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CUP FOR MILKING MACHINES

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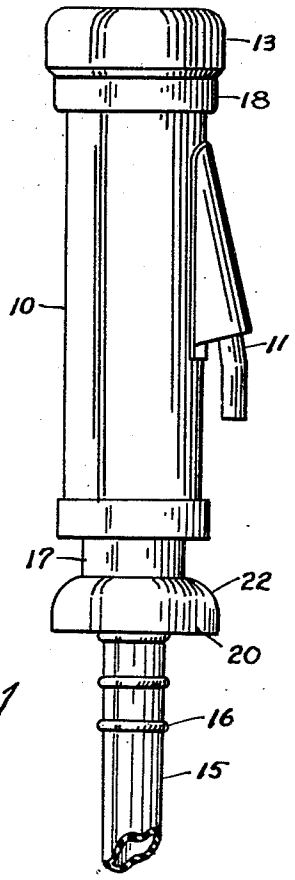

Fig. 1

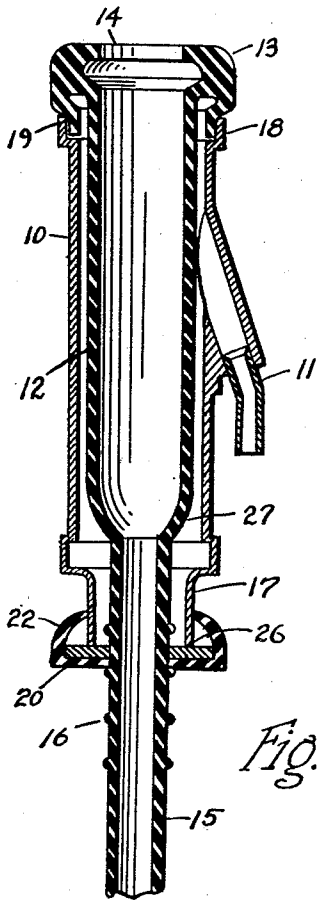

Fig. 2

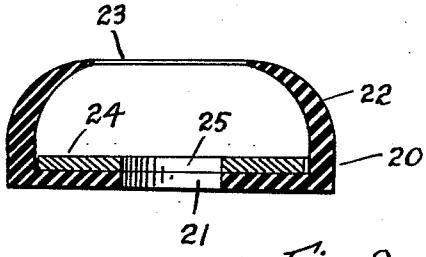

Fig. 3

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CUP FOR MILKING MACHINES

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3 Claims. (Cl. 31—85)

1

Our invention relates to cups, and more particularly to the rubber lining of a milking machine teat cup and the adjustment thereof.

The object of our invention is to provide a supporting arrangement for the inner shell of what is generally referred to as a double chambered teat cup, comprising a metal outer shell and a flexible inner wall constructed of rubber or the like, the two chambers being connected to the proper source to produce an alternatively applied vacuum, thereby alternately expanding and contracting the inner wall.

Another object of our invention is to provide such an arrangement that may be applied to existing cup shells without any mechanical changes.

Still another object of our invention is to provide a means for retaining the inner liner in a position that will insure close contact with the outer shell and allow for proper adjustment to take care of the stretch of the material.

Other and further objects of our invention will become more apparent as the description proceeds when taken in conjunction with the drawing, in which,

Figure 1 is an outer view of the assembled metal outer shell and flexible inner liner.

Figure 2 is a cross sectional view of the assembly of the metal outer shell and the flexible inner liner, and

Figure 3 is the retaining ring in cross section showing the metal insert within the rubber outer shell.

Similar characters of reference indicate corresponding parts throughout the several views and referring to the same, the character 10 shows an outer teat cup shell constructed of metal, and having a side outlet nipple 11 for contact with the vacuum source. There is an inner liner constructed of rubber or the like, comprising a main body 12, a head portion 13, provided with an aperture 14, of flexible construction for contact with the teat. The lower portion of the body 12 tapers into a milk line tube 15, which is provided with a plurality of outwardly extending ribs or beads 16. This milk line tube 15 extends downward through the metallic ferrule 17 forming the lower portion of the cup shell 10.

The upper portion of the shell 10 is outwardly disposed at 18 for receiving the flange 19 extending downward from the head portion 12 of the inner liner.

A retaining member 20, of annular contour, made of flexible material such as rubber or the like provided with an aperture 21 at its lower

2

end and a gradually tapering side wall 22 terminates into an aperture 23 at its upper end. A metallic washer member 24, provided with an aperture 25, is inserted into the enclosure of the retaining member, and is of an outside diameter equal to the inside diameter of the walls 22 or a trifle larger.

This retaining member is arranged to be applied over the milk line tube 15 through the aperture 21, and the tapered side walls being resilient, fit over the ferrule 17 on the lower end of the cup shell 10 through the aperture 23. By exerting a pulling strain to the flexible tube 15, the beads 16 will be forced through the aperture 21 and the flange 19 will engage the outwardly disposed section 18 of the upper end of the shell 10, and when the pulling strain is released, the beads 16 will force the metallic washer 24 against the edge of the ferrule 17 at a point of contact 26, thereby sealing the vacuum chamber 27 between the shell 10 and the inner liner 12.

The arrangement of the beads 16 and their spaced relation to one another will insure definite contact at all times and allow for the elongation and stretch of the inner liner.

It is manifest to anyone familiar with the art that the arrangement and construction of the parts illustrated and described will provide a means for definitely accomplishing the purpose for which they are intended and will apply themselves to any conventional type of cup shell. However, we do not wish to confine ourselves to the specific construction shown, for in the manufacture of the parts, there are many changes possible, and we reserve the rights to make such changes as may present themselves without departing from the spirit of the invention or the scope of the appended claims.

Having thus described our invention, what we claim and desire to secure by Letters Patent in the United States is:

1. A device of the character described comprising in combination with a rigid outer shell open at its top having a ferrule of a diameter smaller than the shell body at its lower end, and a flexible lining disposed within said outer shell, said lining provided with an enlarged head portion at its upper end and terminating into a milk line tube at its lower end, said tube provided with a plurality of outwardly extending beads, of an annular retaining member constructed of flexible material having an aperture at its bottom arranged for engagement with the milk line tube of said flexible lining, said retaining member provided with a tapered wall terminating into an

aperture at its top for engaging the ferrule portion at the lower end of said rigid outer shell, a metallic rigid ring disposed within said retaining member, the elastic tension of said flexible inner liner causing said outwardly extending beads on said milk line tube to retain said retaining member in contact with the bottom of said ferrule on the rigid outer shell.

2. An annular retaining ring of the character described constructed of a flexible material and having an aperture at its lower face, an upwardly projecting wall forming an aperture at its top, a rigid ring disposed within said flexible retaining ring, and a rigid outer shell open at its upper and lower ends, in combination with a flexible inner liner, said liner provided with an enlarged head portion at its top and merging into a tube at its lower end, said tube having a larger diameter than the opening in the lower end of said retaining ring causing said retaining member to be held in direct contact with the lower end of said rigid outer shell when the tube is inserted through said retaining ring and caused to be stretched,

the enlarged head portion of said liner contacting the opening on the upper end of said rigid outer shell.

3. A device of the character described consisting of an annular retaining ring of a flexible material comprising an aperture at its base, an upwardly projecting wall forming an aperture at its upper end, and an annular ring of rigid material inserted into the said flexible retaining ring, in combination with a flexible liner, a rigid outer shell, said outer shell open at its upper and lower ends, said flexible liner provided with an enlarged portion for contact with the opening of said outer shell at its top, said flexible liner merging into a tubular member at its bottom having an outside diameter greater than the inside diameter of the aperture in said retaining ring causing frictional contact with the lower opening in the rigid outer shell when the tube is inserted through the aperture in said retaining ring.

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