

J. POWERS.
 SANITARY DRINKING CUP.
 APPLICATION FILED APR. 4, 1912.

1,107,347.

Patented Aug. 18, 1914.

Fig. 1.

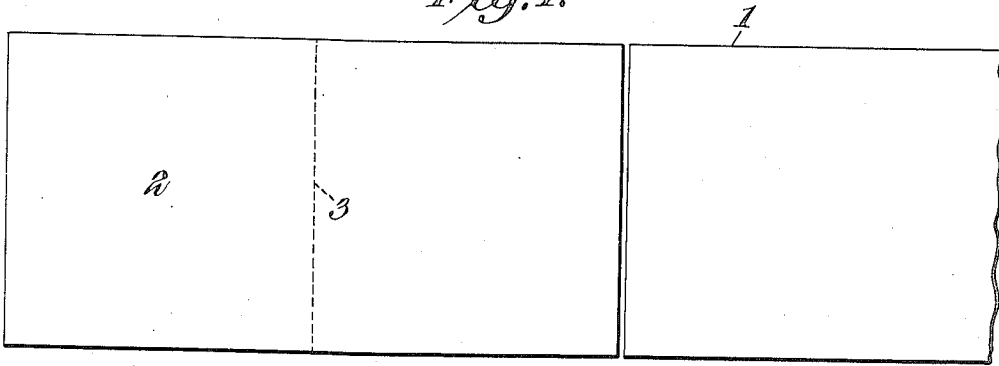


Fig. 2.

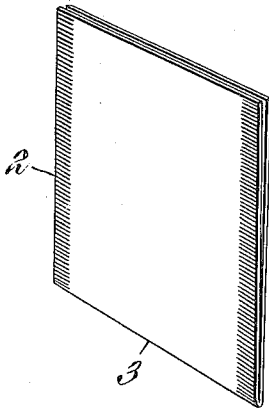


Fig. 3.

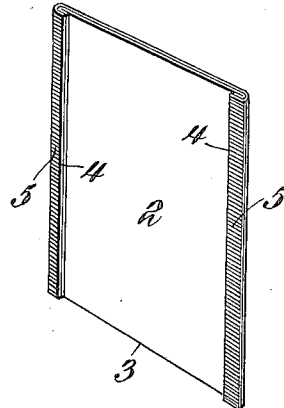


Fig. 4.

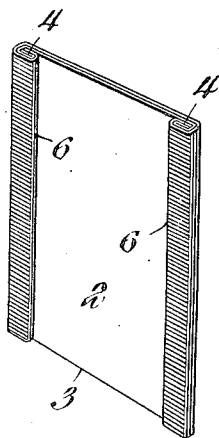


Fig. 5.

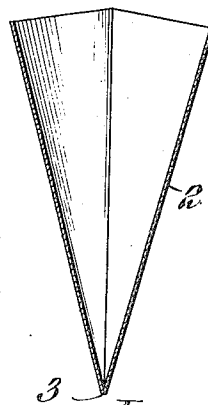
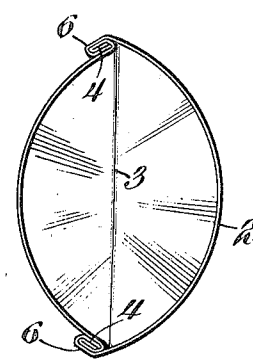


Fig. 6.



WITNESSES

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JAMES POWERS, OF NEWARK, NEW JERSEY,

SANITARY DRINKING-CUP.

1,107,347.

Specification of Letters Patent.

Patented Aug. 18, 1914.

Application filed April 4, 1912. Serial No. 688,488.

To all whom it may concern:

Be it known that I, JAMES POWERS, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented a new and useful Sanitary Drinking-Cup, of which the following is a specification.

This invention has reference to improvements in sanitary drinking cups, and its object is to provide a cup producible from thin paraffin or like paper resistant to the action of water and other liquids, which may, without the aid of pastes or adhesives of any kind, and with a minimum quantity of material, be formed into a cup capable of retaining water and other liquids without leakage, and which may be so cheaply produced as to warrant the discarding of the cup after the use for which it was produced.

In accordance with the present invention a large number of cups may be produced successively from a long web of paraffin paper, simple elongated rectangular blanks being cut successively from the web, and each blank is folded upon itself intermediately of its length and then the side edges where meeting are pressed together and crimped to cause cohesion of such edges, after which the joined edges are folded toward the center line of the blank and pressed together and again crimped, and finally these folded edges are again folded over toward the center line of the blank and pressed together and crimped so that at the edges of the blank the paper is folded a plurality of times upon itself under pressure, and with crimping or like indenting action causing a strong uniting of the surfaces it is rendered liquid-proof by the paraffin present in the paraffin paper, the said paraffin having a sufficiently strong cementing action to hold the parts in place. The cup is thus completed and needs simply to be compressed toward the center line to cause that end of the cup remote from the intermediate fold of the blank to spread open for the reception of liquid, the folded-over side edges or margins preventing separation of the sides of the cup at such points, wherefore the cup may be used to receive liquid for immediate use or for transportation for considerable distances, and, moreover, the cup may be filled several times without liability of any water or other liquid leaking therefrom.

The cup comprises but two thicknesses of paraffin paper, while the margins where the sides are folded over upon each other do not exceed five layers of paper in thickness, such thickness being to a great extent unnoticeable, although serving materially in stiffening the cup lengthwise.

The improved cup is readily adaptable to manufacture by very simple apparatus, so that it is readily producible in a vending machine of small size, and small cost, which may be located in public or semi-public places, or wherever persons are likely to desire a cup for temporary use, and where it is common to provide a glass or cup for such use, which glass or cup is customarily used by many persons, and oftentimes without any cleansing between the uses.

The invention will be best understood from a consideration of the following detailed description, taken in connection with the accompanying drawings forming a part of this specification, with the further understanding that while the invention is shown as applied to a particular form of drinking cup, it is by no means limited to any strict conformity with the showing of the drawings, but may be variously changed and modified in its practical embodiments, so long as such embodiments contain no marked departure from the salient features of the invention.

In the drawings:—Figure 1 is a plan view of a portion of a web of paper with a severed blank adjacent thereto. Fig. 2 is a perspective view of the blank folded intermediately and disclosing the second step in the process of making the cup. Fig. 3 is a perspective view illustrating the third step in the production of the cup. Fig. 4 is a perspective view illustrating the fourth and final step in the production of the cup. Fig. 5 is a section intermediate of the folded sides of the cup, showing the latter in the open condition. Fig. 6 is a plan view looking into the open end of the open cup.

Referring to the drawings, there is shown in Fig. 1 a portion of a web 1 which may be considered as coming from a roll containing many feet of the web, a roll being a convenient way of providing a supply of the web without danger of contamination. The web 1 is customarily a web of paraffin paper of suitable stock, although this does not preclude the use of other materials for

the purpose, but as paraffin paper is one of the most convenient and cheap materials which may be used for the purpose it will be considered that the cups are made of paraffin paper without, however, limitation of the invention to the use of such material.

From the web 1 there is severed a section 2 of suitable length to ultimately make a cup, the section 2 being substantially twice the length of the finished cup and somewhat wider than the finished cup, the latter being usually produced in a flat condition to be subsequently opened up for the reception of a liquid.

The web section 2, which may be considered as a blank, is usually longer than wide, and is folded intermediately of its length on a line indicated by the dotted line 3 of Fig. 1, and the two ends of the blank are brought together face to face, as indicated in Fig. 2, although in the said figure the two ends of the blank are slightly separated for clearness of illustration, but, in practice, they are brought into actual contact. The marginal portions of the folded blank are now pressed together, so that the paraffin coating of the paper where the pressure is applied is brought into such intimate contact as to cause more or less cohesion, and this may be enhanced by initially crimping or milling the paper when pressed together.

The side portions of the folded blank are now folded over on to the body of the blank, as indicated at 4 in Fig. 3, the folding being toward the longitudinal center line of the folded blank, and the folded portions 4 are subjected to pressure and are milled or crimped as indicated at 5 to cause coherence of the folded over portions of the body of the blank and the coherence of those portions of the body of the blank overlaid by the folded over portions 5.

The marginal folded-over portions 5 are again folded over toward the longitudinal center line of the blank to form additional folds 6, indicated in Fig. 4, housing the folds 5, and these folds 6 are also subjected to pressure and milled or crimped to cause cohesion of the surfaces. The ordinary free edges of the sides of the folded blank of Fig. 2 are now presented toward the outer folded-over portion of the folds 6, whereby any liquid contained in the cup must to escape find its way by a tortuous passage to such free edges, but such passage is effectually sealed by the paraffin surfaces which have been brought into close contact.

The cup, therefore, comprises an elongated sheet of paper folded on itself intermediately with the side edges doubly folded on themselves to house the initially free edges of the sides, and the several surfaces where folded over are each subjected to pressure, and preferably also to a milling or

crimping action whereby there is produced more or less coalescence of the paraffin, which may be present on the surface of the paper, such paraffin acting as a sufficiently strong cement for the purposes of the invention, but this cementing action is brought about without the application of heat and solely by the application of pressure, while all vegetable or animal adhesives are rigidly avoided, thereby eliminating any possible substance in which disease germs might propagate should they find lodgment therein. Paraffin is, of course, wholly unsuited to the propagation of disease germs, and is not easily contaminated by any substance with which it is liable to be brought into contact in the use of the present invention, so that the cup produced is initially highly sanitary.

The cups as produced are substantially as shown in Fig. 4 although it will be understood that the thickness of the paper is much exaggerated, this exaggeration being necessary to illustrate the folds. It is to be observed that the folded-over sides of the cup are only as thick again as the combined thickness of the walls of the cup, and even these folded over marginal portions, together with the thickness of the cup only make up a few thousandths of an inch.

When it is desired to use the cup, pressure is applied to the outside edges of the folds 6, the pressure being directed toward the intermediate or longitudinal center line of the cup, thus bulging out the thin sides of the cup somewhat as indicated in Figs. 5 and 6, and while the cup is so held water or other liquid may be deposited therein, when the weight of the liquid will readily hold the cup in the laterally expanded condition. The cohesion of the folds where in contact effectually prevents any escape of liquid through the edges of the cup, and as the bottom fold is intact no liquid can escape there-through, the paraffin, of course, preventing any wetting of the paper walls of the cup, since it is thoroughly resistant to any liquids which would be used within the cup.

The cups may be made by hand or by dissociated mechanisms, but may be best made by a single complete machine capable of turning out a complete cup at one operation, and particularly a machine of the type known as a vending machine. Such an apparatus for making and vending sanitary cups like that shown and described herein, is shown in Letters-Patent No. 1,077,298, granted to me November 4, 1913, which machine is self contained and suitably protected, so that the cups are not handled at all in any stage of the manufacture, and are delivered directly to the intended user, wherefore the cups are truly sanitary and individual to the user, and there is no possibility of contamination of any kind as might occur with cups which of necessity

are handled by numerous persons between the time of manufacture and the time of delivery of the cup to the user.

What is claimed is:—

5 A sanitary drinking cup comprising a substantially rectangular sheet of suitable material charged with a water repellant substance capable of cohesion at atmospheric temperature when two surfaces are pressed
10 together, said charged sheet being folded upon itself intermediately and the side portions of such folded sheet being also each

folded and refolded upon itself in the same direction toward the center line of the cup with the first fold inclosed by the second 15 fold and with the charging material of the meeting surfaces of the folds cohering.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JAMES POWERS.

Witnesses:

HARRY B. ANNIN,
THOMAS L. SHANGER.