

Nov. 8, 1932.

E. BIANCALANA

1,887,280

BOTTLE HEATING ATTACHMENT

Filed March 31, 1932

3 Sheets-Sheet 1

Fig. 1.

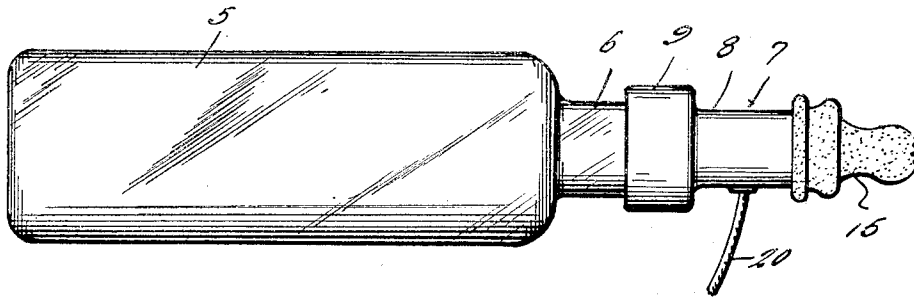


Fig. 2.

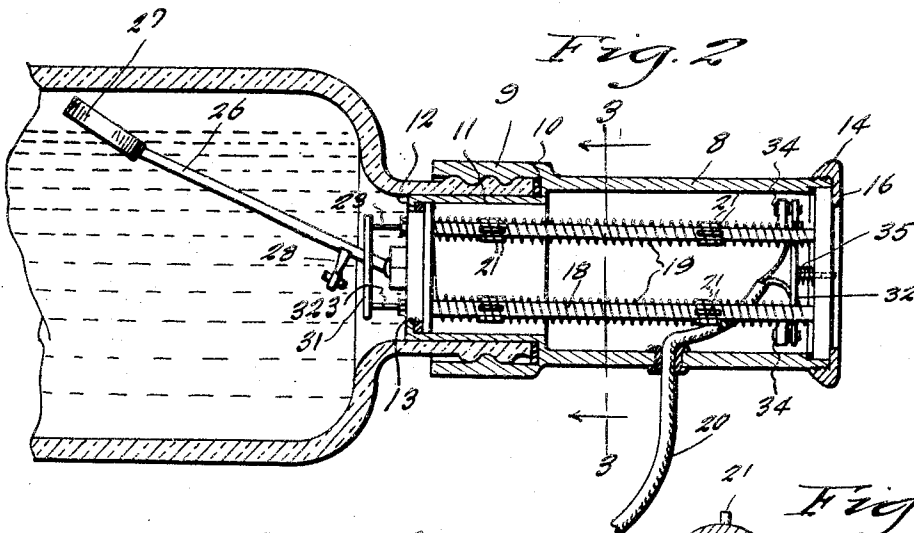


Fig. 4.

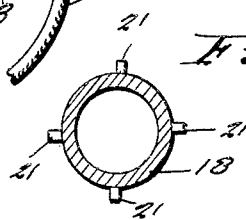
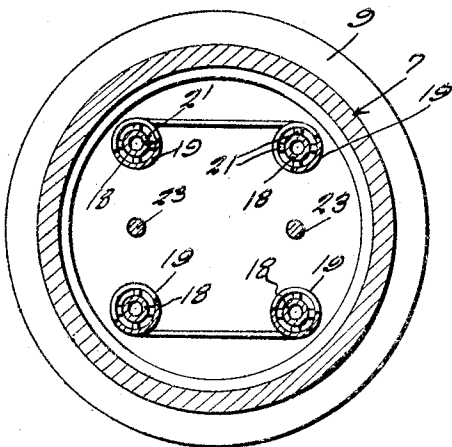


Fig. 3.



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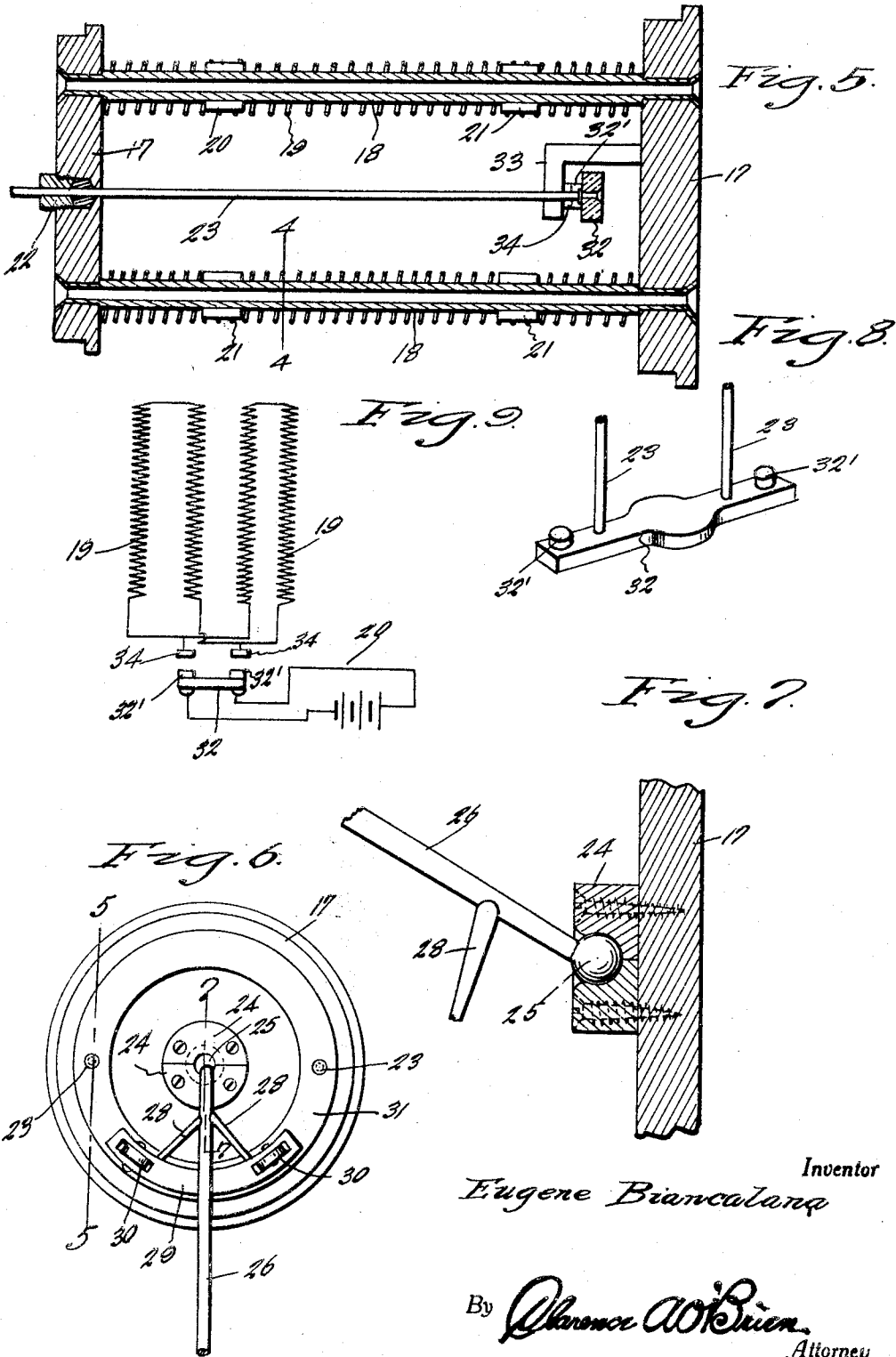
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3 Sheets-Sheet 2



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3 Sheets-Sheet 3

Fig. 10

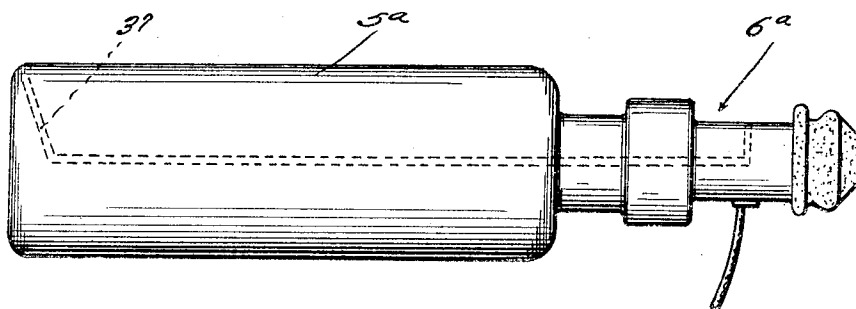


Fig. 11

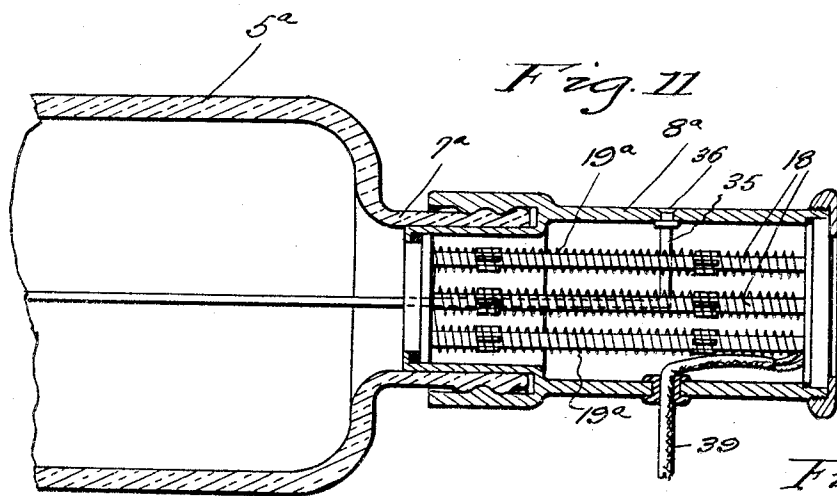


Fig. 12

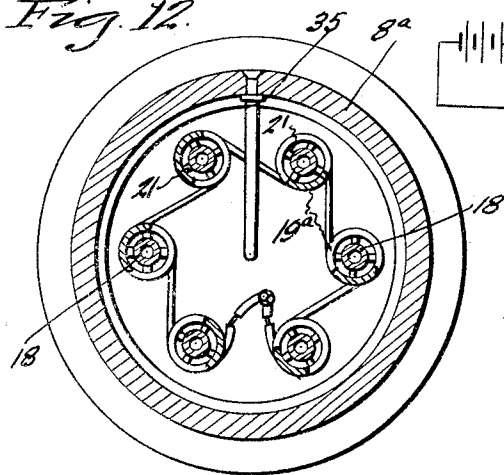
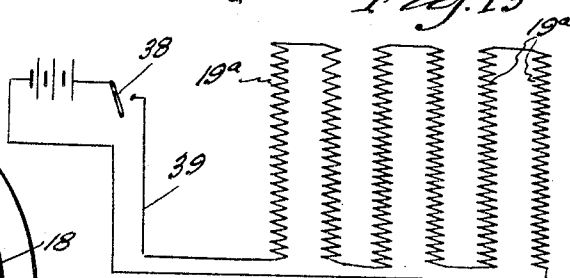


Fig. 13



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UNITED STATES PATENT OFFICE

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BOTTLE HEATING ATTACHMENT

Application filed March 31, 1932. Serial No. 602,327.

This invention appertains to new and useful improvements in electrical heaters, and more particularly to a novel heating attachment for bottles.

5 An important object of the invention is to provide the combination of a bottle and heater in the outlet thereof whereby the contents of the bottle will be heated as the same is poured through the outlet.

10 Another important object of the invention is to provide a heat attachment especially adapted for nursing bottles, wherein the heating attachment will become automatically energized when the same is in tilted use.

15 These and other important objects and advantages of the invention will become apparent to the reader of the following specification.

In the drawings:—

20 Figure 1 represents a side elevational view of the novel nursing bottle attachment.

Fig. 2 represents an enlarged fragmentary longitudinal sectional view through the structure shown in Fig. 1.

25 Fig. 3 represents a cross sectional view taken substantially on line 3—3 of Fig. 2.

Fig. 4 represents a sectional view through one of the heating coil spacers.

30 Fig. 5 represents an enlarged longitudinal sectional view through the heater assembly.

Fig. 6 represents an end elevational view of the heating assembly showing the switch operating means.

35 Fig. 7 represents a fragmentary detailed sectional view taken substantially on line 7—7 of Fig. 6.

Fig. 8 represents a fragmentary perspective view of the contactor.

40 Fig. 9 represents a diagrammatic view disclosing the electrical connection between the electrical devices involved.

Fig. 10 represents a side elevational view of a manually controlled heater attachment for bottles.

45 Fig. 11 represents an enlarged fragmentary longitudinal sectional view through the bottle and attachment shown in Fig. 10.

Fig. 12 represents a cross sectional view through the attachment.

50 Fig. 13 represents a diagrammatic view dis-

closing the electrical connection between the electrical elements involved.

Referring to the drawings wherein like numerals designate like parts, it can be seen in Fig. 1, that numeral 5 represents a nursing 55 bottle having a threaded neck 6. Numeral 7 generally refers to the attachment which includes the tubular shell 8 having the enlarged internally threaded end portion 9 defining an internal shoulder between which 60 and the end of the neck 6 the packing 10 is located.

Numeral 11 represents a shell which is internally spaced from the enlarged end portion 9, extending from the shell 8 adjacent 65 the packing 10, as clearly shown in Fig. 2.

The outer end of this sleeve 11 is provided with an internal sleeve disposed flange 12 against which the packing 13 is disposed.

The other end of the shell 8 is externally 70 threaded for engagement into the rim 14 over which the nipple 15 can be stretched. This rim 14 is provided with an internal flange 13.

As is clearly shown in Fig. 5, the heater 75 assembly is provided at each end with a disk-like member 17 between which extends a plurality of fluid conducting tubes 18, the ends of the tubes extending through the headers 17—17 and having the heating coils 19 convoluted around the same while being spaced 80 therefrom by the spacers 20, the spacers 20 each being provided with a plurality of ribs 21 against which the convolutions of the coils 19 engage.

As is apparent in Fig. 2, the innermost 85 header 17 engages against the packing 13 while the outermost header 17 engages against the flange 16 of the rim 14.

The innermost header 17 is provided with a pair of packing glands 22—22 through 90 which the connecting rods 23—23 are slidably disposed.

The innermost header 17 has a sectional 95 socket 24 mounted on the bottle side thereof, and in this socket structure 24, the ball 25 is operative, the latter being provided with an arm 26 equipped with a float 27 at its free end.

As is clearly shown in Fig. 6, the arm 26 100 is provided with a pair of diverging leg mem-

bers 28—28 connected to the arcuate plate 29 which is equipped with contact rollers 30—30 for riding engagement with the conductor ring 31 which is carried by the outer ends of the rods 23—23.

The inner ends of the rods 23—23, carry the contactor plate 32 on which the contacts 32'—32' are provided. On the outermost header 17 are the brackets 33—33 equipped each with a contact 34, with which a corresponding contact 32' is engageable.

Fig. 9 shows that the coils 19 are in two groups, a pair of coils being in each group and the two groups being connected in parallel with the battery circuit 20 through the aforementioned switch means, so that in the event one set of coils burns out, the other will be available.

It can now be seen, by observing Fig. 2, that when a bottle is tilted from a vertical position to the horizontal position shown in Fig. 2, the float will be actuated so that the rollers 30 will be removed from the conductor ring 31, thus permitting the spring 35 to urge the contactor 32 into engagement with the contacts 34—34. This results in the energization of the coil springs 19 and this will continue, until the bottom is again brought to a vertical position, or until the contents of the bottle has become exhausted, in which event the float 27 lowers to a position exerting pressure against the ring 31 so that the tension of the spring 35 is overcome to the end that the battery circuit connection shown in Fig. 9 is broken.

Obviously, the parts of the device above described are easily demountable for the purpose of repair or replacement of elements without difficulty.

Figs. 10 to 13 inclusive disclose a modification of the invention, which is simply a bottle with the novel heater attached thereto, but eliminating the automatic current controlling factor.

In Fig. 10, numeral 5 represents the bottle, while character reference 6a generally refers to the attachment, which as shown in Fig. 11, includes a shell 8a engaged with the neck 7a of the aforementioned bottle 5a. The heating means and construction of the heater assembly is identical with the construction of the device as disclosed in Figs. 2 and 5, excepting that the numeral 35 represents an air inlet tube extending from the point 36 on the outside of the shell 8a to a point adjacent the bottom of a bottle and diverged in the manner disclosed by numeral 37.

As before explained, the attachment disclosed in Figs. 10 to 13 inclusive is without the switch means, there being a manual switch 38 in the battery circuit 39 for controlling the heating elements 19a of this particular form of the invention, the switch being extraneous to the attachment per se.

Obviously, as the contents of the bottle is

poured out, air passes into the bottle through the tube 35, and as the air goes into the bottle through the tube, the same is heated as is the fluid passing outwardly through the attachment.

While the foregoing specification sets forth the invention in specific terms, it is to be understood that numerous changes in the shape, size and materials may be resorted to without departing from the spirit and scope of the invention as claimed hereinafter.

Having thus described my invention, what I claim as new is:—

1. A nursing bottle comprising in combination, a nipple, and a heating unit interposed between the nipple and the bottle.

2. A nursing bottle comprising in combination, a nipple, a heating unit interposed between the nipple and the bottle, and a float controlled switch in the bottle for controlling the said heating unit.

3. In combination, a bottle, a heating unit at the outlet of the bottle, and an air inlet tube extending from a point adjacent the heating unit to a point in the bottle adjacent the bottom of the bottle, said tube extending in close proximity to the said heating unit.

4. A heating attachment for nursing bottles comprising a shell having one end adapted to engage the neck of a nursing bottle, the other end of the shell being adapted to engage a nursing nipple, a partition in each end of the shell, and a tube extending longitudinally in the shell and opening at its ends thru the partition, and a heating element on the said tube and between the said partition.

In testimony whereof I affix my signature.

EUGENE BIANCALANA.