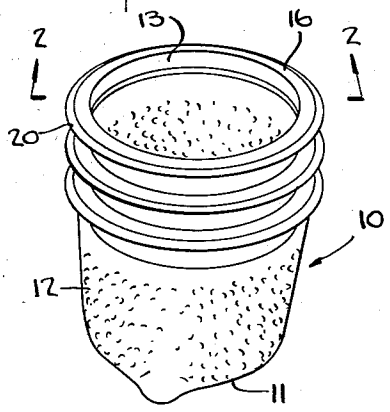
Feb. 25, 1964 S. FOTOS 3,122,296

NESTABLE CUPS

Filed March 13, 1961

Fig. 1.



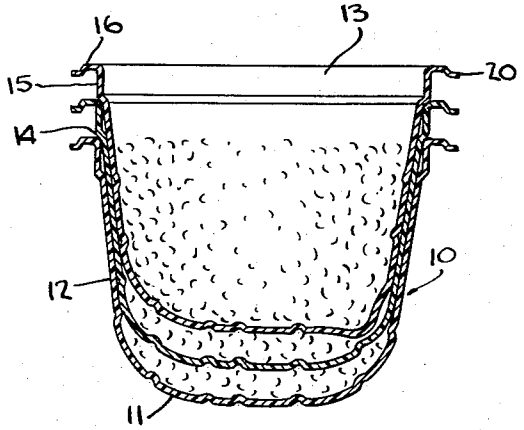


Fig. 2.

Fig. 3.

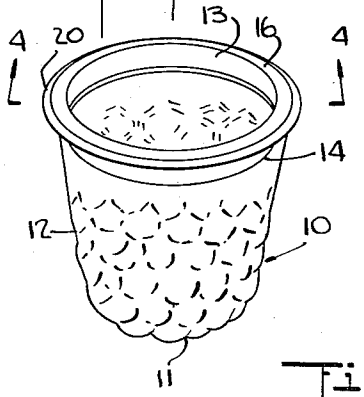


Fig. 4.

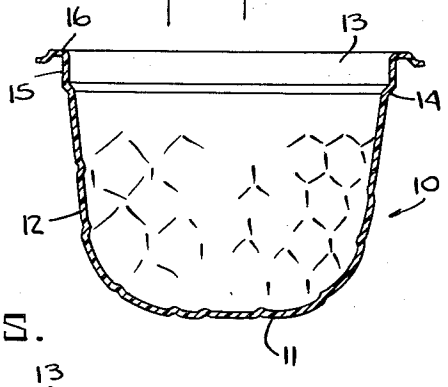
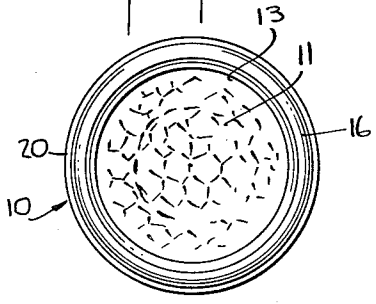


Fig. 5.



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NESTABLE CUPS

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5 Claims. (Cl. 229—1.5)

This invention relates to nestable cups and more particularly to plastic cups of this type which are adapted to be filled with ice cream, sherbet or ice and which are preferably capable of being arranged in telescoping nesting interengagement for use with automatic machinery for filling the cups.

In the manufacture of ice cream, sherbet or ice cups it is common practice to fill these cups with automatic machinery. These cups are generally made of paper which is coated with wax, or otherwise suitably impregnated. In order to facilitate the use of these cups with automatic filling machinery, they are generally nested in such a manner that a stack or series of cups are telescopically received within one another.

In the past, it has been generally accepted that nestable cups must be made of paper or other flexible material in order to permit proper nesting of the cups. The nesting is generally accomplished by contact between the walls of the cups, the bottom of the cups having a smaller diameter than the top such that the angularity of the walls prevents complete telescoping of the cups one within the other. The angularity of the walls usually required for nesting, however, permits the walls to wedge so tightly together as to make difficult the separation of the cups in the nested stack because of the friction developed between the wall surfaces in nested contact. Although paper cups have a certain degree of flexibility, the friction of the contact wall areas nevertheless often results either in improper nesting or interlocking of adjacent walls which prevents rapid separation of the cups. This is particularly true if any pressure is applied to the nested cups.

Since the area of engagement in nested paper cups is relatively large, due to the height of the side wall, it has been found that it is often difficult to separate the cups without bending, creasing or otherwise damaging the walls of the paper cups. The use of plastic cups where nesting is required has heretofore been thought impractical as plastic offers relatively small flexibility and results in difficulty of separation.

In view of the foregoing, it is the primary object of the present invention to provide plastic cups which may be nested or telescoped one within the other and which may be subsequently withdrawn or separated from such nested position without any difficulty and without any damage to the cups.

Another object of the present invention is to provide plastic cups which are capable of being nested, one within the other, but when arranged in such nested relation are prevented from completely telescoping within the adjacent cup, thereby facilitating rapid removal or disengagement.

Yet another object of the present invention is to provide a plastic cup which simulates the form of various fruits such as oranges, lemons, raspberries, etc., and which may be arranged in nested or telescoping arrangement without binding and which may be rapidly and easily disengaged or separated, one from the other.

These and further objects and features of the present invention will appear from the following detailed description of the invention to be read in conjunction with the accompanying drawings in which like components in the several views are identified by the same reference numeral.

In the drawings:

FIGURE 1 is a perspective view of the plastic cups of the present invention, the cups being shown in nested or telescoping position.

FIGURE 2 is a cross-section taken on line 2—2 of FIGURE 1.

FIGURE 3 is a view similar to FIGURE 1, but illustrating only one cup simulating a different type of fruit.

FIGURE 4 is a cross-section taken on the line 4—4 of FIGURE 3 and,

FIGURE 5 is a top view of the cup illustrated in FIGURES 3 and 4.

Briefly stated, the nestable cups of the present invention are made of plastic and may be formed by any conventional molding techniques, such as injection or vacuum forming. The base of the cup is formed in such a manner as to simulate the fruit or other commodity corresponding to the flavor of the edible product being packaged in the cup. The base of the cup therefore may be formed in such a shape as to simulate oranges, raspberries, limes, bananas, etc. The base of the cup may take any desired configuration, but in the preferred form of the invention, the base of the cup has a slightly smaller diameter than the top in order to impart a slight taper to the walls of the cup. The reason for the tapered walls is to facilitate the receipt of one cup within the other in nesting or telescoping fashion. The upper portion of the cup is formed with an outwardly flared portion to form a shoulder. The wall of the cup is continued upwardly from the shoulder and terminates in a lip portion. The portion of the wall between the shoulder and the lip is pitched inwardly at a slight angle such that the diameter of the lip is smaller than the diameter of the shoulder. This permits partial telescoping of one cup within the other but prevents binding of the wall portions of adjacent cups and permits rapid and simple disengagement or removal of the cups from their nested position.

Referring now to the drawings, the cup of the present invention is indicated generally by the numeral 10. The cup 10 is formed of thin walled plastic and is formed by vacuum or injection molding, or by any other known molding techniques. In the preferred form of the present invention, the cups 10 are shaped in such manner as to simulate fruits, vegetables, or other edible products. The cup 10 illustrated in FIGURE 1, simulates the appearance of a lemon or a lime, while the cup 10 illustrated in FIGURE 3 simulates the appearance of a raspberry. If the cup 10 is filled with ice cream, sherbet or ice, the flavor of the edible product received within the cup can coincide with the appearance of the cup 10.

As illustrated in the figures, the cup 10 includes a base 11, side walls 12 and an open top 13. In the formation of the cup 10 the upper or outer portions of the side wall 12 are flared outwardly to form an annular shoulder 14 for a purpose to be presently described. Projecting upwardly from the extremities of the annular shoulder 14 is a tapered annular collar 15. The upper or outer portions of the collar 15 are flared outwardly to form a peripheral rim or lip 16 which defines the open top of the cup 10.

In the preferred form of the invention, the base 11 of the cup 10 is of a slightly smaller diameter than the top 13. In this manner, as illustrated in the drawings, the side walls 12 are slightly tapered, the spacing between the side walls 12 gradually increasing from the base 11 to the top 13. This taper facilitates rapid insertion of one cup within the other in nesting or telescoping relationship. It is to be understood, however, that the cups 10 may be built with parallel side walls 12.

The annular shoulder 14 may be formed at any desired angle with regard to the side wall 12 and represent merely

a slight protrusion in the side wall 12. The purpose of the shoulder 14 is to function as a stop when the cups 10 are inserted one within the other in nesting or telescoping fashion. The shoulder 14 seats upon the rim or lip 16 of the adjacent cup 10 and prevents further insertion of one cup within the immediate preceding cup in the nested stack. In order to permit the annular shoulder 14 to function as a stop and to seat on the rim or lip 16 of the adjacent cup in the nested stack, the collar 15 is tapered slightly inwardly such that the upper or outer portion of the collar 15 has a slightly smaller diameter than the shoulder 14. This taper of the annular collar 15 is preferably small and in the order of 3 to 6 degrees.

The upper and outer portions of the annular collar 15 are flared outwardly in order to form an annular rim or lip 16 which functions as a seat to receive the shoulder 14. The rim or lip 16 also functions to provide a gripping surface to facilitate disengagement of the cups from their nested or telescoping position.

As illustrated in the figures, the rim or lip 16 is substantially in the form of an inverted U with the outer leg of the U being provided with a laterally extending flange 20. The purpose of the flange 20 is to receive a closure lid (not illustrated).

In assembling the cups 10 into a nested or telescoping arrangement, one cup is merely inserted, one within the other. As illustrated in FIGURES 1 and 2, as one cup is inserted within the other, the outer surface of the annular shoulder 14 abuts against or seats upon the annular rim or lip of the cup 10 immediately under the cup being inserted within the nested stack. When the shoulder 14 seats or rests upon the rim or lip 16 it prevents further telescoping of the inserted cup. The arrangement is such that it prevents one cup from being wedged within another cup and prevents the base 11 of one cup from coming into contact with the base 11 of the immediately preceding cup in the stack series.

In order to prevent one cup from being jammed into another cup, the shoulder 14 is preferably not at right angles with the annular side walls 12, but is tapered preferably between 25° and 65° therefrom to permit sliding contact when the shoulder 14 is seated or engaged with the rim or lip 16.

With the arrangement of the present invention, an extremely large degree of pressure can be applied to the nested or telescoped cups without wedging the cups tightly within one another such that they become bound together. When applied pressure is released, the nested cups may still be quite simply and easily removed one from the other. This is important since it insures that even during shipping or packing, although undue external pressure may be applied to the nested or telescoped cups, they may be received at their destination without being compressed one within the other and insure rapid and simple disengagement of one cup from the other.

What has been described is a nestable cup made of plastic which is preferably in the form of some edible fruit or vegetable. The nestable cups of the present invention may be arranged in telescoping arrangements without binding and with an exact spacing being maintained between each nested cup. It is to be understood that although a preferred form of the invention has been described, changes and modifications may be made thereto by those skilled in the art without departing from the scope of the present invention as defined in the appended claims.

I claim:

1. A nestable cup adapted to be received in telescoping arrangement within a like cup and supported therein with the bottom thereof spaced a fixed distance from the bottom of the adjacent cup, said cup comprising a continuous side wall extending upwardly from an integral bottom wall, said side wall being provided at the extremity thereof removed from said bottom wall with an outwardly projecting peripheral shoulder at an angle between 25° to 65° to said side wall, a slightly inwardly tapered collar extending upwardly from the extremity of said shoulder, and said collar being provided at its upper end with a peripheral seat which flares out laterally from said collar.

2. A nestable cup adapted to be received in telescoping arrangement within a like cup and supported therein with the bottom thereof spaced a fixed distance from the bottom of the adjacent cup, said cup comprising a slightly tapered side wall extending upwardly from an integral bottom wall at its small end to adjacent its open end where it is provided with a peripherally continuous outwardly extending shoulder at an angle between 25° to 65° to said side wall, an annular collar extending upwardly and inwardly from the extremity of said shoulder, said collar being provided at its upper end with a peripheral seat which flares out laterally from said collar, and the outer diameter of said collar being greater than the inner diameter of said seat whereby when one of said cups is placed within another of said cups in telescoping arrangement the shoulder of said first cup engages the seat of said second cup to thereby support said first cup within said second cup.

3. A plastic molded nestable cup adapted to be received in telescoping arrangement within a like cup and supported therein with the bottom thereof spaced a fixed distance from the bottom of the adjacent cup, said cup comprising a slightly tapered side wall extending upwardly from an integral bottom wall at its small end to adjacent its open end where it is provided with a peripherally continuous outwardly extending shoulder at an angle between 25° to 65° to said side wall, a slightly inwardly tapered collar extending upwardly from the extremity of said shoulder, and said collar being provided at its upper end with a peripheral seat which flares out laterally from said collar.

4. A plastic molded nestable cup adapted to be received in telescoping arrangement within a like cup and supported therein with the bottom thereof spaced a fixed distance from the bottom of the adjacent cup, said cup comprising a slightly tapered side wall extending upwardly from an integral bottom wall at its small end to adjacent its open end where it is provided with a peripherally continuous outwardly extending shoulder at an angle between 25° to 65° to said side wall, said shoulder extending substantially laterally from said side wall, a slightly inwardly tapered annular shoulder extending upwardly from the extremity of said shoulder, said collar being provided at its upper end with a peripheral seat which flares out laterally from said collar, and the outer diameter of said collar being greater than the inner diameter of said seat whereby when one of said cups is placed within another of said cups in telescoping arrangement the shoulder of said first cup engages the seat of said second cup to thereby support said first cup within said second cup.

5. A device in accordance with claim 4 wherein said seat is substantially U-shaped and is provided with a laterally extending flange for receiving a closure lid.

References Cited in the file of this patent

UNITED STATES PATENTS

2,942,301	Price et al.	June 28, 1960
2,985,354	Aldington	May 23, 1961
2,988,258	Witzke	June 13, 1961

FOREIGN PATENTS

1,201,792	France	July 15, 1959

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,122,296 February 25, 1964

Stephen Fotos

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 4, lines 5, 36 and 48, for "to", first occurrence, each occurrence, read -- and --; same column 4, line 17, for "to" read -- and --.

Signed and sealed this 14th day of July 1964.

(SEAL)

Attest:

ESTON G. JOHNSON
Attesting Officer

EDWARD J. BRENNER
Commissioner of Patents