

Feb. 17, 1953

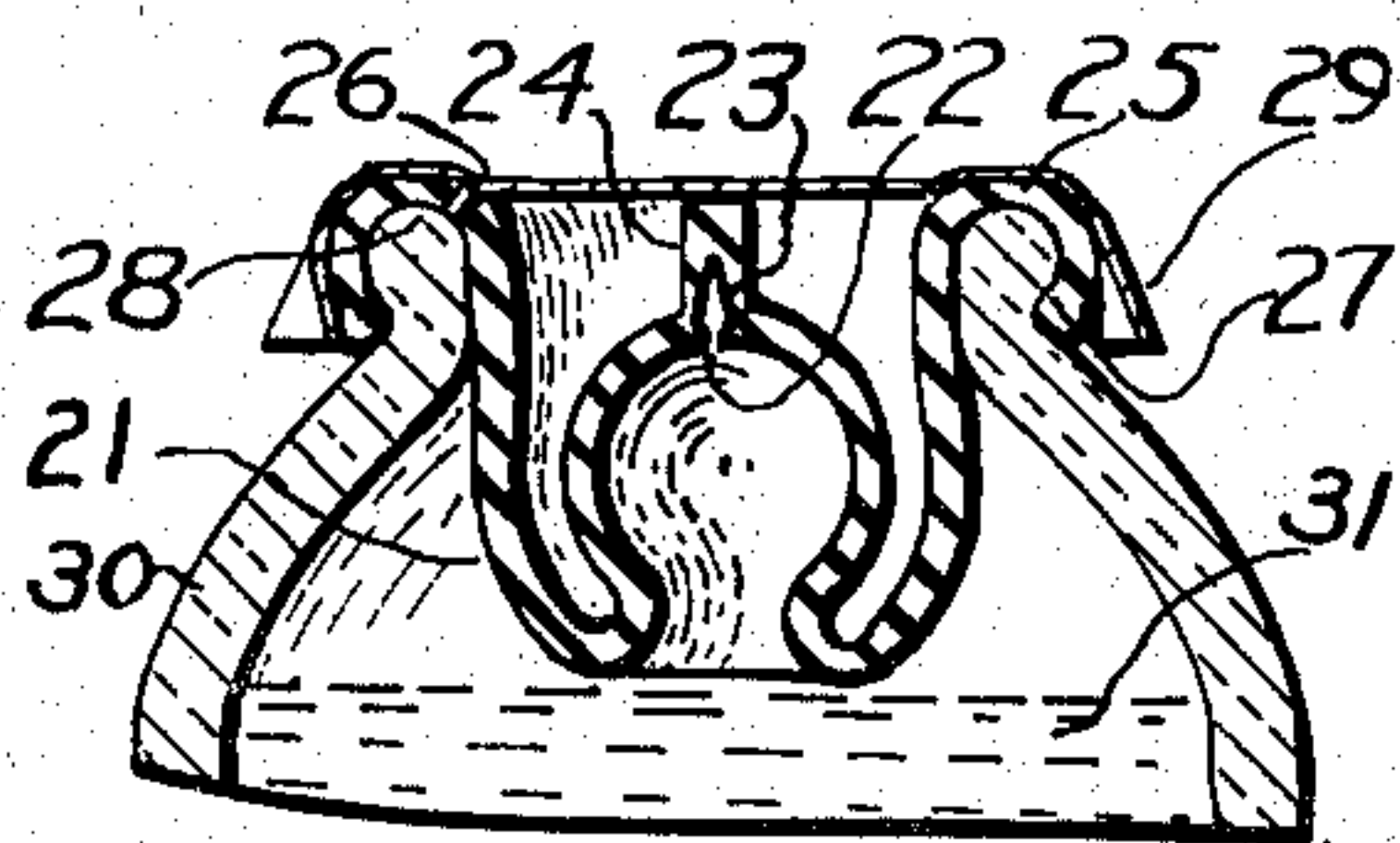
J. J. HORAN

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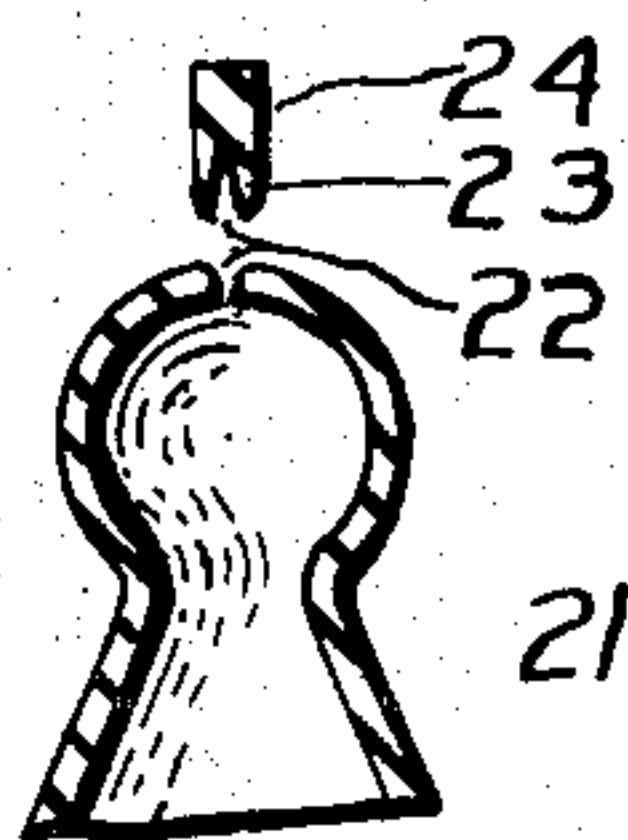
NURSING DEVICES

Filed Jan. 21, 1950

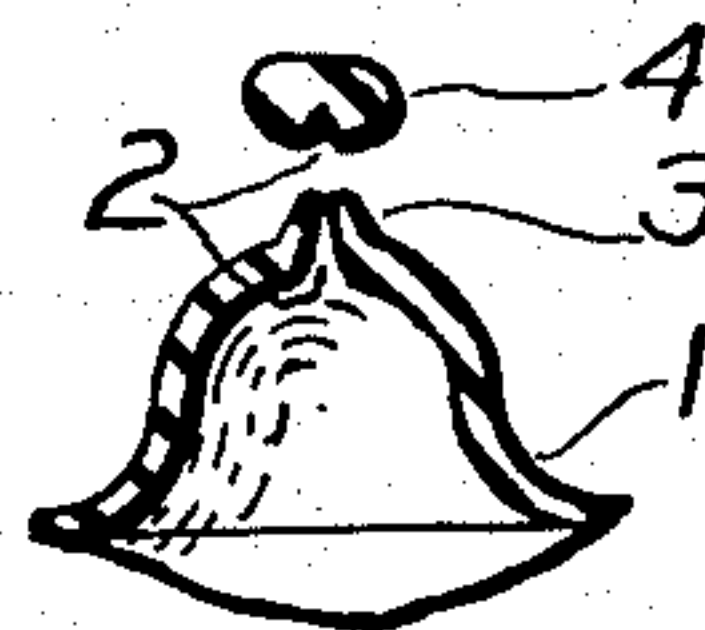
*Fig. 3.*



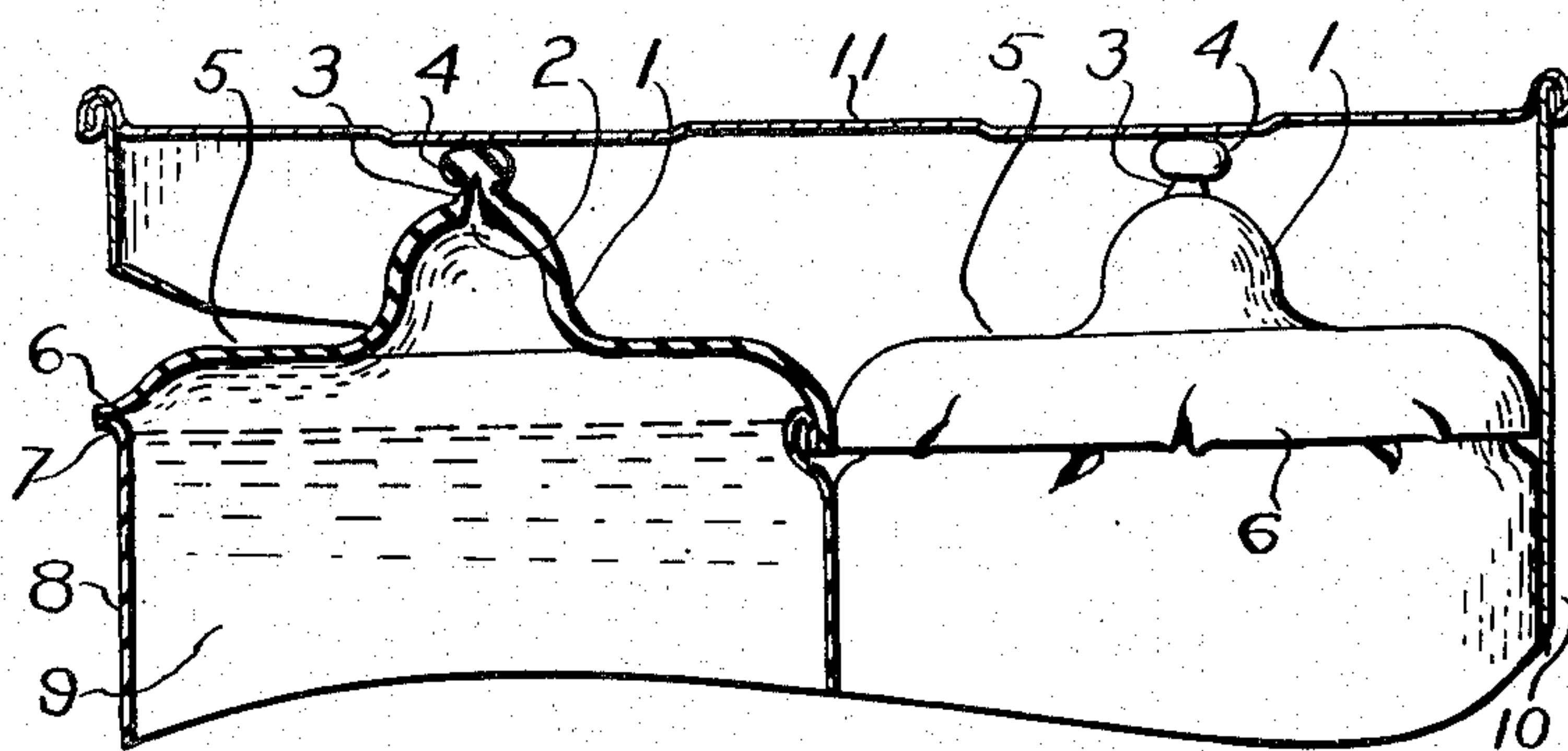
*Fig. 4.*



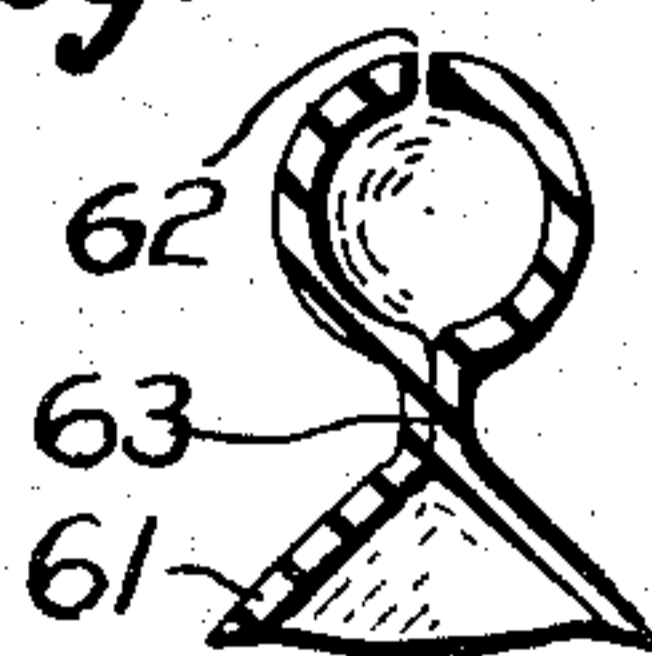
*Fig. 2.*



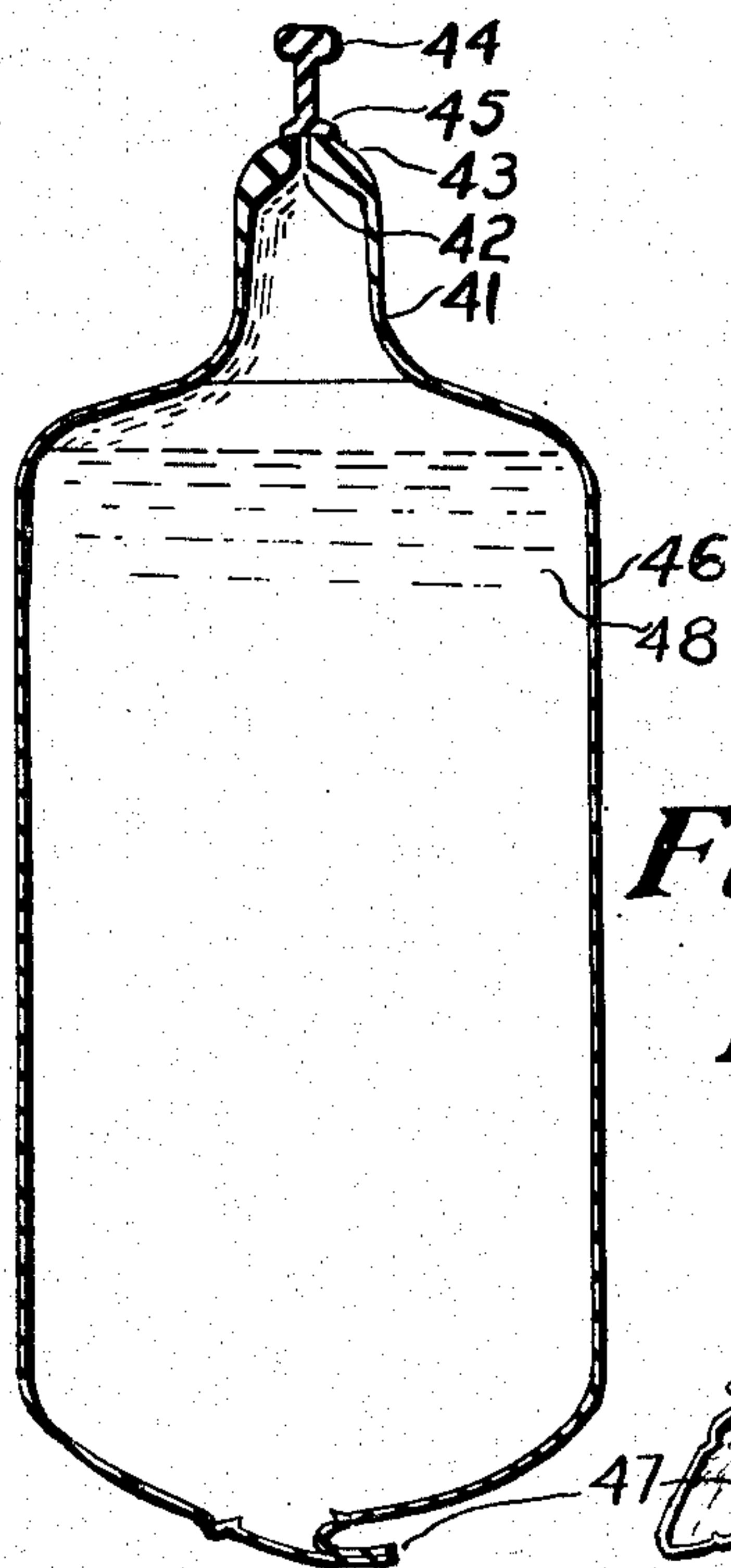
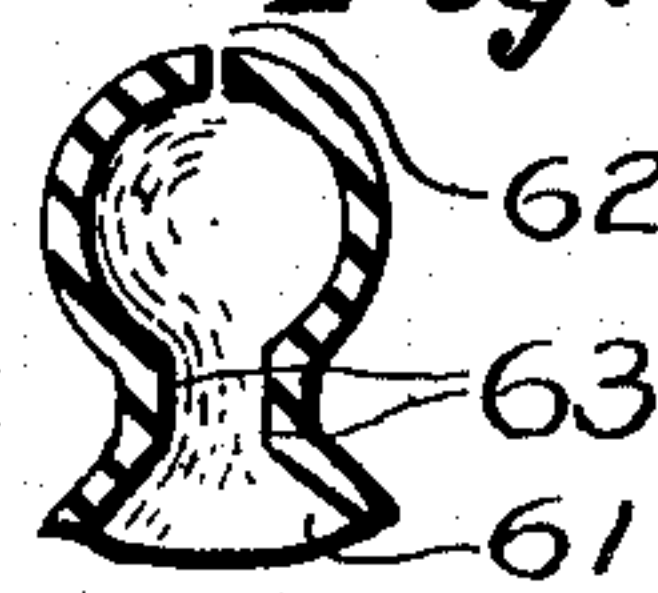
*Fig. 1.*



*Fig. 7.*

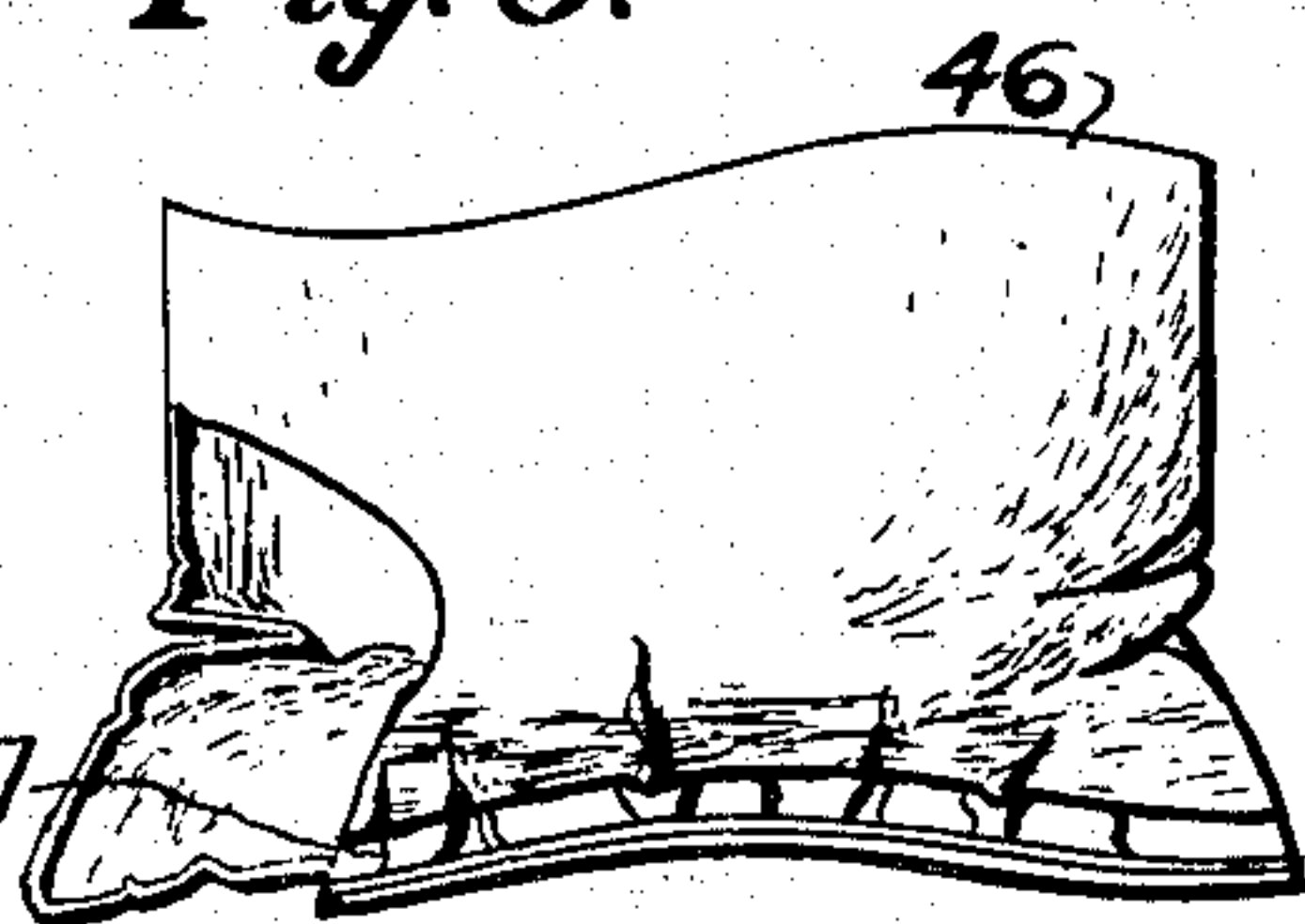


*Fig. 8.*



*Fig. 5.*

*Fig. 6.*



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## UNITED STATES PATENT OFFICE

2,628,906

## NURSING DEVICES

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Application January 21, 1950, Serial No. 139,818

11 Claims. (Cl. 99—171)

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This invention relates to devices for packaging liquid infant food. It embodies novel and improved means not specifically shown, although considered included, in my earlier applications, Nos. 772,234 through 772,239 for such devices. At the time of earlier application I felt it desirable to keep the applications as brief as possible and anticipated that these and other specific novel constructions would be inclusively covered by allowable claims. Since Office actions to date make it appear that the claims allowed will be narrower in scope than I had expected, it appears advisable to disclose the generic and detailed constructions and to seek the additional measure of protection they specifically merit. This application is therefore submitted in continuation in part of disclosures in applications Nos. 772,234 through 772,239 inclusive.

These constructions are generically similar, and all of them relate to means for sealing nursing nipples to prevent premature leakage there-through, the creation of such means being an object of this invention.

An object of this invention is to provide nursing nipple constructions whereby the nursing nipple itself contains an initial seal which positively prevents passage of liquid infant food out of the feeding orifice and prevents any air from entering and carrying organisms to the food, the seal being capable of being readily broken by the parent without touching the nipple with the fingers of any extraneous device.

Another object of this invention is to provide seals having a well defined plane of weakness, whereby the size of the sucking orifice is predetermined in the manufacture of the nipple.

An object of this invention is to provide sealing means adaptable to any method of fabrication of the nipples or containers having nipples incorporated therewith, whether by injection, compression or transfer molding, impact or tubular extrusion, manufacture from sheet stock, heat seaming, etc.

An object of this invention is to provide a sealed nipple construction capable of permitting syringe loading of the container through the nipple with subsequent sealing at the point of injection.

An object of this invention is to provide a closed nipple orifice construction permitting the parent to remove the closure element in such a manner as to provide a selective range of sucking orifice opening areas.

Further objects and novel features of my invention will become apparent in the balance of

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the specification, in the claims appended, in the drawings and in the following description of the several forms thereof as shown in the drawings, in which:

5 Fig. 1 is a partly cutaway illustration showing a metal enclosure which houses a plurality of flexible nursing containers (one shown in section), each having a nipple in accordance with my invention;

10 Fig. 2 is a fragmentary sectional view of a nipple as in Fig. 1, after unsealing;

Fig. 3 is an illustration of essentially the same embodiment as those in Fig. 1, here shown adapted to and assembled to a different type of vessel, this vessel being particularly suited to manufacture from glass;

15 Fig. 4 is a fragmentary sectional view of a nipple as in Fig. 3, after unsealing;

20 Fig. 5 is a cross sectional view of a second embodiment of my invention;

Fig. 6 is a fragmentary sectional view of the lower portion of the device shown in Fig. 5;

Fig. 7 is a fragmentary sectional view of a third embodiment of my invention prior to unsealing;

25 and

Fig. 8 is a fragmentary sectional view of the third embodiment after unsealing.

Referring now to Figs. 1 and 2, there are shown two nipples 1, one being in section, the other shown externally. The nipple 1 has a tapered orifice 2 having orifice walls 3 of tapering thickness and a pull element 4 integrally molded to the orifice walls 3. It will be seen that there is a weak section at the juncture of the orifice walls 3 and the pull element 4. By grasping and pulling the pull element 4 it may be separated from the walls 3, thus providing sucking access to the contents through the orifice 2. The nipple continues on through the skirt portion 5 to a peripheral portion 6, which is adherently attached to the rim 7 of the body 8 of the holding vessel, which contains a supply of liquid infant food 9. A plurality of filled assemblies comprising vessels and nipples may be sterilized and enclosed in a hermetically sealed can or flask 10, having lids 11 at either end. Upon opening the can, there will be no leakage or loose milk visible; and each of the vessel and nipple assemblies may be individually withdrawn and opened.

50 The tapered orifice 2 and orifice walls 3 are designed to permit the parent optionally to cut with a scalped blade through the walls below the pull element 4 when desired to provide an orifice of larger minimum cross sectional area. The tapered orifice feature, while desirable for many



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infants, may be eliminated if selectively variable orifice area is not to be provided.

Selection of vessel and nipple materials impermeable to gas diffusion will render it unnecessary to afford refrigerated storage for the prevention of spoiling of the liquid contents of the individual vessels after opening the outer container. However, some temporary protection such as is afforded by refrigeration or recovering is desirable to retard the collection of organisms on the surfaces of the thus exposed nipples.

Referring now to Figs. 3 and 4, it will be seen that the construction of the orifice 22 and the pull element 24 of the nipple 21 is similar to that previously described, these two figures having been included chiefly to show the versatility of the construction regardless of the type of package in which it is employed. It will be seen that the plane of weakness between the nipple 21 and the pull element 24 is located at the widest portion of the orifice 22, instead of the narrowest as in Figs. 1 and 2, the orifice walls extending up into the pull element 24. Grasping detachment of the pull element 24 will cause the break to occur at the widest orifice area, but, if the pull element should be cut off above the plane of weakness instead of being pulled off, there will be provided an orifice of smaller minimum cross sectional area. The nipple 21 is squeezed at its skirt portion 25 between the cap 29 and the rim 28 of the vessel 30, thus effectively obturating by compression the nipple venting orifice 26 so that no initial leakage of liquid infant food 31 can take place through the nipple; and the peripheral portion 27 of the nipple skirt is cemented or otherwise adherently attached to the vessel 30 in order to prevent dislodging the nipple upon priable removal of the cap 29, whose skirt is crimped over the nipple and vessel assembly in the manner of the "Crown" type closure.

Referring now to Figs. 5 and 6, there is shown a nipple 41 having an orifice 42. To the tip portion 43 of the nipple 41 there is secured a pull element 44 having a base 45 adherently attached thereto. The adherence may be obtained by heat softening methods or by the use of bonding agents, pressure adhering surfaces or partly cured surfaces. The nipple 41 and vessel 46 as shown form an assembly highly adaptable for forming in one piece by such methods as are used for forming balloons or by impact forming or extrusion process. The tip 43 of the nipple 41 is of extra thickness; and the orifice 42 is adapted to receive a syringe for optional top infection of liquid infant food 48 prior to the application of the pull element 44, which is thereupon adherently attached by its base 45 to the tip 43 over the orifice 42 in a manner which will insure failure of the closure at the sealing juncture when tensile force is applied to the pull element 44, thus forming a temporarily completely sealed vessel and nipple combination. Optionally, of course, the pull member could have been molded to the nipple as an integral part in the manner of the prior embodiment.

Referring now to Figs. 7 and 8, there is shown a third embodiment of a nipple capable of sealing off the contents of a vessel containing liquid infant food against leakage of the food past the nipple orifice. Opposite sides 63 below the orifice 62 of the internal surface of the nipple 61 are forced together, preferably by heat or pressure, to form a seal along the plane where they meet, the seal being deliberately made weak so that the adhering surfaces 63 may optionally be sepa-

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rated by squeezing the vessel, if flexible, thus forcing liquid under pressure between them or by grasping and pulling the skirt of the nipple 61 at opposite sides below the adhering surfaces, thus causing their bond to fail.

It will be obvious that various combinations of nipples and holding vessels are entirely feasible, as, for example, the nipple and/or pull element constructions in Fig. 1 or 3 would be adaptable to the vessel shown in Fig. 5, or the sealing means in Figs. 7 and 8 could be applied to the vessel-nipple assemblies in Figs. 1, 3, or 5, etc. It will be apparent after reading this disclosure that various changes, modifications and combinations will become immediately obvious to others skilled in the art without departing from the true and full scope of my invention, in particular including elements of disclosures appearing in my co-pending applications; and it is accordingly intended in the appended claims to cover such equivalents as may fall within the true scope of my invention and without the prior art. I wish it to be understood that my invention is not to be limited to the specific form or arrangement of parts herein described and shown or specifically covered by my claims.

Therefore, I claim:

1. In a nursing nipple, a pull element borne by said nipple at the tip thereof.

2. A nursing nipple having at its tip an element substantially integral therewith and capable of removal therefrom to provide a sucking orifice.

3. A nursing nipple having at its tip a small sealing protuberance forming a wall for a sucking orifice, said protuberance being capable of being cut off to provide a sucking orifice.

4. A sealed nursing container having nipple means therewith, said means being initially non-functionable as a nursing device by reason of an element incorporated therein at the tip thereof forming a closure for said nipple, said element being capable of separation from said nipple.

5. A nursing device comprising a vessel portion and a nipple portion, said vessel portion having therein a supply of liquid infant food, said nipple portion having a sucking orifice at the tip thereof, said nipple portion having adherently attached surfaces blocking the passage of said food out of said nipple.

6. In a package, an enclosure comprising a vessel portion holding therein a supply of liquid infant food and a nipple, having a sucking orifice initially closed by an element separable therefrom, said element forming in conjunction with said nipple a seal for said enclosure.

7. In a nursing device carrying therein a supply of liquid infant food, a nipple closing one end thereof, said nipple having a sucking portion, a pull element on said sucking portion and forming a sealed juncture thereto, said juncture being relatively weaker than said nipple and said pull element, whereby said pull element is detachable from said nipple at said juncture.

8. In a nursing device, a nursing nipple having a pull element at the tip thereof, said nipple and said pull element having a juncture therebetween, said juncture being weak so as to fail inelastically upon the application of lifting force to said pull element, whereby a functionable sucking orifice is created in said nipple upon the removal of said pull element.

9. A dispenser comprising a vessel having a supply of liquid infant food therein, said vessel being bounded at one end by nipple means, said



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nipple means having an element externally detachable therefrom, whereby a sucking orifice for said nipple is opened upon the detachment of said element.

10. A nursing nipple having at the tip thereof an element, said element constituting a closure for said nipple, said element being initially removable by withdrawal from said nipple, whereby an unobtured sucking orifice is provided.

11. A nursing nipple having a passage for suckling, said passage having a wall, said passage being closed initially by a surface adhering to said wall, said adhering surface being capable of direct withdrawal from said wall.

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## REFERENCES CITED

The following references are of record in the file of this patent:

## UNITED STATES PATENTS

Number	Name	Date
1,344,760	Goddard	June 29, 1920
2,093,130	Kurkjian	Sept. 14, 1937

## FOREIGN PATENTS

Number	Country	Date
13,588	Great Britain	1907