

No. 773,378.

PATENTED OCT. 25, 1904.

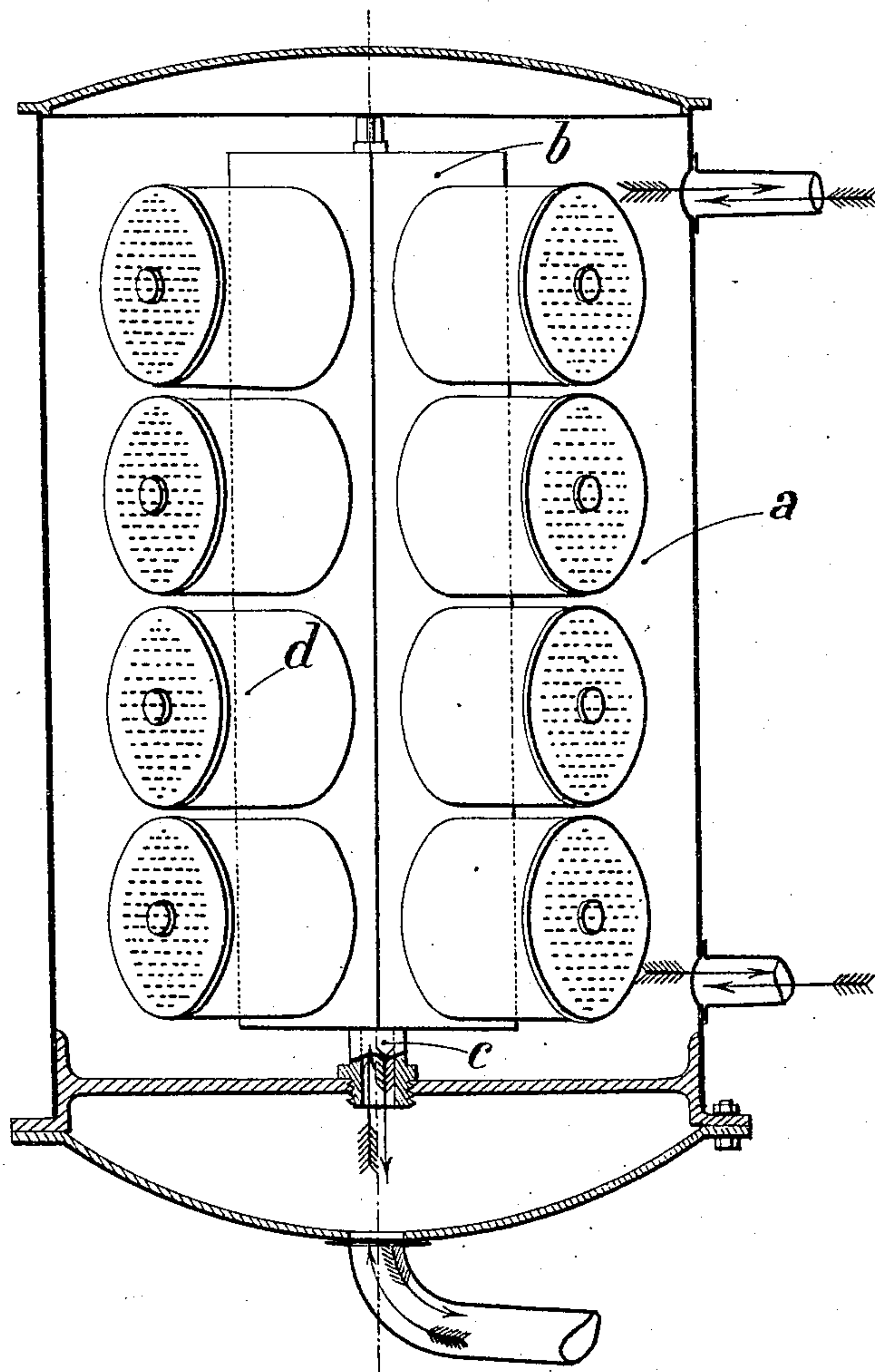
L. DÉTRÉ.  
APPARATUS FOR DYEING UNDER PRESSURE.

APPLICATION FILED FEB. 10, 1904.

NO MODEL.

2 SHEETS—SHEET 1.

*Fig. 1.*



Witnesses:  
A. O. Parker  
C. D. Hester

Inventor  
Léon Détré  
By James L. Norris  
Atty

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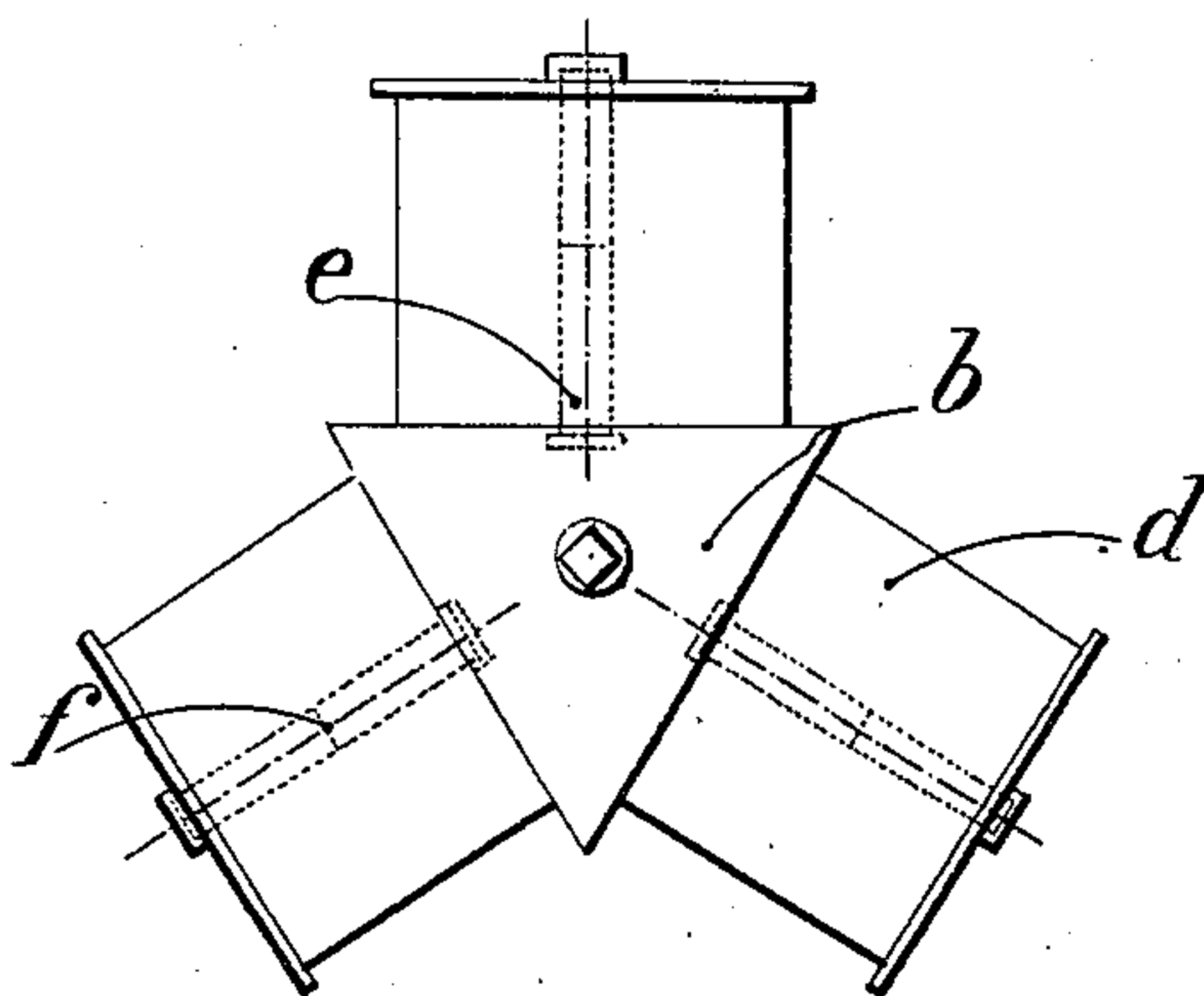
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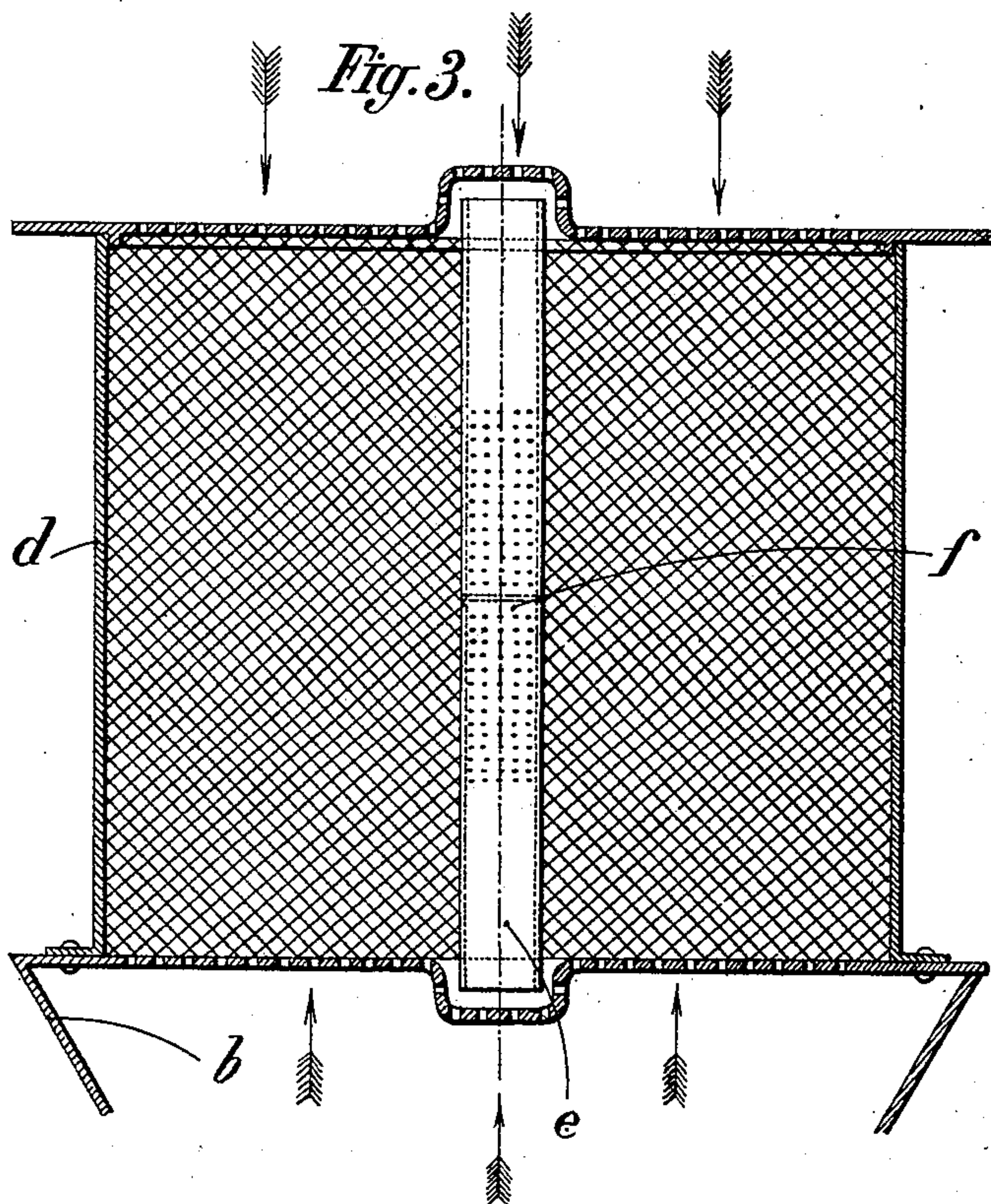
NO MODEL.

2 SHEETS—SHEET 2.

*Fig. 2.*



*Fig. 3.*



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*F. O. Parker*  
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## UNITED STATES PATENT OFFICE.

LÉON DÉTRÉ, OF REIMS, FRANCE.

## APPARATUS FOR DYEING UNDER PRESSURE.

SPECIFICATION forming part of Letters Patent No. 773,378, dated October 25, 1904.

Application filed February 10, 1904. Serial No. 193,013. (No model.)

*To all whom it may concern:*

Be it known that I, LÉON DÉTRÉ, dyer, a citizen of the French Republic, residing at Reims, Department of Marne, France, have invented  
 5 certain new and useful Improvements in Apparatus for Dyeing Yarns, of which the following is a specification.

This invention relates to an apparatus for dyeing under pressure yarns wound up in the  
 10 form of bobbins, and has for its object to dye regularly without great expenses of manual labor and with a great rapidity the yarns with the most delicate shades.

In the annexed drawings, Figure 1 is an elevation of the disposition for carrying out the  
 15 new process. Fig. 2 is a plan view, and Fig. 3 a detail of the same.

In the casing *a* of an apparatus for dyeing under pressure one or many supports *b* are  
 20 disposed. The support *b* is a hollow triangular prism the bases of which are closed, one of these bases being provided with a nozzle *c*, which is fitted to an apparatus which insures the circulation of the dye. On the faces  
 25 of the prism are fixed hollow cylinders *d*, having internally the size of a bobbin of the yarn to be dyed. The faces of the prism are perforated with many holes in the parts corresponding to the bottom of the hollow cylinders *d*. The other end of these hollow cylinders  
 30 are opened or closed by a perforated lid or by other suitable means allowing the dye to pass.

For dyeing the yarn and for the preparatory or subsequent treatment—cleaning, mordanting, washing, &c.—the bobbins are introduced each in a casing *d*, and the support  
 35 *b* is brought into the casing *a* of an apparatus for dyeing under pressure. According to the triangular shape of the supports *b*, these supports may be disposed for filling nearly completely the casing *a*. The circulation of the liquor is set up as usually. The dye is forced under pressure alternatively from the inner part  
 40 of the prism through the bobbins in the casing *a* and from the casing *a* in the prism *b*. The circulation of the liquid can also take place only in one of these directions. In order to oblige the dye to pass equally in all parts of the bobbin,  
 45 although the yarn is more pressed in the central

part than in the periphery, the wooden spindle on which the yarn has been wound up is supplied with a tube *e*, which is perforated in its central part, Fig. 3, and provided in its inner part with a water-tight partition *f*, which  
 55 is disposed in the middle if the circulation of the dye takes place in the two directions and at the end of the perforated part if the circulation takes place only in one direction. This partition prevents the dye from passing  
 60 through the tube and forces it to pass through the central part of the bobbin and to pass through the bobbin perpendicularly to its axis with the same activity as the current passing in a parallel direction with the axis.  
 65 The central part will thus be sufficiently dyed.

Having thus described my invention and in what manner the same may be performed, I declare that what I claim is—

1. An apparatus for dyeing involving a hollow support closed at its top and having its bottom formed with a passage, said support having each of its sides provided with a plurality of separate groups of perforations, a plurality of hollow cylinders fixed to each side of said  
 70 separate support and surrounding said groups of perforations in each side, a hollow perforated bobbin-spindle arranged in each of said cylinders and provided with an imperforate partition arranged intermediate its ends, a  
 75 perforated closure for the outer end of each of said cylinders, and a suitable casing inclosing said support and cylinders.

2. A dyeing apparatus involving a hollow support closed at its top and having its bottom formed with a passage, said support having each of its sides provided with a group of perforations, a separate hollow cylinder secured to each of the sides of said support and surrounding the group of perforations in each  
 80 side, a removable hollow perforated bobbin-spindle arranged in each of said cylinders and provided intermediate its ends with an imperforate partition, a perforated closure for the outer end of each of said cylinders, and  
 85 a suitable casing inclosing said support and cylinders.

3. A dyeing apparatus involving a hollow bobbin-spindle perforated a portion of its length intermediate its ends and further pro-  
 90 100



vided with an imperforate partition arranged intermediate of said perforated portion.

4. An apparatus for dyeing involving a hollow triangular-shaped support closed at its top and having its bottom formed with a passage, said support having each of its sides provided with a plurality of separate groups of perforations, a plurality of hollow cylinders fixed to each side of said support and surrounding said separate groups of perforations in each side, a hollow perforated bobbin-spindle arranged in each of said cylinders and provided with an imperforate partition arranged intermediate its ends, a perforated closure for the outer end of each of said cylinders, and a suitable casing inclosing said support and cylinders.

5. A dyeing apparatus involving a hollow triangular-shaped support closed at its top and having its bottom formed with a passage, said support having each of its sides provided with a group of perforations, a hollow cylinder secured to each of the sides of the support and surrounding said group of perforations in each side, a hollow perforated bobbin-spindle arranged in each of said cylinders and provided intermediate its ends with an imperforate partition, a perforated closure for the outer end of each of said cylinders, and a suitable casing inclosing said support and cylinders.

6. An apparatus for dyeing, comprising a casing having inlets and outlets in the side thereof and further provided with a passage at one end thereof, a vertically-extending hollow triangular-shaped support secured within said casing, closed at its top and having its bottom formed with a passage communicating with the passage of the casing, said support having each of its sides provided with a plurality of separate groups of perforations, a plurality of hollow cylinders secured to each side of said support and surrounding the sepa-

rate groups of perforations in each side, a hollow perforated bobbin-spindle arranged in each of said cylinders and having secured therein intermediate its ends an imperforate partition, and a perforated closure-plate for the outer end of each of said cylinders.

7. An apparatus for dyeing involving a hollow support having each of its sides provided with separate groups of perforations, bobbin-inclosing cylinders secured to each of the sides of the support and surrounding the separate groups of perforations, said perforated portions of the sides of said support constituting one end of said cylinders, a perforated closure-plate for said cylinders, and a bobbin-spindle arranged in each of said cylinders and having a portion of its length intermediate its ends perforated and further provided with an imperforate partition arranged intermediate said perforated portion.

8. An apparatus for dyeing involving a triangular-shaped hollow support having each of its sides provided with separate groups of perforations, bobbin-inclosing cylinders secured to each of the sides of the support and surrounding the separate groups of perforations, said perforated portions of the sides of said support constituting one end of said cylinders, a perforated closure-plate for said cylinders, and a bobbin-spindle arranged in each of said cylinders and having a portion of its length intermediate its ends perforated and further provided with an imperforate partition arranged intermediate said perforated portion.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

LÉON DÉTRÉ.

Witnesses:

HANSON C. COXE,  
PAUL BLUM.