of filter plates or sections H H' H^2, which are made of some resisting material, as lead, and preferably are substantially rectangular in shape and practically are arranged in pairs, so that each pair when properly joined together at their adjacent ends or otherwise connected forms a sectional filter surface or plate extending on both sides of a median longitudinal line through what may be termed the "bottom" of the barrel. These pairs may be joined together along their sides to make up a filter-surface of any desired extent. Each plate or section is provided with a series of perforations *h*, which are preferably tapering from the inner surface to the outer surface of the plate. The adjacent ends of each pair of plates are bent or formed with a curved extension I I', and this extension is imperforate. When the pairs of plates are arranged as shown in the drawings, these extensions practically abut against each other,

and when united, as by burning or otherwise, they form a longitudinal channel J, extending lengthwise of the barrel. The adjacent ends of the extensions are preferably beveled or formed so that when they abut they produce a V-shaped recess adapted to receive the lead *i*, where they are burned together.

In place of making the extensions I integral with the plate-sections I can use a longitudinal strip K, preferably shown of V or curved shape in cross-section, of imperforate material, and this can be united to the adjacent ends of the pairs of filter-sections, as by burning at the lines *k*, and thus produce the longitudinal channel J.

The adjacent edges of the plate-sections are beveled, as at *h'*, so as to form a V-shaped recess for the reception of the lead by means of which the sides of the sections are joined together, and the outer ends of the plate-sections are suitably formed or are provided with extensions h^3, by means of which the plates may be united to the lining E of the barrel, as by soldering. These plates or sections must be supported away from the lining, so as to form proper channels for the free flow of the filtered liquid to the longitudinal channel J and thence out by the outlet D, and while they may be supported, as shown in my companion-case, by stud projections formed integral with the plate-sections, in the present instance I prefer to provide strips or supports L, which may be of lead and which are secured directly to the lead lining of the barrel by burning or otherwise and which are preferably arranged in staggered relation, as clearly shown in Fig. 3. The filter-sections are then placed on top of these strips or supports L and are secured in position in the barrel, as above described, by burning or otherwise. In this way it will be seen that there are spaces between the sections allowing the filtered liquid to flow both circumferentially and longitudinally, and they all deliver into the longitudinal channel J, which being enlarged, as shown by the extensions I, forms a free longitudinal passage for the liquid toward the outlet. The sections may be molded or otherwise formed, and, as before stated, the extensions may be integral with the sections or made as a separate strip secured to the adjacent ends of the pairs of sections, and being imperforate the filter is strengthened and serves to support the weight of the materials being operated upon and is not liable to be injured or destroyed thereby. It will thus be seen that each filter-section is made up of pairs of plates which may be counterparts of each other, and the whole filter is made up of any desired number of pairs, so that but a single mold is required to form the plates if they are made by casting, as is preferred. A filter thus constructed furnishes a large plain surface provided with minute perforations discharging into the passages or spaces below, where the filtered liquid can flow readily to the central longitudinal channel, and this channel is made by the extensions, either integral with or separate from the filter-sections, and furnishes a strong and practical construction without materially interfering with or reducing the filtering-surface.

Having thus described the general principles of my invention and pointed out the preferred embodiment thereof, without limiting myself to the precise construction shown and described, what I claim is—

1. A filter comprising pairs of filter-plates, provided with extensions on their adjacent ends, said extensions constructed and adapted to form when joined a longitudinal channel between the adjacent ends of the plates, substantially as described.

2. A filter comprising pairs of filter-plates having perforations and provided with imperforate extensions on their adjacent ends, said extensions constructed and adapted to form when joined a longitudinal channel between the adjacent ends of the plates, substantially as described.

3. The combination with the lining of a filter-barrel, of strips or supports united to the lining, and filter-sections provided with perforations supported on the strips and secured to the lining, substantially as described.

4. The combination with the lining of a filter-barrel, of strips or supports burned to the lining, the lining and strips or supports being of such material that they can be burned together, and filter-sections supported on said strips and secured to the lining, said sections being provided with imperforate extensions on their adjacent ends, substantially as described.

5. The combination with the lining of a filter-barrel, of filter-sections, and supports between the lining and sections, the sections being in pairs so constructed and arranged to form a longitudinal channel between the adjacent ends of the pairs, substantially as described.

6. The combination with the lining of a filter-barrel, of filter-sections, and supports between the lining and sections, the sections being arranged in pairs and provided with extensions so constructed as to form a longitudinal channel between the adjacent ends of the pairs, substantially as described.

7. The combination with the lining of a filter-barrel, of perforated filter-sections, and means for supporting said sections and securing them to the lining, said sections having their adjacent ends so constructed and arranged to form a longitudinal channel, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DE WITT C. MOSHER.

Witnesses:
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CHAS. N. SNYDER.