April 22, 1941. W. L. GILLER 2,239,093

CROCKERY

Filed Feb. 20, 1940

Fig. 1.

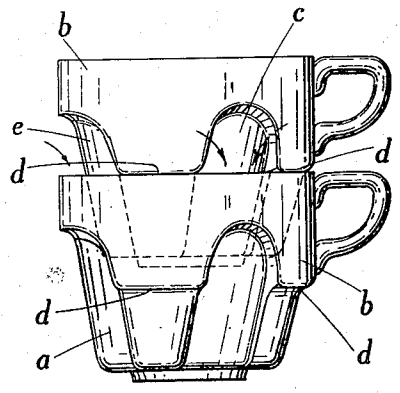


Fig. 2.

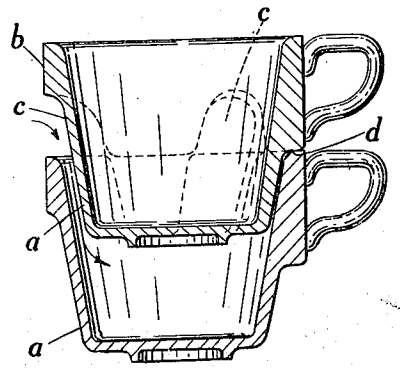
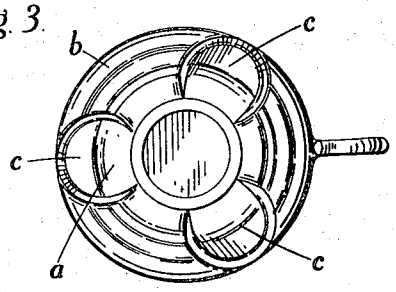


Fig. 3.



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UNITED STATES PATENT OFFICE

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CROCKERY

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Application February 20, 1940, Serial No. 319,985
In Great Britain June 24, 1938

5 Claims. (Cl. 65—13)

The present invention relates to cups or like articles of crockery, and is primarily concerned with domestic crockery including not only cups, but also basins, made of china, glass, porcelain, earthenware, plastic compositions, metal or other material of which such objects are or may be made. The invention, is however, also applicable with advantage to other articles of a nature similar to crockery, such as beakers, crucibles, and other liquid receptacles used in laboratories, hospitals, and the like.

The invention is intended for use in connection with cups and like articles of crockery which have to be handled in large quantities, such as in factory canteens, hotels, restaurants, hospitals and the like, wherein apparatus or machines are generally employed for washing the crockery, and the general object of the invention is two-fold, namely to enable the cups and like articles of crockery to be washed and dried in large quantities in a more efficient manner than heretofore, with the possibility of carrying out efficient sterilisation without undue loss of time.

To facilitate handling cups in large quantities, it is a well known practice so to shape them that they may be stacked or nested one in the other to form compact columns or piles on trays, on which they are transported from kitchen to washing machine, and back to the kitchen or stores again after washing. But the cups cannot be washed while so stacked and therefore have to be separated out individually for washing and also for sterilising should this be required. Also the cups cannot dry whilst stacked, so that as a rule they have to be individually dried, or dried by hot air when individually separated.

Furthermore the importance of hygiene in connection with crockery which is used communally by large numbers of persons is becoming increasingly recognized, and consequently it is now considered to be highly desirable, if not essential, that all such crockery should be sterilised.

But for efficient sterilisation crockery must be immersed in vigorously boiling water or hot steam for a period of at least ten minutes, and this represents a considerable increase in the time required for the handling of the crockery between its consecutive periods of use, often necessitating a considerable increase of stock to eliminate any periods of delay in meeting customers' or users' requirements.

Apart from the loss of time occasioned by the necessity for unstacking cups for washing and drying and sterilising, it will also be appreciated that the space taken up in the washing and sterilising machines is considerably increased as compared with the space taken up by the cups when stacked, so that machines of considerably more than minimum capacity are required.

The two-fold general object of the invention has been already stated, and more specifically the object of the invention is to avoid the above described disadvantages by enabling cups and like articles of crockery to be efficiently washed, dried and sterilised while in a stacked or nested condition, so that not only is there no loss of time in separating them out individually to enable washing, drying and sterilising to be effected with efficiency, and subsequently re-stacking them for delivery to the kitchen or stores, but also there is great economy in space in the washing and sterilising machines, which may consequently be much smaller than heretofore, for dealing with a given volume of work.

The foregoing objects are achieved in a very simple manner according to the present invention. To this end a cup or like article of crockery having a lower portion of less diameter than the upper portion, so as to fit within the upper portion of other similar articles, is also provided with a plurality of projections on its outer surface which are adapted to engage with the brim of another article when two such articles are nested together, and so to separate the outer surface of the one article from the inner surface of the article within which it is nested as to provide axially directed spaces for the admission and escape of washing or sterilising fluid to the space between the articles.

From another aspect the invention consists in a cup or like article of crockery having a lower portion of less external diameter than the internal diameter of its upper portion, so as to fit within the upper portions of other similar articles, wherein a plurality of circumferentially spaced axially directed grooves, flutes or recesses are formed upon or in its surface, whereby when two or more articles are stacked together, open axial passages exist between the walls of the articles which permit the free flow of washing or sterilising fluids into and out of the spaces between the articles.

The invention also consists in a cup or like article of crockery having a lower portion of less external diameter than the internal diameter of the upper mouth portion, so as to fit within the mouths of other similar articles, wherein a plurality of circumferentially spaced shoulders are provided on the upper portion to rest on the brim of another article into which its lower part is fitted, and leave intermediate axially directed spaces serving for the admission and escape of washing or sterilising fluid into the space between the cups or other articles whilst the articles are fitted in one another or "stacked."

In one embodiment, the surface of a cup is provided with alternate axially directed ribs or projections, and grooves or flutes, extending upwardly from the bottom of the cup, and prefer-

ably the lower parts of the ribs are made of less height than the upper parts to produce recessed portions forming shoulders which rest on the brim of another cup into which it is fitted. The grooves or flutes need only extend a short distance upwardly of the surface of the articles, sufficient to provide the necessary axial passages into their interiors, but they may, if desired, be extended up to the brims or edges of the cups or the like.

The invention will be more clearly appreciated from the following description of the drawing appended hereto and forming part of this specification, which drawing shows, by way of example only, a constructional form of cup embodying the invention. In the drawing:

Figure 1 shows two cups in accordance with the invention stacked one upon the other.

Figure 2 shows the two cups in vertical section, and

Figure 3 is an underplan view of one of the cups.

As shown in Figures 1, 2 and 3, cups are formed with the lower portion *a* of smaller diameter than the upper portion *b*, so that they can be stacked one within the other, thereby economising in storage space and facilitating their handling in large numbers. In accordance with the invention, in the surface of the cup are provided flutes or grooves *c* which at their upper ends merge into the surface of the upper portion *b*, below the mouth edge thereon, and at their lower parts extend to the bottom of the cup, the portions of the upper part *b* remaining between the flutes or grooves *c* forming shoulders *d* which rest on the rims of the cups in which the lower parts *a* are fitted.

In the example shown the minimum number of three flutes *c* are provided in the cup surface, but more flutes may be provided if desired. As will be apparent from the drawing, cleaning liquid or steam can enter the interiors of the cups, as indicated by the arrows, through the flutes *c*, and can leave in the same manner, when the cups are inverted.

The flutes need not stop short of the upper or mouth edge of the cup as shown, since they may extend to the rims or mouth edges of the cups, if desired.

It will be appreciated that cups shaped as described above can be readily washed by high pressure jets of water, whilst remaining in the stacked condition, and upon immersion in boiling water or steam for sterilisation purposes, will be freely penetrated by the hot sterilising liquid or vapour. Finally, after being inverted to drain out the contained liquid whilst still stacked, they may be dried by hot air currents, since the air can freely enter and leave their interiors.

It will be understood that in the case of stacked cups, or the like, the jets of washing or drying fluid will be directed parallel to the lengths of the stacks, i. e tangentially to the external surfaces of the edges.

It should be noted that the exact shape of the cups, or other articles is not material to the invention. In the case of so-called "stacking" cups, the cups should be so shaped as to provide free access for the washing liquids, whilst at the same time providing the necessary interlock in order to prevent a stack of cups from falling over. The invention, however, is also applicable to ordinary cups and in this case may be carried into effect by providing ribs upon the inner or outer surfaces of the cups in order that the cups are spaced apart when one is inserted within the other, whereby a free path of flow is allowed to the washing fluid.

It will be understood that various modifications may be made without departing from the scope of the invention as defined by the appended claims. For example, the outer surface of the cup may be provided with three small lugs, one of which may even constitute the handle of the cup itself, which are so positioned as to space the cups apart when they are stacked together and permit the free flow of washing fluids in their interiors. With such a construction, if the lugs are made small, practically the whole of the cup's periphery is left freely open for the fluid movement.

What I claim is:

1. Cups and like articles of crockery having a lower portion of less external diameter than the internal diameter of the upper portion, including a plurality of circumferentially spaced shoulders on said upper portion, whereby when said article is fitted into another similar article, said shoulders rest on the brim of said other article and define intermediate axially directed spaces opening through the lower edge of the article for the admission and escape of washing or sterilising fluid into and from the space between the articles.

2. Cups and like articles of crockery having a lower portion of less external diameter than the internal diameter of the upper portion, including a plurality of circumferentially spaced axially directed ribs on the surface of the article, extending upwardly from the bottom thereof, and shoulders formed by recessed portions of said ribs, whereby when said article is fitted into another similar article, said shoulders rest on the brim of said other article and define intermediate axially directed spaces for the admission and escape of washing or sterilising fluid into and from the space between the articles.

3. Cups and like articles of crockery having a lower portion of less external diameter than the internal diameter of the upper portion, including a plurality of circumferentially spaced axially directed grooves in the surface of the article and extending upwardly from the bottom thereof, recesses in the portions of the article between said grooves forming shoulders, whereby, when said article is fitted into another similar article, said shoulders rest on the brim of said other article and define intermediate axially directed spaces for the admission and escape of washing or sterilising fluid into and from the space between the articles.

4. Cups and like articles of crockery having a lower portion of less external diameter than the internal diameter of the upper portion, a peripheral shoulder between said upper and lower portions, circumferentially spaced depressions in said upper portion forming spaced interruptions of said shoulder, and axially directed ribs on said lower portions disposed between said depressions.

5. Cups and like articles of crockery having a lower portion of less external diameter than the internal diameter of the upper portion, a peripheral shoulder between said upper and lower portions, circumferentially spaced depressions in said upper portion forming spaced interruptions of said shoulder, and axially directed ribs on said lower portions disposed between said depressions and extending from said shoulder to the lower edge of said article.

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