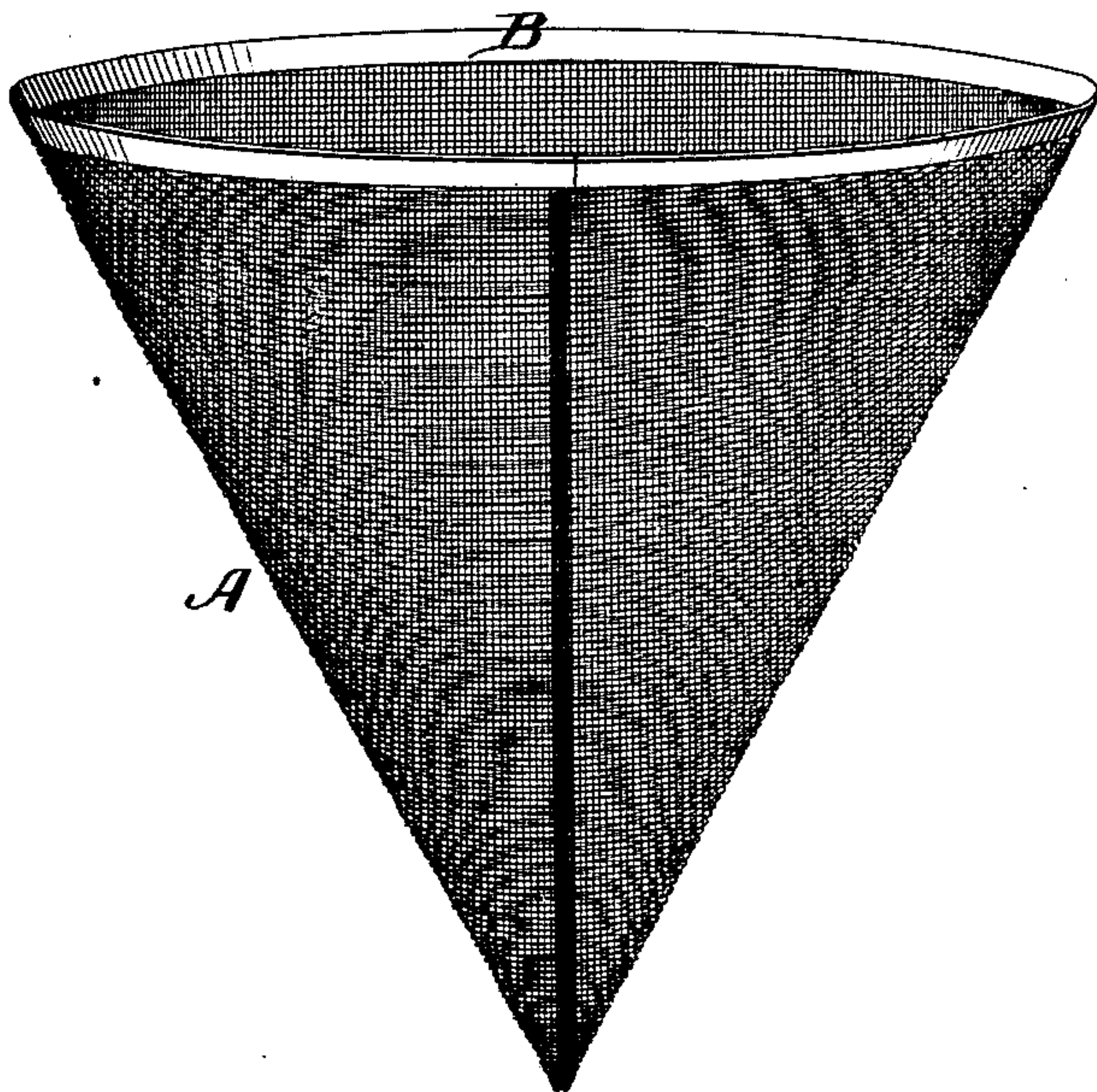


H. R. WATT.  
FILTER RACKS.

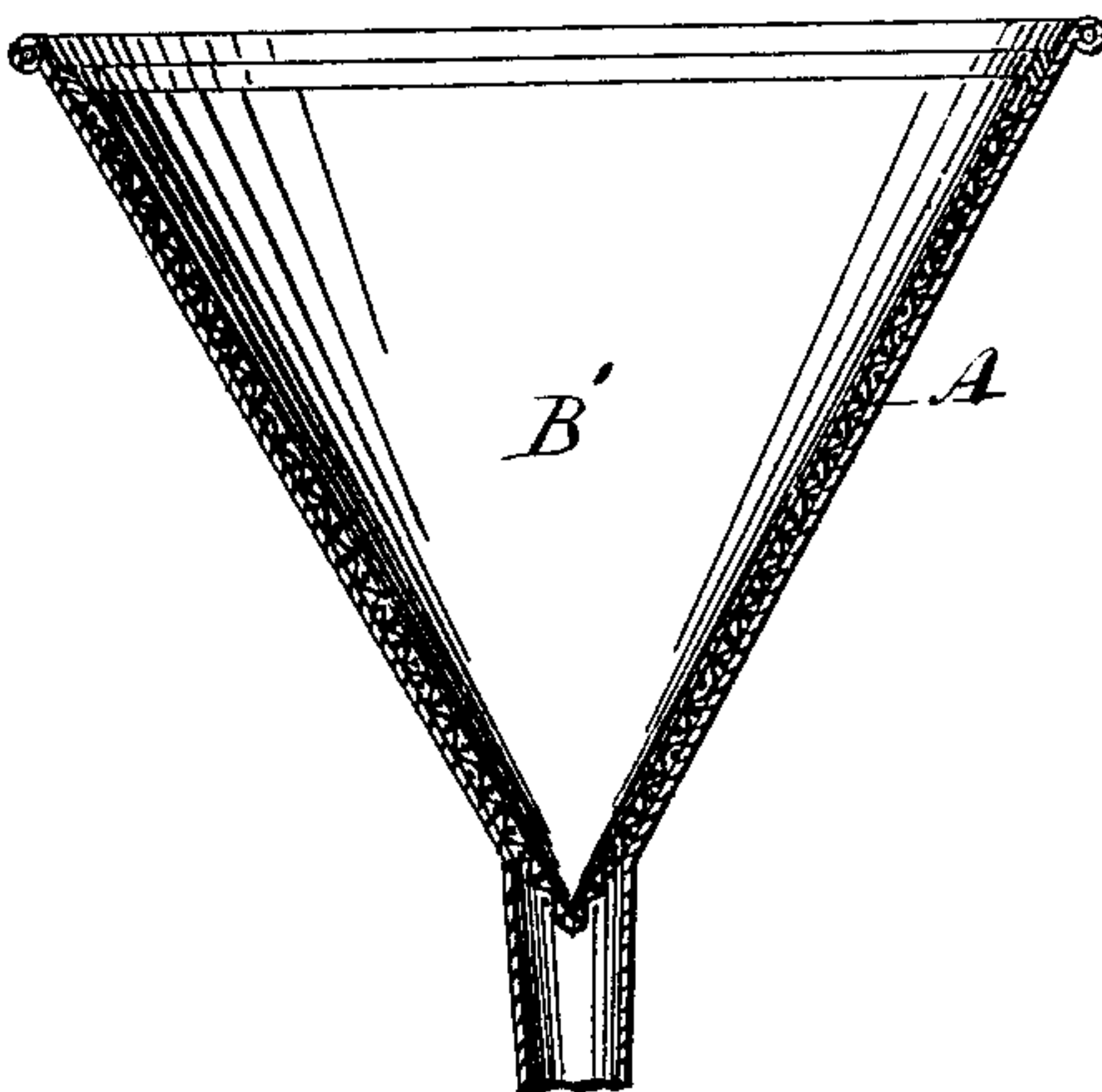
No. 185,604.

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*Fig. 1*



*Fig. 2*



Witnesses.  
Sam<sup>l</sup>. M. Barton  
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Inventor  
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by  
Carroll Wright H. Brown  
his attys.



# UNITED STATES PATENT OFFICE.

HENRY R. WATT, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN FILTER-RACKS.

Specification forming part of Letters Patent No. **185,604**, dated December 19, 1876; application filed September 8, 1876.

*To all whom it may concern:*

Be it known that I, HENRY R. WATT, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Filter-Racks, of which the following is a specification:

In the accompanying drawing, forming a part of this specification, Figure 1 represents a perspective view of my improved rack or support, the filter being removed; and Fig. 2 represents a sectional view of the same with the filter in place.

This invention relates to filters used by chemists and others in filtering liquids. Porous paper is the material usually employed for such filters, and this paper is rolled into the form of a hollow cone and held in an inverted position over a receptacle, the liquid being poured into the cone and allowed to percolate through the porous material thereof.

It has been usual heretofore to place the filter in an ordinary conical tunnel made of imperforate material; but the paper when saturated with the liquid clings closely to the internal surface of such a tunnel, its pores being thus obstructed and the liquid forced to pass exclusively through the point or inverted apex of the filter. This point, projecting into the spout of the tunnel, and being unsupported from below, becomes worn away by the weight and passage of the superincumbent liquid.

Another method has been to construct a rack or support of wires extending longitudinally—these wires having open spaces of varying widths between them, the rack being placed within an ordinary tunnel. This form is objectionable, for the reason that the racks are expensive to make, and, having open spaces of considerable width, leave portions of the paper unsupported, the paper being liable to sag or bulge between the wires, and so come in contact with the internal surface of the tunnel.

My invention has for its object to obviate the objections above named, and provide cheap and effective means for uniformly supporting the paper filter and preventing it from sagging or bulging, and at the same time permitting the free passage of the liquid through the paper at all points.

To these ends my invention consists in a conical filter-rack or support made of wire-cloth, combined with an ordinary paper filter, as I will now proceed to describe.

In the drawings, A represents my improved filter-rack or support, the same being composed of a single piece of wire-cloth formed into a hollow cone in any suitable manner, preferably by cutting a sheet or blank of wire-cloth in the form of a segment of a disk, bending it so as to bring its radiating edges together, soldering or otherwise securing said edges to each other, and binding the outer edge, which forms the base of the cone, with a metallic scalp or mat, B.

An extremely cheap and simple rack or support is thus produced, which is adapted to receive a conical paper filter, B', and furnish a uniform support therefor without interfering with its porosity.

It will be readily seen that the natural qualities of wire-cloth adapt it admirably for the purpose of supporting a paper-filter. The wires and meshes of the cloth are fine, and each wire acquires a corrugated form in the weaving process, so that no wire is in contact with the paper throughout its entire length, but each wire furnishes a large number of projecting curves on which the paper rests, as shown in Fig. 2, the latter being free from contact with any object between the spaces.

The rack may be placed in an ordinary imperforate tunnel, and when so used effectually prevents any contact between the filter and the internal surface of the tunnel, the meshes of the cloth being so fine as to prevent the paper from sagging through the cloth.

I am aware that an open-work or skeleton frame made of wire has been heretofore used to support paper filters, this rack being composed of wires extending longitudinally, and having spaces of varying widths between them; but this construction, when the rack is placed in an imperforate tunnel, permits portions of the paper to bulge between the wires and come in contact with the tunnel, and is therefore objectionable. It is moreover expensive to make as compared with mine, which is very easily made by any mechanic, (the wire-cloth being an article of

trade which is cheap and easily obtained.) I am also aware that a conical funnel or strainer has been made of perforate sheet metal; but this material is objectionable for a filter-rack, for the reason that it presents a considerable area of bearing-surface, to which the saturated paper will cling, all parts of the paper, excepting those over the perforations, being thus obstructed.

I claim as my invention—

The wire-cloth cone or rack A, combined

with an ordinary conical paper filter B', the whole adapted to be placed inside of, and used in connection with, an imperforate funnel, as set forth.

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

HENRY R. WATT.

Witnesses:

CARROLL D. WRIGHT,  
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