Sept. 20, 1932. F. BROWN 1,877,761

APPARATUS FOR MOLDING NIPPLES

Filed April 30, 1931

Fig. 1.

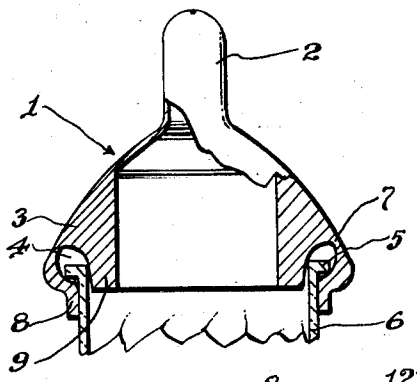


Fig. 2.

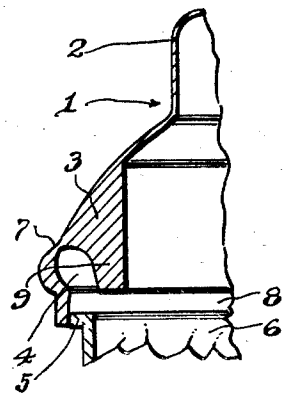
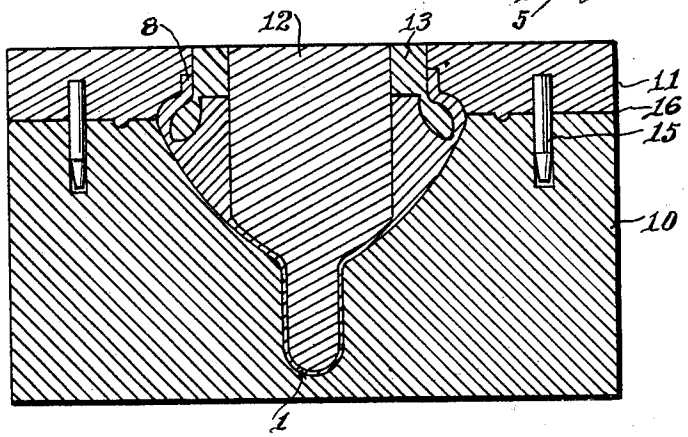


Fig. 3.



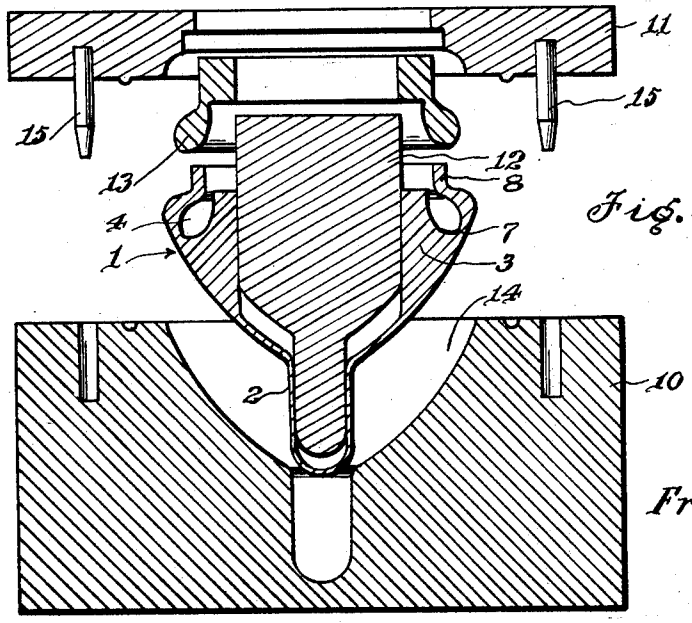


Fig. 4.

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UNITED STATES PATENT OFFICE

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APPARATUS FOR MOLDING NIPPLES

Application filed April 30, 1931. Serial No. 534,114.

This invention relates to nipples used on nursing bottles.

The main object of the invention is to provide a nipple which will fit substantially all wide-necked nursing bottles without stretching or working loose.

Another object of the invention is to provide a nipple having a restricted flange portion which will accommodate itself to various diameters of bottles.

Another object of the invention is to transmit the ordinary wear and tear of the nipple to a point which does not come in contact with the bottle and thus reduce the chance of leakage.

Still another object of the invention is to provide a nipple having a certain portion of the wall thinned for ease of bending when being put on and taken off the bottle and thus avoid most of the stretching of the flange portion.

A further object of the invention is to provide a special kind of mold to economically and efficiently produce the nipples.

Other objects of the invention will appear as the disclosure progresses. The drawing is intended to merely indicate a possible embodiment of the invention. It is obvious that the actual needs of manufacture may necessitate certain mechanical changes. It is therefore not intended to limit the invention to the embodiment illustrated but rather to define such limits in the appended claims. For a more general understanding of the invention attention is called to the drawing. In this drawing like reference characters denote like parts throughout the specification.

Figure 1 is a sectional view of the nipple showing same attached to a nursing bottle.

Figure 2 is a sectional view of a portion of the nipple shown in the act of being removed from the bottle.

Figure 3 is a sectional view of the mold.

Figure 4 is a similar view as Figure 3 but showing the various elements separated from each other.

Referring now to the drawing in detail, numeral 1 designates the nipple comprising a relatively thin upper portion 2 and a thick base portion 3. Formed in the base portion is a circular groove 4 to accommodate the rim 5 of the nursing bottle 6. The wall portion 7 at the top of the slot is made relatively thin for a purpose to be later described. At the bottom of the nipple is a restricted flange 8 which hugs the neck of the bottle and a ring portion 9 which fits into the bottle neck.

The neck diameters of the bottles on the market are not all uniform and they vary within certain limits according to the particular standards of the manufacturers. It will thus be apparent if a nipple can be made which will automatically adjust itself to the various sizes of the bottles the cost of the article will be greatly reduced as it will not be necessary to make and carry in stock a multiple of size nipples. This problem has been solved by adding the restricted flange 8 to the bottom of the nipple and thinning the wall above the groove as at 7.

The nipple is cast with the minimum diameter of the wide necked bottles. Now when a nipple is placed on a larger diameter bottle the wall of the bottle from the thinned portion 7 down to the flange will swing outwardly, the bend or fulcrum being at 7 as shown in Figure 2. This will relieve the stretching strain on the flange and thus the flange will not stretch as much at it would without the thinned wall feature 7. The greatest wear will always be at the point 7 while the wear on the flange will be slight and in view thereof the flange will always hug the bottle neck tightly and prevent any leakage of the contents.

In Figures 3 and 4 are shown the mold for casting the nipples. The mold is made in four pieces and comprises two complementary members 10 and 11, a core member 12 which

corresponds to the interior contour of the nipple, and a ring member 13 which forms the circular groove 4 of the nipple. Formed in the member 10 is a cavity 14 whose contour corresponds to the exterior surface of the nipple. In this cavity is placed the raw stock of rubber in sufficient quantity to produce the nipple. To form the nipple the parts 11, 12, and 13 are assembled and pressed onto the part 10 of the mold, the dowel pins 15 serving as a guide to register the mold members correctly together. This will cause the rubber stock to fill up the voids between the various parts and form the nipple. The mold is then placed in a vulcanizing apparatus for curing the nipple.

After curing, the nipple is removed from the mold by first separating the parts 10 and 11 from each other at the joint 16. On the said parts being separated the nipple will cling to the parts 11, 12 and 13. The member 11 is then lifted from the ring member 13 and the parts 12 and 13 removed from the interior of the nipple.

It will thus be seen that I have provided an efficient and easily molded nipple and an inexpensive method of making same. The wear and tear of the nipple will be transmitted to a portion of the nipple which does not come in contact with the bottle; namely, at the point 7, thus always allowing the flange 8 to hug the bottle neck and prevent any leakage.

The mold is made from four main parts and can easily and quickly be assembled or separated.

Having described by invention, I claim:

1. In an apparatus for molding a nipple, the combination of a member provided with a cavity which corresponds to the outer surface of the nipple, a core whose outer surface corresponds to the interior contour of the nipple, a ring member around the upper end of said core, and another flat member surrounding said ring member.

2. In an aparatus for molding a nipple, the combination of a member provided with a cavity which corresponds to the outer surface of the nipple, a core whose outer surface corresponds to the interior contour of the nipple, a ring member around the upper end of said core, a flat member surrounding said ring member, and dowel pins for holding the first and last mentioned members together.

3. In an apparatus for molding a nipple, the combination of a member provided with a cavity which corresponds to the outer surface of the nipple, a core whose outer surface corresponds to the interior contour of the nipple, a ring member around the upper end of said core, a flat member surrounding said ring member, the joint between the first and last mentioned members being at the widest part of the said cavity.

4. In an apparatus for molding a nipple, the combination of a member provided with a cavity which corresponds to the outer surface of the nipple, a core whose outer surface corresponds to the interior contour of the nipple, a ring member around the upper end of said core, a member surrounding said ring member, and dowel pins for holding the first and last mentioned members together, the joint between the first and second mentioned members being at the widest part of the cavity.

In testimony whereof I affix my signature.

FRANKLIN BROWN.