PATENT SPECIFICATION

Application Date: Sept. 7, 1935. No. 24986/35. 462,717
" " Oct. 2, 1935. No. 27203/35.

One Complete Specification Left: Aug. 27, 1936.

(Under Section 16 of the Patents and Designs Acts 1907 to 1932.)

Specification Accepted: March 8, 1937.

PROVISIONAL SPECIFICATION

No. 24986 A.D. 1935.

Improvements in or relating to Lighters for Cigarettes and the like

I, EDMUND SAYWELL, of 253, Franciscan Road, London, S.W.17, Architect, Surveyor and Constructional Engineer, a British Subject, do hereby declare the nature of this invention to be as follows:—

The present invention relates to improvements in lighters for cigarettes, cigars, and the like.

The main object of this invention is to provide a lighter wherein the necessity for drawing or puffing the cigarette or cigar at the time of lighting is obviated, and whereby the operation may at all times be performed without inconvenience.

The present invention accordingly comprises an electrical source of heat for lighting a cigarette or other article, together with means for passing a forced draught through the cigarette or article at or shortly after its being brought into contact therewith.

In one embodiment of the invention a lighter for igniting cigarettes may be housed in a box of a size suitable for placing on a desk or table for office or home use, and encloses an electric source of supply such as a dry battery. It also encloses an element in circuit with the battery or the like which is so constructed as to be heated on the circuit being closed.

The said element advantageously consists of a filament of wire stretched across a ring of conducting metal. The ring is preferably broken in two places so as to leave a portion of the ring which may be insulated from the remainder. The wire filament is stretched between the broken portion of the ring and the remainder so that the current may pass through the same and heat it. The filament is formed of a metal which easily reaches a red heat and platinum wire containing 25% iridium has been found to be suitable for this purpose.

The heating element may be mounted at the end of a tube which is encased in a second tube, which slightly exceeds the diameter of the normal cigarette. The second tube may be so disposed as to project vertically from the box and the heating element is preferably situated approximately $\frac{1}{4}$" below the end of the tube.

A forced draught is so arranged as to ascend the tube containing the heating element when the cigarette is in contact therewith and one of the features of the present invention resides in means for synchronising the forced draught with the kindling of the heating element.

This object may be achieved by providing a rod, preferably vertically disposed within the box, which bears on a bellows or airbag which is connected with the tube to the end of which the heating element is secured. The said rod may be provided with a press button at its outer end, in order that it may be actuated in a convenient manner. Advantageously, a contact is provided at a suitable point on the rod which, upon the button being pressed, closes the electric circuit at a predetermined point and ignites the heating element while continued pressure on the button compresses the bellows and causes a current of air to pass through the heating element and up the cigarette.

Alternatively, a separate switch may be provided to kindle the heating element while the rod and press button are arranged, so as to actuate the bellows or air bag alone.

In operation the cigarette is inserted vertically within the tube with its end in engagement with the heating element and a steady pressure of the button causes the cigarette to be ignited. It may then be withdrawn with its end well alight and there is no necessity for further drawing or puffing to prevent its going out.

Desirably, the circuit from the battery or other means of supply passes through the tubes surrounding the heating element which are formed of conducting metal. A contact may accordingly be arranged so as to project from the outer tube, which contact engages with that provided on the rod above referred to, when the button is

[*Price* 1/-]

pressed, thereby closing the circuit. In this construction the broken portion of the ring of the heating element is insulated from the remainder, which is in contact with the tube.

The broken portion has attached thereto a lug of metal which projects from the base of the heating element and contacts with a spring loaded rod or other suitable member which makes contact between the lug and the inner tube to the end of which the heating element is attached. Since the filament wire of the heating element stretches between the broken portion and the main portion of the ring, the current must pass through it and heat it to the temperature required.

In a further modification of the invention pressure on the press button may operate a small dynamo to provide current for the heating element. In this construction a ratchet may be provided on the rod which engages a cog whereby the dynamo shaft is rotated.

Instead of a bellows or airbag, a fan may be provided actuated by suitable gearing from the rod.

The lighter may be constructed so as to have a cigarette box and ashtray combined therewith, and this may be conveniently effected by providing a drawer to hold a quantity of cigarettes beneath the lighter, together with an ashtray preferably situate upon the top thereof.

A lighter for cigars or cheroots may be provided with the same constructional features, necessary modifications in the size of the tubes and the heating element only being required.

The lighter above described is suitable for office or home use upon a desk or table.

The device may, with suitable modifications, be adapted so as to be portable on the person and of pocket size.

While the lighter has been described for use as a lighter for cigarettes, cigars, cheroots, and the like, it is suitable for other purposes. It may, for example, be conveniently used in the home as a lighter for igniting gas fires, cookers and the like, by means of a taper, or for any other purpose of a similar nature where ignition is frequently and intermittently required.

Dated this 7th day of September, 1935.

ERIC POTTER & CLARKSON,
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and Nottingham.

PROVISIONAL SPECIFICATION
No. 27203 A.D. 1935

Improvements in or relating to Lighters for Cigarettes and the like

I, EDMUND SAYWELL, of 253, Franciscan Road, London, S.W.17, Architect, Surveyor and Constructional Engineer, a British Subject, do hereby declare the nature of this invention to be as follows:—

The present invention relates to improvements in lighters for cigarettes, cigars, and the like.

It relates moreover to improvements in the lighter described in the specification accompanying application No. 24986 filed the 7th day of September 1935 wherein an electrical source of heat for lighting a cigarette or other article together with means for passing a forced draught through the cigarette or article at or shortly after its being brought into contact therewith, form one of the main features of the invention set forth.

It is the object of the present invention to provide an improvement in and desirable modification of the lighter above described, and in particular to simplify the construction thereof and more effectively to correlate the forced draught and the application of the electrical source of heat.

This invention accordingly provides a lighter comprising an electrically operated source of heat, and means for passing a forced draught through a cigarette or other article wherein the forced draught functions to operate the electric source of heat.

In the preferred embodiment of the invention the draught actuates a member which closes the electric circuit which contains a heating element such as a wire filament and a battery or other source of supply whereby the filament is heated.

In one construction an air bag or ball is employed to provide the forced draught and an air flue is attached to one end thereof. An inlet valve is provided in the airbag through which air is sucked into the bag in operation. Conveniently the flue is formed of conducting material and an electric conductor runs therefrom to one terminal of a dry battery or other suitable source of electric supply. The flue may be enclosed in a tube of larger diameter which is also formed of conducting material and from which the flue is suitably insulated. Within the upper end of the flue a valve, which is preferably of mushroom type, is advantageously provided, and this valve is formed of a conducting metal.

The heating element is preferably dis-

posed at the end of the tube within which the flue is contained. This element advantageously consists of a filament of wire stretched across a ring of conducting metal. The said wire may be formed of platinum containing a mixture of 25% iridium, such as is employed in the previous application herein referred to.

Alternatively, another metal or alloy which easily reaches a red heat may be employed. The element is conveniently provided with a contact at the base thereof which is connected to the filament by an electric conductor.

The said element may be permanently attached to the end of the tube which contains the flue, but for the sake of accessibility, it is preferred to provide an annular shelf on the inner side of the tube upon which the element is seated, so that the ring and filament itself is flush with the end of the tube.

A further tube preferably encases the tube last above referred to, which is provided with an internal annular abutment adapted to bear on the heating element and hold it in position. The said tube is formed of a conducting metal and a conductor is secured thereto which runs to the second terminal of the dry battery or other suitable source of electric supply hereinbefore referred to.

The operation of the arrangement is such that upon pressure being applied to the airbag a draught of air is forced up the flue which dislodges the valve from its seating and causes its mushroom head to engage the contact at the base of the heating element. The valve is so constructed that its stem either remains in contact with or makes contact with, the inner casing of the flue and the electric circuit is thereby closed.

Where the valve is of the mushroom type provided with a narrow stem, contact is made between the stem and the flue by reason of the fact that the valve when blown upwards is canted slightly at an angle to the vertical when the head makes contact with the base of the heating member.

The effect of the arrangement is that upon pressure being exerted upon the airbag, the draught coincides with the glow of the heating element. A cigarette may then be placed in contact with the heating element and on pressure being exerted on the air bag, it is ignited without any puffing or drawing.

The apparatus may conveniently be enclosed in a box of pleasing appearance and the heating element may be so disposed that it forms the bottom of a tubular recess of convenient size. This may advantageously be formed by the end of the outer tube of conducting material enclosing the filament and the tube at the end of which it is disposed. A spring loaded plunger may be provided by means of which pressure may be exerted on the airbag so as to bring the device into operation.

The arrangement of the box may resemble that described in the specification of application No. 24986/35 above referred to, with any modifications which may be necessary. For example the lighter may be constructed so as to have a cigarette box and ashtray combined therewith, and this may be conveniently effected by providing a drawer to hold a quantity of cigarettes beneath the lighter, together with an ashtray, preferably situate upon the top thereof.

The lighter may be designed to take cigars or cheroots, a variation in size of the heating element and the tubular recess within which it is located being all that is necessary.

The device may be adapted for use in the house or office, and it may be advantageously constructed of pocket size.

While the lighter has been described for use as a lighter for cigarettes, cigars, cheroots or the like, it is suitable for other purposes. It may for example be conveniently used in the home as a lighter for igniting gas fires, cookers and the like by means of a taper, or for any other purpose of a similar nature where ignition is frequently and intermittently required.

Dated this 2nd day of October, 1935.

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and Nottingham.

COMPLETE SPECIFICATION

Improvements in or relating to Lighters for Cigarettes and the like

I, EDMUND SAYWELL, of 253, Franciscan Road, London, S.W.17, a British Subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The present invention relates to improvements in lighters and is concerned with lighters for cigarettes, cigars, and the like.

The main object of this invention is to provide a lighter wherein the necessity for drawing or puffing the cigarette or cigar at the time of lighting is obviated, and whereby the operation may at all

times be performed without inconvenience.

Non-portable lighters for cigarettes and the like have been proposed wherein a forced draught has been employed in conjunction with an electric heater, but in such arrangements the sources of current has not formed an integral part of the apparatus.

The invention comprises a lighter for cigarettes and the like comprising a battery or dynamo, a heater in circuit with the same with which the end of the cigarette contacts, and mechanical means for passing a forced draught through the heater and cigarette, the whole being enclosed in a portable casing.

An important feature of the invention consists in means for synchronising the draught with the lighting of the electric source of heat.

In a preferred method of carrying the invention into effect the forced draught functions to operate the electric source of heat. In this construction the draught actuates a member which closes an electric circuit which contains a source of electric supply and a member to be heated thereby.

The said member may be a wire filament or other suitable element heated by the flow of current from an electric battery or other source of supply and the draught is conveniently provided by pressure on an airbag or ball or by means of a bellows, pump, fan, or the like.

In a modification of the invention, suitable mechanical means are provided for producing the forced draught and the filament circuit is closed by a press button, switch, or the like, which may, for example, be located on a lever which functions to depress an airbag or bellows.

In a further modification the forced draught may be provided by a pump the movable parts of which may be associated with a stop which ensures that the filament circuit is closed only when the pump is in operation.

Alternatively the filament may be ignited by means of a manually operated dynamo. In this construction a fan may be attached to the shaft of the dynamo so as to direct a current of air on to the filament.

In order that the invention may be clearly understood and readily carried into effect, various modifications thereof will be described with reference to the drawings in which:—

Figure 1 is a cross section through a table lighter according to the invention.

Figure 2 is a plan view of Figure 1.

Figure 3 is a diagrammatic section through an alternative arrangement according to the invention.

Figure 4 is a plan view of Figure 3.

Figure 5 is a plan view of a modification of the invention.

Figure 6 is a perspective view of an alternative construction.

Figure 7 is a longitudal section through the part 46 of Figure 6, the electrical connections not being shown.

Referring to Figures 1 and 2 of the drawings, a lighter for igniting cigarettes is housed in a box 1 of a size suitable for table use. A dry battery 2 and an air bag or ball 3 which is provided with an outlet orifice 4 and an inlet orifice 5, are enclosed in the said box. The inlet 5 is provided with an non-return inlet valve. A plate 6 bears on the air bag or ball 3 and on pressure being exerted thereon air is forced into the flue 7 through the outlet 4. This may be effected by manual pressure exerted on the press button 8, having a stem 9 attached to the plate 6. Alternatively, a bellows may be provided instead of the air bag or ball 3.

The flue 7 is formed of electrical conducting material and a contact member 10, such as a piston valve or the like, is disposed at the end thereof, loosely slidable in a tube 11 which is enclosed in a casing 12 also formed of conducting material. The casing 12 is of a diameter such as will conveniently take the end of a cigarette and the tube 11 and the casing 12 are separated by insulating material.

The contact member is formed of conducting material and is preferably solid, being provided with a stem and a mushroom head seating on the end of the tube 11 as shewn.

The casing 12 is provided with an annular flange 14 a short distance below its lip, upon which the electric heating element 15 is seated. This element consists of a wire filament formed of a metal which easily reaches a red heat and platinum wire containing 25% iridium has been found to be suitable for this purpose. The filament 16 is surrounded by a ring 17 of conducting metal which fits on the annular ring 14 and may be attached thereto or loosely seated thereon.

The element 15 is provided with a contact 18 at the base thereof, for the purpose hereinafter set forth.

Conveniently the battery is partitioned off from the remainder of the box by means of a partition 22 in which a contact 23 is suitably disposed so as to engage the battery terminal 24 and be in connection with the casing member 12, for example through conductors 25.

The circuit is completed by a conductor 20 which contacts at one end with the base 19 of the tube member 11 and at the other

with the battery terminal 21.

The casing 12 extends vertically from the top of the box for a small distance and the heating element is conveniently situated below the end of the casing, as shown in Figure 1. The tube 11 stops short of the element 15 as shown in Figure 1.

The box may be formed of wood, synthetic resin or any other suitable material and may be provided with an upwardly extending flange or flanges 26 and 27 and the part enclosed by the said flanges or either of them may be adapted for use as an ash-tray and be detachable from the box so that it may be conveniently emptied. The box is perforated to admit air into the airbag 3.

In operation a cigarette is inserted vertically in the end of the casing 12 and the button 8 is pressed. This causes a draught of air to ascend the flue 7 and raises the member 10 till it engages the contact 18. The piston in rising tilts and its stem engages the inside of the tube 11 and the electric circuit which includes the filament 16 is thereby closed and the filament is heated. The forced draught synchronises with the heating of the element and passes round the piston 10 through the cigarette, which is lit and is ready for smoking without any preliminary puffing or drawing.

An alternative method of carrying the invention into effect is shewn diagrammatically in Figures 3 and 4 wherein a dynamo 29 is mounted on a shaft 31. The shaft is arranged to be rotated through suitable gearing 32, 33 by means of a handle 34. The electric current generated by the dynamo is caused to heat the element 35 which preferably consists of a filament of platinum and iridium wire suitably mounted at the end of the air duct 37. A current of air is passed down the duct 37 by means of a fan 36 which is mounted on the shaft 31. The apparatus is mounted in a suitable box and drawers 38 may be provided to contain cigarettes if desired.

Figure 5 is a plan view of a further modification. In this construction the lighter is enclosed in a box 1 and a dry battery 2, and air bag 3 and filament 16 in a casing 12 are provided as already described. A metal bar 39 extends from one side of the box to the other being journalled in the sides of the box and passing through the box to form a bent lever or handle 42 at one end. From the bar 39 an extension 40 provided with a plate 41 bears upon the air bag 3 so that upon the lever 42 being depressed a draught is caused to ascend through the filament 16. At the end of the lever 42 a press button 43 is provided which closes the electric circuit containing the filament 16 and the battery 2 the current passing through wires 44. In this arrangement the press button 43 may be pressed by the operator and the lever 42 then depressed whereby the filament is first ignited and immediately afterwards a draught is passed therethrough. Referring to Figures 6 and 7, the lighter is enclosed in a box for table use and is formed in two parts 46 being the lighter proper and 47 being a cigarette box in one therewith from which the cigarettes may be extracted. The draught is provided by means of a pump which consists of a casing 50 having a top plate 51 with a knob thereon by means of which the pump may be manipulated by hand. The air is pumped by means of a washer or plunger 54 which is connected to the plate 51 by means of a rod 52, a spring 53 being disposed between the washer and the top of the case 46 so that the spring functions to perform the compression stroke of the pump forcing the air along the pipe 55 to the casing 49 which contains the heating filament.

The bottom of the portion 46 is preferably closed by means of a metal lid 57 which may be opened to remove and renew the batteries. These said batteries are connected in series and a stop 64 (Figure 6) is provided with engages the end of a spring metal strip and the said stop 64 is depressed by the weight of the plate 51 which bears thereon. This ensures that while the pump is inoperative the circuit is broken. Upon the pump being brought into operation by raising the plate 51 by means of the knob located thereon the circuit is closed and the filament ignited. When the pump piston is fully extended it may be released and the spring 53 causes the washer 54 to expel air through the ignited filament. At the end of the compression stroke the plate 51 reseats itself on the top of the box 46 and depresses the stop 64 thereby breaking the circuit.

The lighter in the various construction above set forth is suitable for office or home use upon a desk or table.

The device may, with suitable modifications, be adapted so as to be portable on the person and of pocket size.

While the lighter has been described for use as a lighter for cigarettes, cigars, cheroots, and the like, it is suitable for other purposes. It may, for example, be conveniently used in the home as a lighter for igniting gas, fires, cookers and the like, by means of a spill, or for any other purpose of a similar nature where ignition is frequently and intermittently required.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A lighter for cigarettes and the like comprising a battery or dynamo, a heater in circuit with the same with which the end of a cigarette contacts and mechanical means for passing a forced draught through heater and cigarette, the whole being enclosed in a portable casing.

2. A lighter according to Claim 1 wherein the draught is provided by pressure on an airbag, ball, bellows, pump or the like.

3. A lighter according to Claim 1 or 2 wherein the forced draught actuates a member which closes an electric circuit containing a wire filament and a source of electric supply.

4. A lighter according to any of the preceding Claims wherein the draught passes up a tube formed of electrically conducting material which runs from an air bag or the like and at the mouth of which is located a conductor member which, upon a draught being forced up the tube, is caused to rise and close a circuit between the filament and the tube.

5. A lighter according to Claim 1 wherein mechanical means are provided for producing the forced draught and the electric circuit is closed by a press button switch or the like.

6. A lighter according to Claim 5 wherein a member actuated by a lever depresses an air bag to cause the forced draught and a switch is located on the said lever for closing the electric circuit.

7. A lighter according to Claims 1 or 2 wherein a pump produces the forced draught and the opening and closure of the heater filament circuit is effected by the operation of the pump.

8. A lighter according to Claim 7 wherein the compression stroke of the pump is effected by a spring and a stop is engaged by the pump handle or a member thereon which ensures that the heater filament circuit is closed only when the pump is in operation.

9. A lighter according to Claim 1 wherein the filament is heated by means of a manually operated dynamo.

10. A lighter according to Claim 9 wherein the forced draught is operated by means of a fan on the same shaft as the dynamo whereby a current of air is directed upon the filament.

11. A lighter according to any of Claims 1 to 10 having a heating element composed of wire filament of 75% platinum and 25% iridium.

12. A lighter substantially as herein described with reference to Figures 1 and 2 of the drawings.

13. A lighter substantially as herein described with reference to Figures 3 and 4 of the drawings.

14. A lighter substantially as herein described with reference to Figure 5 of the drawings.

15. A lighter substantially as herein described with reference to Figures 6 and 7 of the drawings.

Dated this 27th day of August, 1936.

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Leamington Spa: Printed for His Majesty's Stationery Office, by the Courier Press.—1937.

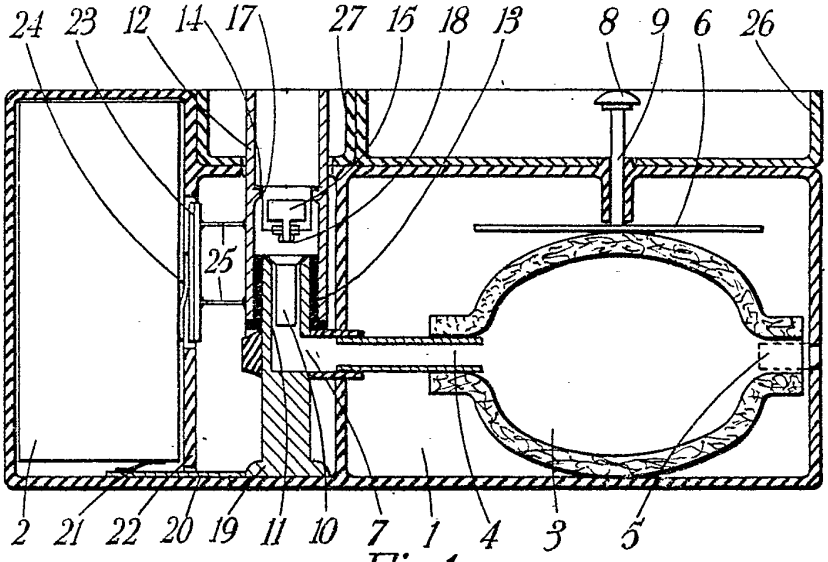


Fig.1.

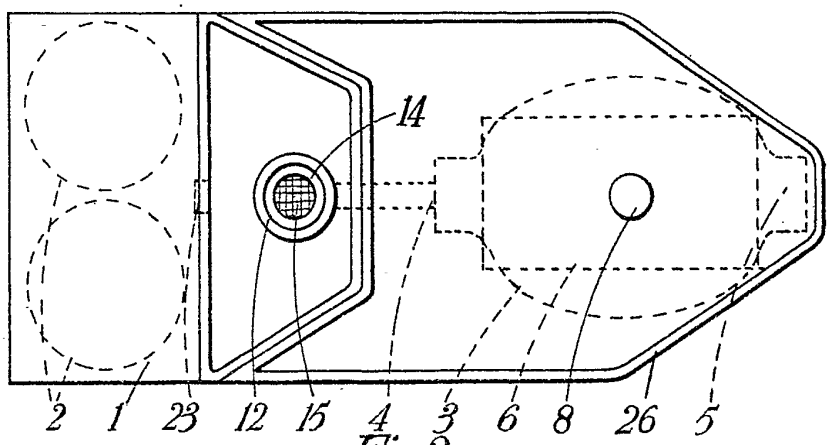


Fig.2.

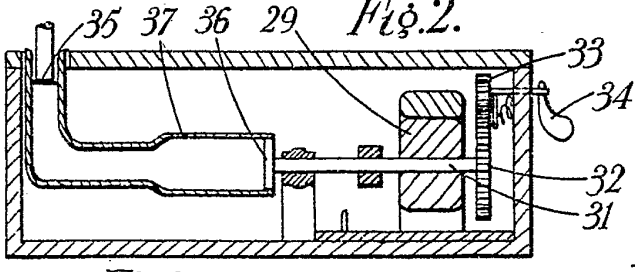


Fig.3.

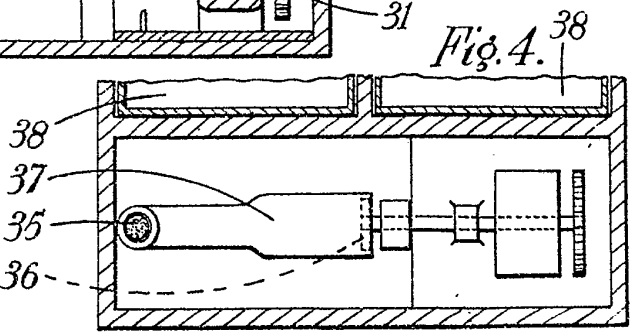
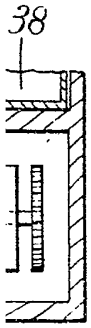


Fig.4.



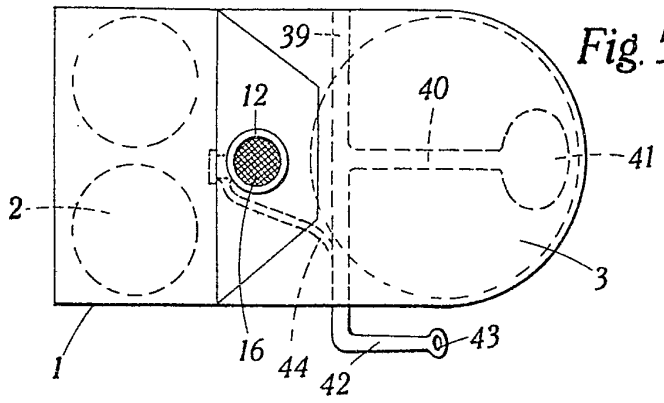
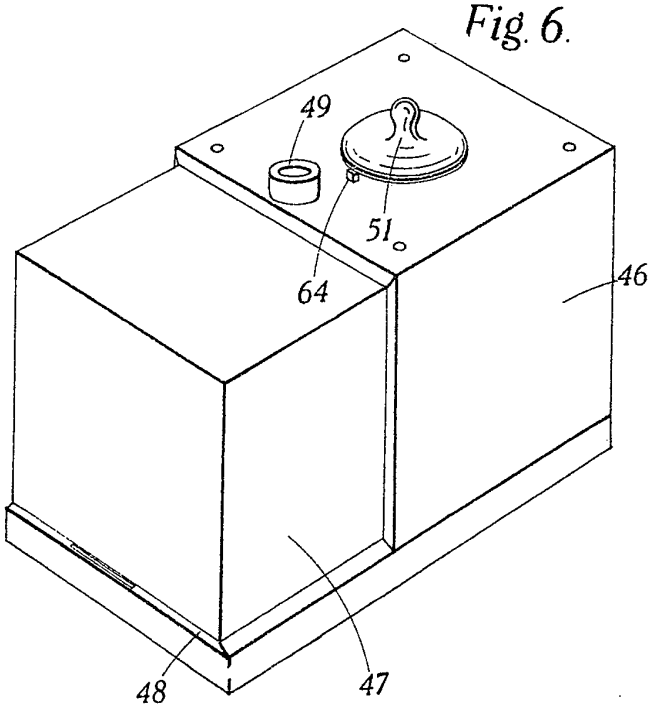


Fig. 5.

Fig. 6.



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462,717 COMPLETE SPECIFICATION

3 SHEETS

SHEET 1

SHEET 2

[This Drawing is a reproduction of the Original on a reduced scale.]

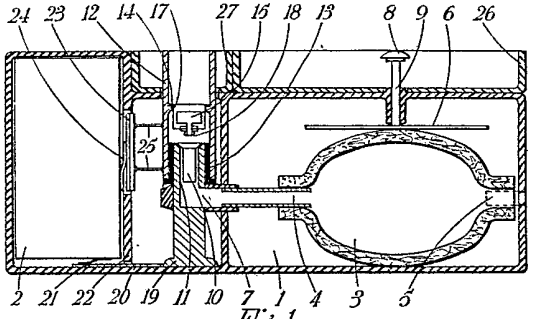

Fig. 1.

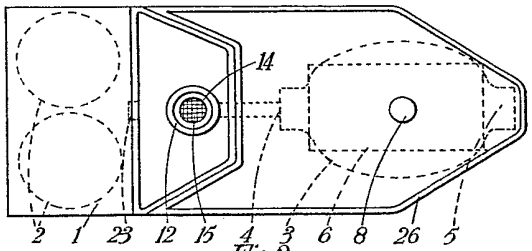

Fig. 2.

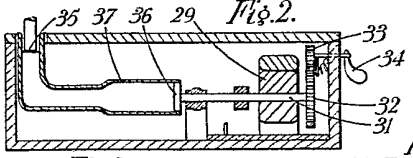

Fig. 3.

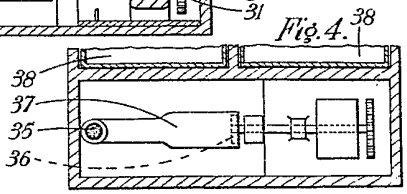

Fig. 4.

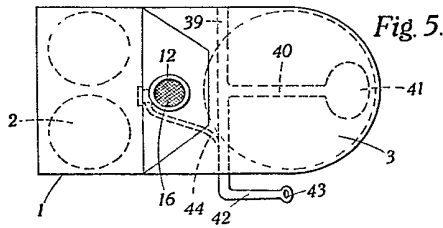

Fig. 5.

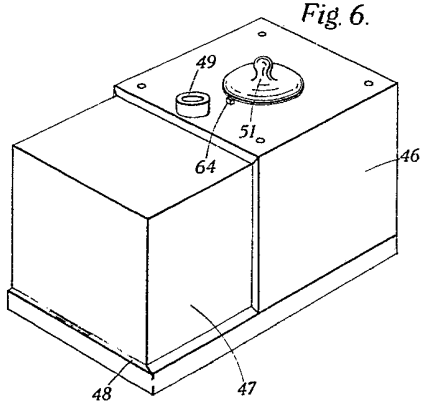

Fig. 6.

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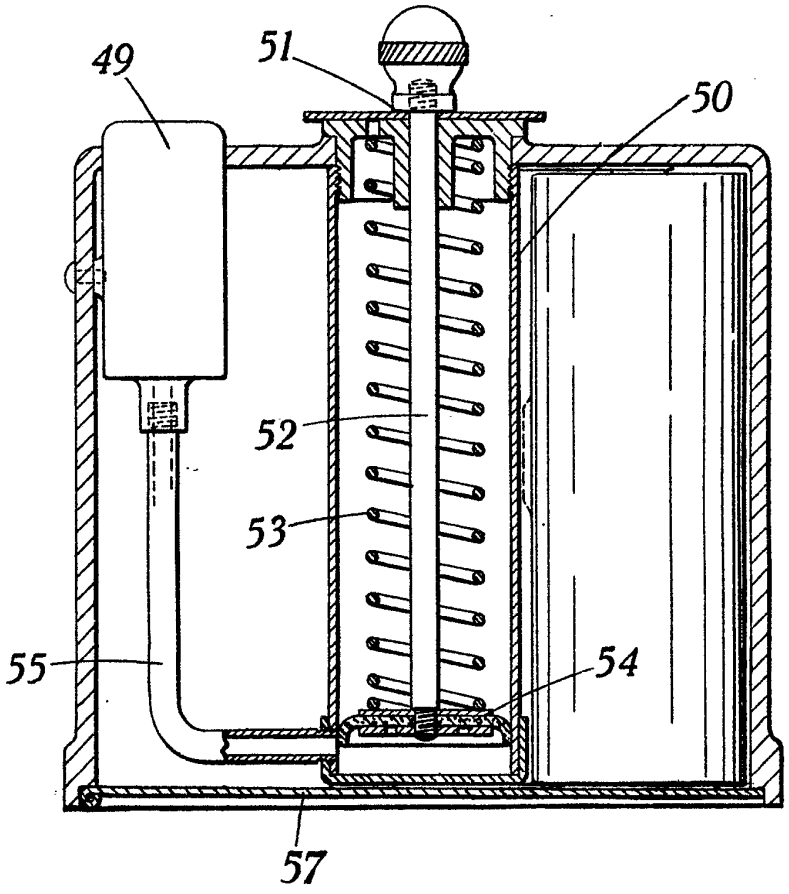
Fig. 7.



Malby & Sons, Photo-Litho.