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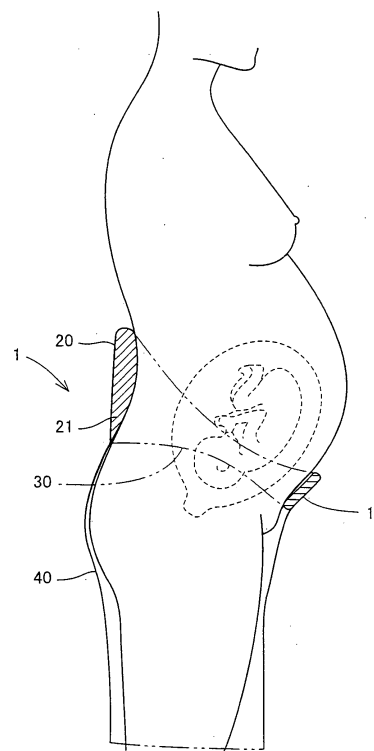
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(54) **CLOTHING FOR LOWER HALF OF BODY OF PREGNANT WOMAN**

(57) A skirt (1) according to one example of lower-body clothes for a pregnant woman comprises a front belt part (10), a rear belt part (20), a pair of side belt parts (30) and a hung cloth (40) hanging downward from each belt part. The front belt part (10) holds up a protruding lower abdomen of the pregnant woman along its configuration in a state her lower abdomen is exposed. The rear belt part (20) includes a waist pad part (21) applied to a back waist part of the pregnant woman. The pair of side belt parts (30) connects the front belt part (10) and the rear belt part (20).

FIG. 2



**Description**

## TECHNICAL FIELD

**[0001]** The present invention relates to lower-body clothes suitable for a pregnant woman having a protruding abdomen.

**[0002]** The term "lower-body clothes" used in this specification includes a skirt, pants, a girdle and the like.

## BACKGROUND ART

**[0003]** Conventionally, there is proposed lower-body clothes for a pregnant woman having a protruding abdomen, which hold up the abdomen from beneath to retain a womb and an unborn baby in normal positions and to prevent the protruding abdomen from being displaced downward and protect it.

**[0004]** For example, Laid-Open Japanese Utility Model Publication No. 7-6216 (patent document 1) discloses a lower-body underwear for the pregnant woman in which a girdle and an abdominal belt can be freely combined. According to the girdle, an almost U-shaped cut part is formed at the front of a girdle body cloth from the vicinity of both sides of a body to the vicinity of a pubic bone, and the abdominal belt is sewn in the cut part.

**[0005]** In addition, Laid-Open Japanese Patent Publication No. 9-3702 discloses shorts for the pregnant woman which can be used regardless of a figure or a protruding state of the abdomen of the pregnant woman by differentiating stretchability of a body of the shorts. More specifically, the shorts for the pregnant woman comprises a both-direction stretchable part which can be stretched in a vertical direction and a lateral direction, and a lateral-direction stretchable part which is prevented from being stretched in the vertical direction and largely stretched in the lateral direction, and the both-direction stretchable part is provided in the central part of the abdomen.

**[0006]** According to the lower-body clothes for the pregnant woman disclosed in the above patent documents 1 and 2, the abdomen is prevented from being compressed by covering the protruding abdomen of the pregnant woman with a soft and stretchable material in either case.

**[0007]** The baby in the body of the pregnant woman is protected by the amniotic fluid. A temperature of the amniotic fluid is higher than a body temperature of the mother by about 1 to 1.5°C, and as a body surface temperature of the mother is raised, the temperature of the amniotic fluid is also raised. It is preferable that the temperature of the amniotic fluid is maintained in a preferable range for healthy growth of the unborn baby. In the case of the lower-body clothes disclosed in the patent documents 1 and 2, since the abdomen of the pregnant woman is covered with the soft and stretchable material, the temperature of the amniotic fluid is excessively raised in some cases. If the amniotic fluid becomes

warm too much, the healthy growth of the unborn baby could be hindered.

**[0008]** In addition, the pregnant woman having the protruding abdomen leans backward in walking in many cases to bear a weight of the baby and hold the baby in an appropriate position. Therefore, an excessive pressure is applied to a lumbar vertebra part of the pregnant woman and fatigue of the pregnant woman is increased.

## 10 DISCLOSURE OF THE INVENTION

**[0009]** It is an object of the present invention to provide lower-body clothes for a pregnant woman, which can prevent the amniotic fluid from being warmed up too much and reduce a pressure to a lumbar vertebra part of the pregnant woman.

**[0010]** It is another object of the present invention to provide lower-body clothes for a pregnant woman which reduce a pressure to a lumbar vertebra part of the pregnant woman especially.

**[0011]** Lower-body clothes according to the present invention comprise a front belt part holding up a protruding abdomen of a pregnant woman along its configuration in a state the abdomen is exposed, a rear belt part including a waist pad part applied to a back waist of the pregnant woman, and a pair of side belt parts connecting the front belt part to the rear belt part.

**[0012]** According to the lower-body clothes comprising the above constitution, since the front belt part holds up the protruding abdomen of the pregnant woman along its configuration in a position the abdomen is exposed, the abdomen is not likely to become stuffy, so that the amniotic fluid is not excessively warmed up. In addition, since the protruding abdomen is pressed by nothing, a body is comfortable. In addition, since the waist pad part supports the lumbar vertebra part of the pregnant woman who leans backward in walking, the pressure applied to the lumbar vertebra can be reduced.

**[0013]** Preferably, the waist pad part is applied to at least a region from a lower end of the thoracic vertebra to an upper end of the lumbar vertebra from beneath. In addition, preferably, the side belt part passes an upper part of the iliac bone.

**[0014]** Further preferably, the front belt part is in contact with the abdomen of the pregnant woman on its surface and lifts it up so as not to bite into the protruding abdomen.

**[0015]** Further preferably, the lower-body clothes for the pregnant woman further comprises a length adjustment part for adjusting a length of a loop formed by the front belt part, the pair of side belt parts and the rear belt part.

**[0016]** Lower-body clothes for a pregnant woman according to another aspect of the present invention comprises a body of the lower-body clothes and an abdominal belt. The body of the lower-body clothes include an abdomen cover part made of a stretchable material which covers a protruding abdomen of the pregnant

woman, and a waist pad part applied to a back waist part of the pregnant woman. The abdominal belt extends so as to overlap with the abdomen cover part and hold up a lower end of the protruding abdomen of the pregnant woman along its configuration from beneath, and its both ends are detachably connected to the waist pad part at the back of the pregnant woman.

**[0017]** Lower-body clothes for a pregnant woman according to still another aspect of the present invention includes an abdomen cover part covering a protruding abdomen of the pregnant woman and made of a stretchable material, and a waist pad part applied to a back waist part of the pregnant woman.

**[0018]** When the body of the lower-body clothes or the lower-body clothes include the abdomen cover part covering the protruding abdomen of the pregnant woman and made of the stretchable material, and the waist pad part applied to the back waist part of the pregnant woman, it is preferable that a width dimension of an upper end of the waist pad part is largest and a width dimension of a center part thereof is smallest. An advantageous point in this case will be described below.

#### BRIEF DESCRIPTION OF DRAWINGS

##### **[0019]**

Fig. 1 is a view showing a pregnant woman who wears a skirt according to one embodiment of the present invention;

Fig. 2 is a sectional view showing the skirt shown in Fig. 1;

Fig. 3 is a front view showing pants for a pregnant woman according to another embodiment of the present invention;

Fig. 4 is a back view showing the pants for the pregnant woman shown in Fig. 3;

Fig. 5 is a front view showing a body of the pants;

Fig. 6 is a back view showing the body of the pants; and

Fig. 7 is a view showing an abdominal belt.

#### BEST MODE FOR CARRYING OUT THE INVENTION

**[0020]** Fig. 1 illustrates a pregnant woman wearing a maternity skirt according to one embodiment of the present invention. Fig. 2 shows the skirt shown in Fig. 1 in section and also shows a baby in her body.

**[0021]** As shown in Figs. 1 and 2, a skirt 1 comprises a front belt part 10, a rear belt part 20, a pair of side belt parts 30 and a hung cloth 40 hanging downward from each belt part.

**[0022]** The front belt part 10 holds up a protruding lower abdomen of the pregnant woman in a state the lower abdomen is exposed. As shown in Fig. 2, the front belt part 10 is in contact with the lower abdomen on its surface broadly so as not to bite into the abdomen.

**[0023]** The rear belt part 20 includes a waist pad part

21 applied to a back waist part of the pregnant woman. As the pregnant woman leans backward in walking, a great pressure is applied to her lumbar vertebra part. The waist pad part 21 supports the lumbar vertebra part of the pregnant woman who leans backward in walking to reduce the pressure thereon.

**[0024]** According to a symptom example of disk herniation of the pregnant woman, the fourth and fifth lumbar vertebrae protrude outward in many cases. This shows that the great pressure is applied to the fourth and fifth lumbar vertebrae. Thus, it is preferable that a size and a position of the waist pad part 21 are selected so as to be able to cover at least a region from a lower end of the thoracic vertebra to an upper end of the lumbar vertebra.

**[0025]** Various kinds of materials may be used for the waist pad part 21. For example, it may be a cushion material having elasticity to some extent, a thick cloth and the like.

**[0026]** The pair of side belt parts 30 connects the front belt part 10 and the rear belt part 20, and preferably, it passes an upper part of the iliac bone of the pregnant woman. The front belt part 10, the pair of side belt parts 30 and the rear belt part 20 form a loop configuration which surrounds the body of the pregnant woman from her lower abdomen part to the back waist part. The front belt part 10 whose surface is in contact with the lower abdomen of the pregnant woman holds up the front part of the abdomen and both sides of the front part at a slant along roundness of the abdomen.

**[0027]** In order to be able to adjust a size of the above loop configuration, the side belt part 30 has a length adjustment part 31. Various kinds of materials such as a hook and loop fastener, a string, a clip, a hook, a latch button may be used for the length adjustment part which can adjust the length.

**[0028]** The front belt part 10, the rear belt part 20 and the pair of side belt parts 30 may be mounted on an outer surface of the hung cloth 40 or may be mounted on an inner surface thereof.

**[0029]** Although the skirt is illustrated as one example of the lower-body clothes for the pregnant woman in the above embodiment, the present invention is not limited to the skirt. For example, the present invention can be applied to pants or a lower-body underwear such as shorts or a girdle. In addition, the present invention can be applied to a waist belt comprising a front belt part, a rear belt part and a pair of side belt parts.

**[0030]** Figs. 3 and 4 show pants 50 which is the lower-body clothes for the pregnant woman according to another embodiment of the present invention. Fig. 3 is a front view showing the maternity pants 50, and Fig. 4 is a back view showing the maternity pants 50. The maternity pants 50 is provided with the intention to reduce the pressure to the lumbar vertebra part of the pregnant woman especially.

**[0031]** The maternity pants 50 comprises a body 60 of the pants which is a body of the lower-body clothes,

and an abdominal belt 70. Figs. 5 and 6 show the body 60 alone and Fig. 7 shows the abdominal belt 70 alone.

**[0032]** As shown in Figs. 5 and 6, the body 60 of the pants comprises an abdomen cover part 61 made of a stretchable material for covering the abdomen of the pregnant woman, and a waist pad part 62 applied to a back waist part of the pregnant woman. The abdomen cover part 61 is made of stretchable knitting, for example which preferably has air permeability. The abdomen cover part 61 is provided so as to cover the abdomen and its sides of the pregnant woman.

**[0033]** The waist pad part 62 of the body 60 is made of a thick cloth which is not stretchable, for example and has a size and configuration so that it can be applied to at least a region from a lower end of the thoracic vertebra to an upper end of the lumbar vertebra of the pregnant woman from behind. According to a dimension in a width direction of the waist pad part 62, a width dimension of its upper end 62a is largest and a width dimension of its center part 62b is smallest. In addition, according to a width dimension of a lower end 62c of the waist pad part 62, it is smaller than the upper end 62a but larger than the center part 62b.

**[0034]** As can be seen clearly from Fig. 6, a plurality of lock buttons are vertically mounted on both sides of the waist pad part 62. These lock buttons 63 are used to mount the abdominal belt 70. When the abdomen of the pregnant woman is small, the pants shown in Figs. 5 and 6 can be used alone.

**[0035]** The abdominal belt 70 shown in Fig. 7 is made of the thick cloth which is not stretchable, for example and a width dimension in the center part 70a in the width direction (vertical height dimension) is smallest and a width dimension (vertical height dimension) at both side ends 70b is largest. The vertical height dimension of the abdominal belt 70 at both side ends 70b is almost the same as that of the waist pad part 62. Two rows of vertically arranged button holes 71 and 72 are formed in both side ends of the abdominal belt 70. The button holes 72 are positioned inside the button holes 71.

**[0036]** The abdominal belt 70 is used when the abdomen of the pregnant woman becomes large. In its used state, the abdominal belt 70 overlaps with the abdomen cover part 61 of the body 60 of the pants and extends so as to hold up the lower part of the protruding abdomen of the pregnant woman along its configuration, and its both side ends 70b are detachably connected to the waist pad part 62 at the back of the pregnant woman. More specifically, the button holes 71 and 72 formed at both side ends of the abdominal belt 70 engage with the lock buttons 63 mounted on both sides of the waist pad part 62. Either the button holes 71 or 72 are selected according to the size of the abdomen.

**[0037]** The abdominal belt 70 whose surface is in contact with the lower abdomen of the pregnant woman holds up the front and its both sides of the abdomen along the roundness of the abdomen. Since the width dimension of the upper end 62a of the waist pad part 62

is large, a holding-up effect by the abdominal belt 70 can be stabilized.

**[0038]** The reason why the width dimension of the center part 62b of the waist pad part 62 is small is that the abdomen cover part 61 made of the stretchable material can be easily widened as the abdomen of the pregnant woman becomes large. In addition, the reason why the width dimension of the lower end 62c of the waist pad part 62 is large is that the waist pad part 62 can be stably applied to the region from the lower end of the thoracic vertebra to the upper end of the lumbar vertebra of the pregnant woman.

**[0039]** Although the embodiment of the present invention has been described with reference to the drawing above, the present invention is not limited to the illustrated embodiment. Various modifications and variations can be made to the illustrated embodiment within the same or equivalent scope.

## 20 INDUSTRIAL APPLICABILITY

**[0040]** The present invention can be advantageously used as lower-body clothes for the pregnant woman.

## 25 Claims

1. Lower-body clothes for a pregnant woman comprising:
  - a front belt part holding up a protruding lower abdomen of the pregnant woman from beneath along its configuration in a state the abdomen is exposed;
  - a rear belt part including a waist pad part applied to a back waist of the pregnant woman; and
  - a pair of side belt parts connecting said front belt part to said rear belt part.
2. The lower-body clothes for the pregnant woman according to claim 1, wherein said waist pad part is applied to at least a region from a lower end of the thoracic vertebra to an upper end of the lumbar vertebra from behind.
3. The lower-body clothes for the pregnant woman according to claim 1 or 2, wherein said side belt part passes an upper part of the iliac bone.
4. The lower-body clothes for the pregnant woman according to any one of claims 1 to 3, wherein said front belt part holds up the lower abdomen of the pregnant woman on its surface along its configuration from beneath.
5. The lower-body clothes for the pregnant woman according to any one of claims 1 to 4, further compris-

ing a length adjustment part for adjusting a length of a loop formed by said front belt part, said pair of side belt parts and said rear belt part.

- 6.** Lower-body clothes for a pregnant woman comprising a body of the lower-body clothes and an abdominal belt, wherein

said body of the lower-body clothes includes an abdomen cover part made of a stretchable material which covers a protruding abdomen of the pregnant woman, and a waist pad part applied to a back waist part of the pregnant woman, and

said abdominal belt extends so as to overlap with said abdomen cover part and hold up a lower end the protruding abdomen of the pregnant woman along its configuration from beneath, and its both ends are detachably connected to said waist pad part at the back of the pregnant woman.

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- 7.** Lower-body clothes for a pregnant woman including an abdomen cover part covering a protruding abdomen of the pregnant woman and made of a stretchable material, and a waist pad part applied to a back waist part of the pregnant woman.

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- 8.** The lower-body clothes for the pregnant woman according to claim 6 or 7, wherein a width dimension of an upper end of said waist pad part is largest and a width dimension of a center part thereof is smallest.

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FIG. 1

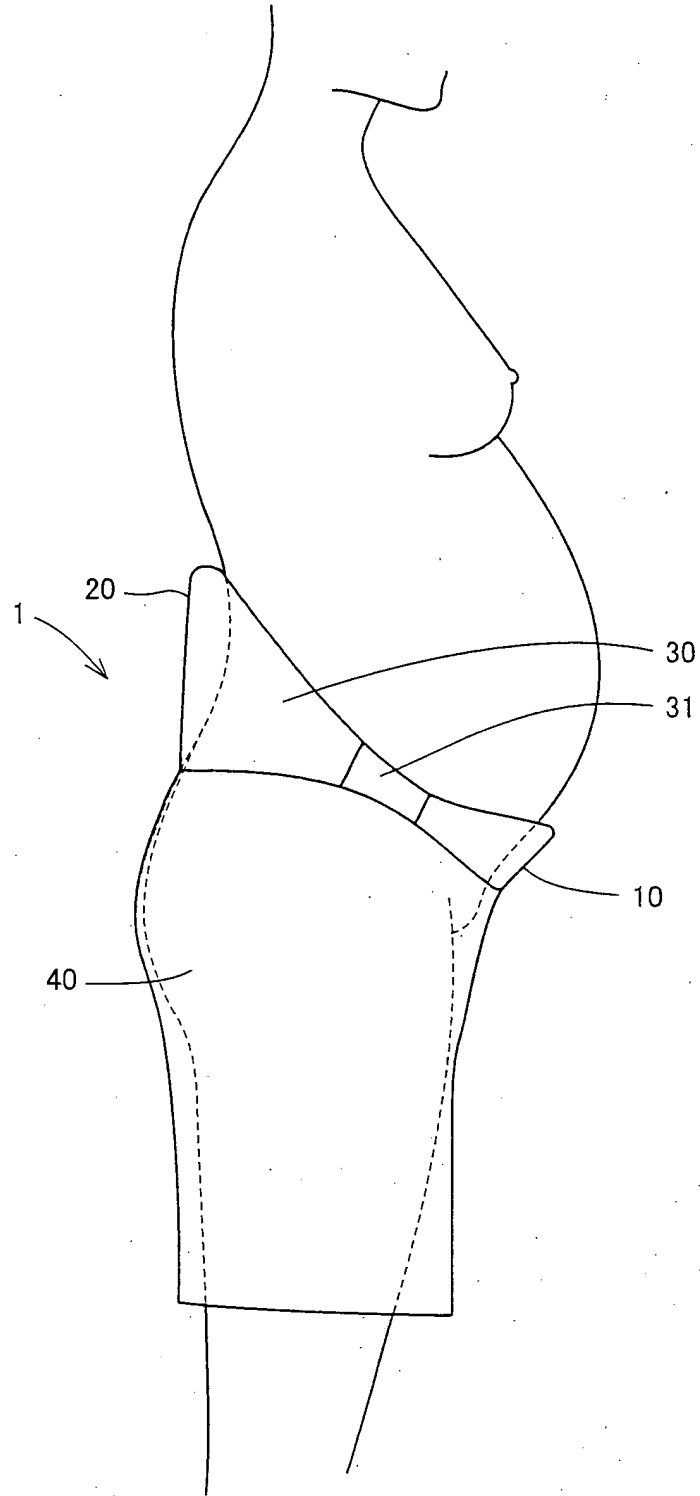


FIG. 2

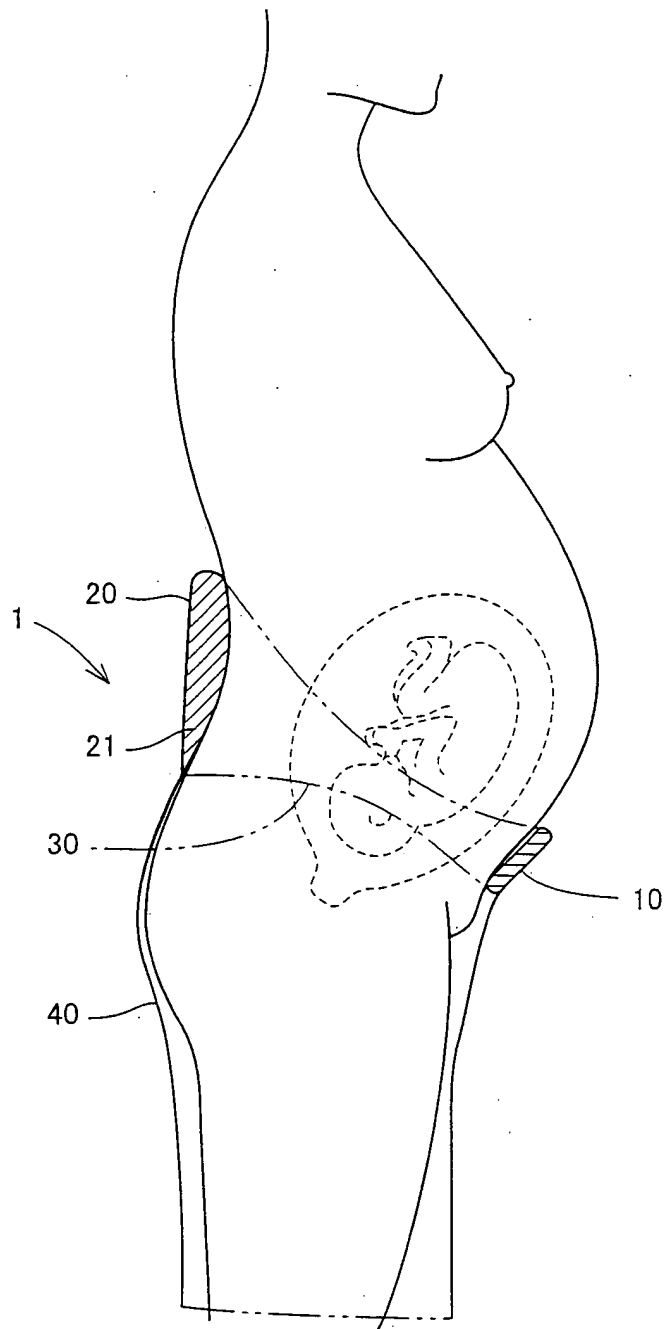


FIG. 3

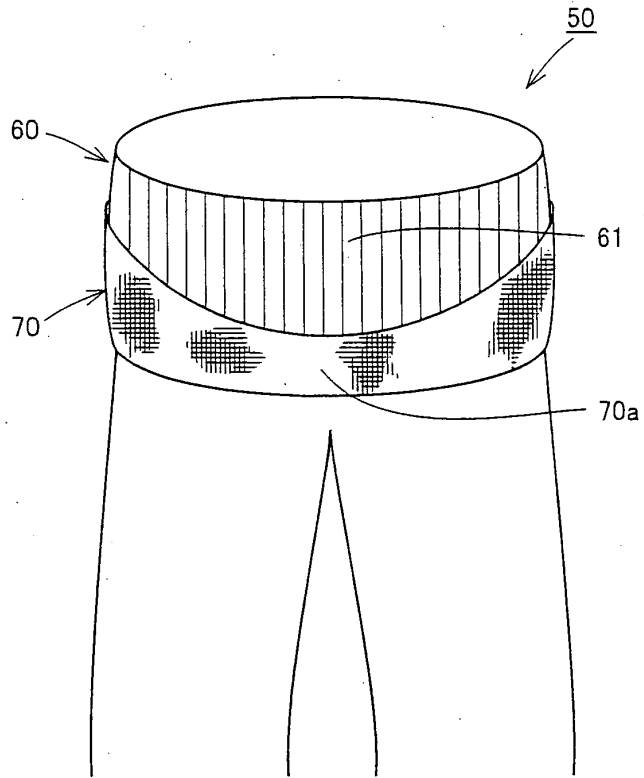


FIG. 4

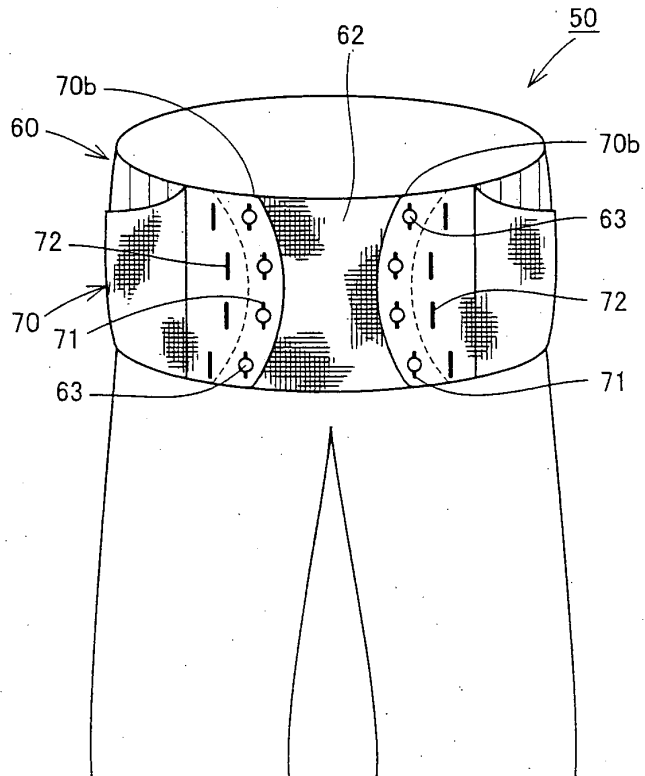


FIG. 5

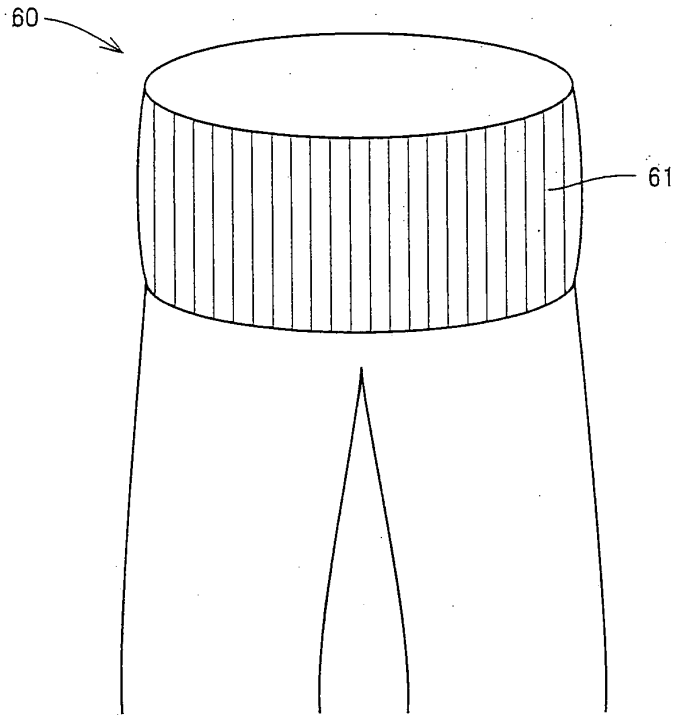


FIG. 6

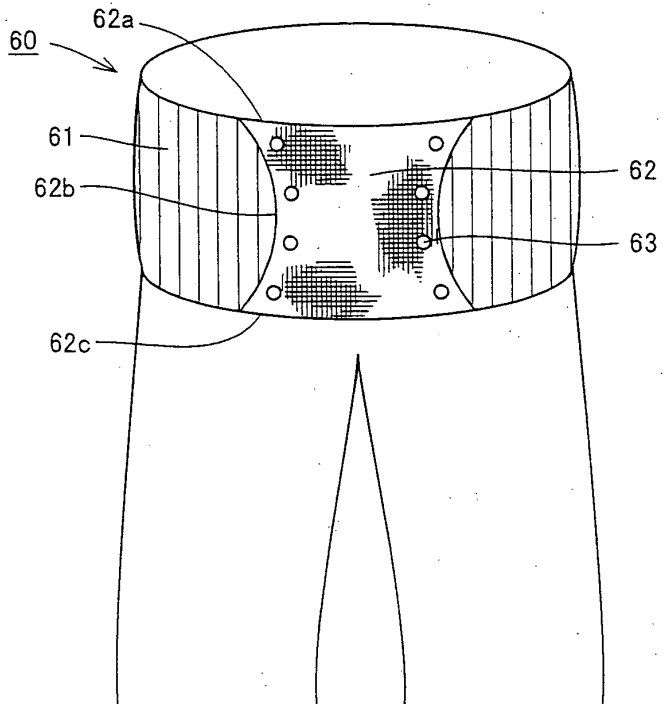
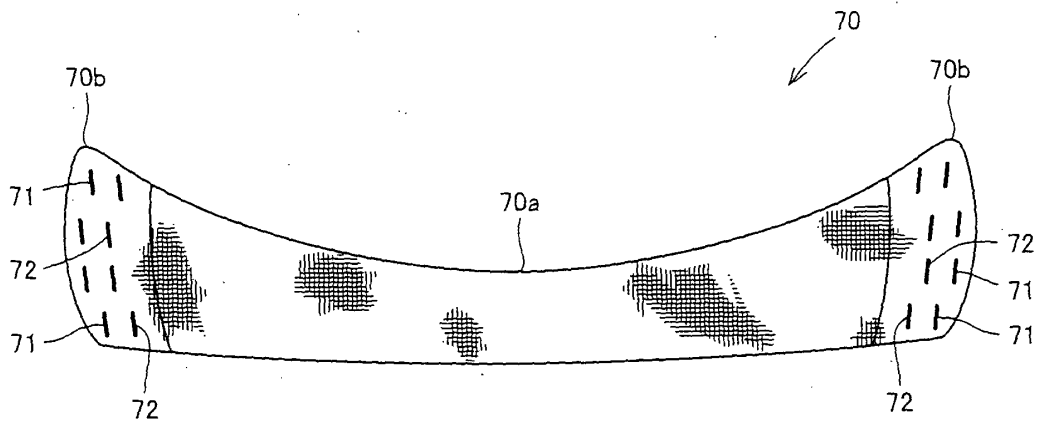


FIG. 7



## INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2004/008541

A. CLASSIFICATION OF SUBJECT MATTER Int.Cl <sup>7</sup> A41D1/20, A41C1/10, A41C1/00, A41B9/04		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) Int.Cl <sup>7</sup> A41D1/00-1/20, A41C1/00-1/10, A41B9/04		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Jitsuyo Shinan Koho 1926-1996 Toroku Jitsuyo Shinan Koho 1994-2004 Kokai Jitsuyo Shinan Koho 1971-2004 Jitsuyo Shinan Toroku Koho 1996-2004		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2002-143205 A (Pip Fujimoto Co., Ltd.), 21 May, 2002 (21.05.02), (Family: none)	1-5
Y	JP 3086624 U (Kabushiki Kaisha Enjeripe), 03 April, 2002 (03.04.02), Fig. 2(a) (Family: none)	1-5
Y	CD-ROM of the specification and drawings annexed to the request of Japanese Utility Model application No. 83046/1992 (laid-open No. 39907/1994) (Wacoal Corp.), 27 May, 1994 (27.05.94), (Family: none)	6-8
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C.		<input type="checkbox"/> See patent family annex.
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Date of the actual completion of the international search 05 July, 2004 (05.07.04)	Date of mailing of the international search report 20 July, 2004 (20.07.04)	
Name and mailing address of the ISA/ Japanese Patent Office	Authorized officer	
Facsimile No.	Telephone No.	

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2004/008541

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	CD-ROM of the specification and drawings annexed to the request of Japanese Utility Model application No. 29996/1993 (laid-open No. 6216/1995) (Wacoal Corp.), 27 January, 1995 (27.01.95), (Family: none)	6-8
A	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 67361/1975 (Laid-open No. 147626/1976) (Wacoal Corp.), 26 November, 1976 (26.11.76), (Family: none)	1-6
A	CD-ROM of the specification and drawings annexed to the request of Japanese Utility Model application No. 44732/1993 (laid-open No. 12415/1995) (Wacoal Corp.), 28 February, 1995 (28.02.95), (Family: none)	6-8

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