AMENDED SPECIFICATION

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PATENT SPECIFICATION

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Complete Specification Accepted: July 31, 1936.

COMPLETE SPECIFICATION

Filter Paper for Filtering Apparatus in Cup Form

We, MELITTA-WERKE A.—G., a company organised under the laws of Germany, of 43, Heidestrasse, Minden Westphalia, Germany, and HORST WOLFGANG BENTZ, a German citizen, of 10, Blumenstrasse, Minden Westphalia, Germany, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to filter papers for use in cup or beaker filtering apparatus preferably having ribs or grooves over the whole inner surface, so that both the bottom of the filter paper as well as the side wall take part in the filtration. Filtering apparatus of this kind is used today a great deal for the production of coffee and tea infusions.

The filter paper formerly used for this type of filtering apparatus was formed into a bag or cup, but this was done not by joining the edges of the blank but by folding so that the edges overlapped. Alternatively the filter paper was provided with parts in relief and was inserted into the filter apparatus by a so-called presser-in, whereupon the paper assumed the shape of the apparatus; in this way, naturally the filter paper overlapped on the side walls, and had two and even three thicknesses. This led to a large consumption of paper which with daily use became unpleasantly noticeable, and due to the double and threefold layer of the filter paper on the side walls, a reduction in the rate of filtering was caused. Finally the filter paper was frequently torn by the pressing-in device, particularly when the filter apparatus was wet.

These disadvantages are avoided by the present invention, which consists in a filter paper for cup or beaker filtering apparatus characterized by the filter paper being formed into a bag or cup from one or more suitable blanks having its or their edges joined by crimping (stamping, goffering), the bag or cup either being formed of a shape corresponding with that of the filtering apparatus or having such shape imparted to it prior to use. Alternatively, the edges of the blank may be connected together by adhesive, which is tasteless and insensitive to boiling liquid, by stitching or by any suitable means.

Several constructional examples of the invention are illustrated with reference to the accompanying drawings, in which:—

Fig. 1 shows a filter bag in elevation inserted in a filtering apparatus in cup form, shown in section,

Fig. 2 is a particularly simple embodiment of a filter bag,

Fig. 3 shows a filter bag with the lower portion strengthened,

Fig. 4 shows the blank necessary for forming the filter bag according to Fig. 2,

Fig. 5 is a filter bag of substantially conical form with the lower portion strengthened three-fold and the pointed portion or apex turned upward.

Fig. 6 is a blank for forming a filter bag of the type illustrated in Fig. 1.

In the embodiment according to Fig. 1, the side wall *a* and the bottom *b* consist of two separate parts (Fig. 6). The bottom *b* is first pressed into cup shape, so that the edge *c* is inclined upwardly in the direction of the side wall of the apparatus. The lower edge of the side wall *a* is placed on this edge *c*, and the edges are connected together by crimping thus forming the connecting seam *d*. The lateral edges of the side wall are also joined together by a similar crimped seam *d*, so that a filter bag is formed which absolutely fits the interior of the filter apparatus and thus lies on the whole inner surface of the filter

[*Price* 1/-]

apparatus.

The blank for the above embodiment is illustrated in Fig. 6. The side wall *a* and the bottom *b* may be produced quite separately in the form of two blanks; but they can also be produced joined together at a point, as indicated by Fig. 6.

The simplest, cheapest and thus the most important embodiment is shown in elevation in Fig. 2, whilst Fig. 4 illustrates the corresponding blank. This blank is in known manner stamped out in large numbers from full sheets of paper placed in layers, folded about the centre line *f* and thereupon the side and bottom edges of the blanks which now lie coincident with each other are edged and joined by a crimping machine, this operation forming a complete bag. The bags so produced can be despatched in the flat form, in which case they must certainly be introduced into the filtering apparatus by means of a presser-in, whereupon their sides being separated they assume a cup form, or else the bags may be despatched in a form ready for use by forming them, directly the blanks are joined, on a suitably shaped body and packing them, nested one within the other, so that the user need only insert them in the filtering apparatus and thus dispense with any additional apparatus.

Figs. 3 and 5, illustrate filter bags having strengthened bottoms and which are used for larger filtering apparatus in which the bottom is particularly stressed by the weight of the liquid therein. As will be seen from the figures, the bottom reinforcements *g* are fastened in a very simple manner by the seams *d* by means of which the bags are prepared.

The bags according to Figs. 2 and 3, have the form of a substantially conical bag with the apex or pointed end cut off. In the embodiment according to Fig. 5, the conical form is retained and the apex *h* is folded over. In order that the pointed end should remain in this position, it can be firmly joined to the bag itself by crimping or any other means.

Particular care should be taken when forming the blanks for the filter bags to ensure that the upper edge of the bag will be level with the upper edge of the filtering apparatus, so that the minimum amount of paper will be used. The single layer of the side wall furthermore effects a considerable saving in paper and at the same time increases the rate of filtration.

Naturally, all the possibilities with respect to the shaping of the bags and of the corresponding blanks are not exhausted by the embodiments represented. It is also possible to provide suitably shaped filter bags for cup or beaker filtering apparatus of different form, for example, instead of conical filters, cylindrical filters.

Finally it may be advisable in certain cases to use, instead of the crimping method of joining the edges, some other method of joining, for example stitching or glueing. In the latter case, of course, the adhesive should be tasteless and insensitive to boiling liquid.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. Filter paper for cup or beaker filtering apparatus, characterized by the filter paper being formed into a bag or cup from one or more suitable blanks having its or their edges joined by crimping, the bag or cup either being formed of a shape corresponding with that of the filtering apparatus or having such shape imparted to it prior to use.

2. Filter bag according to claim 1, characterised by the upper edge of the filter bag when in position being approximately level with the upper edge of the filtering apparatus.

3. Filter bag according to claim 1, characterised by the lower portion of the bag being strengthened by the addition of further similar shaped portions (*g*) which are secured to the bag by the same crimping seam as that with which the edges of the bags are secured.

4. Filter bag according to claim 1, characterised in that with a bag of substantially conical form, the apex is folded over and fastened to the bag, preferably by crimping.

5. A modification of the filter bag according to claim 1, characterised by the edges of the blank being connected together by adhesive, which is tasteless and insensitive to boiling liquid, by stitching, or by any suitable means.

Dated this 18th day of December, 1935.

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Agents.

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Fig. 1

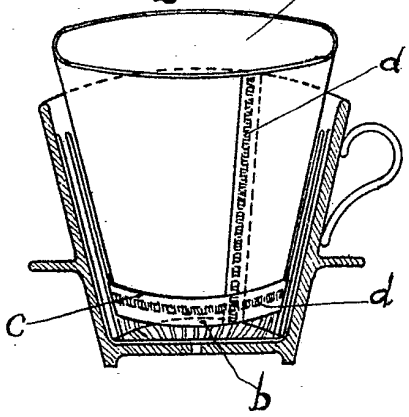


Fig. 2

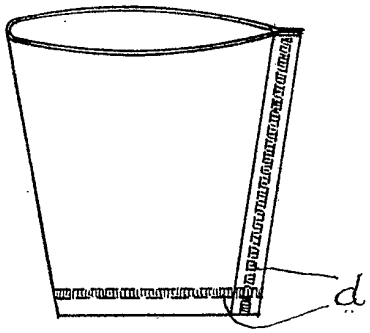


Fig. 3

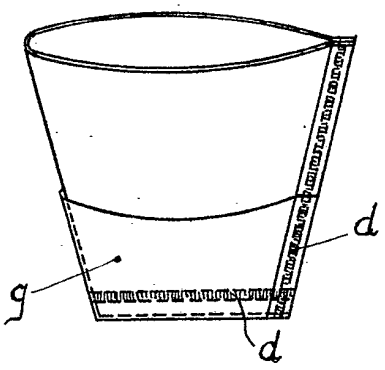


Fig. 4

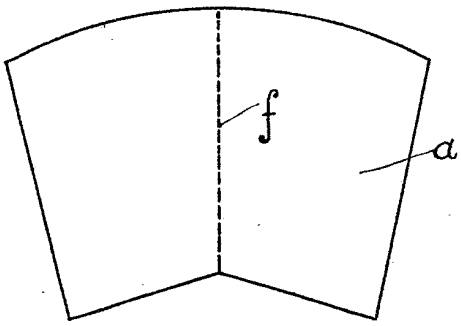


Fig. 5

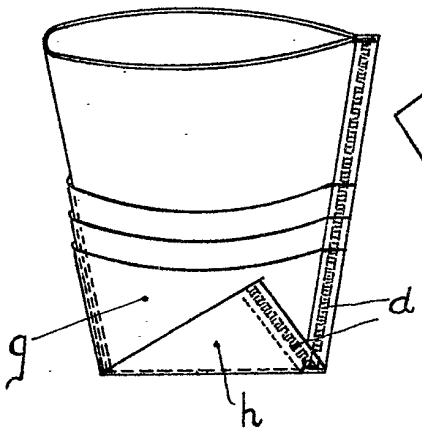
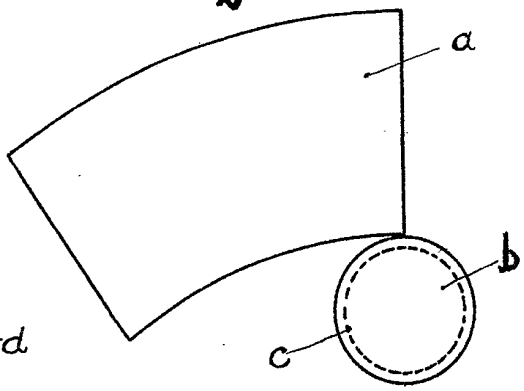


Fig. 6



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