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A request for addition of three pages of drawings with figures 1-9 as referred to in the description has been filed pursuant to Rule 88 EPC. A decision on the request will be taken during the proceedings before the Examining Division (Guidelines for Examination in the EPO, A.V, 3.).

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(54) Ironing board

(57) Ironing-board, involving a bearing monocoque body (A) obtained in plastic material and provided peripherally with a restraining side able to define internally a first opening (b) extending to the entire working surface beneath it, to accommodate the components, having:

- a seat of internal suction (3) to said first opening (b) provided with aeration grid (4), said seat of internal suction (3), receiving a suction engine group with respective suction fan;
- optionally an adjacent container (c) to said first opening, joined monolithically or demountable from same, leaned to an extremity of said working surface with said first opening (b), on the inside of said adjacent container (c) a boiler connected to an iron can be housed;
- housings, for the relative activation commands of ironing-board and/or the iron, prearranged also to

accommodate connection current-taps, said housings being obtained in the part of the body concerning the working surface with said first opening (b) and/or in correspondence to said adjacent container (c);

- support means fixed in the base and perpendicular to said monocoque body (5), localized for support of a heating working surface together with perimetrical stops (6) on the inside of said first opening (b), for the fixing of the cables;
- externally, in correspondence to the lower surface of said monocoque body (A), a seat for the anchorage of the static extremity of a compass closable stand leg is obtained at one side, the opposite leg, being engaged to a slide (12) slidably adjustable on guides (11) obtained from the monocoque body itself (A).

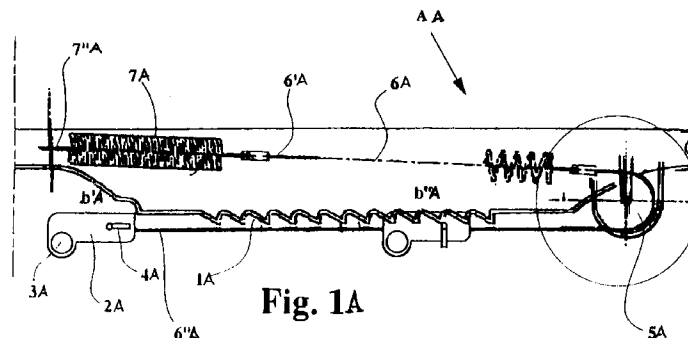


Fig. 1A

Description

The object of this invention refers to a loadbearing monocoque-body ironing-board having a heated working surface, said working surface being permeable to allow suction from a suction apparatus positioned underneath.

Said ironing-board being equipped optionally with accessories such as iron and boiler.

This apparatus can be used for industrial ironing as well as for domestic use.

Prior art

For many years, ironing-boards have been well known in prior art. Traditionally, those for domestic use, are made up of a simple surface, differently shaped, mainly in shaped metal formerly in wood, to which a support stand is attached on the underside. In more recent solutions a lateral accessory surface support, optionally removable, could be provided, on which the iron can be rested so as not to interfere with the working surface.

Such ironing-boards have nearly all been replaced by the professional ones, which, especially recently, have more technical features as they are subject to different needs to carry out various work loads.

A substantial difference between the first and the latter, consists essentially in the fact that they could offer particular advantages able to better the quality of the finished item but above all to increase the working speed.

A typical example of a professional ironing-board could be the association with steam-irons with a separate boiler.

There are many articles actually on the market, that could be equipped with one or more accessories, starting from the simplest ironing-board, eventually equipped with heated surface, to the more complex ironing-board equipped with suction system.

The surfaces of the first category are essentially made from a monocoque metal body, tapering at one end, with containing perimetrical edges for the working surface.

Over said body, supported inside said perimetrical edges, a separation wire net is used, which in turn bears a heating plate generally in aluminium, with holes all over the surface, and on the side has a connecting power plug for a power derivation box. Said derivation box is plugable to the power network, is complete with thermostat and eventual electric-taps, is engaged externally and just beneath the body as a separate element from the working surface.

To the side opposite the tapered side of the working surface, an optionally removable carrying wire-grid for a boiler can furthermore be provided, with containing edges that define the boiler hole, preventing it from falling.

The whole ensemble, ironing-board surface and grid for holding boiler, is held up by an underlying stand, with compass type hinge, providing two tube shaped legs whose lower ends open out resulting in the support feet,

while the upper ones, a first is firmly propped to said surface by means of transversely passing swivels, and a second opposite to the preceding, is releasable providing a selection of different adjustment degrees, which corresponds to different surface heights.

To obtain such adjustment, on the part underneath the surface, two parallel racks are perpendicularly welded, obtained by cutting an "L" shaped guide.

In this case, the ends of one leg supports at least one cross element which, in turn must be engaged in the corresponding teeth. Instead of the rack, single ring shaped hooks can be provided with the entry from one side in the direction of return, and generally of two or three, to which other different surface heights correspond.

A more recent apparatus, provides a slightly more complex solution in which, in addition to the heated surface function, a suction function is provided.

The latter contrivance seems to be particularly important, in the professional sector, as it avoids the stagnation of the condensate on the surface of the board because of the steam given out when using the iron, therefore maintaining the surface perfectly dry and smooth. For this purpose the application of a power unit and the relative rotor is provided, fixed according to known techniques, rivets, screws, and so on, immediately beneath the metal body, from which it generously protrudes, and in which, on the bottom of the body a circular opening is made in correspondence to the suction rotor. In such case, modifications also concern the iron support surface, which is eliminated and replaced by the boiler fixed in suspension, by means of hooks provided along a side of the same.

As for the supporting stand, apart from a lower barycentre, it can be noted that the ends of the legs that determine the height of the surface, are slidable along a couple of guides, on the classic rack, and are fixable in the desired position by means of a pivoting knob, which persists in correspondence to references obtained along said guides. Also in this case, the starting and adjustment controls for the functions of the surface are provided in the underlying area, made in boxed elements also fixed by means of screws or the equivalent.

Another recent solution of prior art provides the realization of an ironing-board, particularly for steam irons, which is essentially made of a wire grid surface, which is covered with fabric, joined to an underlying body in plastic material that contains a horizontal sucking motor and a heating resistance.

Even in this case, the command unit is separate from the body, and therefore engaged singularly to one part of the same side by common screws.

Among the qualities of this ironing-board, it is possible to point out that in connection with one end of the working surface, and underneath this, a container also in plastic material is provided, able to support the boiler of the iron. In more detail, the container, provided with a handle, is of the removable type, being engaged on lateral sliding guides, to the support body of the working surface.

Finally we have a support stand which, other than the particular shape of the elements that make it up, differently from the others, it adopts a particular leg locking system, providing an adjustable overturned rack for engaging from above towards the bottom and not vice versa as always, of a connecting cross bar between the two upright elements that form the respective leg.

Other noticeable drawbacks, in the solutions of prior art, concern firstly a certain opening difficulty, as well as of positioning and fixing of the support stand.

In fact it must be remembered that we are in front of a heavy apparatus, approximately twenty kilos, which must be raised and handled, often more than once during the day, even by people who are not particularly strong.

The weight, as well as the encumbrance makes all this particularly complex and dangerous, without taking into consideration the physical fatigue, it is enough to think of the fact that while the board is raised or rested, often precariously on the part of static leg and held still as much as possible with one hand the housewife must be able, with the other hand, to reach the underlying part, grip the mobile part and position it in the corresponding position to the desired height.

An operation that could be carried out more than once until reaching the best position.

In more recent solutions, such adjusting is made easier by screwing means which block the movement, for example of a slide engaging the ends of the movable leg.

However, also in that case the user must find the handle of the screwing means, and for the adjustment of this, operating is difficult, because at the same time, the working surface must be raised.

The same problem, occurs in the closing phase, because one must firstly raise the working surface and then grip the movable leg, disengaging it contextually from the respective locks and close the legs.

Finally, simultaneously, the board is rotated downwards. One of the difficulties, in that case, consists in the fact of putting the legs together, this is an operation that requires an excessive distension of the arm concerned, with the danger of losing equilibrium, falling on the ground.

In conclusion, the combination of these problems can also cause an incorrect adjustment that determines the instability of the table, if not even the accidental disengagement from the locks.

The aim of this invention is that to avoid the above-mentioned drawbacks.

Disclosure of the invention

This and other scopes are reached with the present invention, according to the characteristics of the included claims, solving the arising problems by means of a bearing monocoque body particularly for ironing-board, and ironing-board so obtained, of the improved type, obtained in plastic material, and provided peripherally with a restraining side able to define internally a first

opening to the entire surface, to accommodate the components, in which partitioning is provided:

- an internal seat to said first opening provided with aeration grid, the seat, being designed to accommodate a suction engine group with respective fan;
- an adjacent container to said opening regarding an extremity of the working surface, on the inside of which a boiler can be placed, connected to an iron for the delivery of the steam;
- housings, for the relative ironing-board activation commands and/or of the iron, prearranged also to accommodate connection current-taps, said housings being obtained in the part of the body concerning the working surface and/or in correspondence to the container of the boiler;
- support means fixed at the base and perpendicular to the body, for support of the heating surface and perimetrical stops on the inside of the body opening, for the fixing of the cables; while externally, corresponding to the lower surface, a seat for the anchorage of the static extremity of a compass closable stand leg is obtained at one side, the opposite leg being engaged to a slidably adjustable slide on guides obtained from the body itself.

In this way, different advantages are achieved through the notable creative contribution, the effect of which realize an immediate technical progress.

It is possible to obtain firstly a substantial reduction in weight, making the ironing-board particularly easy to move, resulting in a greater compactness of the structure, reducing in a congruous way the encumbrances.

In the second place the entire surface is further simplified, facilitating the assembly of the internal components and of their relative wiring with consequent reduction of the working time in advantage of lower production costs. Under the functional profile one can additionally detect a good thermic insulation, because of the continuous shell, using completely the heating capacity of the surface, and secondly offering a good protection and therefore security of the components so contained, also by eventual accidental contacts with the user and other external agents.

Regarding the housing the boiler, even in that case one can observe a greater sturdiness and on the whole a greater functionality, avoiding direct contact with the user.

Finally, the special anchorage device of the legs to the monocoque body should be highlighted, which facilitates the adjustment of the ironing board height, and prevents the accidental fall of same.

Advantageously externally, corresponding to the lower surface of the working surface, a seat for the anchorage of the static extremity of a compass closable stand leg is obtained at one side, the opposite leg being engaged to a slidably adjustable slide on guides obtained from the body itself; said device consisting essentially in a pulling cable almost parallel to the ironing-board, in which one

of the extremities is at one side engaged, if necessary also connected, to a slide on which are keyed the ends of a movable leg; from the other, engaging the extremity of an elastic spring, steadily anchored to the working surface, and in which said eventual connection is effected by a block hinged to the correspondent monocoque body in proximity to the support guides of the slide.

In this way, a substantial facilitation and minor physical fatigue is obtained, above all in the opening phase of the legs.

In fact, the presence of a spring that acts on the slide, as in tension, causes the legs to distend by simply raising the ironing board, prearranging itself with rapidity in an open position and therefore stabilizing the surface.

Then in the closing phase, the force of the spring to be stretched, allows the legs to hold out a certain resistance at closure, even if slight, and in any way that bit which suffices to slow the unexpected fall of the ironing board, contextually alleviating the weight, on lack of the support.

These and other advantages appear from the subsequent preferred embodiments, with the help of the included drawings, the details of which are not to be considered limitative, but only supplied as an example.

Figure 1, represents a plan-view of a monocoque body of the bearing type, particularly for ironing-board.

Figure 2, represents a side view and in part, in longitudinal section according to axis A-A, of the monocoque body as in preceding Figure.

Figure 3, represents a view taken from the end of the working surface, relatively to the head of the monocoque body.

Figure 4, represents a plan-view of an slide associate to a supporting stand leg.

Figure 5, represents a frontal view of the slide as in Figure 4 taken in section along axis A-A.

Figure 6, represents a view of the slide as in Figures 4 and 5 taken in section along axis B-B.

Figures 7 and 8, illustrate respectively, an internal-external view of one side of said slides as in preceding Figures.

Finally, figure 9 represents a cross-sectional view of the monocoque body taken along axis B-B of Figure 1.

Figure 1A, represents a side view of an elastic return device of at least one leg, in which are highlighted at least two of the possible positions of an adjustable slide of anchorage of the extremity.

Figure 2A, represents an enlarged view of one particular of Figure 1; relative to the connection means to the pulling cable.

Figure 3A, represents a sectional view and a frontal view of the connection means to the pulling cable.

Figure 4A, represents a perspective view and from below, of a possible variation to the monocoque body for ironing-board; the solution of which excludes the presence of the pulling cable connection.

Finally, figures 5A and 6A represent respectively, a schematic plan view and a side view of the monocoque body, and one in longitudinal section.

With reference to the Figures from 1 to 9, it is disclosed that a bearing monocoque body (A) particularly for ironing-board, and ironing-board so obtained is made in rigid plastic material, subdivided in two technical zones, respectively a first (b) corresponding to the working surface to be associated, said first zone (b) being made up of a perforated sheet surface with a heating resistance in it, and a second (c) prearranged to support the iron also of the type with boiler.

The body (A), provides essentially a perimetrical side (1) that protracts perpendicularly in regard to the base (2) for more than a centimetre, delimiting in this way said first technical area (b) and recalls in a certain way, plan-view, the typical elongated shape of a working surface.

Therefore a rather deep and wide housing is obtained, with a base (2) having several levels.

This is because at a greater depth, obtained in an intermediate area, a compartment (3) corresponds, that in plant view has the shape of a cochlea, said compartment (3) being able to contain the entire engine group for the suction including the relative fan.

In this area (3) there are respectively, a first circular wall (3'), always obtained monolithically, able to contain a first part of the engine group, followed by a couple of rectilinear and parallel walls (3''), which delimit an outlet path of the air sucked, closed at the bottom by a grid placed on tilted plane (4).

Regarding the internal surface of the base (2), this provides perpendicular supporting feet (5), said feet having their base inserted in it, and which have the function to support at a certain distance, a perforated heat working surface (not shown), that will then be covered by the flannel and respective cloth.

Even along the perimeter of said first area (b), and internally to the side (1) fins are provided (6) interrupted by vertical spaces, as well as parallel to same, in such a way to obtain a seat to accommodate the respective power wiring.

Regarding the adjacent technical area (c), this is made by a somewhat deep container (7) preferably rectangular in shape, provided with own sides (7') that delimit the area.

Along one side of the container, a niche (9) can additionally be provided, more or less extended, in the case of rectangular shaped type, to accommodate the different commands and eventual electric-taps for the power supply or power net connection.

Said container (7) is joined monolithically to the adjacent part (b) by means of a joint connecting surface (7'') to form a single piece, and to which corresponds, in the underlying part, a kind of vault (8) to accommodate an extremity of the fixed leg, as part of a support stand (not shown).

The fixing of the latter, is obtained by associating to the first shaped base (8) by means of screws, a semicircular countershape, realizing the ring that vices the extremity of said leg, in this case have an "L" shape.

Finally the external surface of part (b) of body (A), corresponding to the underlying side of base (2) in particular, is formed in such a way to obtain, always monolithically, a rack, or a fish bone rack (10) obtained centrally in relation to two lateral guides (11) respectively right and left, parallel and coplanar.

Said guides with "C" section (11), that can protrude or can be enclosed inside the body, slidingly engage a box slide (12), provided with longitudinal fins (12'), able to be introduced along said guides (11).

On the side of said slide (12), is a large hole, where the L shaped extremity is introduced and there the end ensured of an opposite movable leg, which is part of the ironing-board compass support stand.

The selective locking, in the desired position, of the slide (12), to which a different height of the surface corresponds, is secured by means of a lever, of the type with elastic return for disengaging from the rack (10). In more detail two holes (13), one through and the other having a pivoting function, made along the sidewalls, allow the centring of the disengaging lever, said lever being centrally shaped like a "U" or realizing a cam the movement of which interferes with the underlying rack (10), and protracted externally for some centimeters in order to favour a comfortable grip for the user.

Referring to the Figures from 1A to 6A, it is disclosed that the bearing monocoque body (A) particularly for ironing-board, and ironing-board so obtained is of the type in rigid plastic material, subdivided in two technical zones, respectively a first zone, corresponding to the working surface to be associated, being made up of a perforated sheet surface in which a resistance is inserted, and eventually a second zone, prearranged for support of the iron and optionally of the type with boiler.

Said body (A), is sustained by a couple of legs, that have a cross connection (X shape) or compass, comprise a first static leg having its end hinged steadily to said body, while the second leg is movable being able to be, (the corresponding end) moved longitudinally and allowing the engagement (stopping and locking) along the underlying braking rack means in said body (A).

In more detail, body (A) is formed in such a way to obtain, always monolithically, a rack (1A) obtained centrally in relation to two lateral guides respectively right and left, parallel and coplanar one to the other.

Said guides have a "C" shaped section, and can protrude or be enclosed inside of the body. Said guides slidingly engage a box slide (2A) which is provided laterally of engaging means, and is able to be constrained along said guides.

On the side of said slide (2A), at least one seat (3A) is obtained where is introduced and there ensured, the extremity of an "L" shaped opposite movable leg, as part of the support stand.

The selective locking, in the position desired, of the slide (2A), to which a different height of the surface corresponds, alternatively obtaining the disengagement from the rack (1A), is ensured by means of an elastic return lever (4A).

Near the end of the rack (1A), towards the tapered extremity of the working surface, means are provided, obtained directly from the monocoque body (A), and able to engage a pulley means (5A), said pulley being pivotal rotatably idle and having a "U" groove (5'A) for a pulling cable.

The purpose of said pulley means (5A) is that to allow the change in backwards direction of the cable (6A), to return almost parallel to the structure of monocoque body (A), which receives a part of this.

In particular, a head (6'A) of the cable (6A), by means of the interposition of a stop (8) is associated to the extremity (7'A) of a pulling helical spring (7A), whose opposite extremity (7''A) is anchored steadily inside the structure of the monocoque body (A). The other head (6''A) of the cable (6A) is engaged into the slide (2A), supporting an extremity of the movable leg.

Consequently, when the ironing-board is closed, and therefore with the legs close together, the slide (2A) is in a position (b'A) or at the end of the stroke in respect to the rack (1A).

In that case being constrained to the spring (7A), the latter will have a distended configuration.

Raising the ironing-board (A), the lack of obstacles at the lower extremity of the movable leg, causes its release, in contrary obtaining the elastic return (if not locked) of the slide (2A), effected by the spring (7A).

In that case the slide (2A) may be arranged operatively along the rack (1) in a preferential position (b'').

Finally, regarding the closing operation and restoring of the initial condition, the disengagement of the slide (1A) is firstly provided, acting on the lever (4A), therefore the reapproach of the movable leg to the static leg, involving the shifting of the slide (2A) at the end of the stroke and contextually reloading the spring (7A).

In a possible variation, as illustrated in Figure 4A and subsequent ones, one has a monocoque body (A'A) provided with a linear elasticizing device to elastically hold the slide (2A).

In that case, the encumbrances may be slightly greater, because firstly the realization of a seat (9A) is provided, able to house a couple of helical springs (10A, 10'A), at one side anchored steadily to the structure of the body. From the other side, the extremities of said springs (10A, 10'A) engage the ends of a couple of cables (11A, 11'A), which protract longitudinally close to the body and parallel one to the other to anchor from the opposite side directly to the slide (2A).

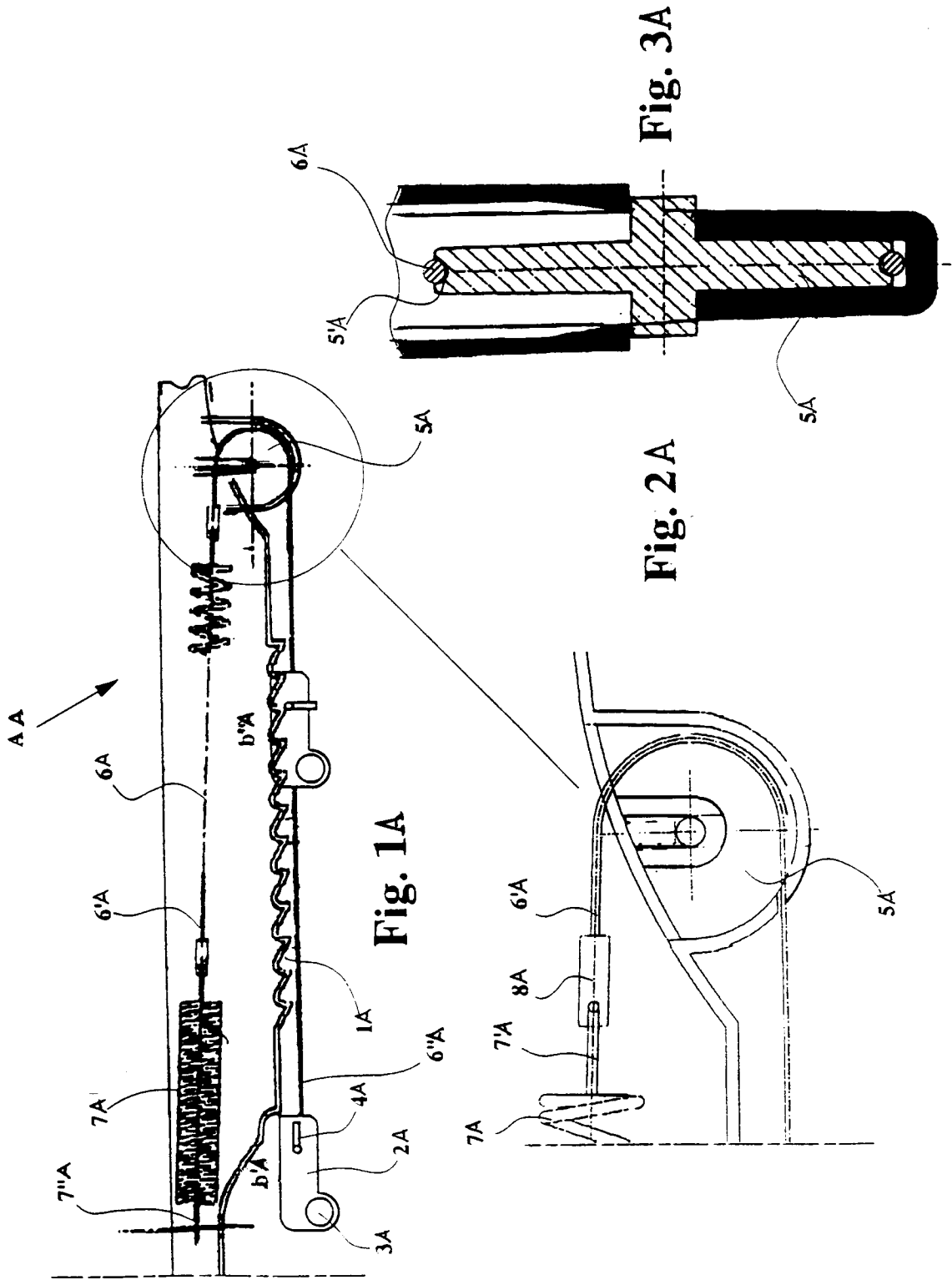
It is possible to see additionally that a part of said pulling cables (11A, 11'A) and springs (10A, 10'A) are enclosed inside the body, preventing even involuntary access.

In this case, the part of body (9A), provides at one side, the realization of a couple of holes (9'A), through which exit the extremities of the cables (11A, 11'A) to be anchored to the corresponding slide (2A), from both sides.

Claims

1. Ironing-board, involving a bearing monocoque body (A) obtained in plastic material and provided peripherally with a restraining side able to define internally a first opening (b) extending to the entire working surface beneath it, to accommodate the components, characterized in that said bearing monocoque body provides:
 - a seat of internal suction (3) to said first opening (b) provided with aeration grid (4), said seat of internal suction (3), receiving a suction engine group with respective suction fan;
 - optionally an adjacent container (c) to said first opening, joined monolithically or demountable from same, leaned to an extremity of said working surface with said first opening (b), on the inside of said adjacent container (c) a boiler connected to an iron can be housed;
 - housings, for the relative activation commands of ironing-board and/or the iron, prearranged also to accommodate connection current-taps, said housings being obtained in the part of the body concerning the working surface with said first opening (b) and/or in correspondence to said adjacent container (c);
 - support means fixed in the base and perpendicular to said monocoque body (5), localized for the support of a heating working surface together with perimetrical stops (6) on the inside of said first opening (b), for the fixing of the cables;
 - externally, in correspondence to the lower surface of said monocoque body (A), a seat for the anchorage of the static extremity of a compass closable stand leg is obtained at one side, the opposite leg, being engaged to a slide (12) slidably adjustable on guides (11) obtained from the monocoque body itself (A).
2. Ironing-board with bearing monocoque body according to claim 1., characterized in that said working surface is composed of a perforated sheet surface in which a heating resistance is fixed.
3. Bearing monocoque body according to the preceding claims, characterized in that said monocoque body concerning the working surface, around said first opening (b) provides essentially a perimetrical side (1) that protracts perpendicularly if compared to a base with more levels with one less deep (2) that delimits said seat of internal suction (3) that has a cochlear shape.
4. Ironing-board with bearing monocoque body according to claim 3., characterized in that said seat of internal suction (3) has a first circular wall (3') followed by a couple of rectilinear and parallel walls (3''), which delimit an outlet path of the air sucked through said grid (4) that is placed on tilted plane.
5. Ironing-board with bearing monocoque body according to the preceding claims, characterized in that the internal surface of the base (2), provides perpendicular supporting feet (5) fixed with an extremity into same.
6. Ironing-board with bearing monocoque body according to the preceding claims, characterized in that along the perimeter of said first area (b), and internally to the side (1) of the monocoque body (A) fins are provided (6) interrupted by vertical spaces, as well as parallel to same.
7. Ironing-board with bearing monocoque body according to the preceding claims, characterized in that in said adjacent technical area (c), a deep container is obtained (7), substantially rectangularly shaped provided with own sides (7') that delimit the area.
8. Ironing-board with bearing monocoque body according to the preceding claims, characterized in that along a side of the container (7), a niche is provided (9).
9. Ironing-board with bearing monocoque body according to the preceding claims, characterized in that said deep container (7) of said technical area (c) is joined monolithically to the adjacent part of said first opening (b) by means of a joint connecting surface (7''), and to which corresponds, in the underlying part, a seat (8) to accommodate an extremity of a leg, fixed, associating a closing ring-shaped countershape to the first shaped base (8).
10. Ironing-board with bearing monocoque body according to the preceding claims, characterized in that on the external surface and beneath said first part (b), a rack (10-1A), is obtained always monolithically, said rack being central in relation to two lateral guides (11), parallel and coplanar.
11. Ironing-board with bearing monocoque body according to the preceding claims, characterized in that said lateral guides have a "C" shaped section (11), slidingly engage a slide (12), provided with longitudinal fins (12'), introduced along said guides (11).
12. Ironing-board with bearing monocoque body according to the preceding claims, characterized in that to said slide (12), the movable end of a supporting leg is engaged, and is provided with lever means for selective adjustment interfering with the underlying rack (10).

13. Ironing-board with bearing monocoque body according to claims from 10 to 12., characterized in that two holes (13), one through, the other having a pivoting function, are made along the sidewalls of the slide (12), and inside of which is introduced an elbow lever, realizing a cam, the movement of which interferes with the underlying rack (10), and is protracted externally for some centimeters. 5
14. Ironing-board with bearing monocoque body according to the preceding claims, characterized in that it provides adjacent to said deep container (7), a compass, said compass being obtained with conical and stellar bottom and (14) that on the surface, a series of radial and concentric ribs are obtained. 10
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15. Ironing-board with bearing monocoque body according to the preceding claims, characterized in that it provides externally, corresponding to the lower surface of the working surface (A), a seat for the anchorage of the static end of a compass closable stand leg, the opposite leg being engaged to an adjustable slide (12-2A) slidably on guiding means (11); and consisting essentially in at least one pulling cable (11A, 11'A) almost parallel to the ironing-board, in which one of the extremities is at one side engaged to said slide (12-2A) on which are keyed the ends of a movable leg; from the other side, engaging the extremity of an elastic corresponding spring (10A, 10'A), steadily anchored to said body. 20
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16. Ironing-board with bearing monocoque body according to the preceding claims, characterized in that the tension frame (6A-6') of said slide (12-2A) is oriented backwards by means of a pulley (5A). 35
17. Ironing-board with bearing monocoque body according to the preceding claims, characterized in that said pulley (5A) is equipped with guide groove (5'A-6A). 40
18. Ironing-board with bearing monocoque body according to the preceding claims, characterized in that said monocoque body (A') provides the realization of a seat (9A), able to house a couple of covered helical springs (10A, 10'A), at one side anchored steadily to the structure. 45
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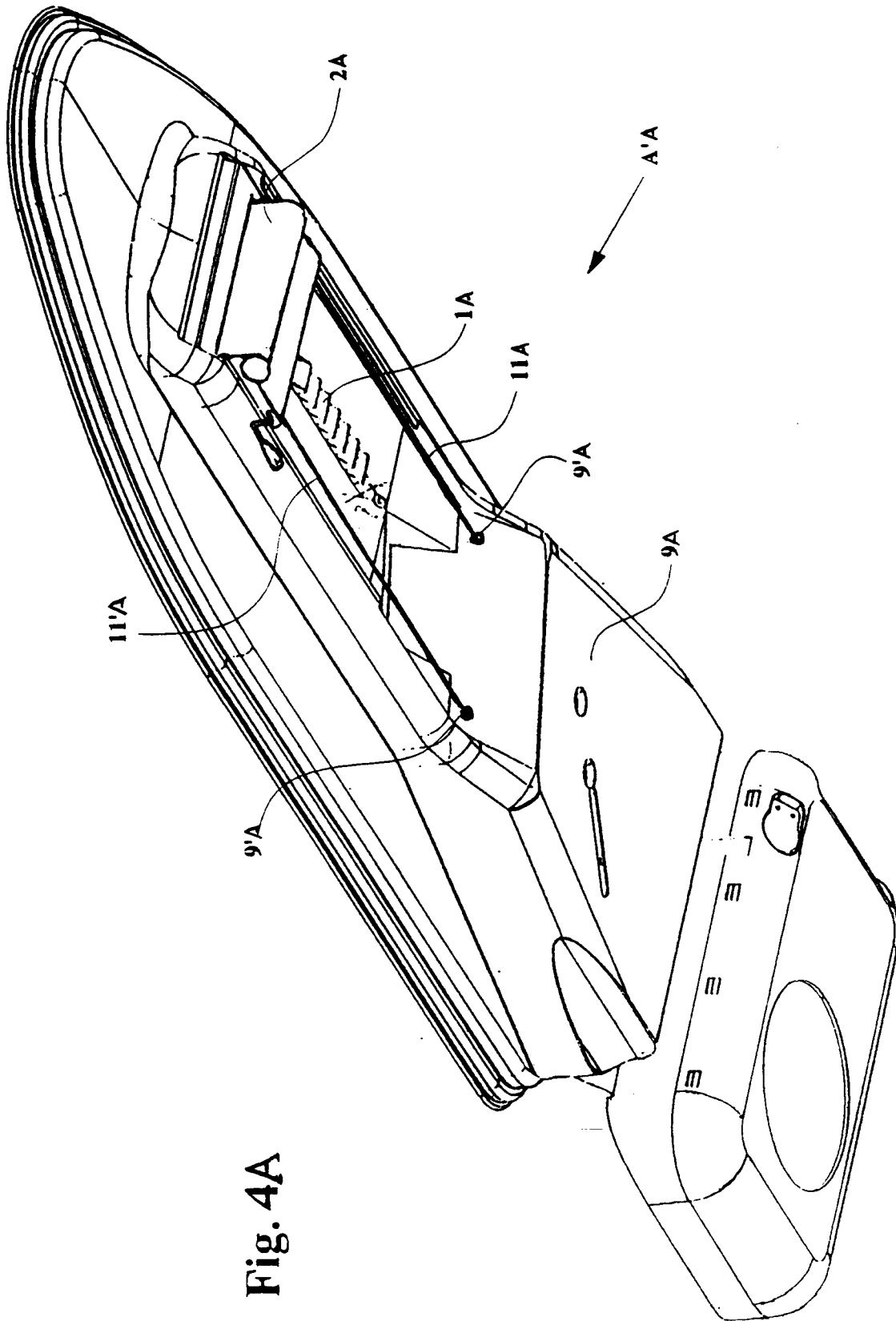


Fig. 4A

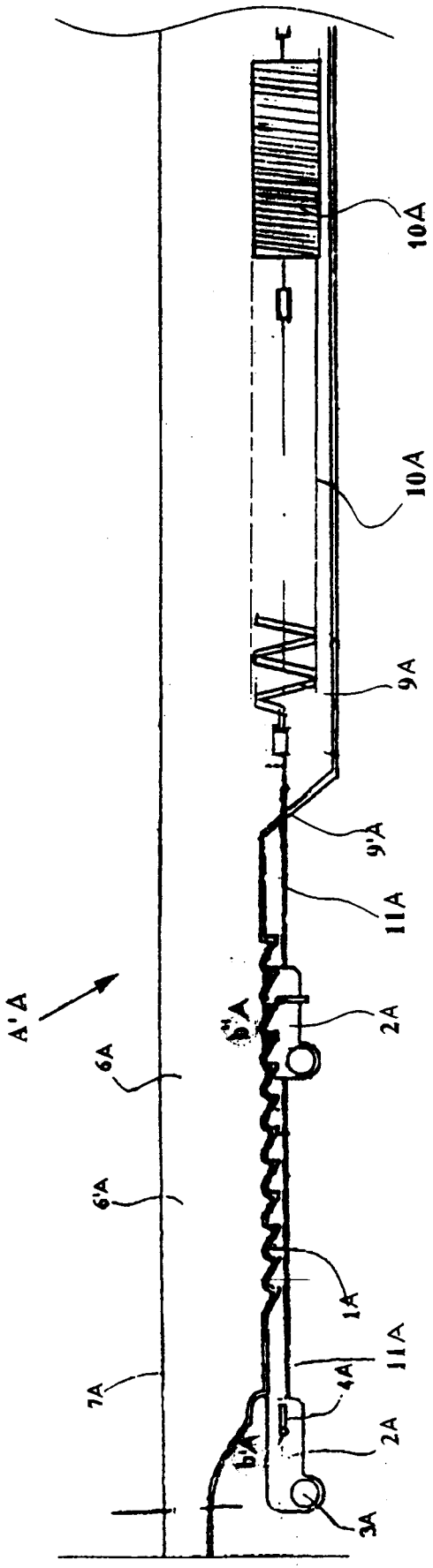


Fig. 6A

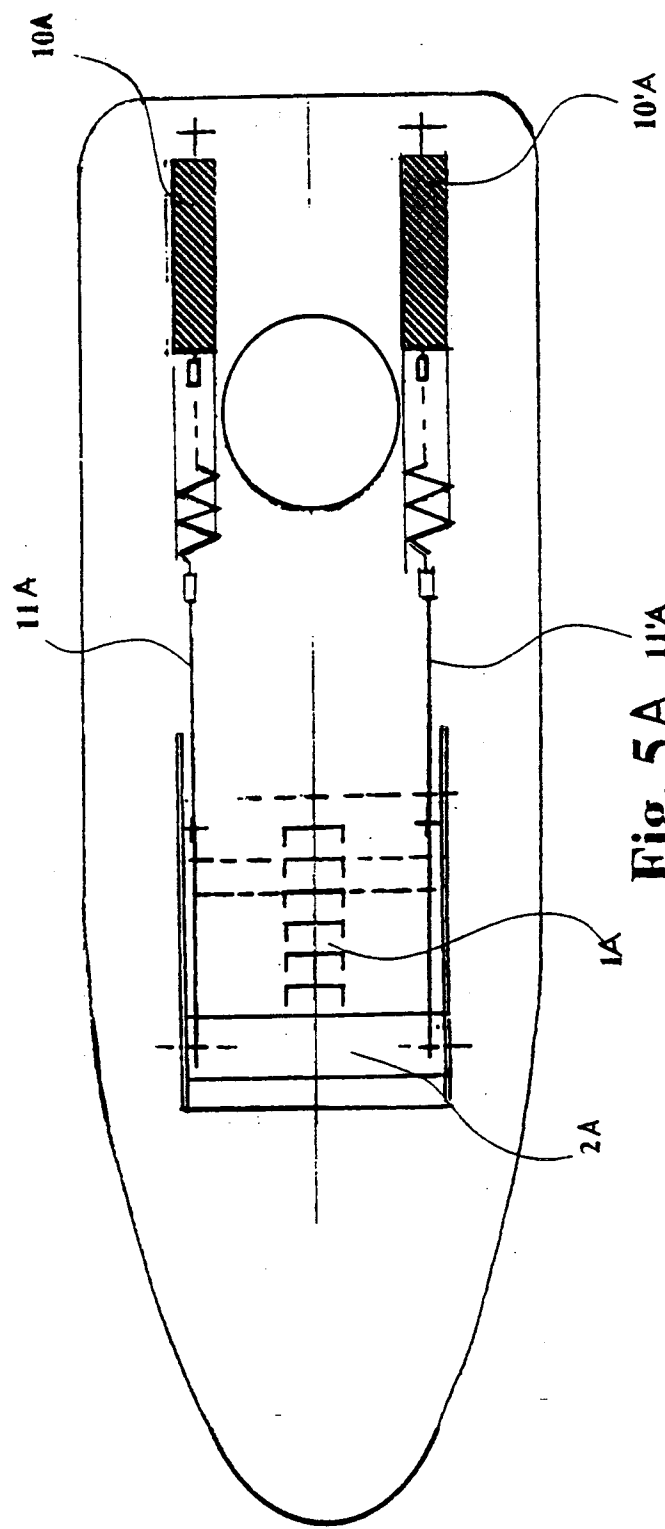


Fig. 5A 11A