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(71) Applicant: **Salton Europe Limited**
Manchester M35 0HS (GB)

(72) Inventor: **Saba, Simon**
Manchester, Lancashire M35 0HS (GB)

(74) Representative: **Brandon, Paul Laurence**
APPLEYARD LEES
15 Clare Road
Halifax HX1 2HY (GB)

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(54) **An Iron**

(57) An iron 2 has a large filling funnel 6.

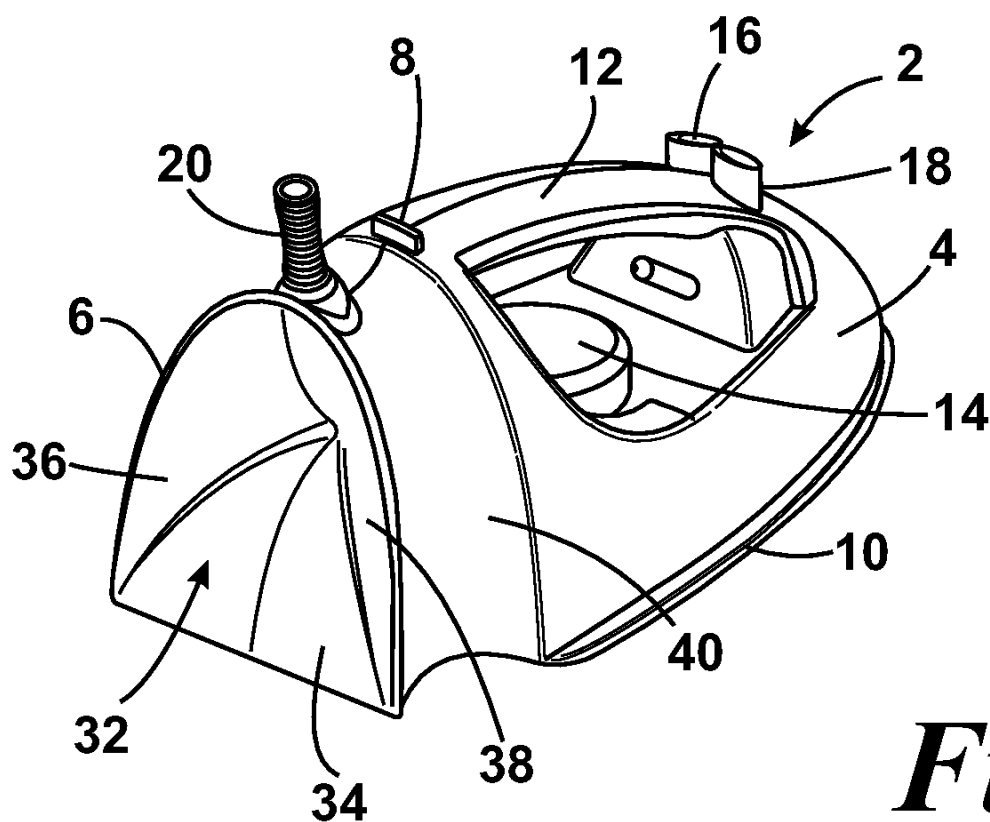


Fig. 6

Description

Field of the Invention

[0001] The present invention relates to irons.

Background to the Invention

[0002] For convenience of operation, steam irons include internal reservoirs to hold liquid water for boiling to create steam. A user needs to replace the water in the reservoir as it is used up during ironing. To enable this replacement a filling hole is provided in liquid communication with the reservoir. The filling hole can be located on the handle of the iron so that it is above the reservoir in normal use when the iron is horizontal for ironing and when the iron is generally vertical, stood on its rear when awaiting use. This has the advantage that during normal use, water will not tend to run out of the reservoir and so a valve arrangement is not required.

[0003] In an alternative filling arrangement, more recently a product has been offered with a filling hole mounted in the rear of the iron with a closable door to stop the water coming out of the hole in use. This is intended to make filling the iron from a tap easier. However, in practice, this leaves several problems for the user. First, if the reservoir is overfilled then the excess water quickly runs over the iron. Exacerbating this problem, if the iron is being filled in a sink, then it can sometimes have to be angled to get it under the tap, making visibility of the maximum fill marker difficult. Secondly, although the fill-hole in the rear of the iron is intended to make filling from a tap practicable, it is still difficult to maintain the iron suitably oriented under the flow of water to avoid spillages.

[0004] It is an aim of preferred embodiments of the present invention to obviate or overcome a disadvantage of the prior art, whether such disadvantage or prior art is referred to herein or otherwise.

Summary of the Invention

[0005] An iron comprising a large filling funnel.

[0006] Suitably, the funnel is large in that the cross-sectional area of the opening is large. When referring to the cross-sectional area of the opening, it is the plane of the opening that is referred to not the total internal surface area of the funnel.

[0007] Suitably, the surface area is at least 30cm², more suitably at least 50 cm², preferably at least 75 cm², more preferably at least 100cm² and most preferably at least 110cm².

[0008] Suitably, the funnel is large in that the volume of the funnel is large.

[0009] Suitably, the volume of the funnel is at least 30cm³, more suitably at least 50 cm³, preferably at least 75 cm³, more preferably at least 100cm³, even more preferably at least 110cm³ and most preferably 120cm³.

[0010] The funnel can be large in both the surface area of its opening and in having a large volume. This provides a synergistic effect in that the flow rate of water in to the iron water reservoir can be high because of the large opening and overflow need not be of concern because of the large volume of the funnel.

[0011] Suitably, the funnel is at the rear of the iron.

[0012] Suitably, the funnel forms a stand.

[0013] Suitably, the iron further comprises a reservoir in liquid communication with the funnel. Suitably, there is a valve between the funnel and the reservoir, which valve is operable between an open and a closed position. Suitably, the valve is biased to the closed position. The valve enables the reservoir to be completely filled without the risk of leakage.

[0014] Suitably, the exterior of the funnel forms a channel to receive a power chord. This enables the exterior of the funnel to function as a chord-wind.

[0015] Suitably the exit hole of the funnel is at least 1cm across.

Brief Description of the Drawings

[0016] For a better understanding of the invention, and to show how embodiments of the same may be carried into effect, reference will now be made, by way of example, to the accompanying diagrammatic drawings in which:

Figure 1 is a plan view of an iron of a first embodiment of the present invention.

Figure 2 is a front view of the iron shown in Figure 1.

Figure 3 is a base view of the iron shown in Figures 1 and 2.

Figure 4 is a rear view of the iron shown in Figures 1-3.

Figure 5 is a side view of the iron shown in Figures 1-4.

Figure 6 is an isometric view of the iron shown in Figures 1-5.

Figure 7 is schematic enlarged sectional view of the iron shown in Figures 1-5 along the line A-A in Figure 1.

Figures 8A-8G are examples of alternative funnel positions within the iron.

Figures 9A-9H are examples of alternative funnel types.

Figures 10A-10I are examples of alternative funnel shapes by frontal profile.

Figures 11A-11F are examples of alternative funnel hole positions.

Figures 12A-12D are examples of alternative numbers and layouts of holes.

Figures 13A-13G are examples of alternative funnel side profiles.

Figures 14A-14D are examples of alternative valve designs.

Figure 15 shows the iron of Figures 1-7 standing on its rear funnel.

Figure 16 shows the iron of Figures 1-7 with the power chord stored.

Description of the Preferred Embodiments

[0017] Referring to figures 1-6 of the accompanying drawings, there is shown an iron 2 comprising a main body 4 and a large funnel 6 at the rear of the iron 2. Externally the main body 4, except for the absence of a filling hole and the presence of a valve trigger 8, is substantially similar to a common steam iron and so will only be described briefly.

[0018] The iron 2 comprises a sole plate 10 on the bottom of the iron 2, a handle 12 at the top of the iron 2, a controller 14, steam buttons 16, 18 and a power chord (only part shown) 20.

[0019] Referring to Figure 7 of the accompanying drawings, internally only those elements of the iron relevant to an explanation of the features of the present invention are shown. Internally, the iron 2 comprises a water reservoir 22 from which extends a tube 24 in liquid communication with the funnel 6. Between the funnel 6 and tube 24 is a valve 26 operable by the valve trigger 8 by a connecting rod 28. The valve 26 is biased to the closed position by a spring 30.

[0020] The funnel 6 shown in Figures 1-7 has an opening 32 into which water can be poured, that is 13cm high and 13cm wide at its widest. The surface area of the opening is approximately 113cm². The surfaces 34, 36, 38 of the funnel 6 are shaped to provide a generally concave exterior 40 to the funnel 6 providing a suitable chord-wind.

[0021] In use, therefore, a user can fill the water reservoir 22 from a tap, so a jug is not required, and does not need a maximum fill marker because the reservoir 22 can be overfilled, with the excess staying in the funnel 6. The valve trigger 8 is activated by the user to open the valve 26. The reservoir 22 is then filled from a tap. Since the funnel 6 has a large volume, a user has plenty of time to turn off the filling tap before it overflows. The valve trigger 8 is released to allow the valve to close. The excess water is in the funnel 6 and can be discarded at the user's convenience, typically into the sink associated with

the tap being used to fill the reservoir 22.

[0022] The opening 32 of the funnel 6 forms a stand for the iron 2 when it is in a generally vertical position.

[0023] Figures 8A-8G of the accompanying drawings show alternative funnel positions. Figure 8A shows a funnel in the top of the iron 2. Figure 8B shows a rear filling option which is a minor modification of that shown in Figures 1-7. Figure 8C shows an under-handle fill position. Figure 8D shows an angled fill position. Figure 8E shows an underside fill position. Figure 8F shows a front fill variant. Figure 8G shows an under-handle fill option offset to one side.

[0024] Figures 9A-9H of the accompanying drawings show alternative funnel types. Figure 9A shows a detachable funnel. Figure 9B shows a funnel with a cover or door. Figure 9C shows a flexible material that can be deformed to create a funnel. Figure 9D shows an extending funnel and tube. Figure 9E shows a rotatable funnel. Figure 9F shows a pull-out funnel. Figure 9G shows an open-out funnel. Figure 9H shows a screw-cap fitting particularly for distilled water bottles.

[0025] Figures 10A-10I of the accompanying drawings show alternative funnel shapes, by frontal profile. Figure 10A shows a square funnel. Figure 10B shows an arch-shaped funnel. Figure 10C shows a generally triangular funnel with arcuate sides. Figure 10D shows a triangular funnel. Figure 10E shows a rectangular funnel. Figure 10F shows a circular funnel. Figure 10G shows an elliptical funnel. Figure 10H shows a rhomboid shaped funnel. Figure 10I shows an octagonally shaped funnel.

[0026] Figures 11A-11F of the accompanying drawings show alternative funnel hole positions. Figure 11A shows the hole higher than central. Figure 11B shows the hole lower than central. Figure 11C shows the hole to the left of and higher than central. Figure 11D shows the hole to the right of and higher than central. Figure 11E shows the hole lower than central and lower than shown in Figure 11B. Figure 11F shows the hole higher than central and higher than is shown in Figure 11A.

[0027] Figures 12A-12D show alternative hole numbers and layouts. Figure 12A shows a single hole. Figure 12B shows three holes in a line. Figure 12C shows four holes in a square arrangement. Figure 12D shows six holes in a rectangular arrangement.

[0028] Figures 13A-13G of the accompanying drawings show alternative funnel side profiles and appearances. Figure 13A shows a straight profile. Figure 13B shows a convex profile. Figure 13C shows a concave profile. Figure 13D shows a stepped profile. Figure 13E shows a spiral surface. Figure 13F shows a series of vertical ribs on the funnel. Figure 13G shows a series of horizontal ribs on the funnel.

[0029] Figures 14A-14D of the accompanying drawings show alternative valve designs. Figures 14A and 14B show a trigger valve. Figure 14C shows a non-return valve. Figure 14D shows an interference fit, plug and screw type valve.

[0030] Figure 15 of the accompanying drawings shows

the iron 2 placed on its rear so that it is essentially vertical. The funnel 6 shape provides a stable base for the iron 2.

[0031] Figure 16 of the accompanying drawings shows a power cord 20 wound around the funnel of the iron 2.

[0032] Many modifications to the described embodiments are possible within the scope of the present invention. Non-Exhaustively, these include:

- Using a non-return valve instead of one that is activated to open/close
- Using a screw in plug as a valve.
- Including a filter in the liquid communication channel between the funnel and the reservoir.

[0033] Attention is directed to all papers and documents which are filed concurrently with or previous to this specification in connection with this application and which are open to public inspection with this specification, and the contents of all such papers and documents are incorporated herein by reference.

[0034] All of the features disclosed in this specification (including any accompanying claims, abstract and drawings), and/or all of the steps of any method or process so disclosed, may be combined in any combination, except combinations where at least some of such features and/or steps are mutually exclusive.

[0035] Each feature disclosed in this specification (including any accompanying claims, abstract and drawings) may be replaced by alternative features serving the same, equivalent or similar purpose, unless expressly stated otherwise. Thus, unless expressly stated otherwise, each feature disclosed is one example only of a generic series of equivalent or similar features.

[0036] The invention is not restricted to the details of the foregoing embodiment(s). The invention extends to any novel one, or any novel combination, of the features disclosed in this specification (including any accompanying claims, abstract and drawings), or to any novel one, or any novel combination, of the steps of any method or process so disclosed.

Claims

1. An iron comprising a large filling funnel. 45
2. The iron of claim 1, wherein the funnel is large in that the funnel has an opening and the cross-sectional area of the plane of the opening is large. 50
3. The iron of any preceding claim, wherein the internal surface area of the funnel is at least 50cm^2 .
4. The iron of any preceding claim, wherein the internal surface area of the funnel is at least 75cm^2 . 55
5. The iron of any preceding claim, wherein the internal surface area of the funnel is at least 100cm^2 .

6. The iron of any preceding claim, wherein the funnel is large in that the volume of the funnel is large.
7. The iron of any preceding claim, wherein the volume of the funnel is at least 50cm^3 . 5
8. The iron of any preceding claim, wherein the volume of the funnel is at least 100cm^3 .
9. The iron of any preceding claim, wherein the volume of the funnel is at least 120cm^3 . 10
10. The iron of any preceding claim, wherein the funnel is at the rear of the iron. 15
11. The iron of any preceding claim, wherein the funnel forms a stand.
12. The iron of any preceding claim, wherein the iron further comprises a reservoir in liquid communication with the funnel. 20
13. The iron of claim 12, wherein there is a valve between the funnel and the reservoir, which valve is operable between an open and a closed position. 25
14. The iron of claim 13, wherein the valve is biased to the closed position.
15. The iron of any preceding claim, wherein the funnel forms a channel to receive a power cord. 30

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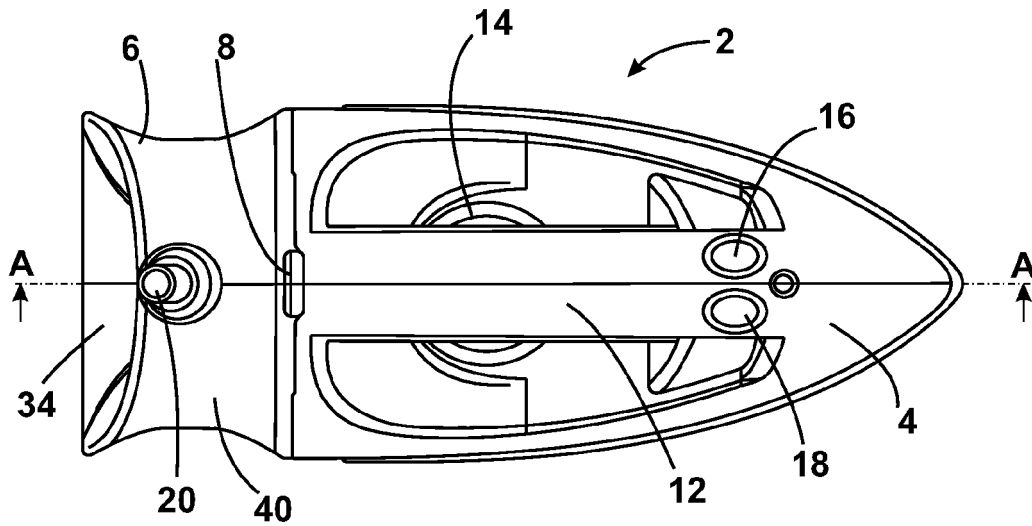


Fig. 1

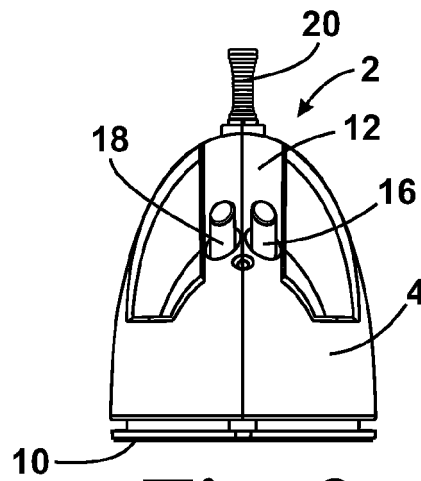


Fig. 2

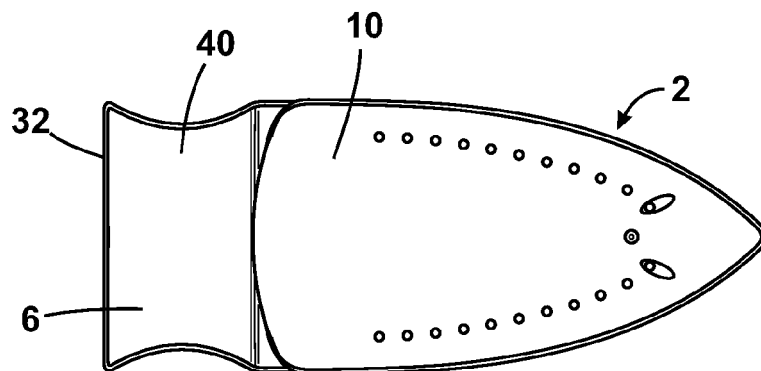


Fig. 3

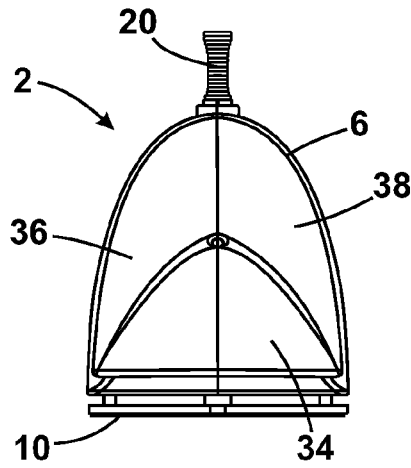


Fig. 4

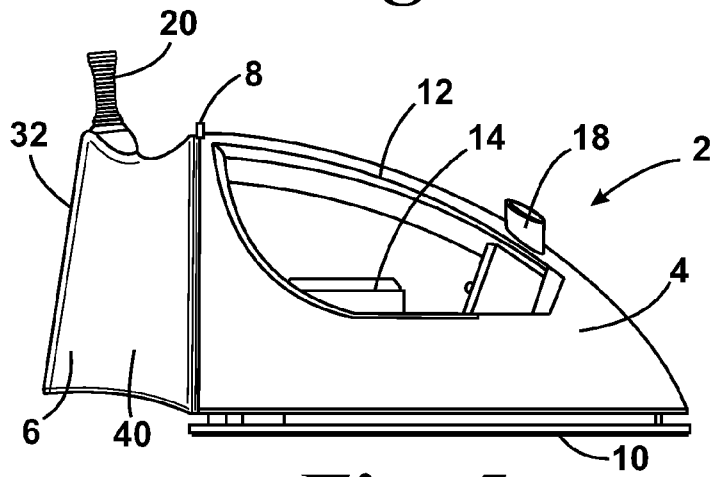


Fig. 5

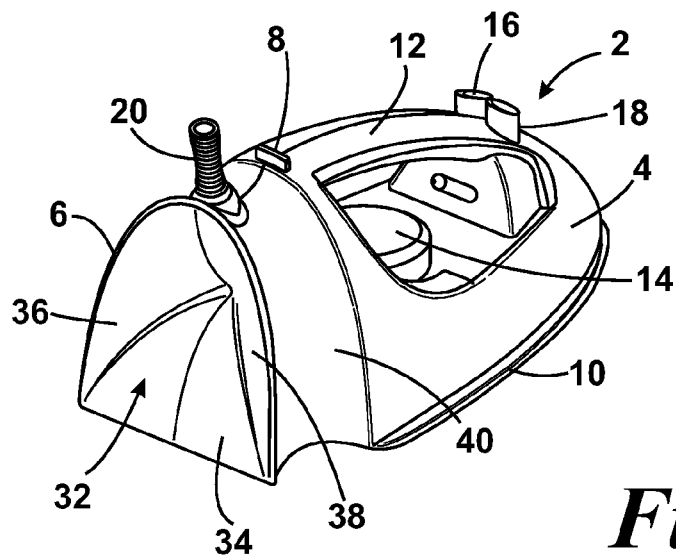


Fig. 6

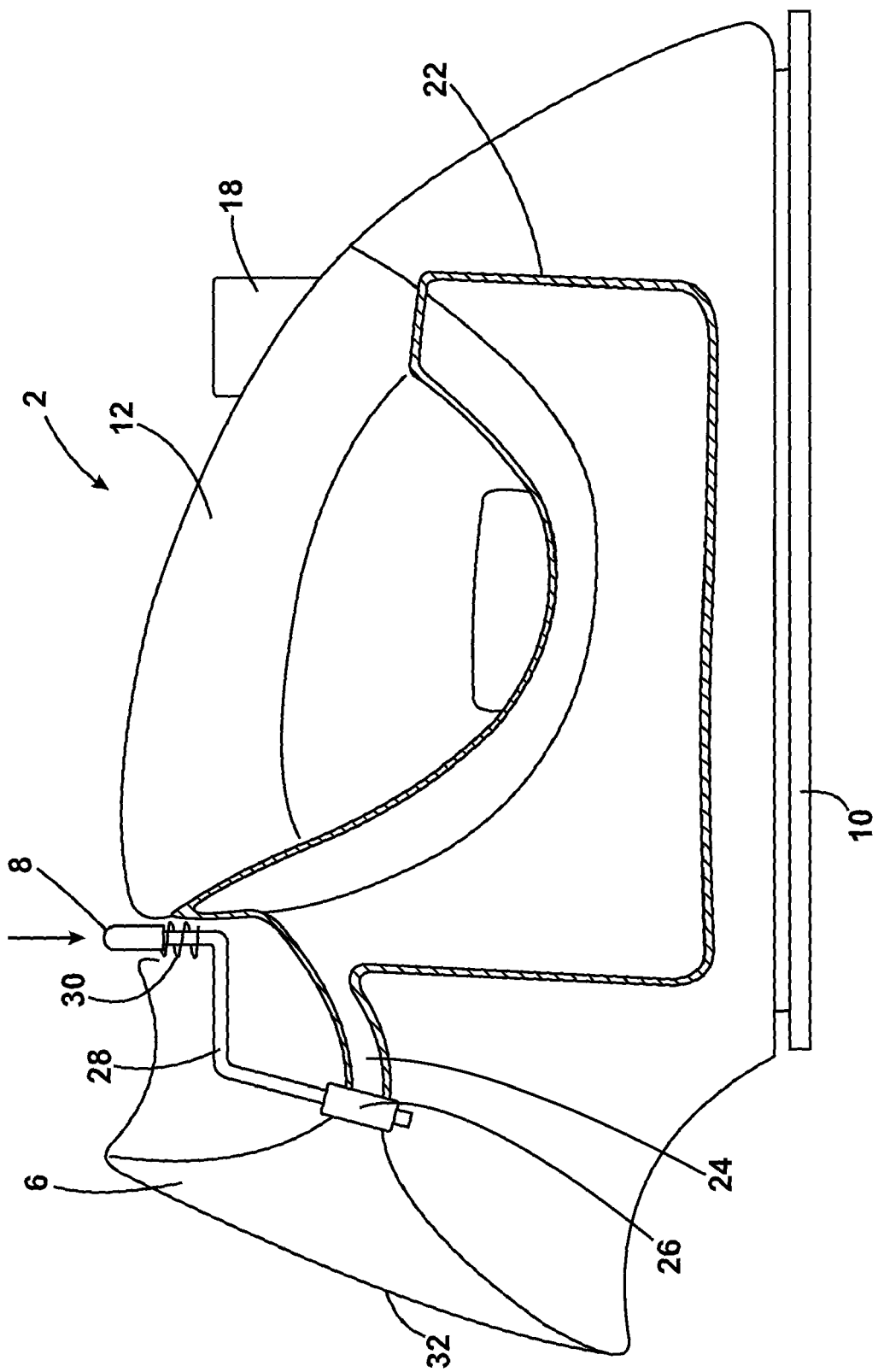
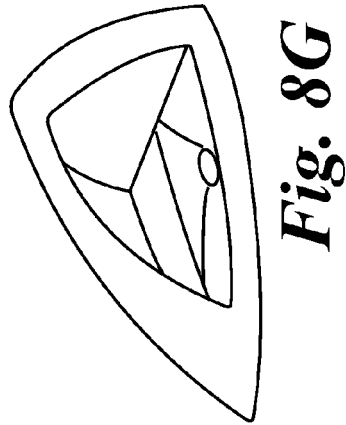
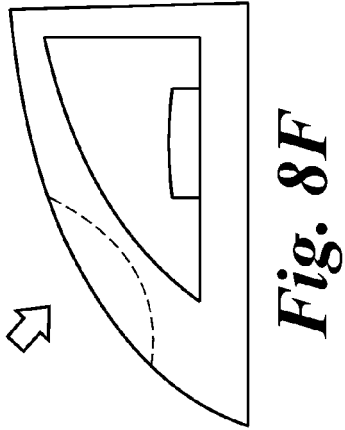
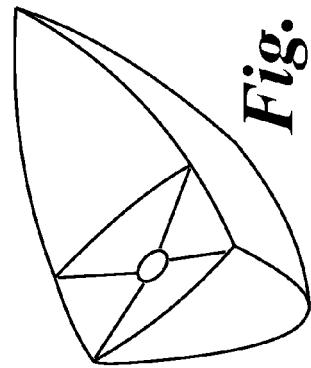
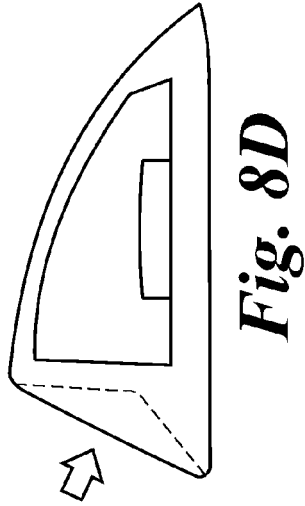
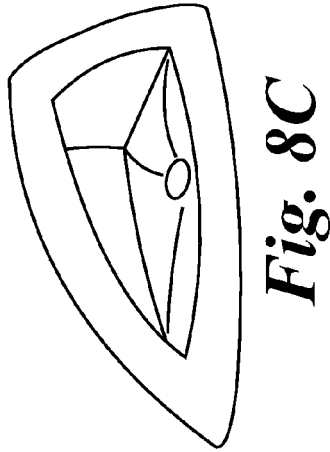
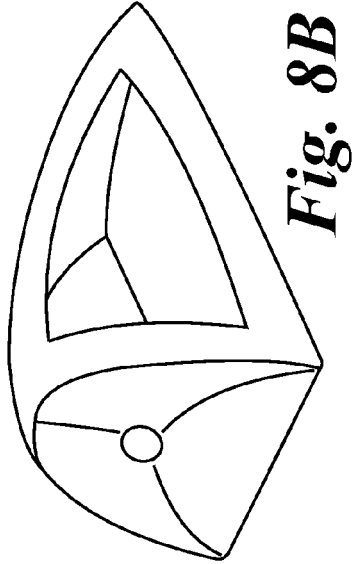
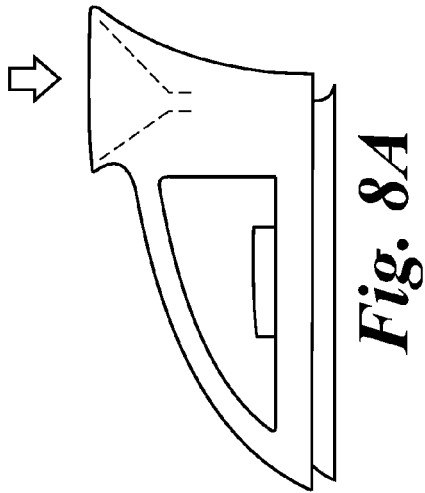


Fig. 7



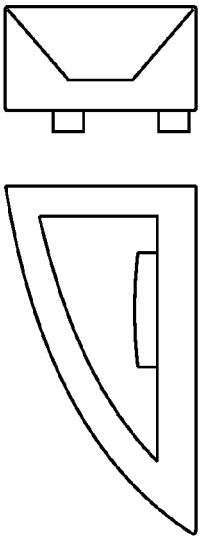


Fig. 9A

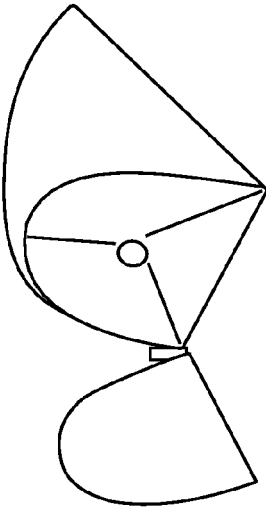


Fig. 9B

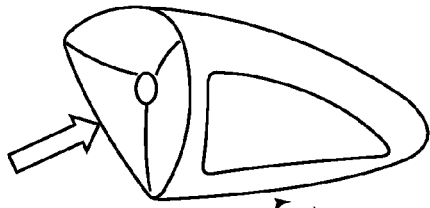


Fig. 9C

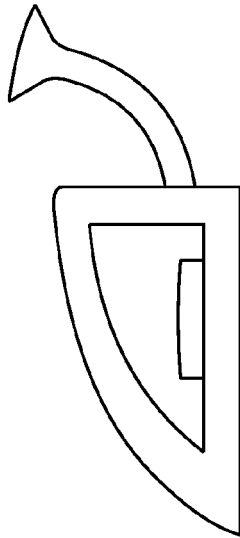


Fig. 9D

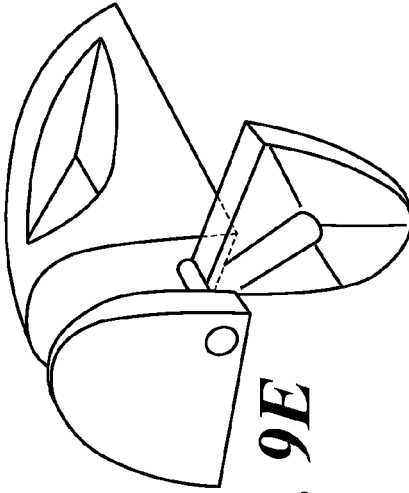


Fig. 9E

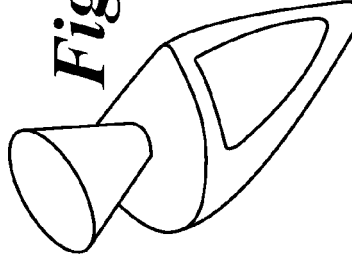


Fig. 9F

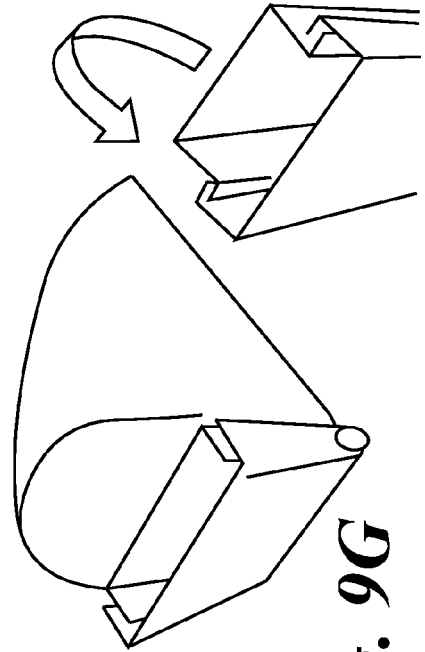


Fig. 9G

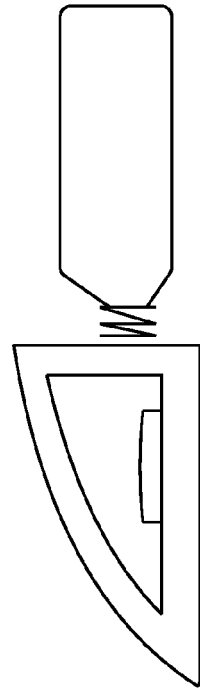


Fig. 9H

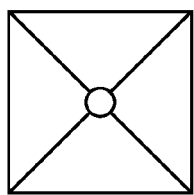


Fig. 10A

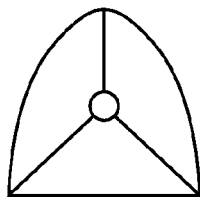


Fig. 10B

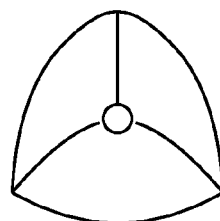


Fig. 10C

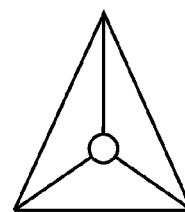


Fig. 10D

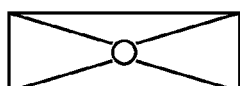


Fig. 10E

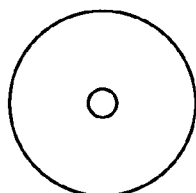


Fig. 10F

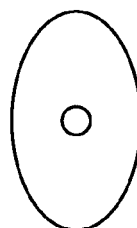


Fig. 10G

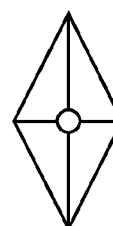


Fig. 10H

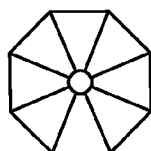


Fig. 10I

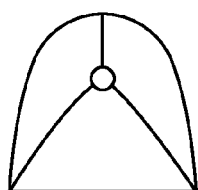


Fig. 11A

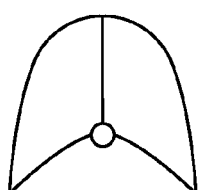


Fig. 11B

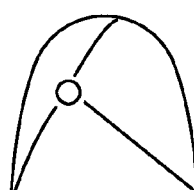


Fig. 11C

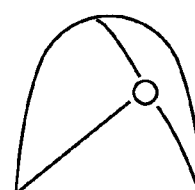


Fig. 11D

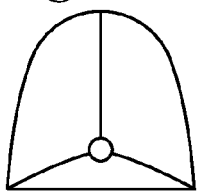


Fig. 11E

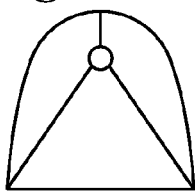


Fig. 11F

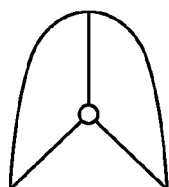


Fig. 12A

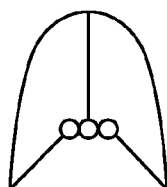


Fig. 12B

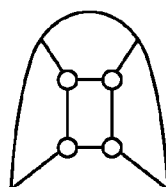


Fig. 12C

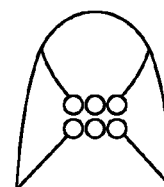


Fig. 12D

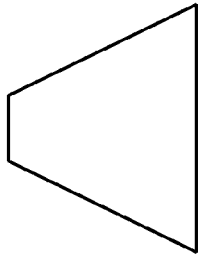


Fig. 13A

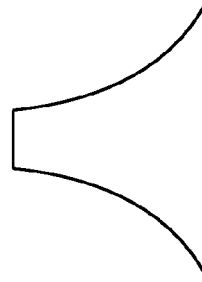


Fig. 13B

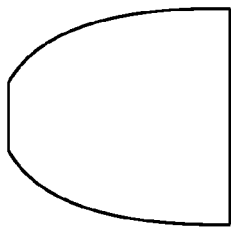


Fig. 13C

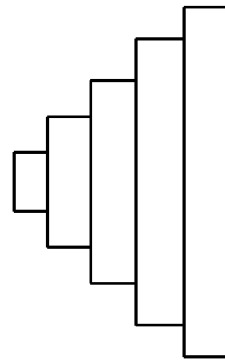


Fig. 13D

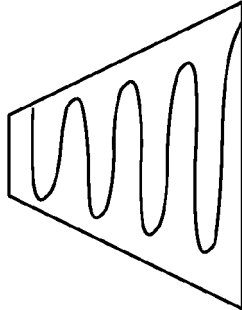


Fig. 13E

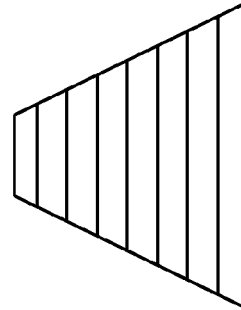


Fig. 13F

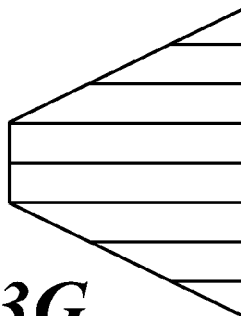


Fig. 13G

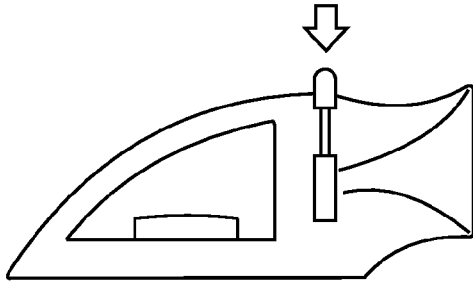


Fig. 14A

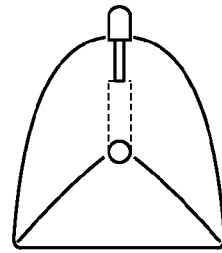


Fig. 14B

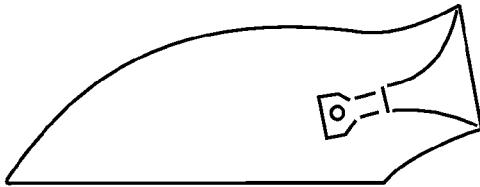


Fig. 14C

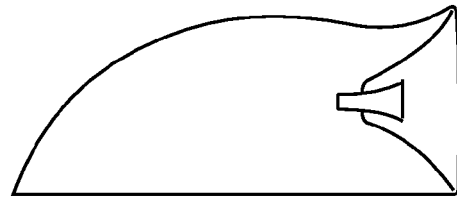


Fig. 14D

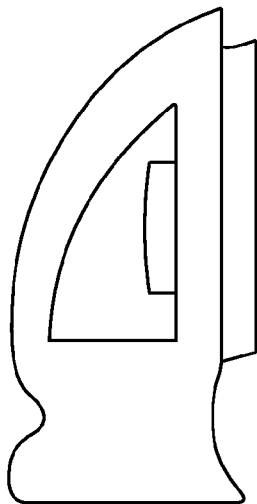


Fig. 15

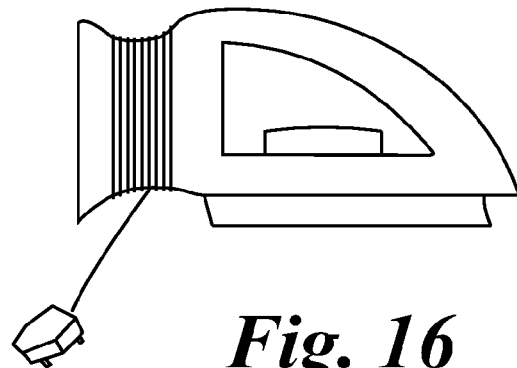


Fig. 16



EUROPEAN SEARCH REPORT

Application Number
EP 08 16 2106

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Place of search Munich		Date of completion of the search 11 November 2008	Examiner Dupuis, Jean-Luc
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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