Aug. 25, 1959 T. R. BAXTER ET AL 2,900,779

TOOL FOR OPENING AND EXPANDING THE MOUTH OF A FLEXIBLE RECEPTACLE

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Fig-1

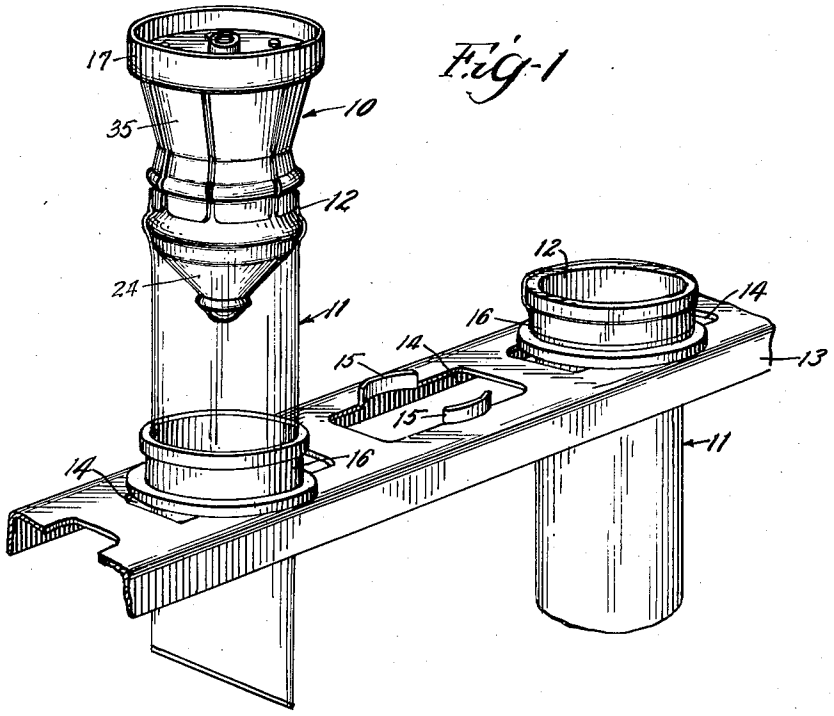



Fig-2

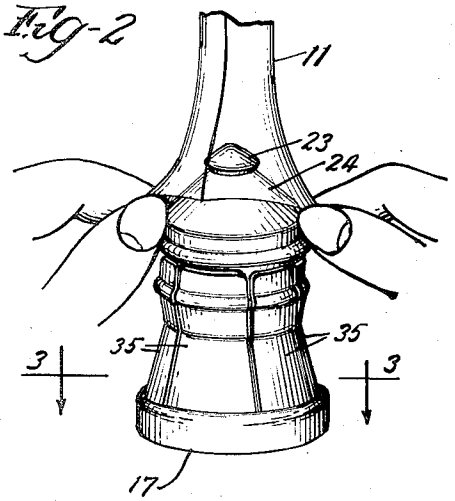
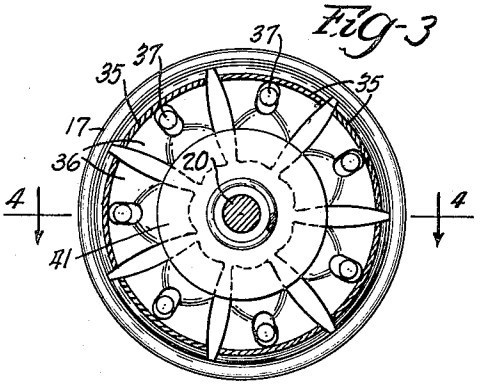



Fig-3




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Fig-4

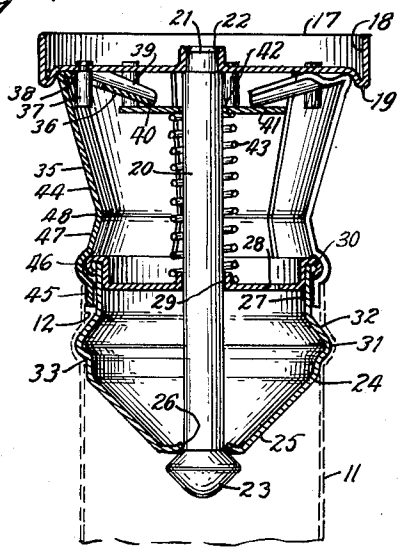



Fig-5

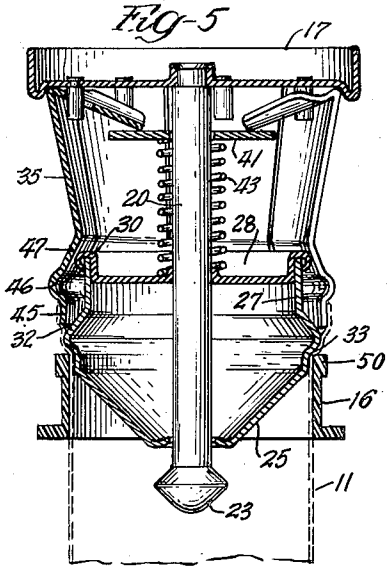



Fig-6

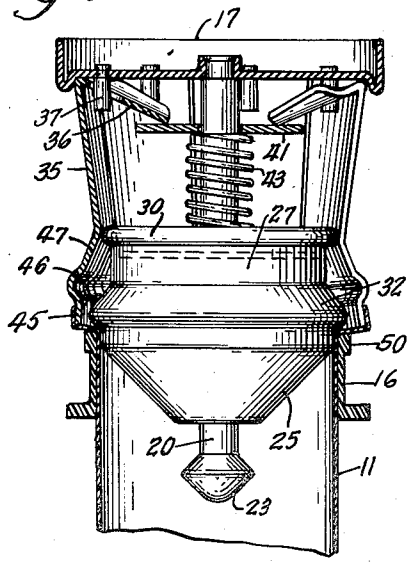
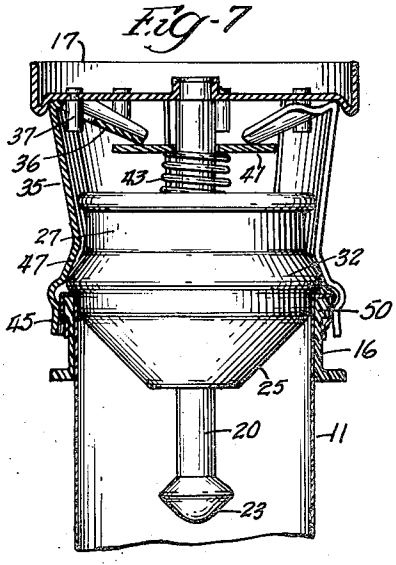



Fig-7




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2,900,779

# TOOL FOR OPENING AND EXPANDING THE MOUTH OF A FLEXIBLE RECEPTACLE

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Application May 23, 1956, Serial No. 586,857

14 Claims. (Cl. 53—381)

This invention relates to receptacle handling tools and is more particularly concerned with improvements in a tool for opening and expanding the mouth of a receptacle which is characterized by being formed of a relatively flexible sheet material such as a continuous plastic film.

It is a general object of the invention to provide an improved tool for use in opening and expanding the mouth of a bag, bottle, tube or other receptacle of the type which is formed of relatively thin flexible sheet material of such a character that it is necessary, in filling the receptacle, to open the mouth thereof and place it on a support for holding it in the open condition while the desired contents is placed therein.

It is another object of the invention to provide a tool which is especially designed for opening and expanding the mouth of a receptacle which is adapted to be employed as a disposable bottle member in a nursing unit or like assembly, such as disclosed in Patent No. 2,604,-222, granted July 22, 1952, to Walter Darwin Teague et al., for a Nursing Unit and Method and Apparatus for Assembling the Same.

It is a more specific object of the invention to provide a tool for opening and expanding the mouth of a receptacle, of the type which is characterized by being formed of a relatively thin, flexible plastic film material, wherein a cone-shaped mouth opening member is slidably mounted on a pin extending from a base or supporting member and a plurality of mouth expanding fingers are pivotally mounted on the base member with the free ends thereof arranged at the end of the cone-shaped member so that upon the latter being inserted in the mouth of the flexible receptacle a sufficient distance to position the free ends of the fingers therein, the cone-shaped member and the base may be moved relative to each other to cause the fingers to engage the inner walls of the receptacle mouth and expand the same outwardly.

It is a further object of the invention to provide a device of the character described for use in opening the mouth of a nursing bottle or a similar receptacle which is formed of a flexible and somewhat stretchable film material and assembling the same with a supporting neck ring which device comprises a disk-like base member mounted on one end of a guide pin, which pin has a head on the other end thereof, a conical member slidably mounted on the guide pin which conical member has a peripheral groove in its inner edge, a plurality of plate-like finger members pivotally mounted around the periphery of the base member with their inner ends seated in the groove in the inner end of the conical member adjacent an outwardly tapered surface of the latter which defines the outer limits of the groove and which cams the ends of the finger members outwardly when the conical member is moved toward the base member, and a spring on the guide pin between the inner end of the conical member and inwardly extending arms on the pivoted ends of the finger members, whereby when the conical member and the ends of the finger members are inserted in the mouth of the receptacle and the body of the receptacle is positioned within the supporting ring so that the conical member bears against the ring and clamps the receptacle therebetween, the base member may be moved toward the conical member to cam the finger members outwardly a sufficient distance to embrace the supporting ring and thereafter move the same relative to the latter to reversely fold the mouth of the receptacle over the ring.



These and other objects and advantages of the invention will be apparent from a consideration of the tool and the method of using the same which is shown by way of illustration in the accompanying drawings, wherein:

Fig. 1 is a perspective view of a tool which embodies the principal features of the invention, the tool being illustrated with the end thereof engaged in the mouth of a flexible receptacle of the type with which it is adapted to be used, and with a rack having a ring member supported thereon which is positioned to receive the mouth of the receptacle when the tool is lowered into the same and operated to release the receptacle therefrom;

Fig. 2 is a perspective view of the tool in inverted position;

Fig. 3 is a cross section taken on the line 3—3 of Fig. 2 to an enlarged scale;

Fig. 4 is a cross section taken on the line 4—4 of Fig. 3 with the tool shown in operative position in the opened mouth of a receptacle;

Fig. 5 is a cross section, as in Fig. 4, with the tool positioned so that the body of the receptacle is inserted in depending relation within a supporting ring member; and

Figs. 6 and 7 are views similar to Fig. 5, illustrating the manner of operating the tool to spread the receptacle mouth and release it onto the supporting ring member.

Referring to Fig. 1 of the drawings, there is illustrated a tool **10** which is constructed in accordance with the principles of the invention and which is particularly adapted for use in opening and expanding the mouth of a receptacle **11** of the type which is characterized by being formed as an initially flattened tubular section of relatively thin flexible plastic film material of such a character that it is necessary to support the same with the mouth **12** thereof held in an open and spread position while it is being filled. The receptacle **11** may be of the type employed in Patent No. 2,604,222 which is conveniently supported for the filling operation on a rack structure **13** having one or more apertures **14** in the top forming surface thereof, each of the apertures **14** being partly surrounded by upstanding peripheral edge flange formations **15** for holding thereon a supporting ring member **16** which is adapted to receive from the tool **10** the expanded mouth or top marginal portions **12** of the receptacle **11** and to support the body of the latter in depending relation therefrom.

The tool **10**, which may be formed from a suitable metal or other material having similar characteristics, comprises a base member **17** having an outer peripheral flange **18** which is formed thereon so that the inner surface or face of the base member is inset or recessed and surrounded by a peripherally extending shoulder formation **19**, the latter merging into the flange **18**, with the flange **18** forming a tubular section or relatively narrow ring-like peripheral band. A guide pin **20** is secured at one end to the center of the base member **17** by providing a necked down portion **21** on the end of the pin and an aperture **22** in the center of the base member **17** which

receives the same with the end 21 of the pin upset or preened over sufficiently to rigidly secure the pin therein. The guide pin 20 is provided at its free end with an enlarged portion 23 forming a conical head thereon.

A hollow member 24 having a conical end formation 25 is slidably mounted on the guide pin 20 with the conical end formation 25 being apertured at its apex at 26 to receive the guide pin 20. The inner end of the generally cone-shaped member 24 is in the formation of a cylindrical section 27 and is provided with a plate or cap closure member 28 having a central aperture 29 for receiving the guide pin 20. The cap member or end plate 28 is flanged and the flange is reversely bent around the inner end edge of the cylindrical section 27 to secure it in place and form a bead 30 thereon. The cylindrical portion or section 27 of the member 24 is separated from the conical end formation 25 by an outwardly projecting shoulder formation 31, which has a generally V-shaped cross section with the inner wall 32 thereof tapering outwardly in both directions relative to the axis of the supporting guide pin 20 and forming a cam surface for a purpose which will be described. A relatively shallow recess 33 is provided between the shoulder formation 31 and the conical end formation 25 which faces in the direction opposite to the cam surface 32 with the shoulder formation 31 extending radially outwardly at the base thereof.

A plurality of expander fingers or plate members 35 are arranged around the periphery of the base member 17 and extend between the base member 17 and the movable cone-shaped member 24. Each of the expander plate members 35 comprises a generally L-shaped bent plate section arranged with the bottom leg 36 thereof extending inwardly along the inner surface of the base member 17 and pivotally anchored thereon by a pin 37 projecting from the inner surface of the base member 17. The expander plate members 35 and the supporting pins 37 therefor are positioned around the guide pin 20 with the pins 37 extending in the same direction and secured to the base member 17 in the same manner as the guide pin 20. An aperture 38 is provided in the inwardly extending leg 36 of each expander plate member 35 which is elongated or which is of somewhat greater diameter than the pins 37 for receiving the latter so that the expander plate members 35 may pivot in a radial direction relative to the axis of the guide pin 20. The leg 36 of each plate member 35 is shaped and fluted at the inner end thereof to provide curved side portions 39 which engage the inner surface of the base member 17 and a raised central portion 40 which is engaged by a washer member 41 slidably mounted on the guide pin 20. The washer 41 is apertured at 42 and is urged against the legs 36 and toward the base member 17 by a compression spring 43 on the guide pin 20. One end of the spring 43 bears against the washer member 41 while the other end thereof engages the cap or closure plate member 28 on the inner end of the member 24, and thus tends to urge the members 24 and 41 in opposite directions.

The body portion 44 of each expander plate member 35 extends from adjacent the outer periphery of the base member 17 to the inner cylindrical portion 27 of the movable member 24 when the latter is in extended position at the end of the guide pin 20 as in Fig. 4. The body portion 44 of each expander member 35 is shaped to give the tool a curved or cylindrical outer surface between the base member 17 and the movable member 24. The free end portion 45 of each expander plate member is curved to lie against the outer surface of the cylindrical portion 27 of the member 24 with the end edge thereof confronting the cam forming surface 32 on the latter. A groove formation 46 adjoins the end portion 45 for receiving the bead-like inner edge 30 of the member 24. A relatively short inwardly slanted cam forming portion 47 extends from the groove 46 toward the pivoted end of each expander plate member 35 and merges at the point 48 with the outwardly slanted main body portion 44, the latter having its side edges tapered inwardly toward each other in the lengthwise direction from hinged end thereof, while the cam forming portion 47 has its side edges tapered outwardly from the meeting point 48 to the groove 46 so that the members 35 are in side by side relation and form a relatively smooth surface around the tool.

In using the tool 10 it may be held in the hand, or supported in inverted relation on a horizontal surface as shown in Fig. 2, with the members held in extended position, as shown in Figs. 1, 2 and 4, while the marginal end or mouth portions 12 of a receptacle 11 are grasped and pulled over the conical end 25 of the member 24 and the end portions 45 of the expander plate members 35 as indicated in Figs. 1 and 4. The receptacle material being a slightly stretchable continuous plastic film, the size of the tool for a particular size receptacle will be such that the normal diameter of the mouth portion 12 of the receptacle 11 will be approximately the same as the diameter of the ring formed by the adjoining end portions 45 of the expander plate members 35 when in the contracted position as shown in Fig. 4. When the receptacle 11 is a disposable nursing bottle as illustrated in the drawings, the body of the same is passed through a band-like supporting neck ring member 16, after the mouth is stretched over the end 25 of the tool 10, which ring member 16 is L-shaped in cross section with a peripheral bead or flange 50 of rectangular cross section (Figs. 1, 5, 6 and 7) at the uppermost edge thereof. The neck ring member 16 is conveniently supported on a rack 13 and held in place, relative to an aperture 14 therein, by the upstanding flange formation 15. The body of the receptacle 11 is lowered through the aperture 14 until the inner edge of the flange or bead portion 50 on the neck ring member 16 is seated in the recess 33 in the surface of the conical portion 25 of the member 24, the conical end of the latter extending into the receptacle 11 within the neck ring member 16 as shown in Fig. 5. Pressure is then applied to the base member 17 to move the same in the direction of the member 24. Relative movement of the base 17 and the member 24 causes the cam surface 32 on the latter to engage the end portions 45 of the expander plate members 35 and pivot or rock the latter radially outwardly about the pivot pins 37. The marginal portions 12 of the receptacle 11 are expanded first by engagement of the end portions 45 of the members 35 with the cam surface 32 and then by engagement of the beaded end edge 30 of the member 24 with the cam forming portions 47 of the members 35 as illustrated in Figs. 5 and 6. Continued movement of the base 17 and member 24 toward each other carries the marginal portions 12 of the receptacle 11 downwardly and positions the same in reversely folded relation over the flange 50 of the neck ring member 16 as shown in Fig. 7, releasing the same from the end portions 45 of the expander plate members 35.

The receptacle 11 is, of course, clamped between the inner edge of the ring member 16 and the surface of the member 24 of the tool while the latter is operated to form the reverse fold in the mouth portions 12 and release the same onto the neck ring member 16. The expander plate members 35 are resiliently urged into engagement with the member 24 by operation of the spring 43 and washer 41 with the pressure being increased as the members 17 and 24 move toward each other. When the pressure on the base member 17 is released the spring 43 automatically returns the member 24 to its extended position at the end of the guide pin 20 and the expander plate members 35 return to their initial position with the end portions 45 thereof held against the cylindrical portion 27 of the member 24.

After the mouth 12 of the receptacle 11 is assembled with or connected to the supporting ring member 16, any desired contents may, of course, be placed in the re-

ceptacle and it may be closed in any manner. When the receptacle 11 is a nursing bottle, as illustrated, a nursing fluid will be placed therein after which a nipple (not shown) having suitable means for engaging with the ring member 16 may be attached thereto.

While the tool has been illustrated in connection with the opening and expanding of the mouth of a receptacle which is adapted to form part of a nursing unit, it will be understood that the use of the tool is not limited to the handling of nursing receptacles but it may be employed for opening and expanding the mouth of any receptacle of a similar nature or for any other purpose.

Also, while specific materials and details of construction are referred to in describing the illustrated form of the tool, it will be understood that other materials and other details of construction may be resorted to within the spirit of the invention.

We claim:

1. A device for opening and expanding the mouth of a receptacle which is characterized by being formed of relatively flexible film material, said device comprising a base and a movable member thereon having a cylindrical section and a cone-shaped portion adapted to be positioned in the mouth of the receptacle, an outwardly facing peripheral cam surface between the cylindrical section and the cone-shaped portion, a plurality of receptacle expanding fingers pivotally mounted on the base and having their free ends adapted to be engaged with the outer surface of said cylindrical section adjacent said cam surface, and resilient means for urging the expanding fingers inwardly toward each other and for resisting movement of said movable member toward said base whereby when said movable member is positioned within the mouth of the receptacle and then moved toward the base said expanding fingers are forced outwardly in a radial direction by engagement with said cam surface to expand the mouth of the receptacle.

2. A device for opening and expanding the mouth of a receptacle which is characterized by being formed of relatively flexible sheet material, said device comprising a disk-like base member, a guide pin secured at one end to the center of said base member and having an enlarged portion forming a head on the other end, a conical member slidably mounted on said pin with the pin extending in the direction of the long axis thereof, said conical member being of less length than the pin, a spring on said pin urging the conical member toward the headed end thereof, said conical member having a recess around its inner peripheral edge, a plurality of plate members pivotally supported on the base member and peripherally spaced around the end of said pin, and a spring pressed member engaging said plate members for resiliently resisting pivotal movement of said plate members in a radially outwardly direction, said plate members having their free ends seated in the recess in the inner end of said conical member and interengaging cam surfaces between the ends of said plate members and the inner end of said conical member whereby when the mouth of a receptacle is positioned over said conical member and said conical member is forced in the direction of said base member, said plate members are forced radially outwardly to expand the mouth of the receptacle.

3. A device for expanding the mouth of a receptacle which is characterized by being formed of relatively flexible and stretchable film material, said device comprising a base of disk-like form having a guide pin extending normal to a face thereof, a member mounted for relative movement on said pin having a generally cone-shaped outer end portion and a tubular inner end portion with an intermediate peripheral shoulder providing an outwardly tapered cam surface facing inwardly in the direction of the axis of the guide pin, a plurality of plate-like members each pivotally mounted at one end on said base and extending to the tubular inner end of the member which is mounted on said guide pin with the end thereof adapted to engage said cam surface, and means including a resilient member between said base and the member which is mounted on said guide pin for urging said base and said member apart and for urging the ends of said plate-like members toward engagement with the tubular end portion of the member which is mounted on said guide pin whereby the mouth of a receptacle which is received over said movable member and the ends of said plate-like members is expanded by movement of said movable member in the direction of said base and resultant outward movement of the ends of said plate-like members.

4. A device for expanding the mouth of a receptacle which is characterized by being formed of relatively flexible and stretchable sheet material, said device comprising a base, a head piece having a cone shape outer end, a guide member connecting the base and head piece for relative movement, the head piece having on its inner edge a peripheral recess with the outer wall thereof forming a cam surface, and a plurality of peripherally spaced receptacle top spreading members positioned between the head piece and the base with the outer ends thereof adapted to be received in the recess in the head piece, and resilient means between the base and the inner end of the head piece for urging said base and head piece in opposite directions and for urging the outer end of said top spreading members toward said head piece whereby when said head piece is inserted in the mouth of a receptacle and the base and head piece are moved toward each other the ends of said top spreading members will be moved outwardly by said cam surface to spread the receptacle mouth.

5. A device for expanding the mouth of a receptacle which is characterized by being formed of relatively flexible and stretchable film material, said device comprising a base of disk-like form having a guide pin extending normal to the inner face thereof, a member mounted for relative movement on said guide pin, which member has a generally cone-shaped outer end portion and a tubular inner end portion with an intermediate peripheral shoulder providing an inwardly facing outwardly tapered cam surface, a plurality of plate-like members of angular shape arranged around said base and extending between said base and the tubular inner end of the movable member, the ends of said plate-like members normally engaging said tubular inner end portion adjacent said cam surface, and spring means between said base and the movable member for urging the same apart, said spring means also urging the ends of said plate-like members toward engagement with the tubular inner end portion of the movable member whereby the mouth of a receptacle which is received over said movable member is expanded by movement of said member in the direction of said base.

6. A device for expanding the mouth of a receptacle which is characterized by being formed of relatively flexible and stretchable film material, said device comprising a base of disk-like form having a guide pin extending normal to the inner face thereof, a generally cylindrical member mounted for relative movement on said pin and having a generally cone-shaped outer end portion with an intermediate peripheral shoulder providing an inwardly facing outwardly tapered cam surface, a plurality of L-shaped plate-like members having a pivotal connection between the bottom thereof and said base, said L-shaped members extending to the inner end of the cylindrical member with the ends thereof in position to engage said cam surface, spring means between said base and the cylindrical member for urging the same apart, and spring pressed means urging the bottom ends of said plate-like members about their pivotal connections to bring the ends thereof toward the inner end portion of the cylindrical member whereby the mouth of a receptacle which is positioned over said cylindrical member is ex-

panded by movement of said cylindrical member in the direction of said base.

7. A device for expanding the mouth of a receptacle which is characterized by being formed of relatively flexible and stretchable film material, said device comprising a disk-like base having a rigid pin extending normal to a face thereof, a member having a generally cone-shaped outer end portion and a tubular inner end portion slidably mounted on said pin, a peripheral shoulder on said slidably mounted member providing an outwardly tapered cam surface facing in the direction of said base, a plurality of finger members each pivotally mounted at one end on said base and extending to the tubular inner end of said slidably mounted member with the end thereof positioned to engage said cam surface, and means including a resilient member between said base and said slidably mounted member for urging said base and said member apart and for urging the ends of said finger members toward engagement with the tubular end portion of said slidably mounted member whereby the mouth of a receptacle which is received over the ends of said fingers is expanded by movement of said slidably mounted member in the direction of said base to cam said fingers outwardly.

8. A device for expanding the mouth of a receptacle which is characterized by being formed of relatively flexible and stretchable film material, said device comprising a base having a guide pin extending normal to a face thereof, an opening member slidably mounted on said pin and having a generally cone-shaped outer end portion and a tubular inner end portion with a peripheral shoulder providing an outwardly tapered cam surface facing in the direction of said base, a plurality of expander members each pivotally mounted at one end on said base and extending to the tubular inner end of the opening member with the end thereof positioned to engage said cam surface, and means including a resilient member between said base and said opening member for urging the same apart and for urging the ends of said expander members toward engagement with the tubular end portion of said opening member whereby the mouth of a receptacle which is received over said opening member and the ends of said expander members is expanded by sliding movement of said opening member in the direction of said base.

9. A device for expanding the mouth of a receptacle which is characterized by being formed of relatively flexible and stretchable film material, said device comprising a base of disk-like form having a guide pin extending normal to a face thereof, an opening member mounted for sliding movement on said pin and having a generally cone-shaped outer end portion and a tubular inner end portion with an intermediate peripheral shoulder providing an outwardly tapered cam surface facing in the direction of said base, a plurality of L-shaped plate members each arranged with the lower horizontal leg thereof extending radially inwardly along the inner face of said base, a pivotal connection between said base and said leg, the vertical leg of each of said L-shaped members extending to the tubular inner end of the opening member with the end thereof positioned to engage said cam surface, and a compression spring between said opening member and the lower leg of said L-shaped members for urging the ends of said L-shaped members toward engagement with the tubular end portion of the opening member whereby the mouth of a receptacle which is received over said opening member is expanded by movement thereof in the direction of said base and outward movement of the ends of said L-shaped members.

10. A device for expanding the mouth of a receptacle which is characterized by being formed of relatively flexible and stretchable film material, said device comprising a base of disk-like form having a guide pin extending normal to the inner face thereof, a generally cylindrical member mounted for relative movement on said pin and having a generally cone-shaped outer end portion with an intermediate peripheral shoulder providing an inwardly facing outwardly tapered cam surface, a plurality of L-shaped plate-like members having the bottom legs thereof arranged in radially inwardly extending relation on said base, each leg having a slot therein and pivot pins extending from the base and into said slots, the other legs of said L-shaped members extending to the inner end of the cylindrical member with the ends thereof in position to engage said cam surface, a compression spring on said guide pin between said base and the cylindrical member for urging the same apart, and a washer slidable on said guide pin and urged by said spring into engagement with the inner ends of the radially extending legs of said L-shaped members for tilting the same about said pivot pins and for urging the free ends of said L-shaped members toward the inner end portion of the cylindrical member whereby the mouth of a receptacle which is positioned over said cylindrical member and the free ends of said L-shaped members is automatically expanded by movement of said cylindrical member in the direction of said base.

11. A device for expanding the mouth of a receptacle which is characterized by being formed of relatively flexible and stretchable film material, said device comprising a generally circular base having a guide pin extending normal to a face thereof, a member mounted for relative movement on said pin having an outer end portion adapted to be inserted in the mouth of the receptacle and a generally cylindrical inner end portion with an intermediate peripheral shoulder providing an outwardly tapered cam surface facing inwardly in the direction of the axis of the guide pin, a plurality of plate-like members each pivotally mounted at one end on said base and extending to the inner end of said movably mounted member with the end thereof adapted to engage said cam surface, and resilient means between said base and said movably mounted member for urging the same apart and for urging the ends of said plate-like members toward engagement with the end portion of said movably mounted member whereby when the outer end portion of said movably mounted member and the ends of said plate-like members are inserted in the mouth of a receptacle and said movably mounted member is moved toward said base the mouth of the receptacle is expanded by outward movement of the ends of said plate-like members.

12. A device for expanding the mouth of a receptacle which is characterized by having a mouth forming portion of relatively flexible and stretchable sheet material, said device comprising a flanged base plate, a hollow head piece having a conical end portion terminating at its inner edge at a relatively narrow cylindrical portion and an inwardly tapered surface adjoining the cylindrical portion, a guide member extending from the base in the direction opposite the flange thereon and slidably receiving the head piece, the head piece having on its inner end an apertured cap through which the guide member extends, and a plurality of peripherally spaced receptacle top spreading members each pivotally mounted at one end on the base with the other end thereof slidably engaging the inner periphery of the head piece adjacent said inwardly tapered surface, a spring on said guide member for urging said base and head piece in opposite directions and spring operated means engaging the top spreading members and urging said top spreading members about their pivotal mountings toward said head piece whereby when said head piece is inserted in the mouth of a receptacle and the head piece is moved toward the base the ends of said top spreading members will be moved outwardly by engagement with the inwardly tapered surface on the head piece to spread the receptacle mouth.

13. A device for expanding the mouth of a receptacle which is characterized by being formed of relatively

flexible and stretchable sheet material, said device comprising a base, a head piece, a guide member connecting the base and head piece for relative movement, the head piece having intermediate its inner and outer ends an inwardly extending peripheral recess with the outer wall thereof forming a cam surface, and a plurality of peripherally spaced receptacle top spreading members positioned between the head piece and the base with the outer ends thereof adapted to be received in the recess in the head piece, said top spreading members having an inwardly projecting cam surface spaced from the outer ends thereof which is adapted to be engaged by a cooperating cam forming portion adjacent the inner edge of the head piece, and means including a resilient member for urging said base and head piece in opposite directions and for urging said top spreading members toward said head piece whereby when said head piece is inserted in the mouth of a receptacle and the base and head piece are moved toward each other the ends of said top spreading members will be moved outwardly in spaced relation to the surface of the head piece by said cam surfaces thereby spreading the receptacle mouth.

14. A device for expanding the mouth of a receptacle which is characterized by being formed of relatively flexible and stretchable film material, said device comprising a base of disk-like form having a guide pin extending normal to the inner face thereof, a member mounted for relative movement on said guide pin, which



member has a generally cone-shaped outer end portion and a tubular inner end portion with an intermediate peripheral shoulder providing an inwardly facing outwardly tapered cam surface, a plurality of plate-like members of angular shape arranged around said base and extending between said base and the tubular inner end of the movable member, the ends of said plate-like members normally engaging said tubular inner end portion adjacent said cam surface, said plate-like members having inwardly extending cam forming portions intermediate their ends, and spring means for urging said base and the movable member apart and for urging the ends of said plate-like members toward engagement with the tubular inner end portion of the movable member whereby when said member is moved toward said base the inner end thereof engages with the cam forming portions of said plate-like members and the ends of said plate-like members are forced outwardly away from the surface of said movable member and the mouth of a receptacle which is received over said movable member is expanded by outward movement of the ends of said plate-like members.

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