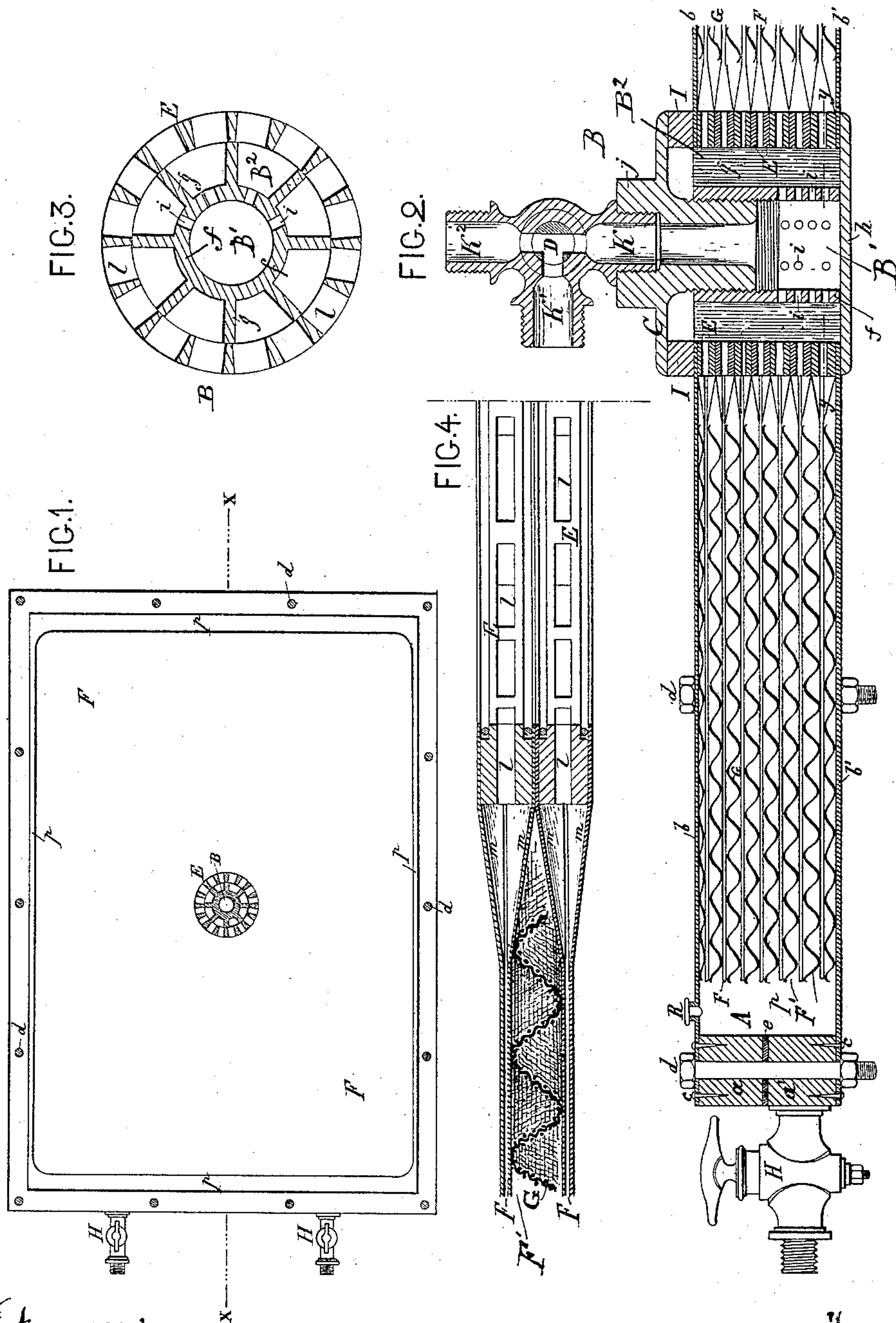


(No Model.)

B. E. GASQUET.
FILTER.

No. 405,406.

Patented June 18, 1889.



Witnesses:
Henry Huber
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UNITED STATES PATENT OFFICE.

BENJAMIN EMILE GASQUET, OF CASTRES, FRANCE.

FILTER.

SPECIFICATION forming part of Letters Patent No. 405,406, dated June 18, 1889.

Application filed March 20, 1889. Serial No. 304,015. (No model.) Patented in France October 2, 1886, No. 178,832; in Spain September 17, 1888, No. 8,702; in England September 20, 1888, No. 13,625; in Portugal September 20, 1888, No. 1,289, and in Italy September 22, 1888, XLVII, 308.

To all whom it may concern:

Be it known that I, BENJAMIN EMILE GASQUET, of Castres, in the Republic of France, and a citizen of the Republic of France, have
5 invented certain new and useful Improvements in Filters, (for which patents were obtained in the following countries: in the name of Benjamin Emile Gasquet in France on the
10 2d of October, 1886, No. 178,832; in the names of Benjamin Emile Gasquet and Alfred de Gaulne in England September 20, 1888, No. 13,625; in Italy September 22, 1888, Vol. 47, No. 308; in Spain September 17, 1888, No. 8,702, and in Portugal September 20, 1888, No.
15 1,289,) of which improved filter the following is a specification.

This invention relates to an improved construction of filtering apparatus adapted to the filtration of wines or any other liquids.

20 The invention consists in the construction and combination of parts and details, as will be fully described and set forth hereinafter, and finally pointed out in the claims.

In the accompanying drawings, Figure 1 is
25 a plan of the apparatus after removal of the cover, showing a filtering-pocket in position. Fig. 2 is a sectional elevation taken on the line $x x$ of Fig. 1, but on a larger scale. Fig. 3 is a sectional plan, taken on the line $y y$ of
30 Fig. 2, of the central part of the apparatus. Fig. 4 is an enlarged vertical radial section of a portion of the filter, showing portions of two cloth pockets, a corrugated wire-cloth plate between said pockets, and rings for hold-
35 ing said pockets.

Similar letters of reference indicate corresponding parts.

A is a receiver formed of two timber frames
40 $a a'$ and copper plates $b b'$, the latter tinned on their inner surfaces and fixed by wood-screws $c c$ to the frames. The two frames are held together by bolts d , which press them firmly one against the other, the tightness of the joint being further assured by a rubber
45 packing e .

A distributor D is disposed in the center of the receiver A and serves to distribute the

water to the filtering-pockets within said receiver. This distributor comprises a central
cylindrical chamber B' , radial distributing-
50 chambers B^2 , surrounding said cylindrical chamber, and a series of superposed rings E, surrounding said distributing-chambers, said rings being provided with horizontal slots l . A series of filtering-pockets F is disposed
55 within the receiver around the distributor, the inner edges or mouths of said pockets being clamped between the rings E of the distributor. The upper part of the cylinder
60 f , which divides the inner chamber B' from the radial distributing-chambers B^2 , is provided with an internal screw-thread in its upper part and with perforations i in its lower
65 part, which perforations establish communication between said inner chamber and the radial chambers, and said cylinder is also provided with radial wings g , which separate
the distributing-chambers one from another. The bottom of the distributor B is closed by
70 a plate h , which is brazed or otherwise fastened to the cylinder f , and underlaps the inner edge of the plate b' . The top of the distributor B is closed by a cap C, which is provided with a central downwardly-projecting
75 externally-screw-threaded tube C' , which screws into the upper end of the cylinder f , and with a nut j , by which the cap is screwed into position. The upper end of the pipe C'
80 is internally screw-threaded to receive a supply-tube. A three-way cock D, having the branches $K K' K^2$, is shown as connected with said pipe through its branch K, the other branches being adapted to receive supply-pipes.

Annular corrugated wire-cloth plates G are
85 disposed within the receiver between the textile cloth pockets F and serve to separate said pockets from each other, forming intermediate pockets between the pockets proper F' . The
90 depth of the corrugations of the plates is equal to the thickness of one of the rings E, or thereabout.

The textile filtering-pockets F are preferably composed of twilled cotton cloth. Each

pocket has a central circular opening of the same diameter as the internal diameter of the rings E. The cloth of each pocket is folded at the outer edge thereof, and the inner edges
 5 *m* are separated at a distance equal to the thickness of one of said rings, the upper edge of one pocket being clamped jointly with the lower edge of the pocket next above between two of said rings.

10 H H are cocks provided for the purpose of drawing off the liquor in the receiver A.

The apparatus described above is erected in the following manner: The two frames *a* *a'* being detached, the first operation is to
 15 place a reticulated corrugated plate G upon the bottom plate *b'* of the frame *a'*, upon which plate the cylinder *f* will rest. After a ring E has been placed between the two cloths *m m* of a pocket F in such a way that the edges of
 20 the central circular openings in the said cloths coincide with the inner face of the ring, the said pocket is laid within the frames *a'* upon the bottom reticulated corrugated plate G. The cylinder *f* is at the same time set up within
 25 the ring E, the projections of the webs *g*, radiating from the said cylinder, bringing them in touch with the inner face of the ring. A second reticulated corrugated plate G is next placed upon the last-mentioned pocket F, and
 30 then a second pocket, with its ring, is laid in the same way as were the first pocket and ring. In this way the laying of annular reticulated corrugated plates, pockets, and rings is proceeded with until as many members as
 35 it is intended the apparatus shall consist of are in position. Fig. 2 illustrates the use of seven filter members. A reticulated corrugated plate is laid on the top, the second frame A placed in position, and the bolts *d* screwed
 40 up until the joint between the frames is tight. The part C is fixed next, its flange being thereby brought to bear upon an iron ring I of the same internal diameter as a ring E, and which is strongly brazed or otherwise joined to the
 45 top copper plate *b*. As the nose of the flange C is screwed down, the rings E are in consequence of the pliability of the copper plates closed toward each other.

The apparatus is now ready for use as soon
 50 as the cock D has been fixed. The method of working it is conducted as follows: The cock D is coupled by the nozzle K' to a rubber tube adapted to establish communication with any vessel charged with the liquor to be filtered
 55 and standing at a higher level than that of the apparatus. When the cock is opened, the liquor flows into the chamber B and out of it through the holes *i* into the radial distributing-chambers B², and thence through the slots
 60 *l* in the rings E into the pockets F, which touch each other, whereupon the pockets become distended against the annular reticulated corrugated plates G. The liquor thence passes through the textile material of the
 65 pockets F into the intermediate pockets or

spaces F' between said pockets proper, and thence through said spaces to the opposite ends of the receiver. There are therefore provided, by the distinctive construction described above, a large number of passages,
 70 along which the liquor flows away into the empty spaces *p p* provided around the pockets, whence it is drawn off through the cocks H.

The process of filtration will be conducted
 75 free of all atmospheric presence, for when the air has been once expelled through the controllable openings R provided at each angle of the receiver-cover no more air can then enter, inasmuch as the apparatus is full
 80 of liquor all the time it is at work.

If from any peculiarity in the arrangement of the existing plant it is not practicable to charge the filter automatically in the way described above, recourse must be had
 85 to a pump. For the purpose of obviating the irregularity ordinarily characteristic of a pump-supply, the third nozzle K² of the cock D is coupled by a rubber tube to a tank placed at a definite height. The pump-deliv-
 90 ery is coupled to the nozzle K', and the excess from the said pump passes into the tank, which has the effect of tending to produce a constant pressure.

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

1. A filter constructed with a series of filtering-cloths, corrugated metallic reticulated plates interposed between said filtering-
 100 cloths, a central inlet-chamber having apertures communicating with the pockets formed between the filtering-cloths, and a casing containing said filtering-cloths, plates, and inlet-chamber, all combined substantially as set forth.
 105

2. A filter composed of a casing, a series of filtering-cloths in the same and provided with central apertures, a series of corrugated metallic reticulated plates between the filtering-
 110 cloths, a central apertured cylinder composed of rings, between which the inner edges of said cloths are held, and a perforated and winged chamber in said cylinder, all combined substantially as set forth.

3. A filter composed of a casing, a series of
 115 filtering-cloths within said casing and having central apertures, corrugated metallic reticulated plates between the filtering-cloths, a central cylinder composed of apertured rings, between which the inner edge of the filter-
 120 ing-cloths are held, a perforated and winged chamber in said cylinder, which chamber has a bottom plate resting against the under side of the bottom of the casing and pressing said bottom of the casing against the bottom of
 125 the cylinder formed of the apertured rings, a flanged collar screwed into the chamber, and a cock on the top of said collar, all combined substantially as set forth.

4. In a filter, the combination of a receiver, 130

a distributor disposed therein, a series of textile pockets disposed in said receiver around said distributor, and having their mouths opening into the distributor, and annular corrugated reticulated plates disposed in said receiver between said textile pockets.

In testimony that I claim the foregoing as

my own I have hereunto affixed my signature in presence of two witnesses.

BENJAMIN EMILE GASQUET.

Witnesses:

L. RIVARD,

GREGORY YALAR.