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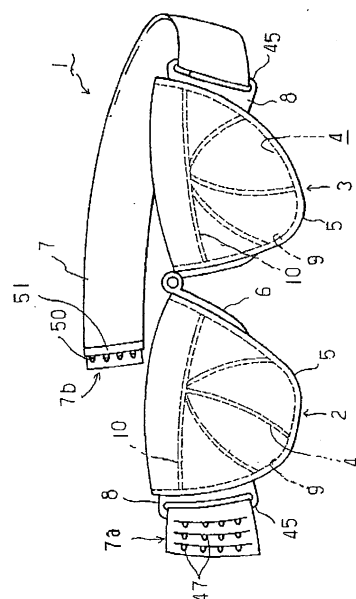
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(54) **BRASSIERE CAPABLE OF SIZE AND SHAPE ADJUSTMENT**

(57) [Problems] To present a brassiere that can be disassembled and can be adjusted in size.

[Solving Means] A brassiere 1 is composed of a pair of skeletons 4 composed of an elastic material formed so as to be linked oscillatably to each other, consisting of length-adjustable first, second, and third frameworks 9, 10, 11a, 11b, 11c, a pair of covering materials 5 for covering the pair of skeletons 4 and forming a pair of cups, a cup connection member for pivoting one end so as to be tightened, composed of a pair of arms for coupling separably the pair of skeletons 4, a breast band 7 adjustable in length and having a pair of detachable stopping parts, and a band connection member 8 separably coupled to each outer side end of each skeleton 4, and for coupling the end parts of the breast band 7. Since the skeletons 4, the covering parts 5, and the breast band 7 are separable, the wearer can replace with covering materials 5 of a desired design, or replace broken components, and the size of the skeletons 4 can be changed.

Fig 1



Description

Technical Field

[0001] The present invention relates to a brassiere composed of components which can be decomposed and assembled so as to select and obtain a preferred design depending on the preference of a wearer, and more particularly to a size- and shape-adjustable brassiere.

Background Art

[0002] An ordinary brassiere is defined by a brassiere size in its dimensions by a combination of an under-bust size measured around the chest from the bottoms of breasts to the back, and a cup size which is the height difference between this under-bust size and a top-bust size measured around the chest from the highest points of breasts to the back. The brassiere size must be divided into small categories to correspond to various sizes and shapes of the breasts, and must be also prepared in various designs, materials, colors, and shapes according to the preference of the wearers, and various kinds and various types are manufactured as products. At the same time, in order to decrease the number of sizes, a brassiere is proposed for allowing the wearer to adjust the size according to the own physique (see patent document 1). In this size adjustment, eyes provided in one coupling band of a breast band to be engaged with coupling hooks provided in other coupling band are disposed in plural positions in a longitudinal direction, and plural eyes to be engaged with the hooks are selected.

Patent document 1: Japanese Unexamined Patent Application Publication No. 2002-317309

Disclosure of the Invention

Problems to be Solved by the Invention

[0003] The ordinary brassieres are manufactured in various shapes and finely divided dimensions characteristic of brassieres different from other garments, and the production is very inefficient for manufacturers, while distributors have problems of low merchandise turnover rate and increase of stock, and environmental problem due to mass disposal of stock products is caused.

[0004] For wearers as customers, there are other problems, that is, proper sizes must be selected according to the application and preference and the number of purchase articles is increased, and the garment purchase cost is increased because different sizes must be purchased when the body weight increases or decreases, the physique is changed, or the breast size varies upon every monthly menstruation.

[0005] Since the ordinary brassiere is composed of fiber, iron, metal, plastic and other components and assembled integrally so as not to be decomposed, when washed

by a washing machine, the components may be deformed or broken, and washing by hand was required.

[0006] Conventional products designed to change the length of the breast band may decrease the number of purchase of brassieres to a certain extent, but it is not sufficient, and the problem of machine washing cannot be solved.

[0007] The present invention is devised to solve the conventional problems, and it is hence a primary object thereof to present a brassiere capable of solving these problems.

Means for Solving the Problems

[0008] To achieve the object, the invention as set forth in claim 1 includes a pair of skeletons adjustable in size and shape corresponding to breasts, a pair of covering materials forming a pair of right and left cups separably mounted on each skeleton and covering each skeleton, a cup connection member for separably coupling the pair of skeletons, a breast band having a pair of detachable stopping parts, and a band connection member coupled separably to each outer end of the both skeletons, for coupling the breast band end parts.

[0009] The invention as set forth in claim 2 includes a pair of skeletons composed of a first framework adjustable in length, formed so as to be extended corresponding to from the lower side peripheral edges of breasts to both side peripheral edges, a second framework adjustable in length formed so as to be extended corresponding to the upper side peripheral edges of breasts, with both ends oscillatably linked to both ends of the first framework, and a plurality of third frameworks adjustable in length, having one end linked to an intermediate position of the second framework, and other end curved in a height direction of the breasts corresponding to the roundness of the breasts, each extended in mutually different directions, and oscillatably linked to mutually different intermediate positions of the first framework, in which these frameworks are made of an elastic material, a pair of covering materials made of a stretch material for covering the each skeleton and forming a pair of right and left cups, a cup connection member composed of a pair of arms for separably coupling the pair of skeletons, having one end pivoted to be tightened, a breast band adjustable in length, having a pair of detachable stopping parts, and a band connection member coupled separably to each outer end of the both skeletons, for coupling the breast band end parts.

Effect of the Invention

[0010] In the invention as set forth in claim 1, the constituent members of the brassiere, that is, the skeletons, the covering materials, and the breast band can be separated individually, and the wearer can obtain a brassiere of a design suited to the own preference, and if broken, only the broken component can be replaced and worn,

and the covering materials and the breast band can be washed by using a washing machine.

[0011] In the invention as set forth in claim 2, the constituent members of the brassiere, that is, the skeletons, the covering materials, and the breast band can be separated individually, and the wearer can obtain a brassiere of a design suited to the own preference, and if broken, only the broken component can be replaced and worn, and the covering materials and the breast band can be washed by using a washing machine. Moreover, the wearer can adjust the length of the first, second and third frameworks of the skeleton individually, and can also adjust the angle formed by the both skeletons so that the skeletons for forming the both cups are positioned to correspond to the both breasts, and hence the size or the shape can be changed according to the physique or the preference of the wearer, and it is applicable if the body weight increases or decreases, the physique is changed, or the breast size is changed on every monthly menstruation, and the number of brassieres to be purchased is decreased, and the garment purchase expenses can be saved, and manufactures can improve the inefficient production due to manufacture of various divided sizes and various types of brassieres, while distributors can solve problems of low merchandise turnover rate and increase of stock, and environmental problem due to mass disposal of stock products is not caused.

Brief Description of the Drawings

[0012]

Fig. 1 is a perspective view of a brassiere in a first preferred embodiment.
 Fig. 2 is a front view of one skeleton thereof.
 Fig. 3 is a plan view of one skeleton thereof.
 Fig. 4 is a perspective view of one covering material thereof.
 Fig. 5 is a perspective view of a cup connection member thereof.
 Fig. 6 is a perspective view showing a coupled state of a band connection member and a band stopping member thereof.
 Fig. 7 is a perspective view of the band stopping member thereof.
 Fig. 8 is a perspective exploded view of expansive parts of first and second frameworks thereof.
 Fig. 9 is a perspective exploded view of a two-direction oscillating mechanism thereof.
 Fig. 10 is a perspective exploded view of a one-direction oscillating mechanism thereof.
 Fig. 11 is a perspective view of a breast band in other preferred embodiment.
 Fig. 12 is a perspective view of a brassier in other preferred embodiment.
 Fig. 13 is a partial magnified perspective view showing a state before assembly of a framework of modified example 1.

Fig. 14 is a partial magnified perspective view showing a state before assembly of a framework of modified example 2.

Fig. 15 is a partial magnified perspective view showing a state before assembly of a framework of modified example 3.

Fig. 16 is a partial magnified perspective view showing a state before assembly of a framework of modified example 4.

Fig. 17 is a magnified side view of a pipe material thereof.

Description of the Reference Numerals

15 **[0013]**

1	Brassiere
2	Ornament
3	Shoulder strap
4	Skeleton
5	Covering material
6	Cup connection member
7	Breast band
7a	Stopped part
7b	Stopping part
8	Band connection member
9	First framework
10	Second framework
11a, 11b, 11c	Third framework
12	Engaging protrusion
13	Coupling plate
14	Pipe material
15	Engaging recess
16	Insertion wire material
17	Pipe material
18	Pipe material
19	Insertion wire material
20	Coupling plate
21	Fixing hole
22	Nut
23	Support piece
23a	Fixing shaft
23b	Bearing hole
24	Shaft
25	Intervening piece
25a	Bearing hole
25b	Bearing hole
26	Shaft
27	Coupling arm
27a	Bearing hole
28	Coupling plate
29	Pipe material
30	Insertion wire material
31	Bearing hole
32	Coupling plate
33	Bearing hole
34	Coupling plate
35	Shaft

36	Snap
37	Arm
38	Arm
39	Tightening screw
40a, 40b	Engaging piece
41a, 41b	Engaging piece
42	Anti-skid groove
43	Arm
44a, 44b	Connection piece
45	Linkage ring
46	Anti-skid groove
47	Stopping ring
48	Mounting piece
49	Protrusion
50	Hook
51	Mounting piece
52	Protrusion
53	Framework
54	Detent pawl
55	Coupling plate
56	Pipe material
57	Stopped groove
58	Insertion wire material
59	Framework
60	Detent pawl
61	Pipe material
62	Stopped groove
63	Insertion wire material
64	Framework
65	Openable and closable half tube
66	Half tube
67a, 67b	Friction band
68	Pipe material
69	Insertion wire material
70	Detent pawl
71	Stopped piece
72	Framework
73	Pinching member
74	Pipe material
75	Insertion wire material
76	Insertion hole
77	Frame body
78	Spring
79	Insertion hole
80	Button
81	Pinching body
91	Brassiere
92a	Stopped part
92b	Stopping part
93a	Mounting piece
93b	Mounting piece
101	Brassiere
102	Ornament
103	Shoulder strap
104	Covering material

Best Mode for Carrying Out the Invention

[0014] A preferred embodiment of the present invention is described specifically below by reference to accompanying drawings Fig. 1 to Fig. 9. Herein, Fig. 1 is a perspective view of a brassiere, Fig. 2 is a front view of a skeleton, Fig. 3 is a plan view thereof, Fig. 4 is a perspective view of one covering material, Fig. 5 is a perspective view of a cup connection member, Fig. 6 is a perspective view showing a coupled state of a band connection member and a band stopping member, Fig. 7 is a perspective view of the band stopping member, Fig. 8 is a perspective exploded view of expansive parts of first and second frameworks, Fig. 9 is a perspective exploded view of a two-direction oscillating mechanism, Fig. 10 is a perspective exploded view of a one-direction oscillating mechanism, Fig. 11 is a perspective view of a breast band in other preferred embodiment.

[0015] As shown in Fig. 1 to Fig. 7, a brassiere 1 has a pair of right and left cups 2, 3 to be fitted to right and left breasts, and the pair of right and left cups 2, 3 are formed of a pair of skeletons 4 having a shape corresponding to the breast shape, and a pair of covering materials 5 for separably covering the both skeletons 4. The brassiere 1 also includes a cup connection member 6 for separably coupling the pair of right and left cups 2, 3 at the bosom, a breast band 7, and a band connection member 8 separably coupled at each outer side end of the both skeletons 4, and coupling the breast band 7.

[0016] As shown in Fig. 2 and Fig. 3, the skeleton 4 is formed of an elastic material, and is composed of a first framework 9 adjustable in length extending correspondingly from the lower side peripheral edge to both side peripheral edges of the breast, a second framework 10 adjustable in length extending correspondingly to the upper side peripheral edge of the breast, and having its both ends oscillatably linked to both ends of the first framework 9, and three third frameworks 11a, 11b, 11c adjustable in length, having one end integrally linked to an intermediate point of the second framework 10, and other end curved in a height direction of the breast so as to correspond to the roundness of the breast, extending mutually in different directions, and oscillatably linked to mutually different intermediate points of the first framework 9.

[0017] As shown in Fig. 2 and Fig. 3, the first framework 9 is extended from the lower side peripheral edge to the both side peripheral edges of the breast. In this first framework 9, as understood from Fig. 8, one end side is formed like a rail, and other end side is formed like a pipe, and it includes a flexible pipe material 14 having a pair of coupling plates 13 provided so as to extend parallel to each other to the leading ends of the rail-shaped portion and having opposed engaging protrusions 12 at each inner side, and a flexible insertion wire material 16 to be inserted between the coupling plates 13 of this pipe material 14, and having engaging recesses 15 (only one side is shown) arranged in a longitudinal direction to be

engaged with the engaging protrusions 12. The wearer inserts the leading end of the insertion wire material 16 between the both coupling plates 13 of the pipe material 14, and the selected engaging recess 15 and the engaging protrusion 12 can be engaged with each other, so that the length of the first framework 9 can be adjusted.

[0018] As shown in Fig. 2 and Fig. 3, the second framework 10 has its both ends oscillatably linked near the both ends of the first framework 9. The second framework 10 is composed of a pair of pipe materials 17, 18 oscillatably linked near the both ends of the first framework 9, and an insertion wire material 19 disposed between these pipe materials 17, 18, in which each one end side of the pipe materials 17, 18 is formed like a rail, the other end side at each linking end with the first framework 9 is formed like a pipe, and a pair of coupling plates 20 which have opposed engaging protrusions (not shown) at each inner side are provided so as to extend parallel mutually to the leading end of the rail-shaped portion, and it is flexible. The insertion wire material 19 can be inserted between the coupling plates 20 of the pipe materials 17, 18, and is provided with a plurality of engaging recesses (not shown) arranged in a longitudinal direction to be engaged with the engaging protrusions (not shown) at both sides near the both leading ends, and it is flexible. The wearer inserts the both ends of the insertion wire material 19 between the both coupling plates 20 of the pipe materials 17, 18, and the selected engaging recess and the engaging protrusion can be engaged with each other, so that the length of the second framework 10 can be adjusted. The coupling structure of the pipe material 17 and the insertion wire material 19 for adjusting the length is same as that of the first framework 9.

[0019] As shown in Fig. 2, Fig. 3, and Fig. 9, one end of the pipe material 17 of the second framework 10 and the vicinity of one end of the pipe material 14 of the first framework 9 are linked by a two-direction oscillating mechanism, so as to oscillate in two directions, that is, the extending direction of the first framework 9, and a direction at a right angle to this direction. As understood from Fig. 9, this two-direction oscillating mechanism includes a support piece 23 having a fixing shaft 23a for fixing by a nut 22 inserted into a fixing hole 21 near the end part of the pipe material 14 of the first framework 9 at one end, and a bearing hole 23b penetrated in a thickness direction near the other end, an intervening piece 25 having a bearing hole 25a for overlapping with the bearing hole 23b and coupling rotatably on a shaft 24 near one end, and a bearing hole 25b near the other end extending in a width direction, and a pair of coupling arms 27 positioned corresponding to the bearing hole 25b of this intervening piece 25, and having a bearing hole 27a for rotatably coupling on a shaft 26. This two-direction oscillating mechanism is also provided at the linking portion between the end of the pipe material 18 of the second framework 10 and near one end of the insertion wire material 16 of the first framework 9.

[0020] As shown in Fig. 2 and Fig. 3, the three third

frameworks 11a, 11b, 11c are designed so that each one end is linked integrally at intermediate point of the second framework 10, and other ends are curved in a height direction of the breast so as to correspond to the roundness of the breast, extended at angles mutually in mutually different directions, and linked oscillatably at mutually different intermediate points of the first framework 9. Each one of the three third frameworks 11a, 11b, 11c has a flexible pipe material 29, and a flexible insertion wire material 30. Each pipe material 29 has its one end formed like a rail, and has other end formed like a pipe, and also includes a pair of coupling plates 28 extended parallel to each other to the leading end of the rail-shaped portion and having opposed to engaging protrusions (not shown) at each inner side. Each insertion wire material 30 can be inserted between the coupling plates 28 of the pipe material 29, and at both sides near the both leading ends, a plurality of engaging recesses (not shown) are arranged in a longitudinal direction to be engaged with the engaging protrusions (not shown). The wearer inserts the one end of the insertion wire material 30 between the both coupling plates 28 of the pipe material 29, and the selected engaging recess and the engaging protrusion can be engaged with each other, so that the length of the third frameworks 11a, 11b, 11c can be adjusted. The coupling structure of the pipe material 29 and the insertion wire material 30 for adjusting the length is same as that of the first and second frameworks 9, 10.

[0021] As shown in Fig. 2, Fig. 3, and Fig. 10, the leading end of the third framework 11a and the intermediate portion of the first framework 9 are linked by a one-direction oscillating mechanism, so as to oscillate in a direction at a right angle to the extending direction of the first framework 9. As understood from Fig. 10, this one-direction oscillating mechanism includes a pair of coupling plates 32 provided in the pipe material 14 of the first framework 10, and having bearing holes 31, a coupling plate 34 provided at the leading end of the pipe material 29 of the third framework 11a, and having a bearing hole 33, and a shaft 35. This one-direction oscillating mechanism is composed by inserting the shaft 35 into the bearing holes 31, 33, by fitting the coupling plate 34 between the coupling plates 32, and the third framework 11a oscillates in a direction at a right angle to the extending direction of the first framework 9 with respect to the pipe material 14 of the first framework 9. The leading ends of the third frameworks 11b, 11c are coupled by way of one-direction oscillating mechanism (not shown) having the same configuration as the one-direction oscillating mechanism of the third framework 11a, at intermediate positions of the insertion wire material 16 of the first framework 9.

[0022] In the skeleton 4 having such configuration, the first, second, and third frameworks 9, 10, 11a, 11b, 11c can be individually adjusted in length, and the first framework 9 and the second framework 10 are linked so as to oscillate mutually in two directions, and the third frameworks 11a, 11b, 11c are linked to the first framework 9 so as to oscillate in one direction, and the size and the

shape of the brassiere can be adjusted according to the individual human body.

[0023] As shown in Fig. 4, the covering material 5 is a pad composed of a padding material (not shown) such as chemical fiber cotton or urethane sponge, covered with single or compound material of an elastic non-woven cloth, knit fabric, or woven fabric, and is formed like a bag, closed in the portion corresponding to the upper side edge of the breast, and opened in the portion corresponding to the bottom side edge and both side edges, and a plurality of snaps 36 are provided at the inner side of the opened edges. This covering material 5 is attached, after the pair of skeletons 4 are coupled by the cup connection member 6 (see Fig. 1) and the band connection member 8 is coupled to the outer side edge portion of each skeleton 4, by wrapping and covering skeletons 4 from the front and rear sides and fastening by the snaps 36, and when attached, the pair of right and left cups 2,3 are formed.

[0024] As shown in Fig. 1 and Fig. 5, the cup connection member 6 links the ends of a pair of nearly cylindrical arms 37, 38 in a shape curved relatively to the outer side so as to correspond to the curved shape of the insertion wire material 16 of the first framework 9 in each skeleton 4, mutually by tightening screws so as to be rotatable and be fixed in position. In these arms 37, 38, elastic connection pieces 40a, 40b, and connection pieces 41a, 41b are formed integrally at each outer side so as to be connected to the insertion wire materials 16, and a plurality of anti-skid grooves 42 are provided at the inner sides of these connection pieces 40a, 40b, 41a, 41b, and in the arms 37, 38 between the connection pieces 40a, 40b and the connection pieces 41a, 41b. The cup connection member 6 has the connection pieces 40a, 40b, 41a, 41b to be engaged with the insertion wire materials 16, and connected to the both skeletons 4, and by loosening the tightening screw 39, the tightening screw 39 can be turned to be opened or closed, and by tightening the tightening screw 39 at a desired position, the position can be fixed. In other words, the angle formed by the two skeletons 4 can be changed. Besides, since the connection pieces 40a, 40b, 41a, 41b are elastic, and by opening them to be engaged and connected with the insertion wire materials 16, they are not disengaged easily and can be disengaged by pulling by force. Moreover, since the plurality of anti-skid grooves 42 are provided at the inner sides of these connection pieces 40a, 40b, 41a, 41b, and in the portions between the connection pieces 40a, 40b and the connection pieces 41a, 41b, the cup connection member 6 will not be deviated from the connection position of the insertion wire material 16.

[0025] As shown in Fig. 1 and Fig. 6, the pair of band connection members 8 integrally form elastic connection pieces 44a, 44b capable of connecting near the end portion of the insertion wire material 16 to a nearly cylindrical arm 43 in a curved shape so as to correspond to the curved shape of the insertion wire material 16 of the first framework 9 in each skeleton 4, and at the opposite side

of the connection pieces 44a, 44b, a linkage ring 45 is provided for mounting the breast band 7, and a plurality of anti-skid grooves 46 are provided at the inner sides of these connection pieces 44a, 44b, and in arms 43 between the connection pieces 44a, 44b. The pair of band connection members 8 have the connection pieces 44a, 44b to be engaged with the insertion wire materials 16, and connected to the both skeletons 4. One band connection member 8 has a stopped part 7a of the breast band 7 to be connected to the linkage ring 45. The stopped part 7a has three sets of four stopped rings 47 arranged in the longitudinal direction, and a mounting piece 48 connected to the linkage ring 45 is provided at one end.

[0026] As shown in Fig. 1, other band connection member 8 is provided with one end of the breast band 7, and the other end is provided with a stopping part 7b having four hooks 50 to be detachably engaged with the stopped rings 47 of the stopped part 7a. As shown in Fig. 7, one end of the stopping part 7b is provided with two plastic mounting pieces 51, and at the opposite sides of these mounting pieces 51, a multiplicity of fine protuberances 52 are provided to be pierced into the outer side of the other mounting piece 51. To mount this stopping part 7b on the breast band 7, the free end side of the breast band 7 is cut off according to the size of the wearer, and the length is adjusted, and the two mounting pieces 51 are fitted at both sides of the cut end. In this breast band 7, one set is selected according to the wearer out of three sets of the stopped rings 47 of the stopped part 7a, and the four hooks 50 of the stopping part 7b are engaged with the four stopped rings 47 of this set. Thus, the breast band 7 can be adjusted in the length when worn, by selecting a set of stopped rings 47 according to the bust size of the wearer.

[0027] Referring now to Fig. 11, other preferred embodiment of the breast band is explained. Fig. 12 is a perspective view of the breast band.

[0028] As shown in Fig. 11, a breast band 91 is composed of two bands, first and second bands 91a, 91b, these first and second bands 91a, 91b are connected to the skeletons 4 at each one end by way of the respective band connection members 8, and other end of the first band 91a is provided with a stopped part 92a, and other end of the second band 91b is provided with a stopping part 92b of same structure as the stopping part 7b. The stopped part 92a and the stopping part 92b are provided with mounting pieces 93a, 93b same as the stopping part 7b as shown in Fig. 12. Before mounting the stopped and stopping parts 92a, 92b on these two bands 91a, 91b, the end parts can be cut off, and the length can be adjusted.

[0029] A brassiere 101 of other preferred embodiment shown in Fig. 12 (perspective view) has ornaments 102 provided on the cups 2, 3, and is also provided with shoulder straps 103. The cups 2, 3 are formed by putting covering materials 104 having the ornaments 102 on the skeletons 4 of the preferred embodiment. Ornaments

may be made by adhering or sewing lace or print fabric, drawing by using a cloth paint, or adhering spangles or rhinestones.

[0030] Modified examples 1 to 4 of the length adjusting structure of the first to third frameworks for composing the skeletons 4 are explained by reference to attached drawings Fig. 13 to Fig. 17. Herein, Fig. 13 is a partial magnified perspective view showing a state before assembly of modified example 1, Fig. 14 is a partial magnified perspective view showing a state before assembly of modified example 2, Fig. 15 is a partial magnified perspective view showing a state before assembly of modified example 3, Fig. 16 is a partial magnified perspective view showing a state before assembly of modified example 4, and Fig. 17 is a magnified side view of a pipe material in modified example 4.

[0031] As shown in Fig. 13, a framework 53 of modified example 1 is made of elastic materials, and composed of a pipe material 56 provided with a pair of coupling plates 55 having detent pawls 54 forming convex slopes at the inner side of the leading ends, and an insertion wire material 58 having a plurality of stopped grooves 57 to be stopped on the detent pawls 54. The coupling plates 55 can be oscillated to the outer side so as to be opened mutually when a force is applied, or to the inner side so as to return when the force is removed, by the elastic force thereof. In this framework 53, when the leading end of the insertion wire material 58 is pushed in between the coupling plates 55 of the pipe material 56, the both coupling plates 55 are pushed to be open, and the insertion wire material 58 is pushed in by a specified length into the pipe material 56. When the pushing force is removed, the detent pawl 54 is stopped in the specified stopped groove 57 of the insertion wire material 58. When the stopped groove 57 is changed to other detent pawl 54, the insertion wire material 58 is pushed in or pulled out by more than a specified force to the pipe material 56, the engagement state of the stopped groove 57 and the detent pawl 54 is cleared so as to be moved freely. Unless a force is applied, the engagement state is not cleared unexpectedly. Hence, the length of the framework 53 can be adjusted easily.

[0032] As shown in Fig. 14, a framework 59 of modified example 2 is made of elastic materials, and composed of a pipe material 61 provided with a pair of detent pawls 60 forming convex slopes at the inner sides, and an insertion wire material 63 having a plurality of stopped grooves 62 to be stopped on the detent pawls 61. The pipe material 61 has its elastic force, and when a force is applied to the detent pawls 60, the detent pawls 60 are displaced in mutually departing directions, and the diameter of the corresponding portion is increased, and when the force is removed, the detent pawl 60 are restored. In this framework 59, when the leading end of the insertion wire material 63 is pushed in the pipe material 61, the diameter of the portion corresponding to the detent pawl 60 is increased, and the insertion wire material 63 is inserted by a specified length into the pipe material 61.

When the pushing force is removed, the deformation of the detent pawl 60 is restored, and the detent pawl 60 is stopped in the specified stopped groove 62 of the insertion wire material 63. When the stopped groove 62 is changed to other stopped groove 62, the insertion wire material 63 is pushed in or pulled out by more than a specified force to the pipe material 61, the engagement state of the stopped groove 62 and the detent pawl 60 is cleared so as to be moved freely. Unless a force is applied, the engagement state is not cleared unexpectedly. Hence, the length of the framework 59 can be adjusted easily.

[0033] As shown in Fig. 15, a framework 64 of modified example 3 is composed of a pipe material 68 having an openable and closable half tube 65 that can be opened and closed in one of half-split portions in a specified length from the leading end, and having friction bands 67a, 67b made of rubber or the like, formed on each inner side of this openable and closable half tube 65 and a split other half tube 66, and an insertion wire material 69 that can be inserted into this pipe material 68. The openable and closable half tube 65 opens and closes to the half tube 66, and has a detent pawl 70 and a stopped piece 71 for maintaining the closed state provided in the openable and closable half tube 65 and the half tube 66. In this framework 64, with the openable and closable half tube 65 being opened, the insertion wire material 69 is inserted into the pipe material 68 to a specified position, and the openable and closable half tube 65 is closed, and the detent pawl 70 and the stopped piece 71 are stopped, so that the insertion wire material 69 is held so as not to be moved by friction bands 67a, 67b. As a result, the length of this framework 64 can be adjusted easily.

[0034] As shown in Fig. 16 and Fig. 17, a framework 72 of modified example 4 is composed of a pipe material 74 of a square section having a pinching member 73 provided at its leading end, and an insertion wire material 75 that can be inserted into this pipe material 74. The pinching member 73 is composed of a frame body 77 having an insertion hole 76 for inserting the insertion wire material 77, and a pinching body 81 that is forced in one direction by a spring 78, and has an insertion hole 79 at a position corresponding to the insertion hole 76, and also has a button 80 projecting to the opposite side of the spring 78. This framework 72 pushes the button 80 of the pinching body 81 of the pinching member 73 by resisting the thrusting force of the spring 78, and matches the insertion hole 76 of the frame body 77 and the insertion hole 79 of the pinching body 81, and inserts the insertion wire material 75 into the both holes 76, 79, and when the button 80 is released after being inserted by a specified length, the insertion wire material 75 is held so as not to be moved in the upper edge of the insertion hole 76 of the frame body 77 and the insertion hole 79 of the pinching body 81 by the force of the spring 78. As a result, the framework 74 can be easily adjusted in length, and when the frame body 77 is formed so as to be extended and longer in the longitudinal direction of

the pipe material 74, the insertion wire material 75 can be pinched in a stable state.

[0035] The present invention is not limited to the preferred embodiment or the modified examples alone. In the preferred embodiment, for example, the pair of skeletons 4 are connected by the cup connection member 6, and the covering material 5 is put on after connecting the band connection member 8 to the skeletons 4, but instead after mounting the covering material 5 on the skeletons 4, the pair of skeletons 4 may be connected to the cup connection member 6 from above the covering material 5, and then the band connection member 8 may be connected. Meanwhile, the configuration of covering separably on the skeletons 4 of the covering material 5 may be changed to other structure.

detachable engaging parts; and
a band connection member coupled separably to each outer end of the both skeletons, for coupling the breast band end parts.

Claims

1. A size- and shape-adjustable brassiere, comprising:
 - a pair of skeletons adjustable in size and shape corresponding to breasts;
 - a pair of covering materials forming a pair of right and left cups separably mounted on each skeleton and covering each skeleton;
 - a cup connection member for separably coupling the pair of skeletons,
 - a breast band having a pair of detachable stopping parts; and
 - a band connection member coupled separably to each outer end of the both skeletons, for coupling the breast band end parts.
2. A size- and shape-adjustable brassiere, comprising:
 - a pair of skeletons composed by elastic materials including a first framework adjustable in length, formed so as to be extended corresponding to from the lower side peripheral edges of breasts to both side peripheral edges, a second framework adjustable in length formed so as to be extended corresponding to the upper side peripheral edges of breasts, with both ends oscillatably linked to both ends of the first framework, and a plurality of third frameworks adjustable in length, having one end linked to an intermediate position of the second framework, and other end curved in a height direction of the breasts corresponding to the roundness of the breasts, each extended in mutually different directions, and oscillatably linked to mutually different intermediate positions of the first framework;
 - a pair of covering materials made of a stretch material for forming a pair of right and left cups and covering each skeleton;
 - a cup connection member having one end pivoted to be tightened, composed of a pair of arms for coupling separably the pair of skeletons;
 - a breast band adjustable in length, having a pair of

Fig 1

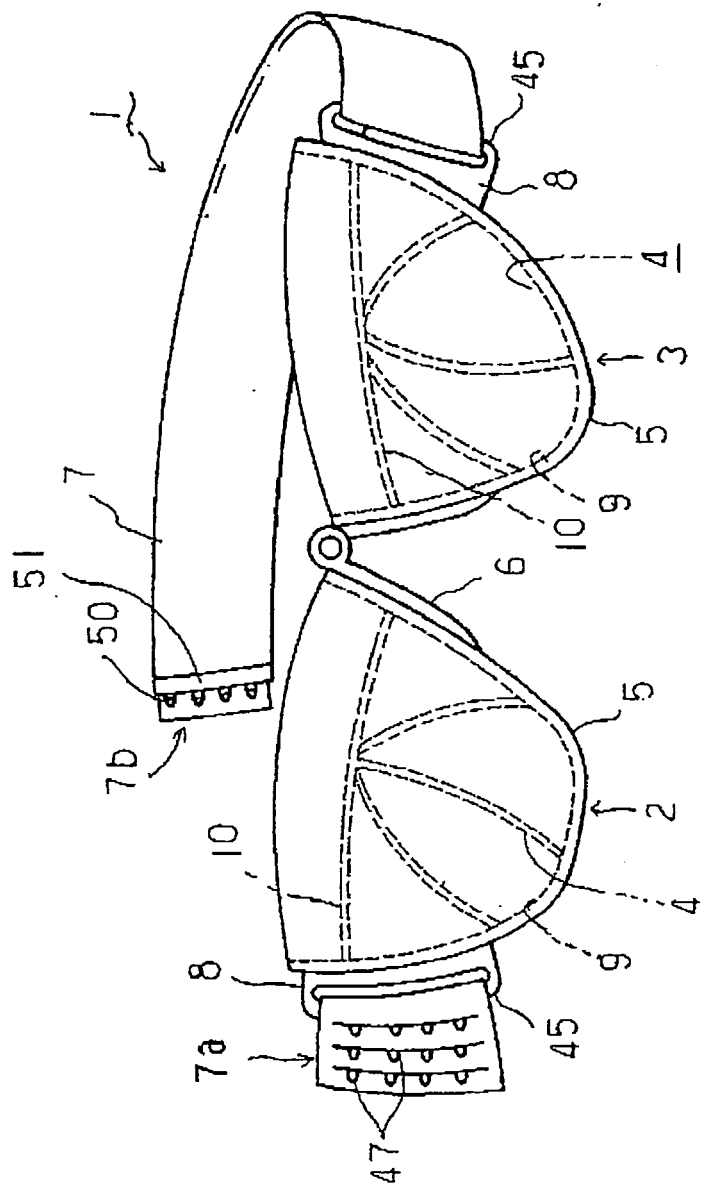


Fig 2

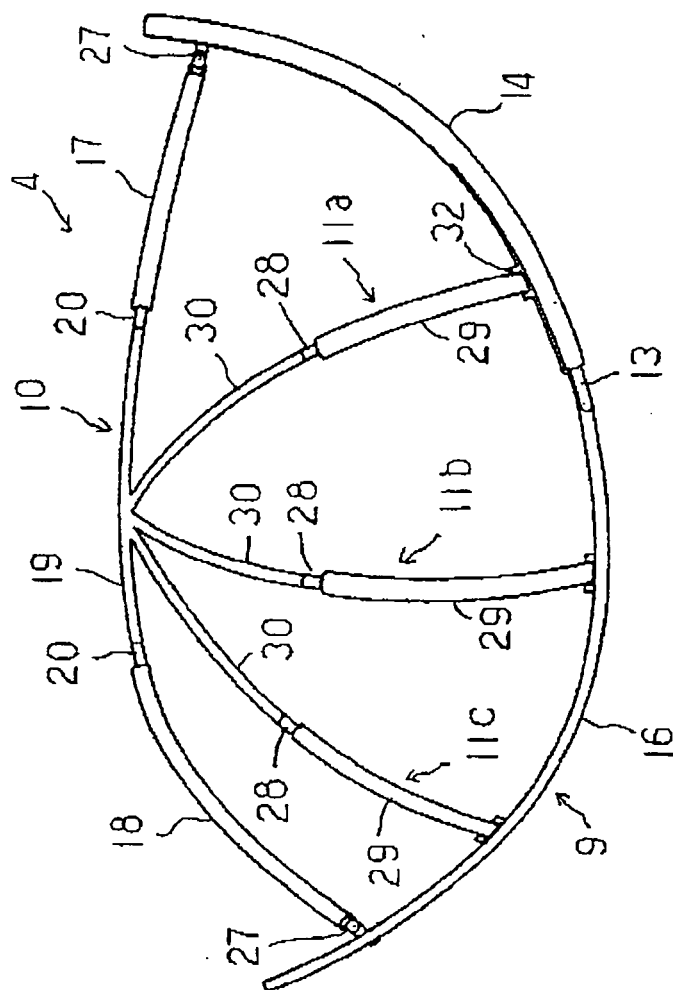


Fig 3

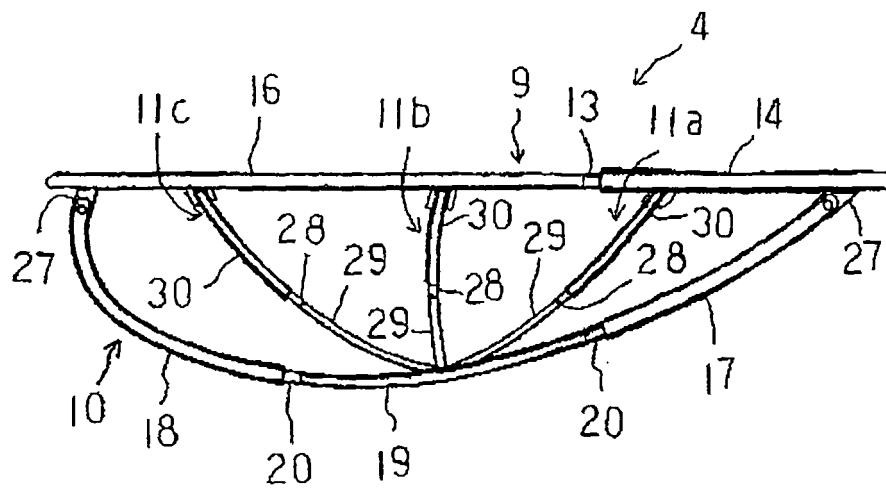


Fig 4

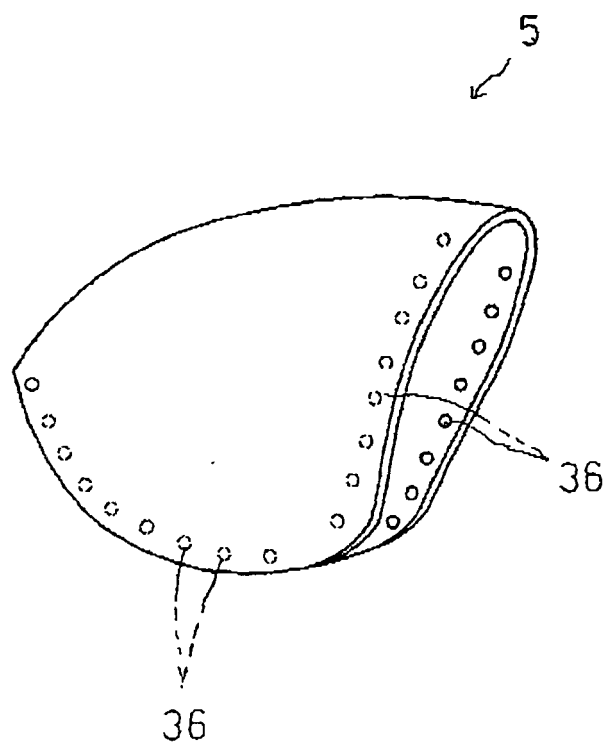


Fig 5

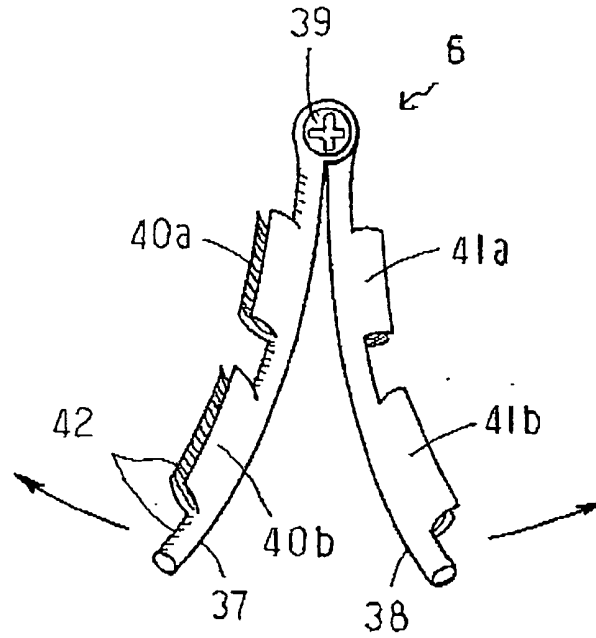


Fig 6

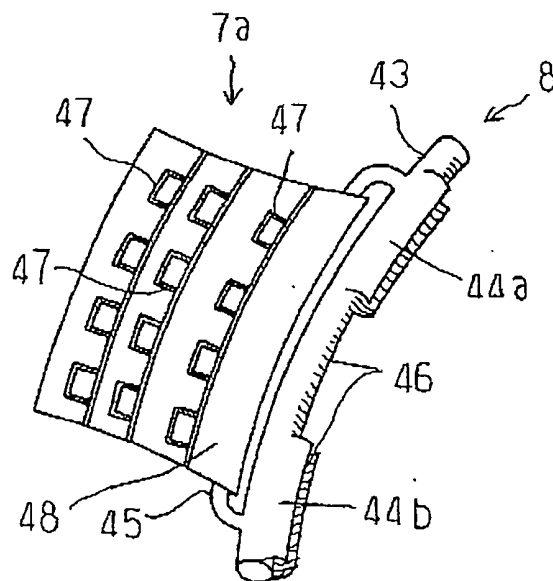


Fig 7

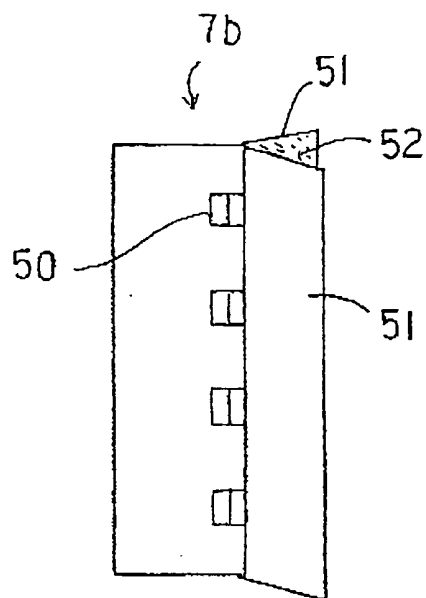


Fig 8

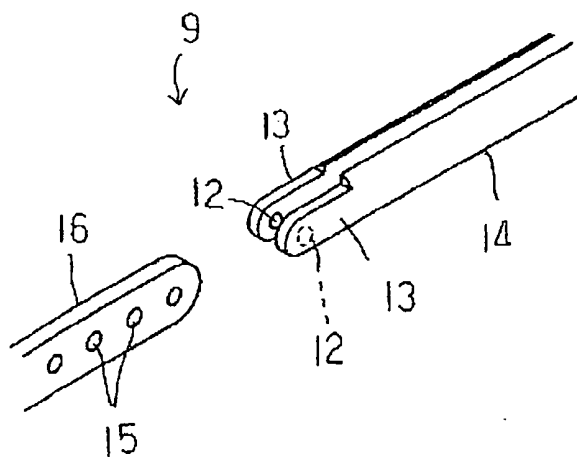


Fig 9

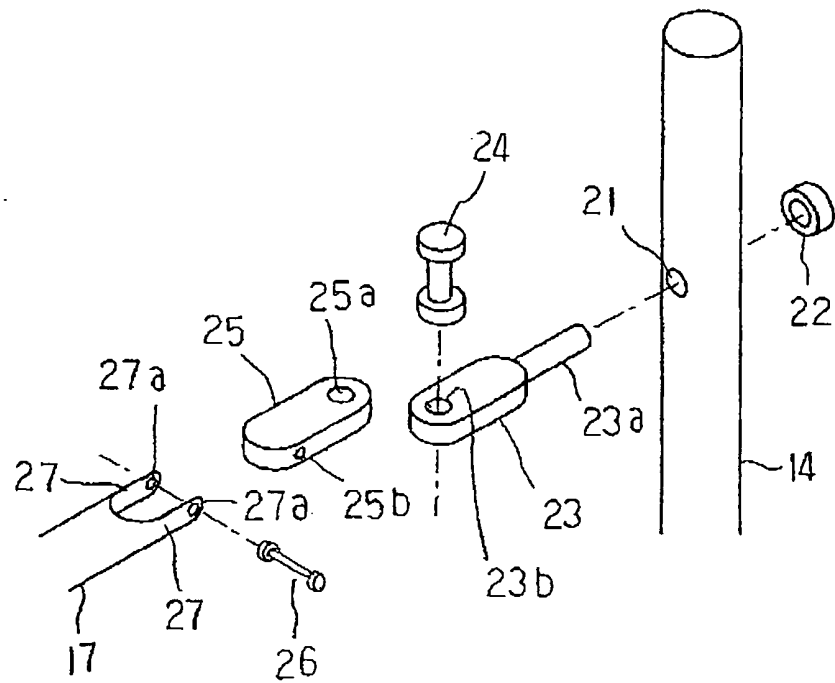


Fig 10

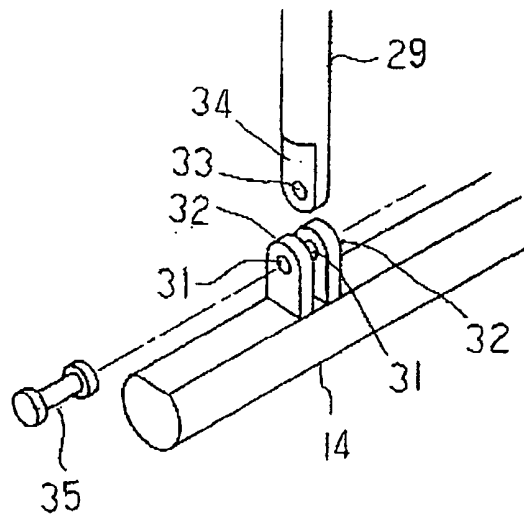


Fig 1 1

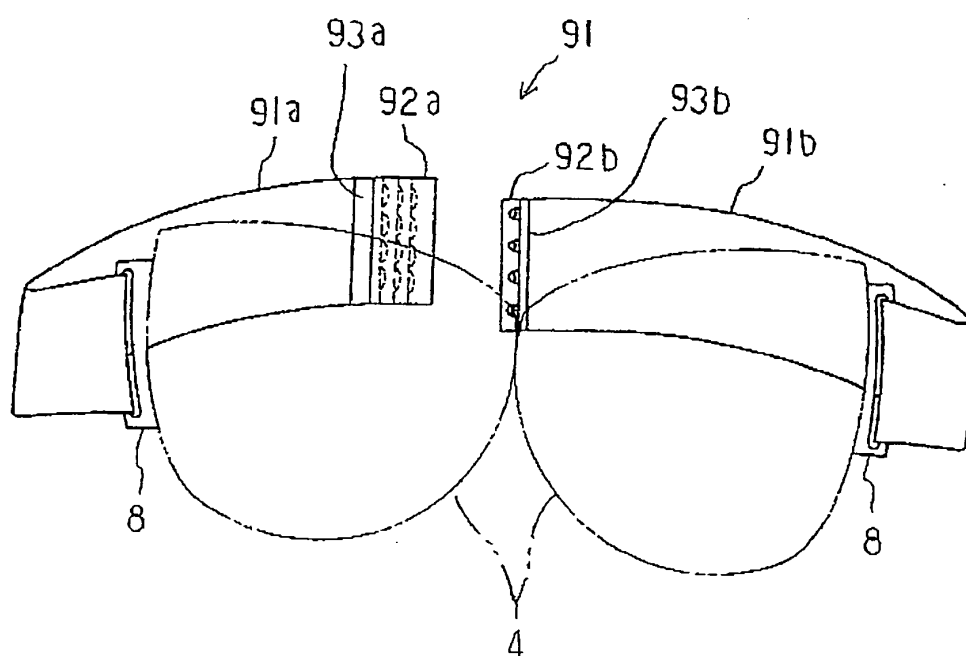


Fig 1 2

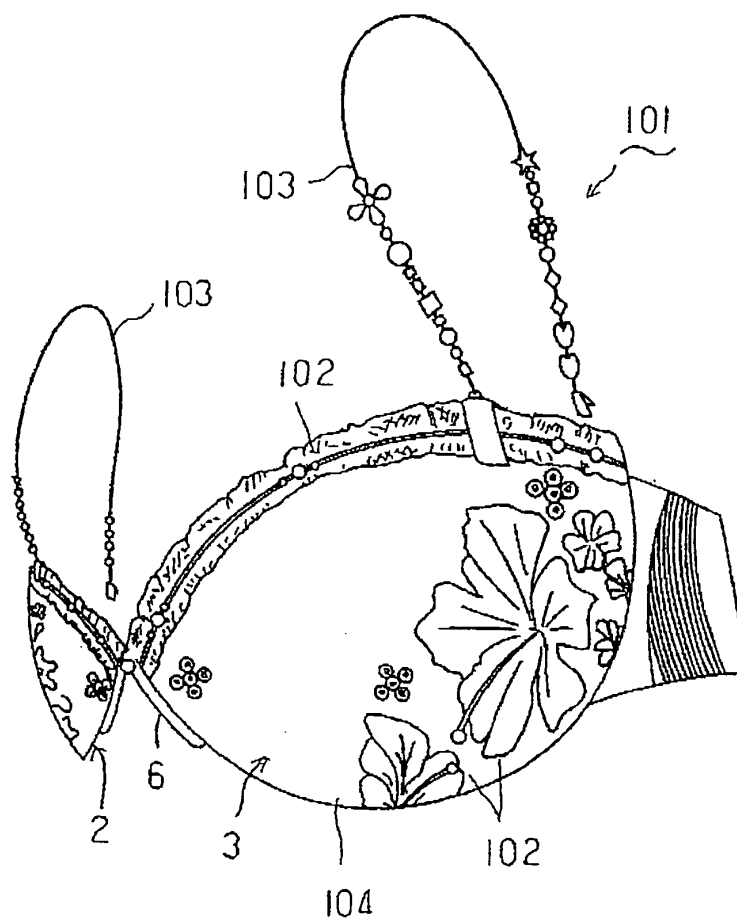


Fig 1 3

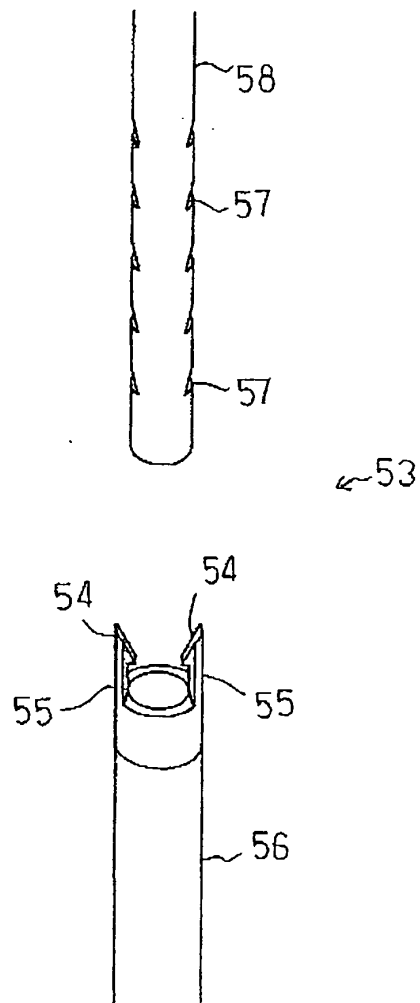


Fig 1 4

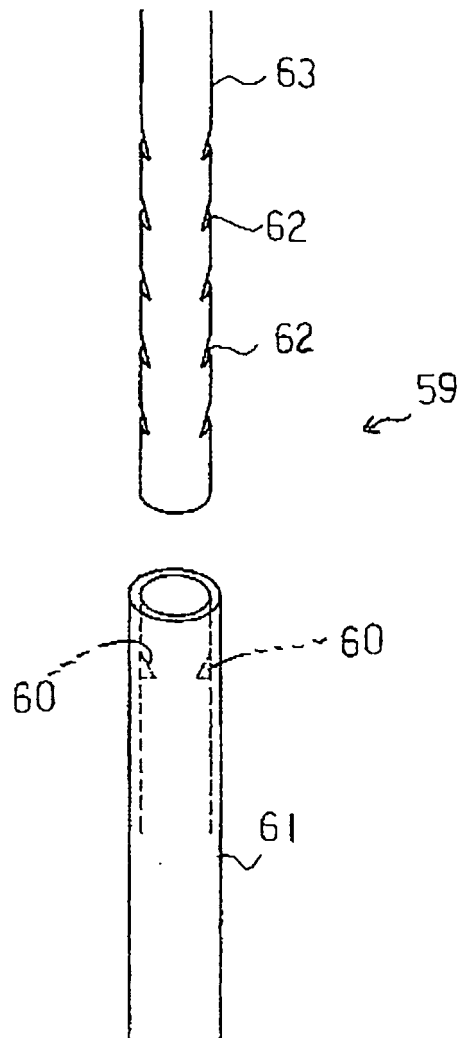


Fig 15

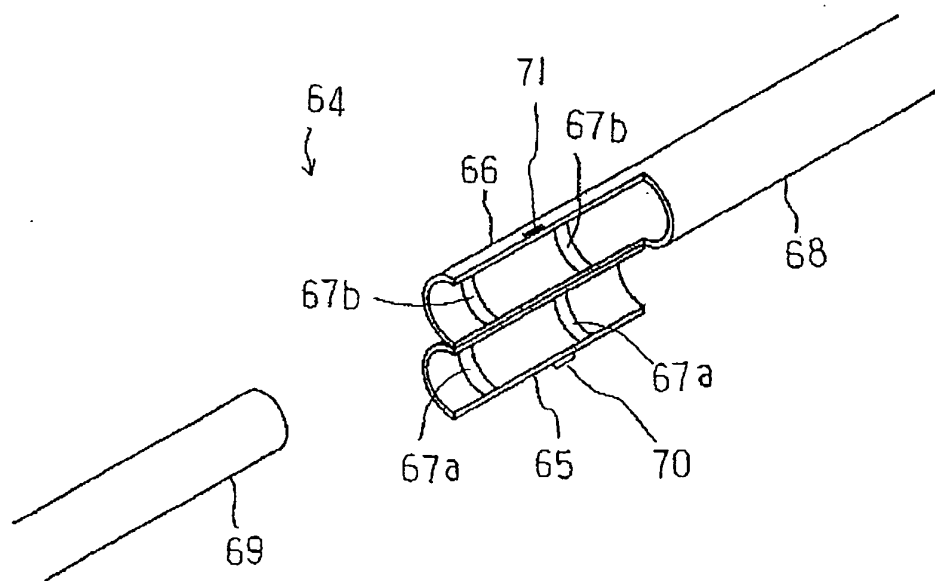


Fig 16

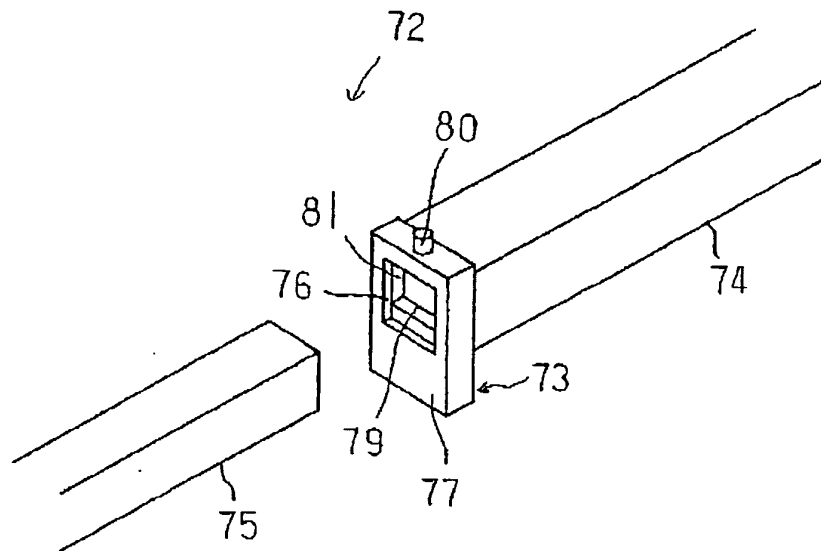
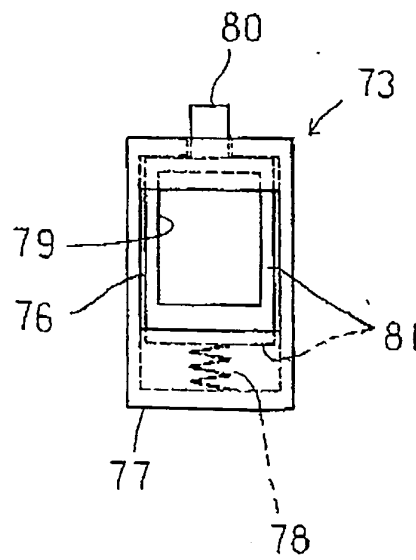


Fig 17



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2008/064875

A. CLASSIFICATION OF SUBJECT MATTER

A41C3/10(2006.01) i, A41C3/12(2006.01) i

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)

A41C3/10, A41C3/12

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho 1922-1996 Jitsuyo Shinan Toroku Koho 1996-2008
 Kokai Jitsuyo Shinan Koho 1971-2008 Toroku Jitsuyo Shinan Koho 1994-2008

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.
A	WO 2003/099046 A1 (RAKOTONOEL, Eliane, Mawuenam), 04 December, 2003 (04.12.03), Page 3, line 6 to page 4, line 2; Figs. 1 to 3 & FR 2840162 A	1-2
A	JP 3021501 U (Maruta Kabushiki Kaisha), 27 February, 1996 (27.02.96), Par. Nos. [0006] to [0039]; Figs. 1 to 10 (Family: none)	1-2
A	JP 8-158111 A (Duchess Co., Ltd.), 18 June, 1996 (18.06.96), Par. Nos. [0006] to [0030]; Figs. 1 to 6 (Family: none)	1-2

☒ Further documents are listed in the continuation of Box C.
 ☐ See patent family annex.

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 Date of the actual completion of the international search
 11 November, 2008 (11.11.08)

 Date of mailing of the international search report
 25 November, 2008 (25.11.08)

 Name and mailing address of the ISA/
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2008/064875

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	JP 3100845 U (Kennosen Kofun Yugen Koshi), 27 May, 2004 (27.05.04), Par. Nos. [0009] to [0012]; Figs. 1 to 5 (Family: none)	1-2
A	US 7001240 B1 (Teri A. Huffman-Jimenez), 21 February, 2006 (21.02.06), Column 4, line 37 to column 5, line 8; Figs. 1 to 3 (Family: none)	1-2

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REFERENCES CITED IN THE DESCRIPTION

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