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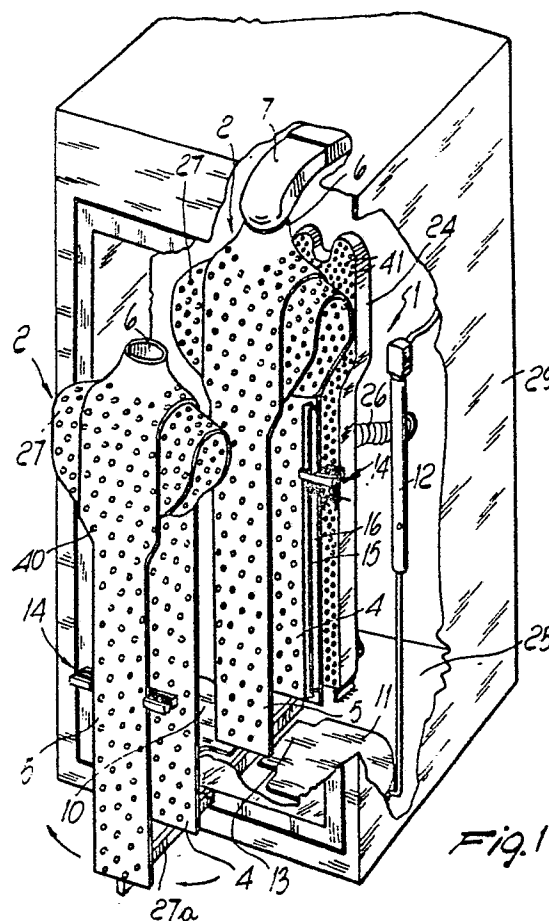
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54 Apparatus for steam-ironing items of clothing.

57 The apparatus comprises a shaped body (2) adapted to support at least one item (3) of clothing and having an opening (6) with which an air and steam delivery outlet (7) is associable so as to feed said air and said steam inside the item of clothing when the latter is fitted on the shaped body; means (8) for closing the item of clothing are also provided and are arrangeable proximate to the lower edge thereof to define in its interior a chamber (9) for containing the steam and the air, said chamber being substantially closed also by means (14) for tensioning at least the front surface of the item of clothing provided on the shaped body.



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APPARATUS FOR STEAM-IRONING ITEMS OF CLOTHING

The present invention relates to an apparatus for steam-ironing items of clothing.

As is known, the ironing for example of jackets and coats is currently performed by stretching the surface of the fabric of the item of clothing by means of appropriate devices, simultaneously affecting said item of clothing with jets of steam and air or with heated plates.

Ironing by stretching the fabric to be ironed is generally obtained mechanically by manually using, for example, steam irons or by inflating self-ironing dummies by introducing therein pressurized hot air and steam or again by exerting a certain pressure on the surface to be ironed by means of a padded metal plate such as for example that of ironing presses.

Each of these systems for ironing an item of clothing has advantages and disadvantages with respect to the others; for example, the use of dummies produces a tensioning which tends to widen the item of clothing, thus creating problems in ironing it precisely; hot air and steam dispersions towards the outside also occur, with consequent useless waste.

The aim of the present invention is to eliminate the disadvantages described above by providing an apparatus for steam-ironing items of clothing which simultaneously combines, during said ironing, the different methods usually employed for this purpose by means of a plurality of separate devices.

Within the scope of this aim, an important object of the invention is to provide an apparatus for steam-ironing items of clothing which performs this operation in extremely reduced times.

Another object of the present invention is to provide an apparatus for steam-ironing items of clothing which performs this operation continuously, substantially without idle times due to the preparation of the item of clothing to be ironed and to the removal of the ironed item from said apparatus.

Not least, object of the present invention is to provide an apparatus for steam-ironing items of clothing which has a simple and compact structure and is furthermore extremely functional.

This aim, as well as these and other objects, are achieved by an apparatus for steam-ironing items of clothing, characterized in that it comprises at least one shaped body for supporting at least one item of clothing, having an opening with which an outlet for delivering steam and air is associable to introduce said steam and said air into said item of clothing fitted on said shaped body, means for closing said item of clothing arrangeable proximate to the lower edge thereof to define therein a sub-

stantially closed chamber for containing said steam and said air, means for tensioning at least the front surface of said item of clothing being furthermore provided.

Further characteristics and advantages of the invention will become apparent from the description of a preferred but not exclusive embodiment of the apparatus for steam-ironing items of clothing according to the invention, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

figure 1 is a partially cutout perspective view of the apparatus for steam-ironing items of clothing when it is applied for example to an ironing box according to the invention;

figure 2 is a perspective view of the presser element applied to the shaped body on which an item of clothing to be ironed is fitted according to the invention;

figure 3 is a transversely sectional side elevation view of the shaped body on which an item of clothing is fitted according to the invention; and

figure 4 is a view of the tensioning means applied to the shaped body according to the invention.

With reference to the above described figures, the apparatus for steam-ironing items of clothing according to the invention, generally indicated by the reference numeral 1, comprises at least one shaped body 2 adapted to support an item of clothing 3 such as for example a jacket or a coat, schematically illustrated in broken lines in figure 3.

The body 2 is defined by two plate elements 4 and 5 which are mutually connected in a region proximate to the shoulders of the cloth 3 when said cloth is fitted appropriately on the body 2.

In the connecting region of the plate elements 4 and 5, the body 2 has an opening 6 with which an outlet 7 for delivering air and steam is associable during ironing; said outlet allows to introduce said air and said steam between the two plate elements 4 and 5 and thus inside the cloth 3 also by virtue of the presence of a plurality of holes 40 provided on the surface of said plate elements.

Since the air and steam tend to exit from the lower part of the cloth, the apparatus conveniently has means for closing said lower part; said means, generally indicated by the reference numeral 8, are arrangeable proximate to the lower edge of the cloth to define in its interior a containment chamber 9 for steam and air which is substantially closed and to also tension the fabric and simultaneously affect it with the steam and air adapted to iron it.

More in detail, the closure means comprise two

shaped plates 10 and 11 respectively protrudingly supported by two positioning pistons 12 extendable in a direction which is substantially parallel to the plate elements 4 and 5.

The shaped plates 10 and 11 are arranged mutually facing and substantially mutually coplanar, and their end-portion 13, opposite to the piston coupling region 12, extends between said two plate elements, as it is smaller than the distance therebetween, to provide a barrier to the escape of steam and air from the chamber 9 defined inside the cloth.

In order to further prevent the escape of the steam and air from the chamber 9, tensioning means generally indicated by the reference numeral 14 are furthermore provided; their purpose, besides the already mentioned one of preventing the escape of steam and air, as the edge of the cloth is substantially in contact with the plate elements is also to keep the fabric of said cloth tensioned.

The tensioning means are slidably associated with a sliding guide 15 and with a flat guide 16 which are coupled and extend parallel to one of the plate elements, and more precisely to the plate element 5 and comprise a pivot 17 precisely to the plate element 5 and comprise a pivot 17 which supports a first clamp 18 and second clamp 19.

The first clamp 18 is slideably associated with the sliding guide 15 when its jaws are spaced and is locked in a preset position when its jaws are closed by the action of a spring 20.

The second clamp 19 also has two jaws with pressers 21 which are kept in mutual contact by means of a second spring 22 to tension the edge of the cloth. The second clamp 19 furthermore has an arm 23 which engages with the flat guide 16 to prevent the rotation of the first clamp 18 and of the second clamp 19 about the sliding guide.

The rear jaw of both clamps is fixed and the front jaw is movable and opens frontwards by pressing on the two handles 30 and 31 which are kept in pressing position, as mentioned, by the springs 20 and 22.

The two handles 30 and 31 are conveniently on different planes with respect to one another so that when pressure is exerted with a single hand said pressure is first applied to the handle 30, allowing the first clamp to freely slide along the sliding guide, and subsequently to the handle 31 so as to open the second clamp as well.

A presser element 24 is furthermore advantageously arranged facing the plate element 5 and is adapted to press-iron the front surface of the cloth to be ironed.

The presser element 24 is pivoted with one of its ends to the base 25 of the apparatus and is actuated by a piston 25a which has one end pivot-

ed to said presser element and one end pivoted to the base 25.

The presser element furthermore has a plurality of surface; said hose is associated with a known device for sucking the steam and the air, not illustrated in the drawings.

Merely for the sake of greater clarity, it should be furthermore noted that the body 2 has an element 27 for supporting the shoulders of the cloth arranged below the opening 6 and longitudinally adjustable according to the size of the cloth.

The apparatus, according to a further aspect of the invention is provided by arranging two mutually identical bodies 2 facing one another and both supported by a bar 27a which is rotatable about a pivoting axis which is orthogonal and central to said bar.

This pivoting axis is furthermore conveniently the same pivoting axis as a swivelling door 28 for closing and opening an ironing chamber 29 as illustrated in figure 1.

This solution eliminates the idle times due to the fitting and removal of the cloth on the body 2 before and after ironing.

In fact, while a cloth is ironed inside the ironing chamber 29, the user can prepare a new cloth on the other body 2 which is outside the chamber.

Vice versa, when the new cloth to be ironed is introduced into the chamber the already ironed cloth can be removed by the user.

The operation of the apparatus according to the invention is evident from what has been described and illustrated; in particular, with reference to the above described figures, the following can be observed.

The cloth to be ironed is fitted onto the shaped body 2

The cloth to be ironed is fitted onto the shaped body 2 and the shoulder supporting element is adjusted according to the required width depending on the size of the cloth.

The lower edges of the cloth are then tensioned and kept adjacent to the plate elements by the tensioning elements, and the required tension is exerted on said cloth.

After inserting two spring-loaded sleeve tensioning elements in the sleeves of the cloth, the body 2 is rotated through 180° to be introduced in the ironing chamber 29.

When the body 2 supporting the cloth is in the ironing chamber, the shaped plates 10 and 11 are lifted substantially up to the lower edge of the item of clothing so as to provide a barrier to the escape of the steam and air which are introduced by means of the opening 6 inside said cloth.

The two shaped plates 10 and 11 conveniently stop at two stroke limits schematically indicated by the reference numeral 42 and applied to the ten-

sioning means 14.

The steam driven by the hot air is uniformly distributed in all the points of the inside of the item of clothing by virtue of the barrier constituted by the two shaped plates 10 and 11.

The introduction of hot air furthermore allows to tension all the parts of the cloth, especially by virtue of the barrier action of the two shaped plates 10 and 10.

The application of the pneumatic presser element furthermore allows the forced suction of the steam and hot air and therefore the immediate drying and the consequent setting of the ironing on the entire pressed part.

Once the ironing operation has ended, the body 2 is again rotated through 180° and then exits from the ironing chamber so that the operator can remove the ironed cloth and fit the next cloth to be ironed.

In practice it has been observed that the apparatus according to the invention is particularly advantageous for ironing jackets of coats in an extremely short time combining simultaneously the ironing methods which up to now have been used separately on separate machines.

The apparatus thus provided furthermore eliminates idle times, as it irons jackets or coats continuously.

The invention thus conceived is susceptible to numerous modifications and variations, all of which are within the scope of the invention concept; furthermore, all the details may be replaced with other technically equivalent elements.

In practice, the materials employed, as well as the dimensions, may be any according to the requirements and to the state of the art.

Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the scope of each element identified by way of example by such reference signs.

Claims

1. Apparatus for steam-ironing items of clothing, characterized in that it comprises at least one shaped body (2) for supporting at least one item (3) of clothing, having an opening (6) with which an outlet (7) for delivering steam and air is associable to introduce said steam and said air into said item of clothing fitted on said shaped body, means (8) for closing said item of clothing arrangeable proximate to the lower edge thereof to define therein a substantially closed chamber (9) for containing said

steam and said air, means (14) for tensioning at least the front surface of said item of clothing being furthermore provided.

2. Apparatus according to claim 1, characterized in that it comprises a presser element (24) acting on at least said front surface of said item of clothing to press-iron said surface.

3. Apparatus according to claim 2, characterized in that said presser element (24) is rotatably associated, with one of its ends, with the base (25) of said apparatus, and has a piston (25a) having one of its ends associated with said presser element and the opposite end pivoted to said base (25).

4. Apparatus according to claim 2, characterized in that said presser element has an extendable hose (26) to suck said steam and said air.

5. Apparatus according to claim 1, characterized in that said shaped body (2) comprises two plate elements (4,5) mutually connected in a region proximate to the shoulders of said item of clothing, said region comprising said opening (6).

6. Apparatus according to claim 5, characterized in that it comprises an element (27) for supporting the shoulders of said item of clothing, accommodated below said connecting region of said plate elements (4,5), said shoulder supporting element being longitudinally extendable.

7. Apparatus according to claim 1, characterized in that said closure means comprise at least two shaped plates (10,11) each protrudingly supported by a positioning piston (12), said plates being arranged mutually facing and substantially co-planar and having one of their end portions (13), opposite to the region of coupling with said piston, extending parallel to said base inside said two plate elements.

8. Apparatus according to claim 1, characterized in that said tensioning means are slideably associated with a sliding guide (15) and with a flat guide (16) extending substantially along the length of at least one of said plate elements.

9. Apparatus according to claim 8, characterized in that said tensioning means comprise a pivot (17) supporting a first clamp (18) and a second clamp (19) respectively slideably associated with said sliding guide and with said flat guide, said first clamp being adapted to retain said second clamp along said sliding guide.

10. Apparatus according to claim 9, characterized in that said second clamp (19) has two jaws with pressers (21) to keep said item of clothing tensioned and an arm engaging with said flat guide to prevent the rotation of said first clamp and said second clamp about said sliding guide.

11. Apparatus according to one or more of the preceding claims, characterized in that said plate elements and said pneumatic presser element have a plurality of variously distributed holes (40) on their surface.

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12. Apparatus according to one or more of the preceding claims, characterized in that it comprises two of said shaped bodies (2), arranged facing one another and respectively supported by a bar (27a) which is rotatable about a pivoting axis which is substantially perpendicular to said bar, said pivoting axis coinciding with the pivoting axis of a door (28) of an ironing chamber (29), said door being comprised between said two shaped bodies and arranged substantially orthogonally to said bar.

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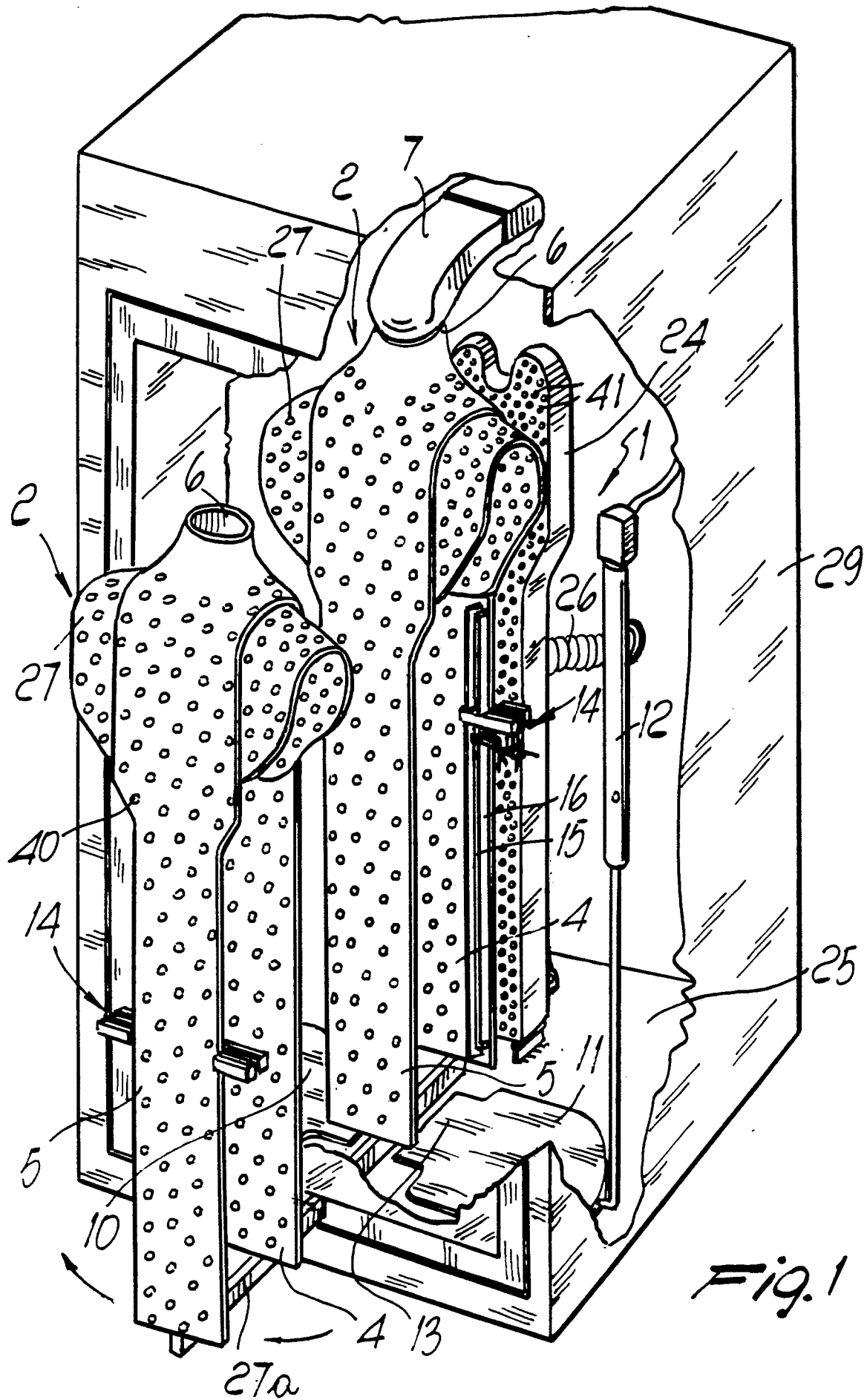
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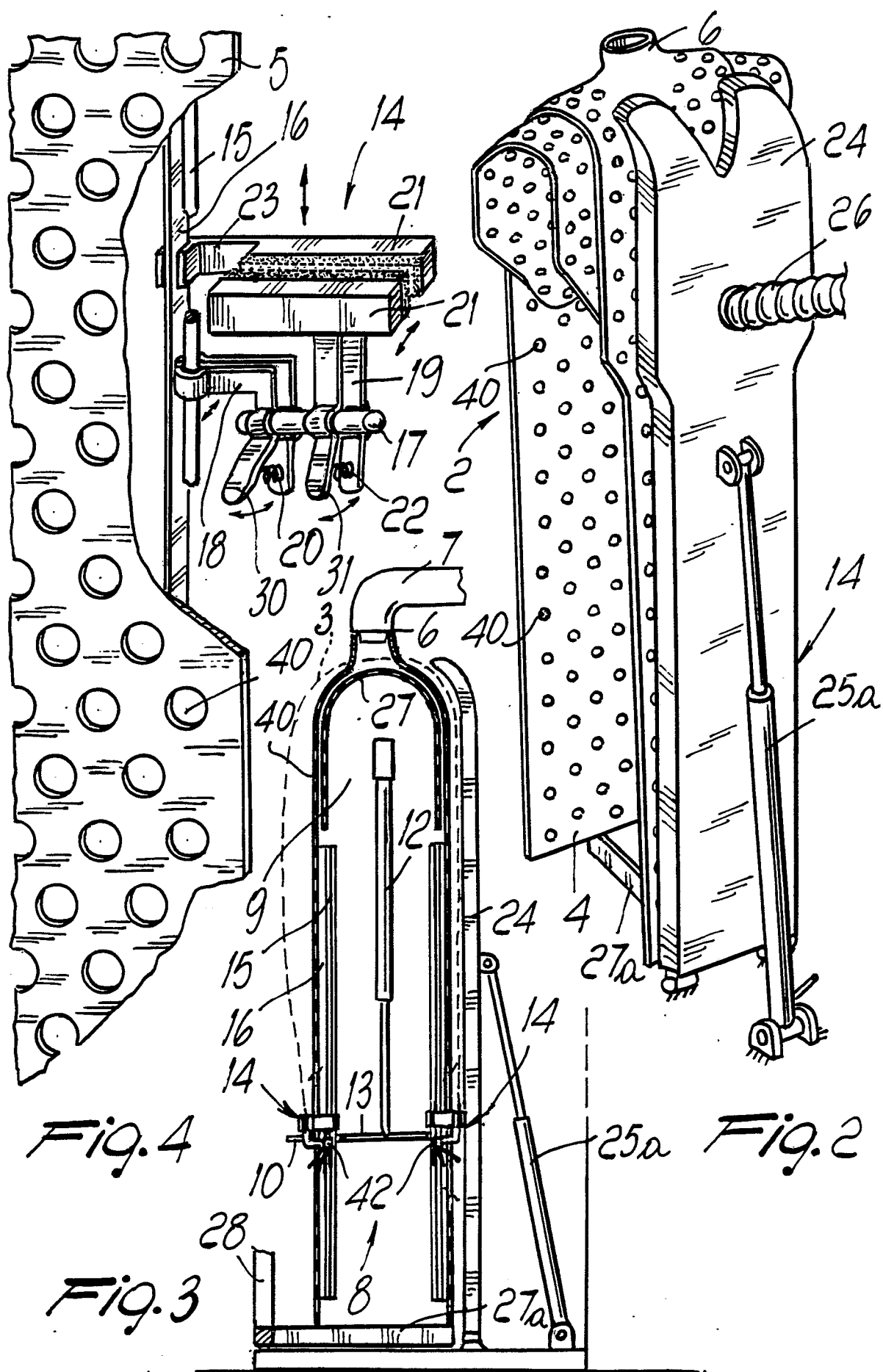
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EUROPEAN SEARCH REPORT

Application Number

EP 88 11 8734

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.4)
X	FR-A-1507593 (MC MILAN) * claims -; figure 1 *	1-3	D06F73/00 D06F71/18
A	---	4, 5, 8, 11	
X	DE-A-2632262 (LÖTZSCH) * claims 1, 8; figures 2, 4 *	1	
A	---	5, 7, 8, 11	
X	DE-B-1085130 (BÖHLER & WEBER...) * claims -; figures 1-5 *	1	
A	---	7-9, 11	
A	US-A-2284232 (RICHA) * figures 1-4 *	1, 5-7, 11	
A	FR-A-2402732 (AZZOLINI...) * page 7, line 1 - line 5; figures 4, 6 *	12	

			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			D06F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 17 FEBRUARY 1989	Examiner COURRIER G.L.A.
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	