

May 16, 1944.

J. M. SANFORD

2,349,115

FILTER BLANK

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Fig. 1.

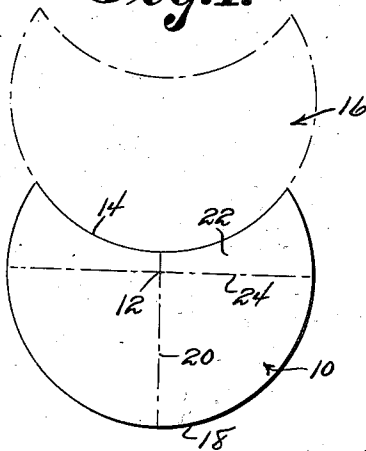


Fig. 2.

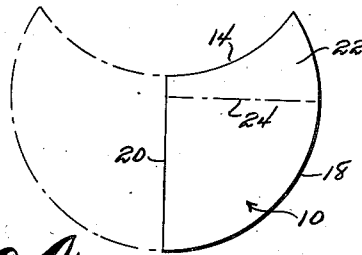


Fig. 3.

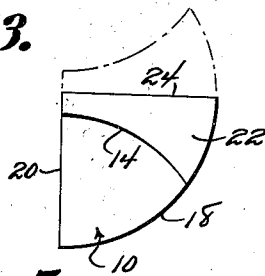


Fig. 4.

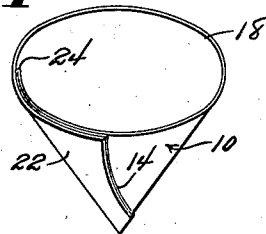


Fig. 5.

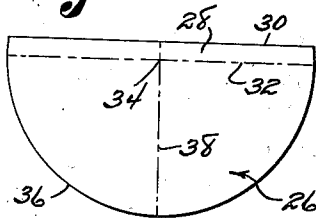


Fig. 6.

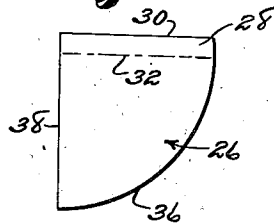


Fig. 7.

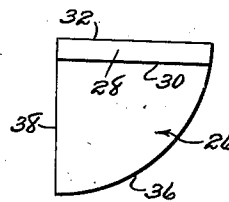
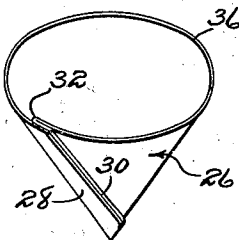


Fig. 8.



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UNITED STATES PATENT OFFICE

2,349,115

FILTER BLANK

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Application August 11, 1942, Serial No. 454,443

1 Claim. (Cl. 210—204)

This invention relates to filter blanks of the type employed for laboratory purposes.

Conventional filters employed for laboratory purposes usually comprise a funnel-shaped support having an angle of about sixty degrees contacting with a paper filter blank, circular in contour. This paper blank is folded and fitted into the funnel to be supported thereby. Such filter devices require considerable filter paper.

Accordingly, an object of my invention is to provide a filter so designed as to coact with the usual funnel-shaped support but in which the filter blank is so contoured as to require considerably less material to effect a considerable saving in filter paper or other material used for such purposes.

In the accompanying drawing:

Figure 1 is a plan view of a blank in accordance with my invention and illustrating the manner in which the blanks are cut to effect saving in the filtering material from which the blank is cut;

Figure 2 is a view illustrating the first step in folding the blank of Figure 1;

Figure 3 illustrates the second folding step;

Figure 4 illustrates the blank folded for insertion in the funnel;

Figure 5 is a plan view of a different form of blank;

Figure 6 illustrates the first step in folding the blank of Figure 5;

Figure 7 illustrates the second folding step; and

Figure 8 illustrates the filter blank folded for insertion in the funnel.

Figure 1 illustrates a filter blank 10 cut concentrically about the center 12 but in which the blank is provided with a concaved edge 14 defining the line of separation between the blank 10 and the next blank 16 cut from the filter stock. Thus the edge 14 conforms in contour to the curvature 18 of the filter blank 10. The line of severance is located some distance short of the center 12 so that the width of the blank 10 at the line 20 passing through the center 12 is slightly wider than the radius of the blank to provide a flap 22 extending up to the line 24 passing through the center 12 and at right angles to the line 20.

In folding the blank 10, the blank is first folded back upon itself along the line 20, as in Figure 2, and the flap or flange 22 is then folded back upon the blank along the line 24, as in Figure 3. The blank is then opened to the contour of Figure 4 for insertion in the funnel. Figure 4 illustrates the flap 22 as lying double against the outer face of the blank 10 so as to provide an overlapping margin sufficient to provide an intake filter of conical contour, with the apex of the conical configuration completely closed by reason of the bending of the flap 22 along the line 24. Thus

a filter blank 10 cut in accordance with Figure 1 requires considerably less material than in a filter cut in the form of a disk. The saving in material amounts to the amount of overlap as represented by the blanks 10 and 16.

Figure 5 illustrates a different form of blank 26 wherein the flap 28 is characterized by a straight edge 30, which edge parallels and is spaced a short distance from the fold line 32 passing through the center 34 about which the curved edge 36 is inscribed. The widest portion of the blank 10 is located at the line 38 passing through the center 34 and at right angles to the line 32.

In folding the blank 26, the blank is first folded back upon itself along the line 38, as in Figure 6, and the doubled flap 28 is then folded back upon the blank 26 along the line 32, as in Figure 7. The folded blank is then opened to the position of Figure 6, with the flap 28 doubled against the outer face of the conical contour of the filter. The apex of the filter contour of Figure 8 is also completely closed by reason of the folded flap 28.

In all the forms, the flaps provide effective closures by reason of the fact that the filter is first placed in the funnel and then wetted and pressed against the walls of the funnel to provide a tight fit. The overlapping portions of the blank will adhere firmly one to the other.

In the blank of Figure 5, such a contour represents a saving of almost fifty percent of the paper required in filters of disk formation.

The blank of Figure 5 will produce the same number of filters in a stock sheet of given area, but the filter of Figure 1 produces more scrap. The form of Figure 1 works better in the funnel and is easier to fold correctly. In addition to effecting a considerable saving in material, filters in accordance with my invention effect a considerable saving in the matter of packaging in that a considerably larger number of blanks may be packaged in a container of given size. The waste clippings are salvaged and employed for pulp and mass filters.

Without further elaboration, the foregoing will so fully illustrate my invention, that others may, by applying current knowledge, readily adapt the same for use under various conditions of service.

I claim:

50 A filter comprising a substantially semicircular shaped filter paper having a flange extending from the straight edge thereof, the flange gradually increasing in width in both directions from the center line of the sheet and flange, the sheet and flange being folded upon said line, and the flange being folded onto the folded sheet to provide the filter when opened with a closure flap gradually increasing in width in an upward direction.

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