

W. H. AND M. KOCH.
 TEAT CUP FOR MILKING MACHINES.
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1,308,082.

Patented July 1, 1919.

Fig. 1.

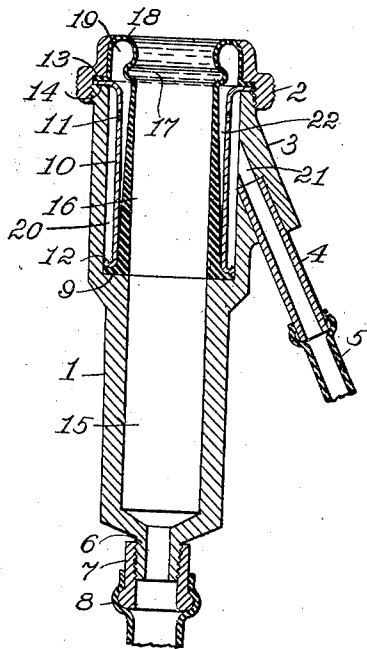
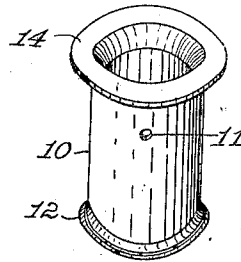


Fig. 2.



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UNITED STATES PATENT OFFICE.

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TEAT-CUP FOR MILKING-MACHINES.

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Specification of Letters Patent.

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Application filed July 24, 1918. Serial No. 246,573.

To all whom it may concern:

Be it known that we, WILLIAM H. KOCH and MICHAEL KOCH, citizens of the United States of America, and residents of Independence, Buchanan county, Iowa, have invented certain new and useful Improvements in Teat-Cups for Milking-Machines, of which the following is a specification.

Our invention relates to improvements in teat-cups for milking machines, and the object of our invention is to furnish for use with a milking-machine a teat-cup having a combined rigid housing and a differentially-flexible teat-cup therein, the device having baffling-means included for diverting a supply of compressed air to act initially upon the teat-receiving end of the teat-cup, and the teat-cup itself being so formed at its teat-receiving end as to facilitate the process of milking therewith.

This object we have accomplished by the means which are hereinafter described and claimed, and which are illustrated in the accompanying drawings, in which Figure 1 is a central longitudinal section of our improved device, and Fig. 2 is a detail perspective view of the air-baffling sleeve thereof.

In said drawings, similar numerals of reference denote corresponding parts throughout the several views.

Our improved teat-cup has a rigid tubular housing 1, whose central longitudinal bore 20 is widest at the teat-receiving end, and diminished medially at 15, the latter part of its bore leading by way of a still greater diminished bore through a narrowed nipple 6 into a removable nipple 7, the latter delivering into a flexible milk-duct 8, the part 7 having a threaded connection with the part 6.

Said housing has on its wider part an oblique boss 3 which has an oblique passage 21 in communication with the bore part 20, and a short section of tube 4 is fitted in said passage 21 to project therefrom and have one end of a flexible tube 5 fitted thereover to communicate therewith and convey through the tube 4 and passage 21 compressed air from a source not shown.

Where the housing bore 20 is abruptly diminished to provide an interior annular shoulder 9, a tubular sleeve 10 of rigid structure is positioned in said wider bore 20 to be spaced concentrically from the inner wall thereof, and has at one end an outwardly directed annular flange 12 situated

near the shoulder 9, and at the other end an outwardly-directed annular flange 14 adapted to seat itself on the circular edge of the outer or teat-receiving part of said housing.

The numeral 16 denotes a hollow or tubular teat-cup member having at one end an outwardly directed annular flange which is engaged between the shoulder 9 and the flange 12 of the rigid sleeve 10, when the member 16 is assembled with said sleeve, being positioned within it concentrically, and both placed in the housing in the manner shown. The member 16 is gradually and progressively diminished in thickness from its said flange to its opposite or teat-receiving end, the latter being inverted outwardly at 18 to provide a thin annular ring, with annular hollow 19, and terminating in an outwardly-directed annular flat flange 13 which contacts and registers with the underlying sleeve flange 14. An annular clamping-ring 2 is threaded upon the outer end of the housing-end and has an interior annular shoulder which contacts with the flange 13 in registration to clamp the flanges 13 and 14 tightly to the outer end of the housing. The ring 2 extends well up about the outer wall of the thin ring-part 18 of said teat-cup 16 to protect it from abrasion.

The neck of the teat-cup 16 is formed with an outwardly extending annular crimp 17 which serves to keep the neck part in tubular shape and also affords a slack portion so that the neck of the teat-cup may collapse inwardly at times.

There is a space 22 between the outer wall of said teat-cup 16 and the inner wall of the sleeve or tubular member 10 which is widest near the teat-receiving end of the cup, and a plurality of orifices 11 in the sleeve 10 afford communications between said interspace 22 and the interspace 20 about the sleeve and with said passage 21. The annular hollow 19 of the ring-part 18 of the teat-cup is also in communication all around with said annular space 22.

In practice, when a teat has been passed into the teat-cup 16, and vacuum induced within the teat-cup by way of the flexible tube 8 leading to an air-pump not shown, and compressed air is passed through the tube 5, passage 21, bore 20 and orifices 11 into the interspace 22 at intervals, the thinner part of the teat-cup is initially compressed and collapsed upon the teat near the

rount or junction of the teat with the udder, whereby a natural stripping action is exercised upon the teat to drive contained milk into the diminished bore 15, and thence into the tube 8.

The orifices 11 are positioned nearest the teat-receiving part of the teat-cup, whereby the initial compression of the passing air is produced upon the thinner part of the teat-cup first, and compression spreads thence to the other parts of the cup progressively as in natural milking to strip the teat. The soft and readily compressible ring-part 18 of the teat-cup acts as an air-cushion abutting upon and contacting with the root of the teat, while the crimp 17 permits the collapse of the teat-cup at this point by its necessary slackness.

The action of the device thus imitates closely the natural stripping of a teat by the young of the animal, and conduces to effectiveness in milk-delivery and the comfort of the animal, while the teat-cup because of its slack inner wall, elastically gives to adjustingly conform itself to the teat.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is:

1. In combination, a rigid housing, a rigid baffling-sleeve mounted therein and spaced therefrom removably with its ends closed against the housing, and a flexible teat-cup positioned within the sleeve and spaced therefrom with its ends closed against the

sleeve, said sleeve having ports adjacent its end at the outwardly-opening end of the teat-cup, and said housing having a port communicating with the interspace of the housing and sleeve.

2. In combination, a rigid housing, a rigid baffling-sleeve mounted therein and spaced therefrom with its ends closed thereagainst, and a flexible teat-cup positioned within the sleeve and having its ends closed thereagainst, said sleeve having ports leading from the interspace of the housing and sleeve to the interspace of the sleeve and teat-cup, and the teat-receiving end of the teat-cup being diminished in thickness and inverted outwardly and closed against said housing.

3. In combination, a rigid housing, a rigid baffling-sleeve mounted therein and spaced therefrom with its ends closed thereagainst, and a flexible teat-cup positioned within the sleeve and having its ends closed thereagainst and against the housing, the teat-receiving end of the teat-cup being diminished in thickness, inverted outwardly annularly, and having an annular crimp around its diminished neck adjacent to its said inverted part, and said sleeve and housing having communicating ports to deliver compressed air against the thinner part of the teat-cup initially.

Signed at Waterloo, Iowa, this 20th day of July, 1918.

WILLIAM H. KOCH.
MICHAEL KOCH.