

[54] **SOFT OBSTETRIC VACUUM CUP FOR ASSISTING CHILDBIRTH**

[75] Inventor: **Kiyoshi Kawai**, Tokyo, Japan

[73] Assignee: **Kabushiki Kaisha Kawai Tosando**, Tokyo-to, Japan

[22] Filed: **Mar. 16, 1972**

[21] Appl. No.: **235,365**

[52] U.S. Cl. **128/352, 128/300, 128/361**

[51] Int. Cl. **A61b 17/42**

[58] Field of Search **128/303 R, 300, 352, 128/361**

[56] **References Cited**

UNITED STATES PATENTS

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Primary Examiner—Dalton L. Truluck

Attorney—Eric H. Waters et al.

[57]

ABSTRACT

A soft obstetric vacuum cup for assisting childbirth comprising a cup body made of an elastic material, a plurality of recessed portions formed around the inner surface of the cup body in a spaced apart relationship, a suction tube connected to the bottom of the cup body, and a plurality of passages each communicating one of the recessed portions to the suction tube.

6 Claims, 4 Drawing Figures

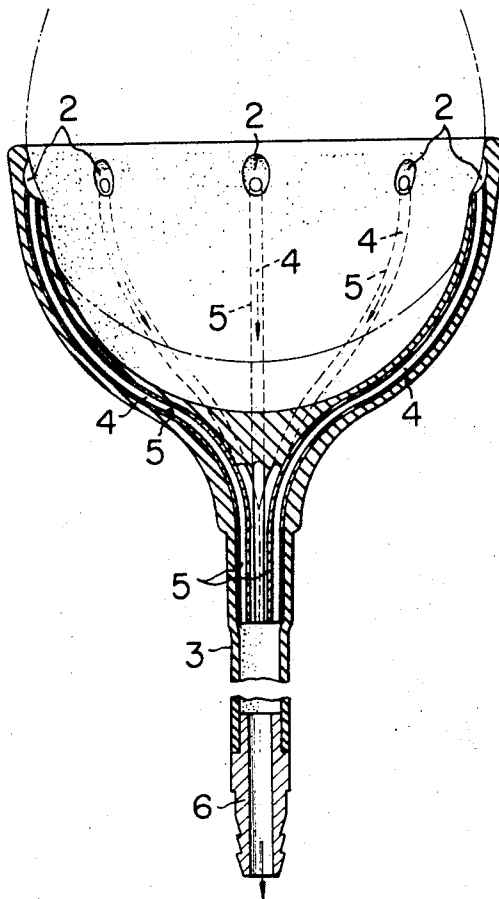


FIG. 1

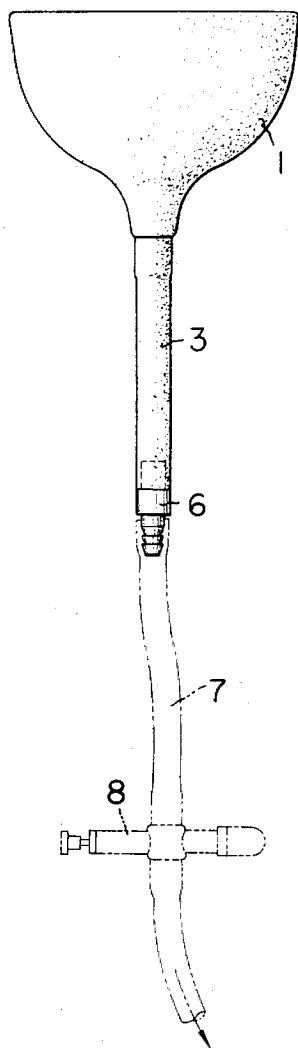


FIG. 2

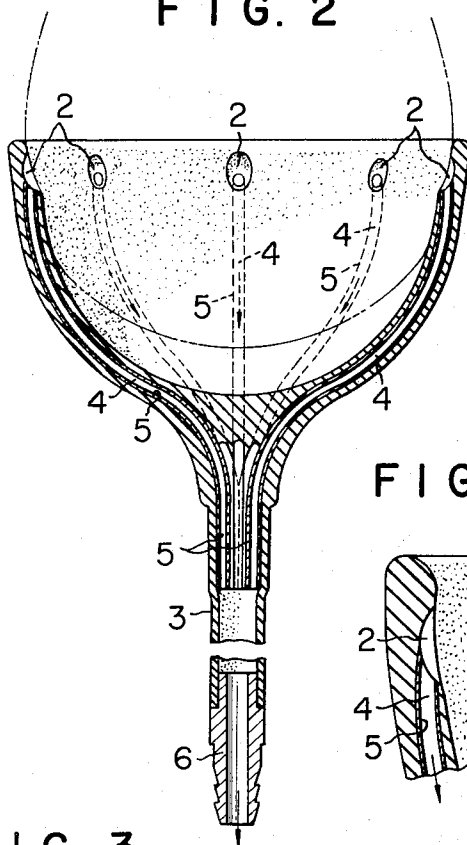


FIG. 4

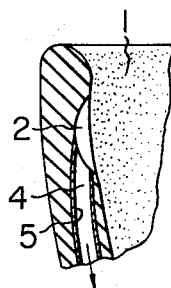
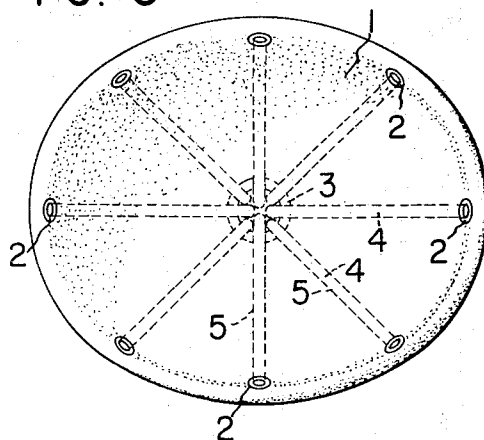


FIG. 3



SOFT OBSTETRIC VACUUM CUP FOR ASSISTING CHILDBIRTH

BACKGROUND OF THE INVENTION

This invention relates to a soft obstetric vacuum cup to be used for assisting child delivery when the parturient force of the mother is not sufficiently strong.

Heretofore, an obstetric cup has been made of metal and formed to have a size comparatively smaller than the head of a fetus so that the cup can be easily inserted into a required position in vagina. When the air inside of the cup is evacuated through a pipe connected to the cup body, the fetal head is drawn into the metal cup, and the fetus is drawn out of the uterus of the mother.

However, in such a conventional construction of the obstetric cup, there has been a tendency of the fetal head, still weak in structural strength to be sucked into the cup, a so-called "Artificial Caput Succedaneum" being thereby caused on a portion of the fetal head. This condition requires a considerably long period for a complete cure and sometimes leaves a permanent scar on the head of the fetus.

SUMMARY OF THE INVENTION

Therefore, a primary object of the present invention is to provide an improved obstetric cup of a considerably large size facilitating the reception therein of the fetal head.

Another object of the present invention is to provide an improved obstetric cup which can be easily and safely inserted into the required position.

Still another object of the invention is to provide an improved obstetric cup wherein the suction portions are not in the limited area as in the case of the conventional design but are distributed around the inner periphery of the obstetric cup, whereby the possibility of causing Artificial Caput Succedaneum is substantially eliminated.

These and other objects of the present invention can be achieved by an improved obstetric cup which comprises a cup-shaped body made of an elastic material, a plurality of recessed portions formed around the upper inner periphery of the cup-shaped body in a spaced apart relationship, a suction tube communicating with the bottom of the cup-shaped body and extending outwardly therefrom, and a plurality of passages formed through the wall of the cup-shaped body to communicate the recessed portions with the suction tube.

The nature, principle, utility, and further features of the invention will be better understood from the following detailed description of the invention when read in conjunction with the accompanying drawings, in which like parts are designated by like reference numerals.

BRIEF DESCRIPTION OF THE DRAWING

In the drawing:

FIG. 1 is a side view of a soft obstetric vacuum cup according to the present invention;

FIG. 2 is a longitudinal sectional view of the obstetric cup as shown in FIG. 1;

FIG. 3 is a plane view of the soft obstetric vacuum cup shown in FIG. 2; and

FIG. 4 is a partial sectional view, on a greatly enlarged scale, showing a recessed portion and a passage communicating the recessed portion to the suction tube.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to FIG. 1, there is illustrated an soft obstetric vacuum cup comprising a cup-body 1, an suction tube 3 connected to the bottom of the cup body 1, an extension tube 7, and a fitting 6 connecting the extension tube 7 to the suction tube 3.

According to the invention, the cup body 1 is made of an elastic material such as a silicone rubber which is highly resistant to heat and chemicals, and the size of the cup body 1 is comparable to the size of the fetal head. A plurality of recessed portions 2 are formed around the upper inner periphery of the cup body 1 in a spaced apart relationship as is best seen in FIG. 2, and each of the recessed portions 2 is communicated with the suction tube 3 through a corresponding passage 4 in the wall of the cup body.

More specifically, the passages 4 are formed by a plurality of tubes 5 of a narrow diameter buried in the wall of the cup body 1, one end of each tube 5 being connected to a respective recessed portion 2 of the cup body 1, and the other end being combined together with the corresponding ends of the other tubes 5 connected to the end of the suction tube 3.

As is shown in FIG. 1, a release valve 8 is provided in an intermediate portion of the extension tube 7. When the release valve 8 is manipulated into the release position, the inner space of the obstetric cup is communicated with the outside atmosphere, and the suction adhering force of the obstetric cup is thereby released.

Since the cup body 1 of the obstetric cup according to the present invention is made of a soft and elastic material, such as a silicone rubber, the cup body 1 can be folded as desired and thereby inserted easily into the required portion of the vagina. Thus, the cup body 1 is placed relative to a fetal head indicated by double dot chain line in FIG. 2, and the air inside of the cup body 1 is evacuated through the absorption tube and extension tube by an evacuating device, not shown, connected to the other end of the extension tube 7.

As a result, negative pressure created at the recessed portions 2 attracts the head of the fetus and causes it to fit into the cup body 1 of the obstetric device. The cup body 1 with the fetal head thus held therein is then drawn gradually out of the vagina. By the above described procedure, the head of the fetus is caught satisfactorily by the cup body 1 without causing any Artificial Caput Succedaneum or the like on the fetal head, and the body of the fetus can be effectively drawn out of the uterus of the mother.

As described above, since the obstetric device according to the present invention is so constructed that the cup body 1 of the device is made of an elastic and heat-resistant and chemical-resistant material, such as a silicone rubber, and the suction tube and extension tube are connected to the bottom of the cup body to extend outward, the cup body 1 can be easily inserted into the vagina, and because of the sufficiently large size of the cup-like body 1, the head of a fetus can be easily and fully received into the cup body 1 when the inner space of the cup body 1 is evacuated under the operation of the evacuating device (not shown) connected to the outer end of the extension tube 7.

When the fetus is safely delivered, the release valve 8 is brought into the releasing position and the negative

pressure within the cup body 1 is released to the outside atmosphere.

Throughout the period of the delivery, the fetal head is drawn, at a plurality of recessed portions 2, into the cup body 1, whereby the possibility of causing a severe "Artificial Caput Succedaneum" as was the case in the conventional devices is substantially eliminated, and the parturition of the fetus can be effectively and safely assisted.

I claim:

1. A soft obstetric vacuum cup for assisting in childbirth, comprising a cup-shaped member made of an elastic material, means forming a plurality of mutually isolated bowl-shaped recesses distributed in and around the inner surface of the cup-shaped member in spaced relationship, a suction tube connected to the bottom of said cup-shaped member, and a plurality of passages formed entirely within and extending through the wall of said cup-shaped member and communicatively connecting said recesses to said suction tube per-

mitting suction to be present only at said recesses.

2. A soft obstetric vacuum cup as defined in claim 1 wherein said recesses are formed along the periphery of said cup-shaped member.

3. A soft obstetric vacuum cup as defined in claim 1 wherein each of said passages comprises a tube embedded within said cup-shaped member.

4. A soft obstetric vacuum cup as defined in claim 2 wherein said passages are radially distributed about the interior wall of said cup-shaped member.

5. A soft obstetric vacuum cup as set forth in claim 1 wherein said plurality of recesses are formed along the inner surface of said cup-shaped member near the upper peripheral portion thereof.

6. A soft obstetric vacuum cup as set forth in claim 1 wherein said suction tube is connected to an evacuation device through an extension tube and a release valve for releasing the negative pressure within said cup-shaped member to the outside atmosphere.

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