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(54) **Steam iron**

(57) Steam iron (10) comprising a main body (11) and an ironing plate (12) made of metal material, substantially pointed in shape and arranged below the main

body (11). The ironing plate (12) comprises, in correspondence with its tip (12a), at least a heavier zone (22), with a thickness substantially equal to that of the rest of the ironing plate (12).

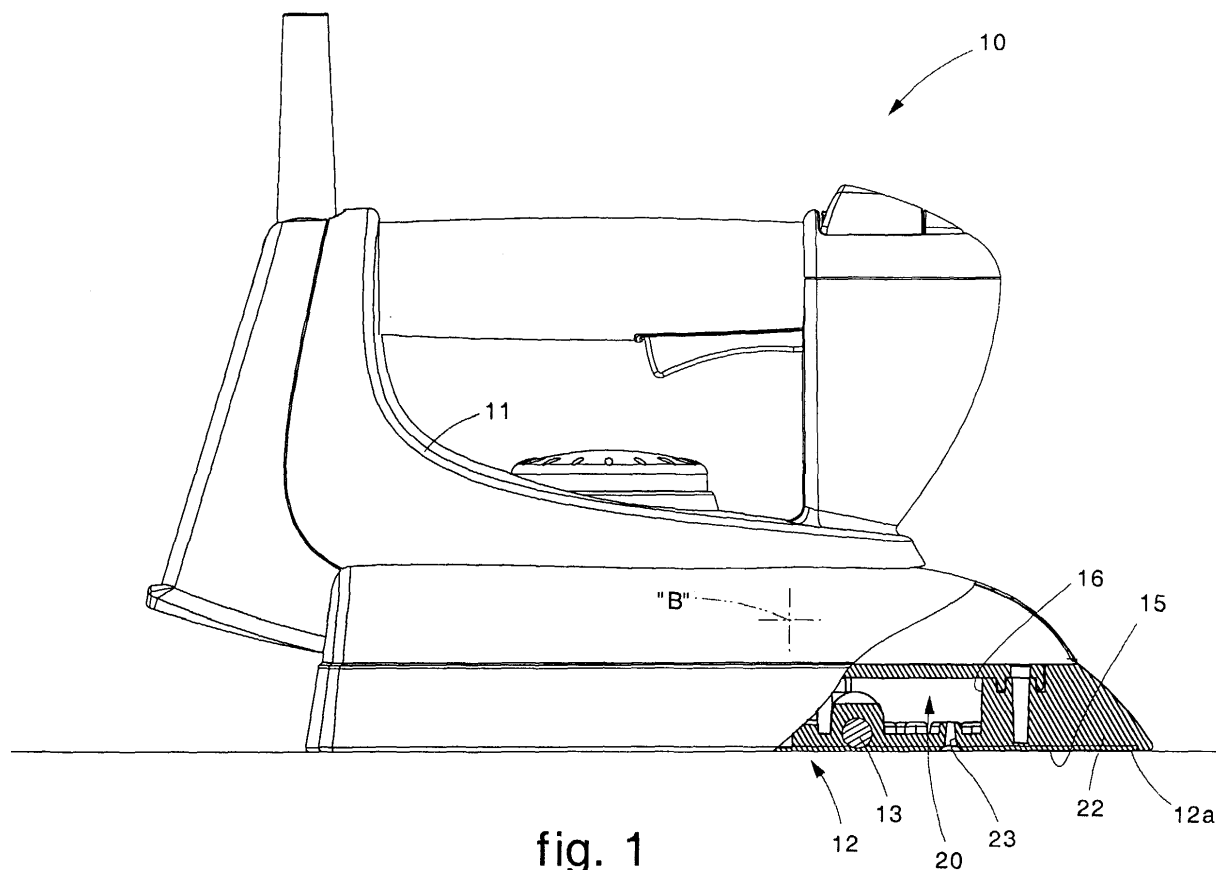


fig. 1

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Description

FIELD OF THE INVENTION

[0001] The present invention concerns a steam iron comprising an ironing plate substantially pointed in shape, provided at the front with a heavier zone, which causes the baricenter of the iron in its entirety to be displaced towards the front tip of the plate, so as to facilitate the ironing operations.

BACKGROUND OF THE INVENTION

[0002] Steam irons are known, provided with a main body below which an ironing plate made of metal material is assembled, which is substantially pointed in shape and is provided with a heavy ballast in the front portion. The fact that the front portion is heavier facilitates ironing and allows to prevent the formation of creases on the fabric, especially when ironing difficult areas of the garments, such as for example the collars or the cuffs of shirts, when the front portion of the ironing plate is mainly used.

[0003] However, the application of this ballast means making the front portion thicker than the rest of the plate, thus causing problems connected to the assembly of the plate into the main body of the iron, and to the design of the latter.

[0004] In fact, it is necessary to provide, on each occasion, a specific shaping of the main body in order to allow a determinate ballast to be housed, so that, in practice, it is indispensable to design and achieve at least two different main bodies: one for the plates with a ballast, and one for the plates without a ballast, with a consequent increase in production costs.

[0005] One purpose of the present invention is to achieve a steam iron wherein the front portion of the ironing plate is provided with a heavier zone, which can be replaced by standard plates without ballast.

[0006] Another purpose of the present invention is to achieve a steam iron which allows the user to select one or more specific parts of the ironing plate from which to deliver the steam.

[0007] The Applicant has devised, tested and embodied this invention to overcome the shortcomings of the state of the art and to obtain these and other purposes and advantages.

SUMMARY OF THE INVENTION

[0008] The present invention is set forth and characterized in the main claim, while the dependent claims describe other characteristics of the invention or variants to the main inventive idea.

[0009] In accordance with the above purposes, a steam iron according to the present invention comprises a main body and an ironing plate made of metal material, substantially pointed in shape and arranged below the

main body. The ironing plate comprises, at the tip, at least a heavier zone, with a thickness substantially equal to that of the rest of the ironing plate.

[0010] In this way, the baricenter of the entire iron is displaced towards the tip of the ironing plate in order to impress a sufficient pressure on the object to be ironed and, at the same time, does not require any specific design step of a new main body, since the ironing plate has a substantially constant thickness over its whole length, even in the heavier zone.

[0011] This advantage allows to standardize the design and manufacture of the main body, thus leading to a reduction in times and costs of production.

[0012] In a preferential form of embodiment of the present invention, the heavier zone is made of material with a high specific weight and is made in a piece with the remaining portion of the ironing plate. According to a variant, the heavier zone can consist of an independent element, attached, for example by means of screws or other, to the remaining portion of the ironing plate.

[0013] In another preferred form of embodiment, the ironing plate comprises a first steam seating, a second steam seating and valve means to distribute the steam, located between the two steam seatings, in order to selectively connect them.

[0014] In this form of embodiment, the first steam seating has a substantially triangular profile and comprises, on the bottom, a plurality of through holes open towards the bottom, able to allow the steam to exit from the front portion of the ironing plate; the second steam seating comprises a central sector, into which the steam is able to be introduced by steam generating members normally provided in the main body, and two lateral sectors arranged specular with respect to a median longitudinal axis of the ironing plate, and provided with a plurality of through holes, able to allow the steam to exit from corresponding median-rear lateral portions of the ironing plate.

[0015] The valve means instead comprise a central body and a piston, the latter able to slide vertically inside the central body and commanded manually by a user, in order to define a first closed configuration of the valve means, wherein they allow the steam to exit only through the through holes of the first steam seating, and a second open configuration of the valve means, wherein they allow the steam to exit also through the through holes of the second seating.

[0016] In this way it is possible to select one or more portions of the ironing plate from which to deliver the steam.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] These and other characteristics of the present invention will become apparent from the following description of a preferential form of embodiment, given as a non-restrictive example with reference to the attached drawings wherein:

- fig. 1 is a lateral view, partly in section, of a steam iron according to the present invention;
- fig. 2 is a view from above and uncovered of the ironing plate of the steam iron in fig. 1;
- fig. 3 is a section from III to III of fig. 2;
- fig. 4 is a section from IV to IV of fig. 2;
- fig. 5 shows an enlarged detail of fig. 3.

DETAILED DESCRIPTION OF A PREFERENTIAL FORM OF EMBODIMENT

[0018] With reference to fig. 1, a steam iron 10 according to the present invention comprises a main body 11, and a pointed ironing plate 12, arranged below the main body 11. The latter can be of any known type.

[0019] The ironing plate 12 (figs. 2, 3 and 4) is made of metal material, such as for example stainless steel, anodised aluminium, titanium or other, and comprises a substantially plane lower surface 15, a first steam seating 16, a second steam seating 17, a distribution valve 18 and a cover 19 arranged on the opposite side with respect to the lower surface 15 and above the two seatings 16 and 17, in such a manner as to define, in cooperation with the latter, two distinct steam chambers, respectively front 20 and rear 21. The cover 19 also comprises a plurality of connectors, denoted generally by the reference number 40, to which the various steam generation members, electric members and other known members are connected, provided inside the main body 11 of the iron 10 according to the invention.

[0020] The ironing plate 12 also comprises, drowned therein, an electrical resistance 13, of a substantially known type, able to heat the lower surface 15 during the ironing operations.

[0021] The first seating 16 has a substantially triangular profile and comprises on the bottom a plurality of through holes 23 open towards the bottom, able to allow the steam contained therein to exit in correspondence with a front portion of the lower surface 15 of the ironing plate 12.

[0022] The second seating 17 comprises a central sector 25, into which the steam is introduced through the connectors 40, and two lateral sectors, respectively 26 and 27, arranged specular with respect to the median longitudinal axis X of the ironing plate 12, and able to be selectively connected to the central sector 25 by means of the distribution valve 18.

[0023] The central sector 25 has a substantially rectangular profile and comprises a bottom surface provided with a plurality of pyramidal elements 29, able to increase the capacity for heat exchange thereof, and hence to improve the quality of the ironing done with the iron 10.

[0024] Each of the two lateral sectors 26 and 27 comprises, on its own bottom surface, a row of through holes 30, able to allow the steam contained therein to exit from a corresponding median-rear lateral portion of the ironing plate 12.

[0025] The distribution valve 18 is arranged between the two seatings 16 and 17, and comprises a central body 31 (fig. 5) and a piston 32, the latter able to slide vertically inside a mating sliding seating 33 provided in the central body 31, and selectively commanded, for example by means of a command button 34 positioned on the upper portion of the main body 11.

[0026] The central body 31 comprises a first pipe 35 and a second pipe 36.

[0027] The first pipe 35 intersects with the sliding seating 33 in correspondence with a tapered portion 38 of the latter, and is able to connect the central sector 25 of the second seating 17 to the first seating 16. The second pipe 36 also intersects with the sliding seating 33, but in a direction substantially perpendicular to the first pipe 35, and is able to connect the central sector 25 to the two lateral sectors 26 and 27.

[0028] To be more exact, the second pipe 36 intersects the sliding seating 33 at a greater distance from the lower surface 15 of the ironing plate 12 with respect to the first pipe 35, so that the two pipes 35 and 36 do not intersect, but are connected to each other only by a segment of the sliding seating 33.

[0029] The piston 32 comprises a terminal portion 37 shaped substantially like a truncated cone with sizes mating with those of the tapered portion 38 of the sliding seating 33, and is associated with a helical spring 39 able to govern the vertical movement thereof.

[0030] To be more exact, the commanded sliding of the piston 32 determines the selective configuration of the distribution valve 18 between a first closed position, wherein the helical spring 39 keeps the terminal portion 37 normally in cooperation with the mating tapered portion 38 of the sliding seating 33, so as to keep the first pipe 35 open and allow the passage of steam only from the central sector 25 to the first seating 16, and hence allow steam delivery exclusively from the front through holes 23; and a second open position, wherein the terminal portion 37 is detached from the tapered portion 38 so as to allow the passage of steam both through the first pipe 35 and also through the second pipe 36, and hence allow steam delivery also through the median-rear through holes 30.

[0031] In this way, by acting on the command button 34 during the normal ironing steps, the user can selectively decide whether to deliver steam exclusively from the front portion of the ironing plate 12 or to deliver it also from the median-rear portion of the lower surface 15 of the ironing plate 12.

[0032] The ironing plate 12 also comprises, in a zone between its tip 12a and the front chamber 20, a heavier zone or ballast 22, which represents about 15% of the total weight of the ironing plate 12. For example, the ballast 22 has a weight of about 80 g, whereas the ironing plate 12 has a weight of about 663 g.

[0033] According to a characteristic feature of the invention, the ballast 22 has a thickness substantially equal to that of the rest of the ironing plate 12, so that

the baricenter B of the iron 10 is displaced towards the tip 12a of the ironing plate 12.

[0034] In this way, the thickness of the ironing plate 12 is kept constant, so as to be able to substantially standardize the steps to design and manufacture the main body 11 of the iron 10, thus reducing the overall costs thereof.

[0035] The ballast 22 also increases the heat inertia of the ironing plate 12, thus facilitating the sliding thereof on the fabric to be ironed, without running the risk that, during the advance of the iron 10, the ironing plate 12 jams and forms creases or wrinkles on the fabric, which affect the quality of the ironing done.

[0036] Moreover, the iron 10 according to the invention normally applies a greater load towards the tip 12a, and in the event that the user has to raise the rear part thereof, in order to iron using only the front portion, the effort he/she has to apply is not great and does not entail particular fatigue or soreness.

[0037] It is clear, however, that modifications and/or additions of parts may be made to the iron 10 as described heretofore, without departing from the field and scope of the present invention.

[0038] For example, it comes within the field of the invention to provide that the ballast 22 can consist of an independent element made of a material with a high specific weight, possibly different from the material of the ironing plate 12, which is attached in any known manner to the ironing plate 12. In this way, the ballast 22 can be replaced by another, having different mechanical characteristics from those of the previous ballast and/or of the ironing plate 12.

[0039] It is also clear that, although the present invention has been described with reference to specific examples, a person of skill in the art shall certainly be able to achieve many other equivalent forms of steam iron, having the characteristics as set forth in the claims and hence all coming within the field of protection defined thereby.

Claims

1. Steam iron comprising a main body (11) and an ironing plate (12) made of metal material, substantially pointed in shape and arranged below said main body (11), said ironing plate (12) comprising, in correspondence with its tip (12a), at least a heavier zone (22), **characterized in that** said heavier zone (22) has a thickness substantially equal to that of the rest of said ironing plate (12).
2. Steam iron as in claim 1, **characterized in that** said heavier zone (22) is made of a material with a high specific weight.
3. Steam iron as in claim 1 or 2, **characterized in that** said heavier zone (22) is made in a piece with the

remaining portion of said ironing plate (12).

4. Steam iron as in claim 1 or 2, **characterized in that** said heavier zone (22) consists of an independent element attached to said ironing plate (12).
5. Steam iron as in any claim hereinbefore, **characterized in that** said heavier zone (22) has a weight that varies from about 10% to about 20% of the total weight of said ironing plate (12).
6. Steam iron as in any claim hereinbefore, **characterized in that** said ironing plate (12) further comprises a substantially plane lower surface (15), a first steam seating (16), a second steam seating (17) and distribution valve means (18) arranged between said first steam seating (16) and said second steam seating (17).
7. Steam iron as in claim 6, **characterized in that** it comprises covering means (19) arranged above said first steam seating (16) and said second steam seating (17), so as to define therewith corresponding distinct steam chambers (20, 21).
8. Steam iron as in claim 6, **characterized in that** said first steam seating (16) has a substantially triangular profile and comprises on the bottom a plurality of through holes (23) open towards the bottom, able to allow the steam contained therein to exit from a front zone of said lower surface (15).
9. Steam iron as in claim 6, **characterized in that** said second steam seating (17) comprises a central sector (25), into which the steam is able to be introduced, and two lateral sectors, respectively (26, 27), arranged specular with respect to a median longitudinal axis (X) of said ironing plate (12), and able to be selectively connected to said central sector (25).
10. Steam iron as in claim 9, **characterized in that** said central sector (25) has a substantially rectangular profile and comprises a bottom surface provided with a plurality of pyramidal elements (29) able to increase the heat exchange capacity with said lower surface (15).
11. Steam iron as in claim 9, **characterized in that** each of said two lateral sectors (26, 27) comprises, on its own bottom surface, a plurality of through holes (30), able to allow the steam contained therein to exit from a corresponding median-rear lateral zone of said lower surface (15).
12. Steam iron as in claim 6, **characterized in that** said valve means (18) comprise a central body (31) and a piston (32), said piston (32) being able to slide

vertically inside a mating sliding seating (33) provided inside said central body (31).

- 13.** Steam iron as in claims 9 and 12, **characterized in that** said central body (31) comprises a first pipe (35) intersecting with said sliding seating (33) in correspondence with a tapered portion (38) of said sliding seating (33), and able to connect together said second steam seating (17) and said first steam seating (16), and a second pipe (36), also intersecting said sliding seating (33), substantially perpendicular to the first pipe (35), and able to connect said central sector (25) to said two lateral sectors (26, 27). 5 10 15
- 14.** Steam iron as in claim 13, **characterized in that** said second pipe (36) intersects said sliding seating (33) at a greater distance from said lower surface (15), with respect to said first pipe (35), so that the two pipes (35, 36) do not intersect each other. 20
- 15.** Steam iron as in claims 12 and 13, **characterized in that** said piston (32) comprises a terminal portion (37) shaped substantially like a truncated cone and having sizes mating with those of said tapered portion (38) of said sliding seating (33), and is associated with a helical spring (39), able to govern the vertical movement thereof. 25
- 16.** Steam iron as in claim 15, **characterized in that** said valve means (18) are able to be selectively configured between a first closed position, wherein said helical spring (39) keeps said terminal portion (37) normally in cooperation with said tapered portion (38), so as to keep said first pipe (35) open and allow the passage of steam only through said first pipe (35), and a second open position, wherein said terminal portion (37) is detached from said tapered portion (38), so as to allow the passage of steam both through said first pipe (35) and also through said second pipe (36). 30 35 40 45 50 55

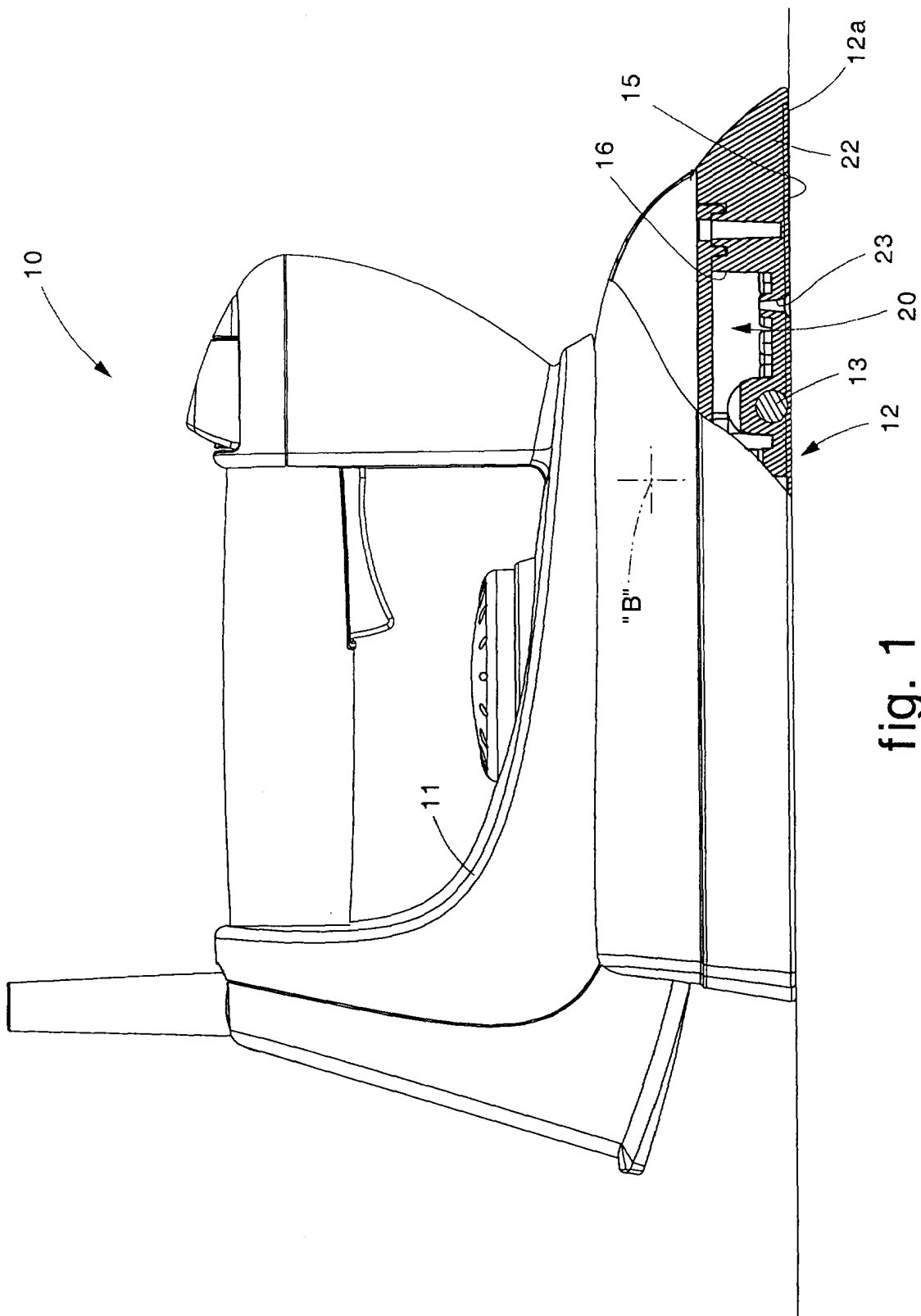


fig. 1

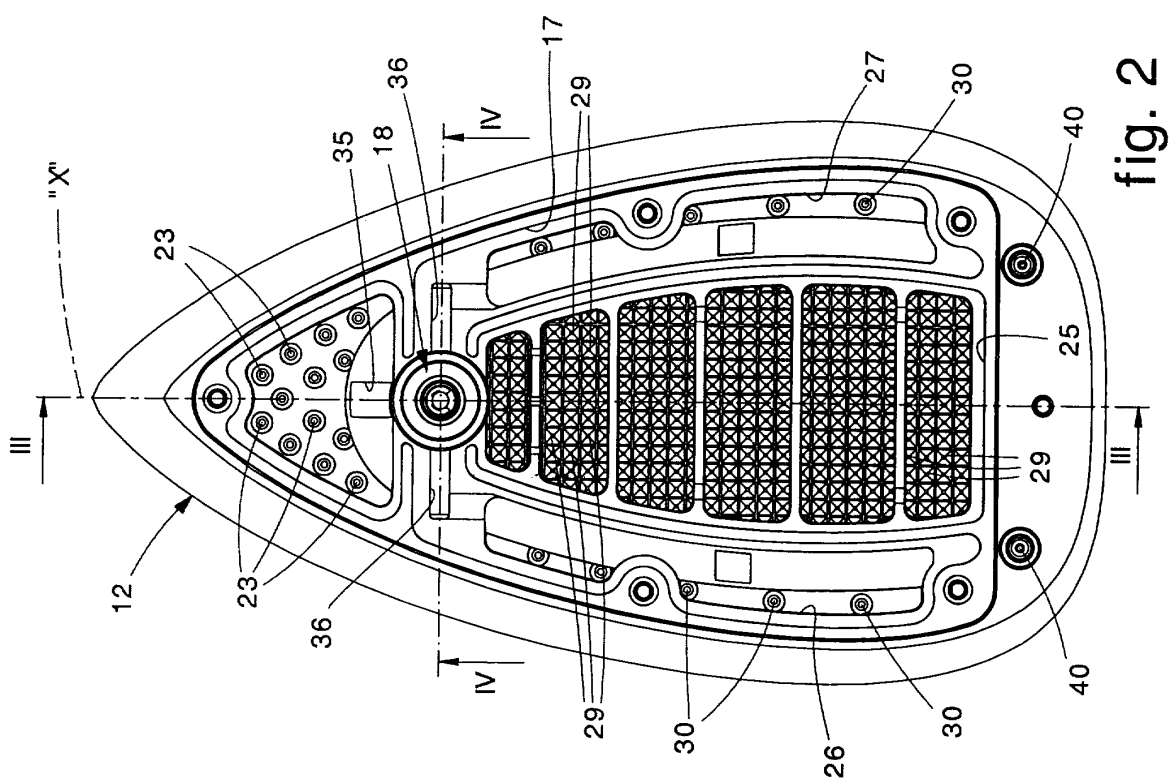


fig. 2

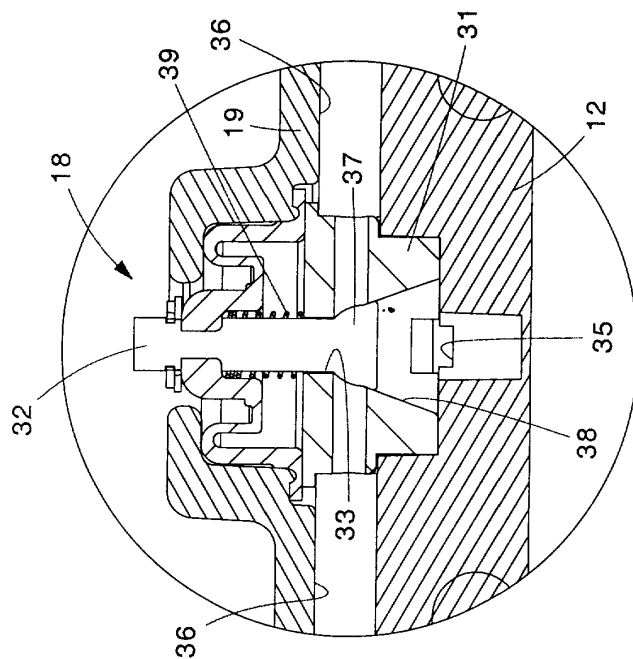
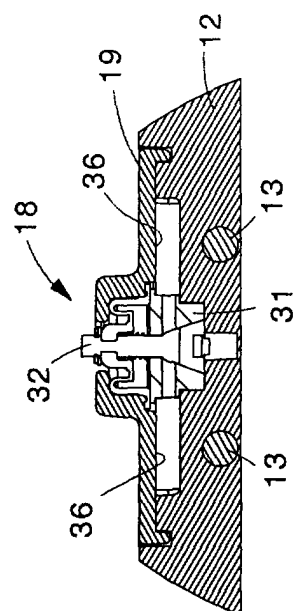
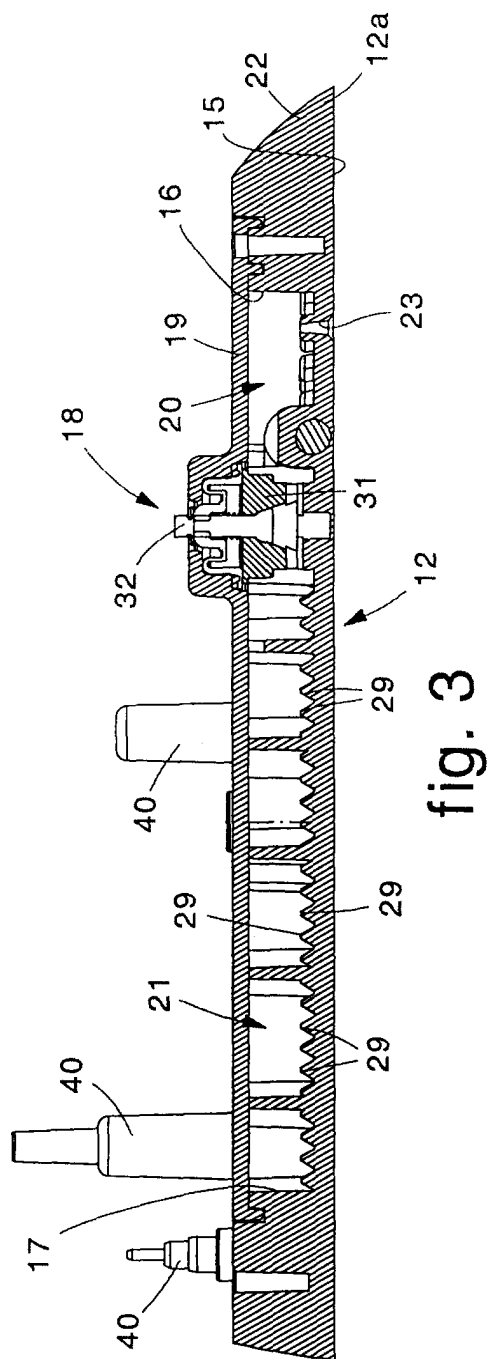


fig. 5





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EUROPEAN SEARCH REPORT

Application Number
EP 05 10 3698

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	FR 1 128 456 A (M. PECAZAUX & R. KREUTLER) 7 January 1957 (1957-01-07) * figure 1 *	1,6-8	D06F75/38 D06F75/18
A	US 2 041 429 A (PERRY EDWARD D) 19 May 1936 (1936-05-19) * the whole document *	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			D06F
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 16 September 2005	Examiner Courrier, G
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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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 05 10 3698

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16-09-2005

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