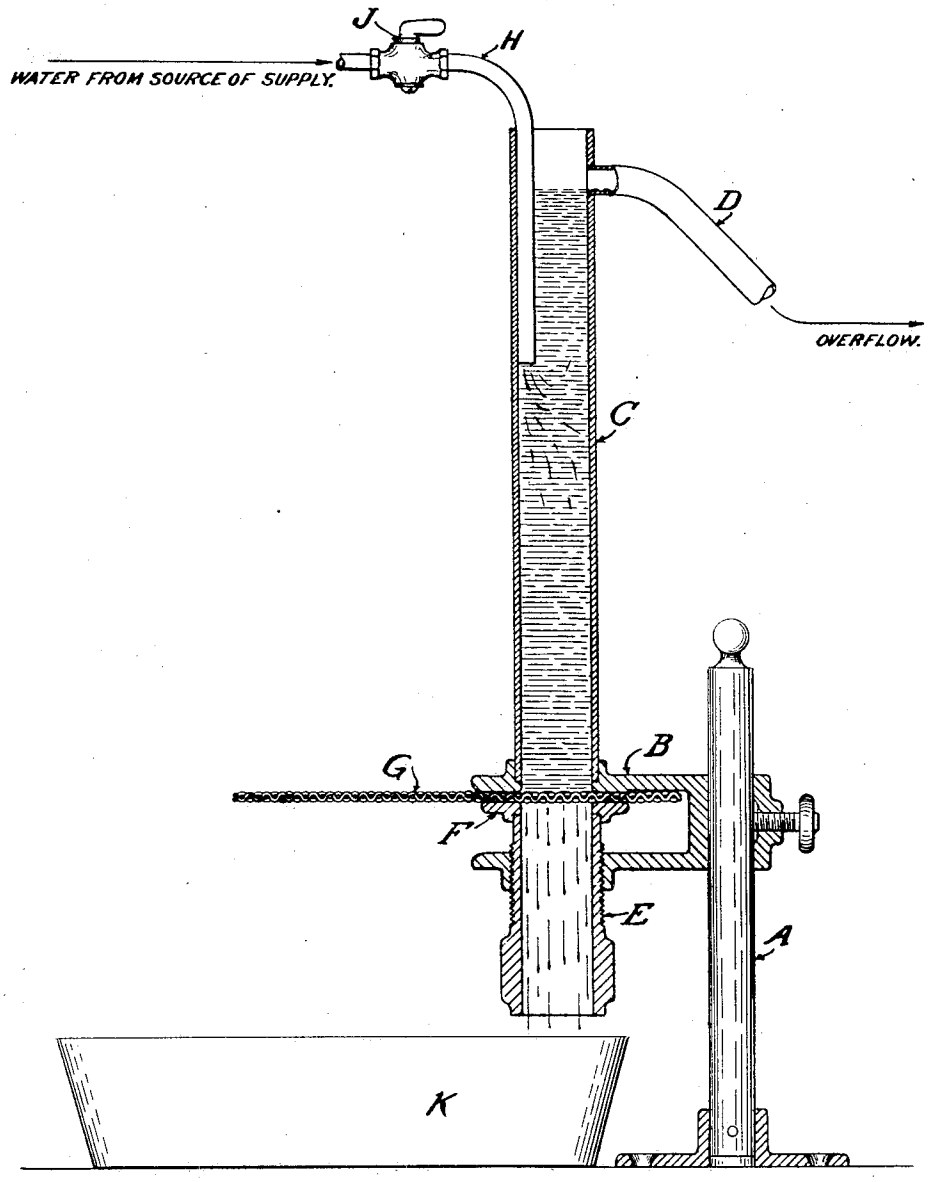
D. A. MacINNES.

POROSIMETER.

APPLICATION FILED JULY 15, 1920.

1,371,565. **Patented Mar. 15, 1921.**



INVENTOR.
Duncan A. MacInnes
BY John C. Watson
ATTORNEY

UNITED STATES PATENT OFFICE.

DUNCAN A. MacINNES, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO F. C. HUYCK & SONS, OF ALBANY, NEW YORK, A CORPORATION.

POROSIMETER.

1,371,565. Specification of Letters Patent. Patented Mar. 15, 1921.

Application filed July 15, 1920. Serial No. 396,368.

To all whom it may concern:

Be it known that I, DUNCAN A. MacINNES, a citizen of the United States of America, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Porosimeters, of which the following is a specification.

My present invention relates to porosimeters. The filtering capacity of certain fabrics is an important factor in determining their value for industrial purposes. The rapidity with which water or other liquids will flow through certain fabrics is an important factor in determining their value for the purposes for which they are to be used.

The object of my invention is to provide a device for measuring the relative porosity of fabrics, especially felts and textile fabrics which are of similar texture, and which will also be useful in determining the clogging effect of water of different degrees of turbidity upon the fabric; together with such other objects as are hereinafter disclosed.

I accomplish my object by means of the porosimeter constructed as illustrated in the accompanying drawing which is an elevation partly in section.

Referring to the drawing, A, is a standard on which is mounted, preferably in a manner permitting adjustment, the forked fitting B, and in an opening through the upper arm thereof is mounted a tube C, provided at or near its upper end with a suitable flow-off D. Formed in the lower arm of the fitting B, and co-axial with the opening in the upper arm thereof is a threaded opening adapted to receive the threaded nipple E, loosely mounted on the upper end of which is a collar F, adapted to co-act with the upper arm of the fitting B.

By placing the fabric which is to be tested between the collar F, and the under side of said upper arm, and tightening the nipple E, the fabric will be clamped securely in place with a fixed area thereof exposed under the tube C.

The valve J is then manipulated and water (or other suitable liquid) permitted to flow into the tube C, and to fill said tube until the flow-off point is reached. The flow of water through the valve being properly controlled, a constant head of water will be maintained and by comparing the amount of water which flows per unit of time, through the exposed area of fabric and through the nipple E, into the receptacle K, the relative porosity of the different fabrics may be ascertained.

By exposing different areas of the same fabric to waters of different degrees of turbidity for a fixed period of time, the clogging tendency of the material may be observed.

By exposing different fabrics to a fluid of constant turbidity, the relative clogging tendency of the fabrics may be determined.

By exposing different fabrics for the same length of time to the same fluid at a constant head, and then causing precipitation to take place in the receptacle K, a comparison of the filtering qualities of different fabrics may be obtained.

What I claim as new and desire to secure by Letters Patent is:

1. In a porosimeter, a standard; an arm on said standard having an opening therethrough; a tube mounted in and projecting above said opening and provided near its top with a flow-off; means for clamping a fabric over said opening; and means for introducing liquid into said tube below said flow-off, and maintaining said liquid at a substantially constant level regardless of the flow of liquid through the fabric.

2. In a porosimeter, a standard; arms on said standard, one above the other; an opening through each of said arms co-axial one with the other, the opening in the lower arm threaded; a tube mounted in and projecting above said upper arm, and provided near its upper end with a flow off; a collar adapted to surround said opening in said upper arm and to co-act with said upper arm to clamp a fabric over the opening therein; a nipple provided with threads adapted to coact with the threads in said threaded opening, and adapted to force said collar into intimate contact with a fabric placed between said collar and said upper arm; and means for introducing liquid into said tube below said flow-off, and maintaining said liquid at a substantially constant level regardless of the flow of liquid through the fabric.

3. In a porosimeter, a standard; arms adjustably mounted on said standard, one above the other; an opening through each of said arms coaxial one with the other, the

opening in the lower arm threaded; a tube mounted in said opening and projecting above said upper arm, and provided near its upper end with a flow-off; a collar adapted to surround said opening in said upper arm and to co-act with said upper arm to clamp a fabric over the opening therein; a nipple provided with threads adapted to co-act with the threads in said threaded opening, and adapted to force said collar into intimate contact with a fabric placed between said collar and said upper arm; and means for introducing liquid into said tube below said flow off, and maintaining said liquid at a substantially constant level regardless of the flow of liquid through the fabric, all substantially as shown and described.

In testimony whereof I have affixed my signature.

DUNCAN A. MacINNES.