



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
**08.10.2008 Bulletin 2008/41**

(51) Int Cl.:  
**D06F 71/20** <sup>(2006.01)</sup> **D06F 71/34** <sup>(2006.01)</sup>  
**D06F 73/00** <sup>(2006.01)</sup>

(21) Application number: **07006947.1**

(22) Date of filing: **03.04.2007**

(84) Designated Contracting States:  
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR**  
Designated Extension States:  
**AL BA HR MK RS**

(71) Applicant: **SANKOSHA ENGINEERING CO., LTD.**  
**Hachioji-shi**  
**Tokyo 193-0815 (JP)**

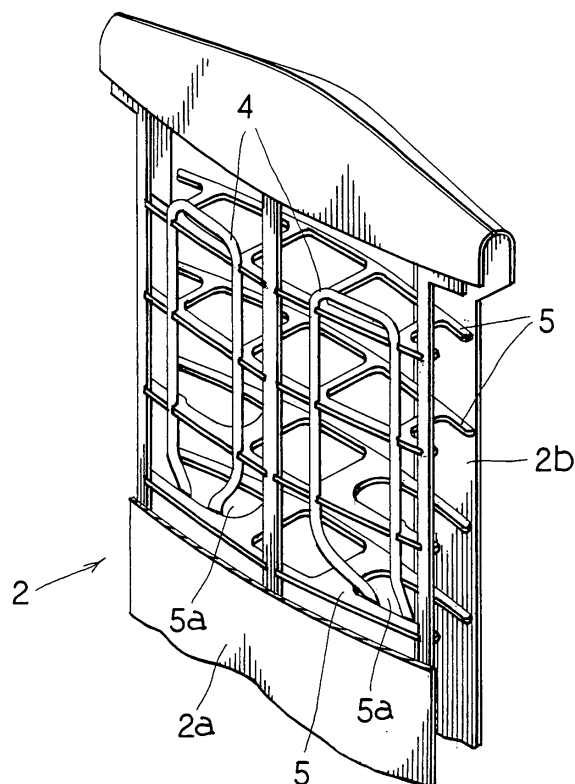
(72) Inventor: **Uchikoshi, Mitsuyuki**  
**Hachioji-shi**  
**Tokyo 193-0815 (JP)**

(74) Representative: **Winkler, Andreas Fritz Ernst**  
**FORRESTER & BOEHMERT**  
**Pettenkoferstrasse 20-22**  
**80336 München (DE)**

(54) **Shirt finishing machine**

(57) This invention comprises a torso (2) for putting on a shirt (1) thereon and press irons (3) to depress the front part and rear part of the torso (2) to press finish the shirt (1). The torso (2) is formed by plates (2a), (2b) oppositely arranged at the front part and rear part. The present invention is made such that the steam flowing pipe (4) for use in heating the front side plate (2a) is arranged at a position corresponding to the front part (1a) of the shirt (1) at the rear side of the front side plate (2a). When the product of the present invention is used, it is possible to finish the front bodice of the shirt having the cloth overlapped portions rapidly and thus it is possible to increase an efficiency of the pressing operation.

**Fig. 2**



## Description

### BACKGROUND OF INVENTION

#### 1. Field of Invention

**[0001]** This invention relates to a shirt finishing machine and more particularly a shirt finishing machine for press finishing the shirt under a state in which the shirt such as a washed white shirt and the like is put on a torso.

#### 2. Description of Related Art

**[0002]** As this type of prior art shirt finishing machine, there has been provided the machine described in the gazette of U.S. Patent No. 6,032,837, for example. This type of prior art shirt finishing machine comprises a torso for putting on a shirt, and a press iron for depressing the front part and rear part of the torso to press finish the shirt. The aforesaid torso is formed by plates oppositely arranged at the front part and the rear part.

**[0003]** In view of the foregoing, the shirt such as a white shirt is provided with a front bodice having cloth overlapped portions. More practically, these overlapped portions correspond to a front part (a part where front buttons and button holes are formed and the part extending from the throat to the lower end of the front bodice) or a position of pocket. The front part is set such that each of the front button side and the button hole side has a cloth folded back inside the shirt. Accordingly, when the shirt is put on the torso, the cloth becomes overlapped in four plies and becomes thick. In addition, when a pocket is seen at the front bodice, the pocket cloth and the cloth at the front bodice corresponding to the pocket portion become overlapped to each other in two plies. In addition, since the location of port of the pocket has normally the cloth folded back inside the shirt, they are gathered together with the cloth at the front bodice and become three plies.

**[0004]** Thus, this type of finishing machine has a structure in which the torso is pressed with the press iron (hot iron), some wrinkles at the front bodice of the shirt put on the torso are extended with pressure and heat of the press iron to finish the shirt. Accordingly, this type of finishing machine required that the press iron should be continued to be pressed against the torso until the front bodice location was completely dried even if the front bodice was completely dried. As a result, in accordance with the prior art machine, it had a problem that it took much time for finishing the front bodice of the shirt and its working efficiency was not improved.

**[0005]** This invention has been provided in view of the prior art problems.

**[0006]** Accordingly, the technical theme of the present invention to be solved is to provide a shirt finishing machine constructed such that the front bodice of a shirt having overlapped cloth portions can be rapidly press finished and the efficiency of the shirt pressing operation can be increased.

### SUMMARY OF INVENTION

**[0007]** As illustrated in Fig. 1 and the like, the present invention is formed to be provided with a torso on which a shirt is put, and press irons for depressing the front part and rear part of the torso to press finish a shirt. The torso is formed by plates oppositely arranged at the front part and rear part of the torso. Then, the present invention is constructed such that a steam flowing pipe for use in heating the front side plate is installed at a position corresponding to the front bodice of the shirt at the rear side of the front plate.

**[0008]** Accordingly, in accordance with the present invention, the front bodice of a shirt having cloth overlapped portions can be rapidly dried in cooperation with the press irons and the shirt can be press finished efficiently within a short period of time because the front side plate can be heated.

**[0009]** The front bodice of a shirt in this case is meant by a portion extending from the throat to the lower end of the front bodice where the front buttons and button holes of the shirt are formed. In addition, the position corresponding to the front part of a shirt is meant by a position just rear side of the front bodice or a position of one side slightly displaced to either right or left from the position just rear side of the front bodice or both side positions. In the case of the present invention, the steam flowing pipe is formed by metallic materials such as copper, copper alloy and aluminum having a superior thermal conductivity. In addition, the steam flowing pipe is arranged at the rear side of the front side plate while being directly contacted with it or fixed to a reinforcing rib at the rear side of the front side plate and then arranged to enable heat to be transferred to the front side plate through the reinforcing rib.

**[0010]** Additionally, it is preferable in the present invention that the steam flowing pipe is arranged to be communicated with the upper rear side of the front side plate and at a position corresponding to a shirt pocket.

**[0011]** In accordance with this arrangement, a reason why this state occurs consists in the fact that when a pocket is formed in a shirt, the pocket position can be dried quickly. It is also applicable that the position corresponding to the pocket is an upper one side of the front plate or both sides of the front plate. In this case, the expression of ".....is arranged to be communicated with....." means that the steam flowing pipe is in a continuous state between a position corresponding to the front part and a position corresponding to the pocket. More practically, this state can be realized by being formed with a continuous connected state (in one stroke) or branched from the position corresponding to the front part and arranged at the position corresponding to the pocket. In addition, it is also applicable that the steam flowing pipe is bent in a lateral direction at the position corresponding to the pocket, or arranged in a zig-zag form (refer to Fig. 3) or formed in a sinusoidal shape.

**[0012]** As shown in Fig. 4 or the like, it is also applicable

in the present invention that the steam flowing pipe is formed at the position corresponding to the pocket opening of a shirt while being provided with a heat transferring part extending in a lateral direction to heat the front side plate.

**[0013]** Because, in accordance with this arrangement, it is possible to dry quickly the folded-back part corresponding to the pocket opening. The heat transferring part is formed into a plate shape like the steam flowing pipe by metallic material of superior thermal conductivity, for example, copper, copper alloy and aluminum or the like. In addition, this thermal transferring part is arranged such that the plate surface for improving a thermal conductivity is abutted against the rear surface of the front side plate, installed at the steam flowing pipe arranged in parallel with it, for example, or protruded in a lateral direction from the steam flowing pipe and its extremity end is released.

## BRIEF DESCRIPTION OF DRAWINGS

**[0014]**

Fig. 1 is a substantial perspective view for showing one preferred embodiment of a shirt finishing machine of the present invention.

Fig. 2 is a substantial perspective view for showing the shirt finishing machine with a part of the front side plate being broken away.

Fig. 3 is a substantial front elevational view for showing another preferred embodiment of the shirt finishing machine.

Fig. 4 is a substantial front elevational view for showing a still further preferred embodiment of the shirt finishing machine.

Fig. 5 is a substantial enlarged sectional view taken along line V-V of Fig. 4.

## DESCRIPTION OF PREFERRED EMBODIMENTS

**[0015]** Referring now to the drawings, the preferred embodiments of the present invention will be described.

**[0016]** As shown in Fig. 1 or the like, the shirt finishing machine of the present invention comprises a torso 2 on which a shirt 1 is put, and press irons 3 for depressing the front part and rear part of the torso 2 to press finish the shirt 1. The aforesaid torso 2 is formed by a front side plate 2a and a rear side plate 2b oppositely arranged at the front side and rear side of the torso.

**[0017]** Reference numeral 4 denotes a steam flowing pipe for use in heating the front side plate 2a. The steam flowing pipe 4 is formed by a copper pipe, for example, and arranged at a position corresponding to the front part 1a (a part where front buttons 1b and the button holes of the shirt 1 are formed and extending from a throat to the lower end of the front bodice) at the rear side of the front side plate 2a. In the case of the preferred embodiment, the steam flowing pipe 4 is extended in a parallel state

in an upright direction at the right and left rear sides of the front part 1a while holding the front part 1a and arranged.

**[0018]** In addition, in the case of the preferred embodiment, the steam flowing pipe 4 is arranged in communication with a position corresponding to the pocket 1c of the shirt 1 at the upper rear side of the front side plate 2a. More practically, as shown in Figs. 1 and 2, the steam flowing pipe 4 is raised up from the left end as seen from the front elevational view of the torso 2, extended horizontally at the left upper part of the front plate 2a, raised up along the front part 1a at the right side of the torso 2, the right upper part is extended horizontally, raised down at the right end of the torso 2 from the right upper part and formed to be integrally connected to each other. In addition, the steam flowing pipe 4 is arranged directly with the rear side of the front side plate 2a. Further, as shown in Fig. 2, the lower position of the steam flowing pipe 4 is passed through the pipe hole 5a of the reinforcing rib 5 and arranged.

**[0019]** Reference numeral 6 (refer to Fig. 1 or the like) denotes a source of supplying steam. The steam flowing pipe 4 is connected to the supplying source 6. In addition, reference numeral 7 denotes a gas-water separator for removing moisture from vapor of which temperature is decreased through a heating exchanging operation with the front side plate 2a.

**[0020]** Next, an action of the present invention will be described as follows.

**[0021]** The present invention is operated such that the steam flows along the front part 1a and heats the central position of the front side plate 2a corresponding to the front part 1a through heat exchanging action over its upright direction. Accordingly, in the present invention, the front side plate 2a dries the front part 1a of the shirt 1 in cooperation with the press irons 3. In addition, since the position of the front side plate 2a corresponding to the pocket 1c is heated, in the case that the pocket 1c is formed at the shirt 1, the front side plate 2a rapidly dries the position of the pocket 1c of the shirt 1.

**[0022]** In addition, the steam flowing pipe 4 in this preferred embodiment is extended up to the right and left upper portions of the torso 2 as described above and arranged such that the steam flows laterally at the right and left upper portions. Accordingly, in accordance with the present invention in this preferred embodiment, when steam is injected into the sleeves of the shirt 1 to wet the sleeves to expand them and finish them in tension, even if the steam injected into the sleeves is drained to wet the upper part of the front bodice, the upper portion of the front side plate 2a is heated, so that the upper part of the front bodice of the shirt 1 can be dried rapidly and positively and disadvantage caused by this type of drain can be completely eliminated.

**[0023]** As shown in Fig. 3, the present invention in the aforesaid preferred embodiment may be applied in which the steam flowing pipe 4 is bent in a lateral direction at a position corresponding to the pocket 1c, i.e. the upper

position at the right side as viewed from the front side of the torso 2 in this preferred embodiment and arranged in a zig-zag form. In this case, a time where steam flows is extended at the position of the pocket 1c and the position of the front side plate 2a corresponding to the pocket 1c can be heated more. Accordingly, in accordance with this preferred embodiment, the position of the pocket 1c in the shirt 1 can be dried within a further short period of time.

[0024] In addition, as shown in Fig. 4, the present invention may be provided in such an arrangement in which the steam flowing pipe 4 is provided with the heat transferring part 8 extending in a lateral direction to heat the front side plate 2a at the position corresponding to the opening of the pocket 1c of the shirt 1. This heat transferring part 8 is formed by metal having a superior thermal conductivity, copper, for example, in the same manner as that of the steam flowing pipe 4. In addition, this heat transferring part 8 is formed into a plate-like member, for example, and its plate surface is abutted against the rear surface of the front side plate 2a.

[0025] As shown in Fig. 4, the heat transferring part 8 in this preferred embodiment is constructed such that its right and left ends are connected to the right side raised portion 4a of the front part 1a and the right end descending part 4b as seen from the front side of the torso 2 and it is applied as a beam in a lateral direction. In the case of this invention, the position of the front side plate 2a corresponding to the opening of the pocket 1c can be heated simply and positively by changing an upright width, shape and area of the heat transferring part 8 in an appropriate manner. Accordingly, in accordance with this preferred embodiment, it can flexible accommodate for modification in specification of the torso 2.

4. The shirt finishing machine according to claim 3, wherein the heat transferring part is formed into a plate-like shape with metal having a superior thermal conductivity and the plate surface is abutted against the rear surface of the front side plate.

## Claims

1. A shirt finishing machine comprising a torso for putting on a shirt thereon and press irons to depress the front part and rear part of the torso to press finish the shirt, said torso being formed by plates oppositely arranged at the front part and rear part, wherein a steam flowing pipe for use in heating the front side plate is arranged at a position corresponding to the front part of the shirt at the rear side of the front plate.
2. The shirt finishing machine according to claim 1, wherein the steam flowing pipe is cooperatively arranged at a position corresponding to the pocket of the shirt at the upper rear side of the front side plate.
3. The shirt finishing machine according to claim 2, wherein the steam flowing pipe is formed in such a way that a position corresponding to an opening of the pocket of the shirt is provided with a heat transferring part extending in a lateral direction to heat the front side plate.

Fig. 1

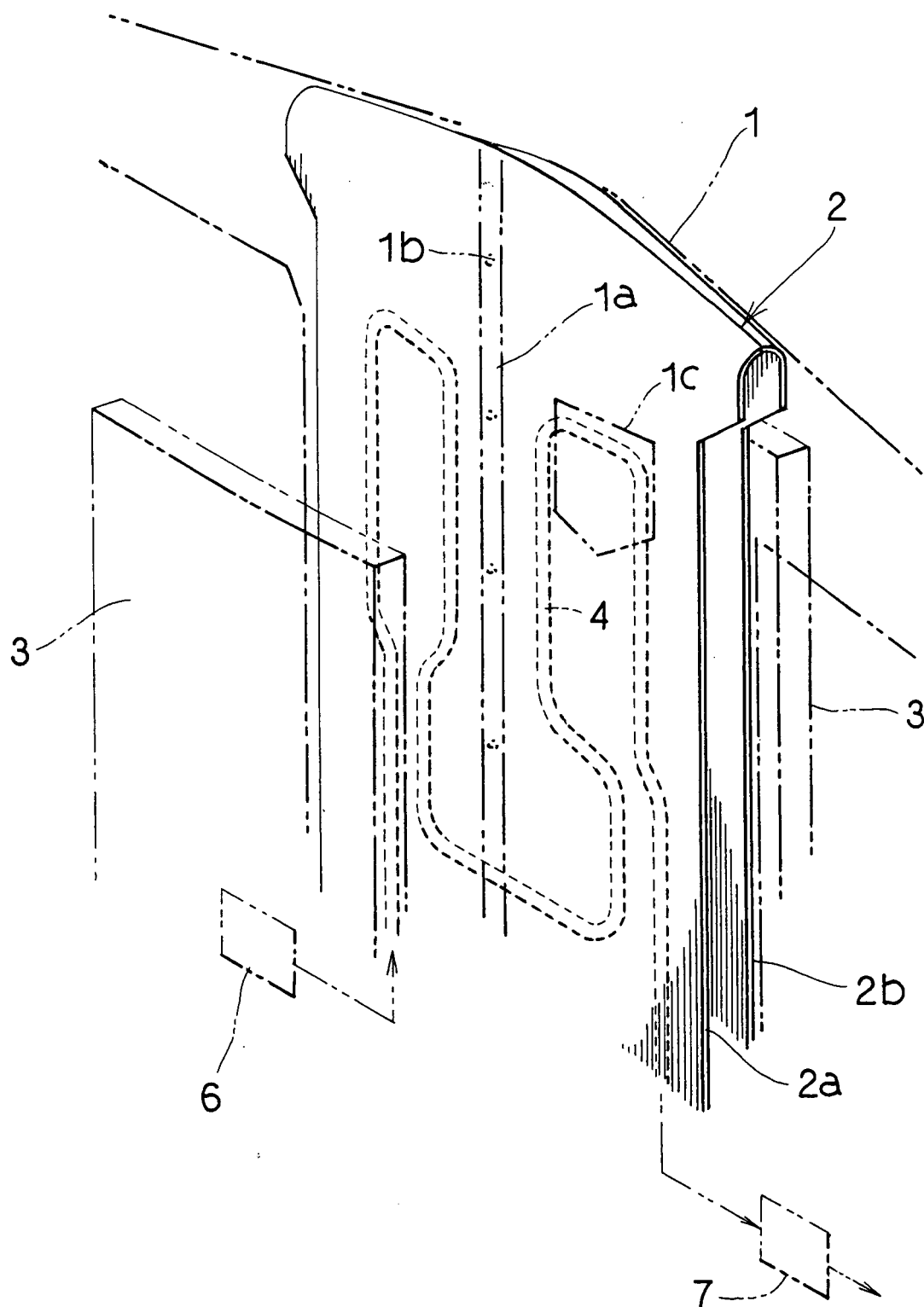


Fig. 2

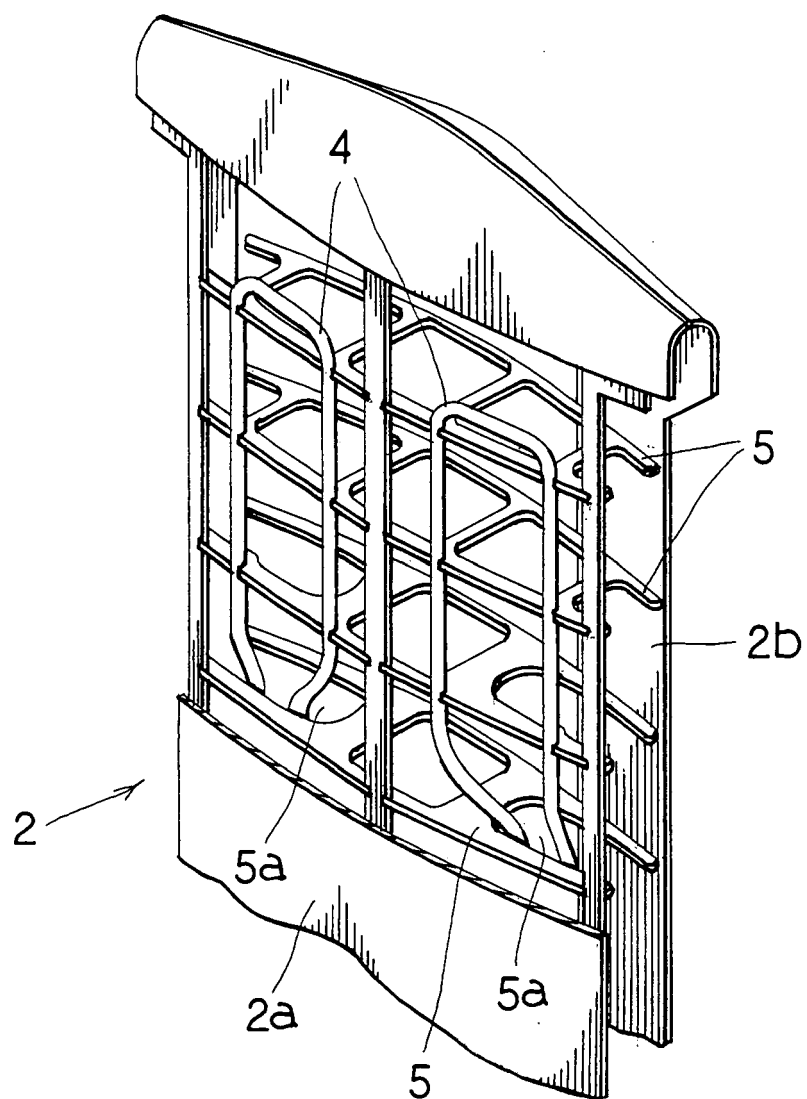


Fig. 3

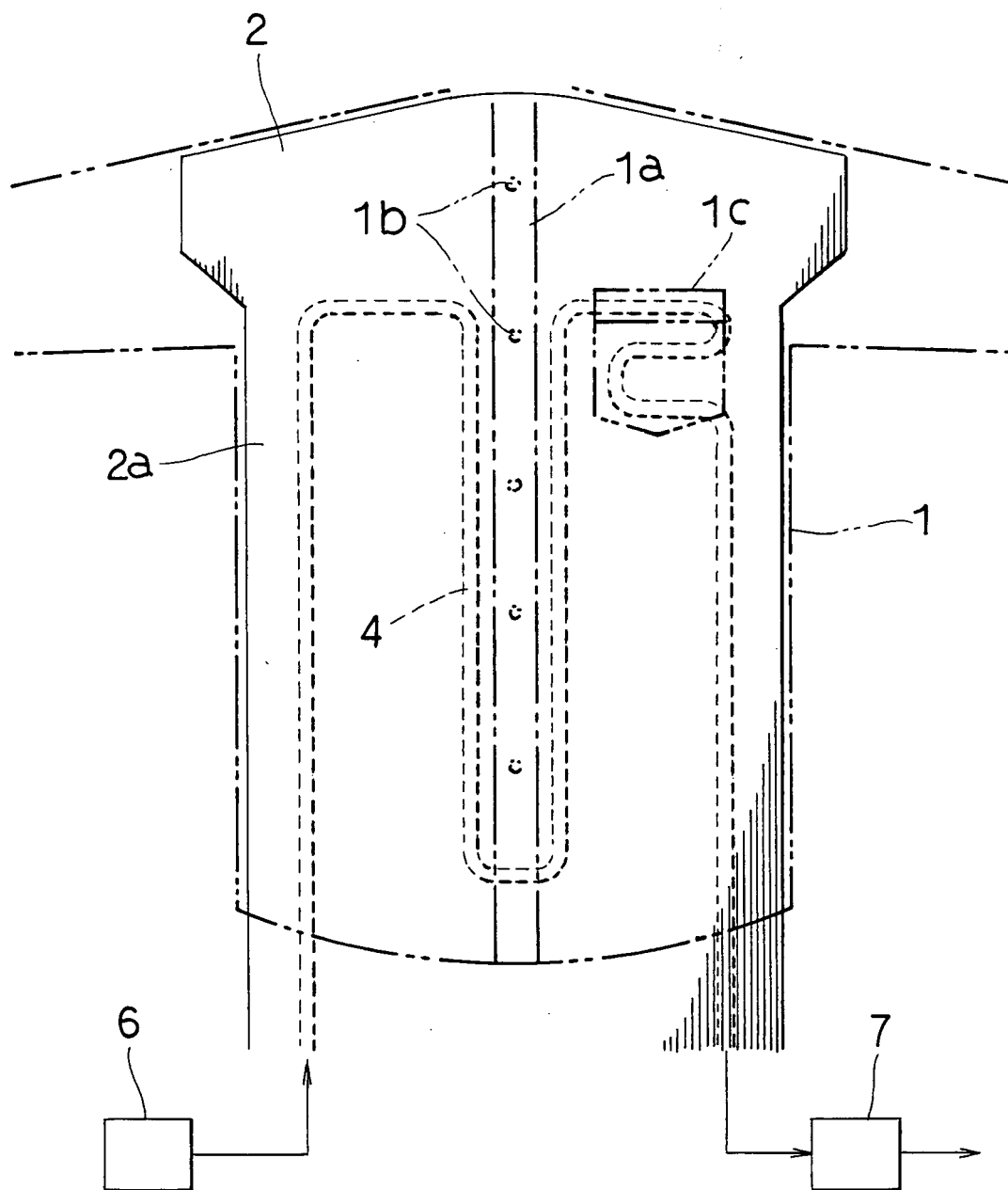


Fig. 4

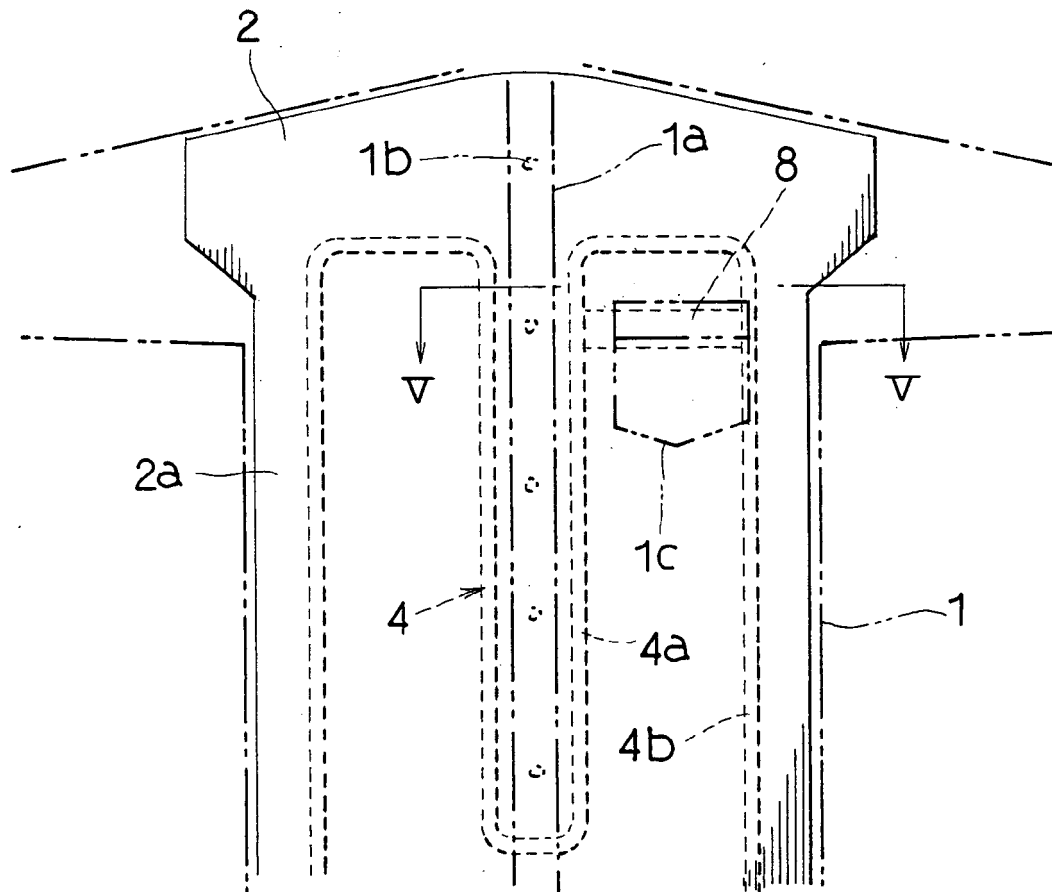
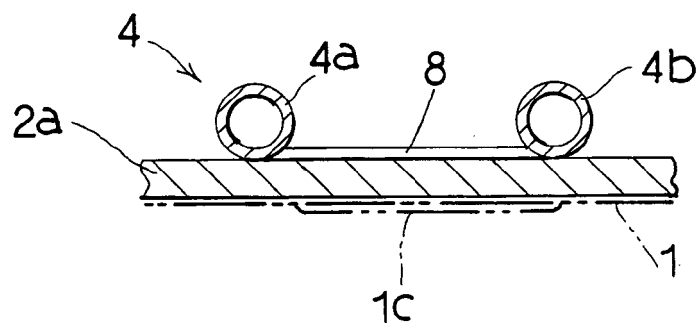


Fig. 5







European Patent  
Office

# EUROPEAN SEARCH REPORT

Application Number  
EP 07 00 6947

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	GB 2 142 938 A (ORTON ENGINEERS LIMITED) 30 January 1985 (1985-01-30) * page 2, line 10 - line 75 *	1-3	INV. D06F71/20 D06F71/34 D06F73/00
Y	-----	4	
X	GB 1 147 679 A (JERRY NEIL MCMILLAN) 2 April 1969 (1969-04-02) * the whole document *	1	
Y	----- US 3 568 900 A (PARIS AUGUST F) 9 March 1971 (1971-03-09) * column 6, line 46 - line 62; figures 6,16,17 *	4	
A	----- US 3 494 516 A (MCMILLAN JERRY N) 10 February 1970 (1970-02-10) * the whole document *	1	
A,D	----- US 6 032 837 A (UCHIKOSHI MITSUYUKI [JP]) 7 March 2000 (2000-03-07) * the whole document *	1	
			TECHNICAL FIELDS SEARCHED (IPC)
			D06F
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		24 September 2007	Norman, Pia
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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  .....  &amp; : member of the same patent family, corresponding document</p>			

3

EPO FORM 1503 03 82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 07 00 6947

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
The members are as contained in the European Patent Office EDP file on  
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

24-09-2007

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
GB 2142938	A	30-01-1985	NONE	
-----				
GB 1147679	A	02-04-1969	DE 1585834 A1	22-10-1970
			DK 113284 B	10-03-1969
			FR 1507593 A	29-12-1967
-----				
US 3568900	A	09-03-1971	NONE	
-----				
US 3494516	A	10-02-1970	NONE	
-----				
US 6032837	A	07-03-2000	NONE	
-----				

**REFERENCES CITED IN THE DESCRIPTION**

*This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.*

**Patent documents cited in the description**

- US 6032837 A [0002]