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(71) Applicant : **YOSHIDA KOGYO K.K.**
No. 1 Kanda Izumi-cho Chiyoda-ku
Tokyo (JP)

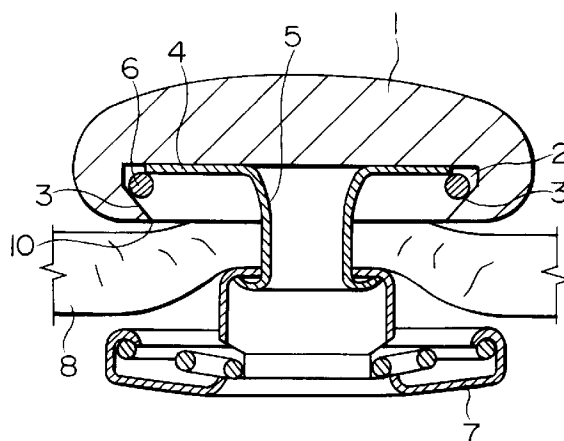
(72) Inventor : **Watanabe, Hirokazu**
700, Yoshida, Kurobe-shi
Toyama-ken (JP)

(74) Representative : **White, Martin David et al**
MARKS & CLERK 57/60 Lincoln's Inn Fields
London WC2A 3LS (GB)

(54) **Ornamental button body with clasp and method for manufacturing the same.**

(57) In assembling an ornamental button body assembly, a tubular clasp 5 having a flange 4 is inserted into a recess 2 formed in the rear surface of an ornamental button body 1, the flange 4 having a diameter substantially equal to the mouth diameter of the recess 2. Then an annular spring 6 is inserted between the inside wall 3 of the recess and the flange 4 while being compressed, whereupon the annular spring 6 is restored to expand in the recess 2 to secure the tubular clasp 5 to the ornamental button body 1.

FIG. 1



BACKGROUND OF THE INVENTION

1. Field of the Invention:

This invention relates to an ornamental button, such as a male-female button to be used on a garment or a tack button to be used on a garment of denim, and more particularly to an ornamental button body assembly and a method for manufacturing the same.

2. Description of the Related Art:

An ornamental button body assembly is currently known (from Japanese Patent Publication No. HEI 1-37122) which comprises an ornamental button body made of hard plastics, and having in its rear surface a recess with a groove extending along the deepest portion of its peripheral wall, and a metallic clasp in the form of a tube having at its base a ridged flange adapted to be deformed to expand outwardly; in assembling, the flange is inserted into the recess and is then compressed and expanded by a tool so as to be fitted in the groove.

Another known type ornamental button body assembly (Japanese Utility Model Laid-Open Publication No. HEI 2-130214) comprises an ornamental button body having in its rear surface a recess having a frustoconical peripheral wall increasing in diameter progressively from the bottom to the mouth, and a clasp having a flange larger in diameter than that of the mouth of the recess; in assembling, the clasp is forcibly pressed against the ornamental button body to bend the peripheral portion of the flange in such a manner that the flange is inserted into the recess until it comes in contact with the peripheral wall of the recess.

Regarding the first-named prior art, in the ornamental button body assembly made of hard plastics, bone or ivory, since when the ridged flange of the metallic tubular clasp is inserted into the recess and is then compressed and expanded by a tool so as to be fitted into the groove extending along the deepest portion of the peripheral wall of the groove, the mouth edge of the groove would be damaged or expanded to receive the flange loosely, thus causing the ornamental button body to pivotally move with respect to the clasp. Furthermore, since a tool is used to forcibly press the ridged flange against the ornamental button body, the pressing force is directly transferred to the ornamental button body placed on a holding die, thus causing the front surface of the ornamental button body to be damaged.

In the second-named prior art, since the clasp having a flange larger in diameter than the mouth of the recess formed in the rear surface of the ornamental button body is forcibly pressed against the ornamental button body by a tool to bend the peripheral

portion of the flange in such a manner that the flange is fitted in the recess, the mouth edge of the recess would be damaged to receive the flange loosely, the pressing force is directly transferred to the ornamental button body placed on a holding die, thus causing the front surface of the ornamental button body to be damaged.

SUMMARY OF THE INVENTION

It is therefore an object of this invention to provide an ornamental button body assembly in which a tubular clasp can be attached to the rear surface of an ornamental button body easily in a very simple construction without giving any damage not only to the clasp but also the front surface of the ornamental button body. Another object of the invention is to provide a method of manufacturing such an ornamental button body assembly.

According to a first aspect of the invention, there is provided an ornamental button body assembly comprising: an ornamental button body having in its rear surface a recess with a bottom larger in diameter than a mouth; a tubular clasp having at one end a flange substantially equal in diameter to a mouth edge of the recess, the flange being received in the recess; and an annular spring disposed between the flange and an mouth-side inside wall of the recess.

The recess may have an inverted frustoconical contour, the flange of the clasp being bent along an outer peripheral edge so as to form a complement to the sloping inside wall of the frustoconical recess.

According to a second aspect of the invention, there is provided a method of manufacturing an ornamental button body assembly, comprising the steps of: inserting a flange of a tubular clasp into a recess formed in a rear surface of an ornamental button body with a bottom larger in diameter than a mouth, the flange being substantially equal in diameter to a mouth edge of the recess; forcibly inserting an annular spring between a surface of the flange and a mouth-side inside wall of the recess while compressing the annular spring; and then restoring the compressed annular spring.

In assembling the ornamental button body assembly of this invention, a tubular clasp having at one end a flange is placed in the recess formed in the rear surface of the ornamental button body, with an annular spring sandwiched between the inside wall of the recess and the front surface of the flange, so that the tubular clasp is attached to the ornamental button body stably, thus making the ornamental button body assembly durable in any use.

When this ornamental button body assembly is used in an ornamental button such as a female button, a male button or a tack button, the tubular portion projecting from the rear surface of the ornamental button body is pierced through, for example, a piece

of cloth and then the distal end of the tubular portion is clenched against a female body, or the clasp having a U-shape tubular portion is placed on one surface of a piece of cloth and then the tack is pieced through the cloth from the other surface so as to be secured to the tubular clasp.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a cross-sectional view of a female button;

FIG. 2 is an exploded perspective view of an ornamental button body assembly;

FIG. 3 is a cross-sectional view of an ornamental button body assembly according to one embodiment of this invention;

FIG. 4 is a cross-sectional view of a modified ornamental button body assembly according to another embodiment;

FIG. 5 is a cross-sectional view of another modified ornamental button body assembly according to still another embodiment;

FIG. 6 is a cross-sectional view of a modified tubular clasp; and

FIG. 7 is a cross-sectional view of an apparatus for manufacturing an ornamental button body assembly.

DETAILED DESCRIPTION

Several embodiments of an ornamental button body assembly according to this invention will now be described in detail with reference to the accompanying drawings.

As shown in FIGS. 1 and 2, an ornamental button body assembly according to a first embodiment of the invention includes an ornamental button body 1 for an ornamental button, such as a female-male button or a tack button, formed of hard plastics, bone, ivory or metal. The ornamental button body 1 has a recess 2 which is formed centrally in a rear surface of the ornamental button body 1 and which has a frustoconical inside wall 3 increasing in diameter progressively from the mouth to the bottom in such a manner that the area of the bottom of the recess 2 is slightly larger than that of the mouth. The ornamental button body assembly also includes a tubular clasp 5 having at one end a flange 4 which is substantially equal in diameter to a mouth edge 10 of the recess 2 and which is inserted in the recess 2. An annular spring 6 having a circular cross section and a cutout is inserted between the flange 4 and the mouth-side inside wall 3 of the recess 2. The annular spring 6 serves to hold the flange 4 of the tubular clasp 5 stably in the recess 2, preventing the flange 4 from being removed from the recess 2.

The annular spring 6 used in this embodiment should by no means be limited to a cutout-ring spring

and may be a disk spring or a rubber spring, if it is a resilient member shrinkable and extendible radially within a constant circle. The tubular clasp 5 may be a clasp having a tubular portion whose distal end is folded into a U shape, as shown in FIG. 6. In FIG. 1, reference numeral 7 designates a female button body; and 8, a piece of cloth through which the tubular portion of the clasp 5 attached to the rear surface of the ornamental button body 1 is pierced, whereupon the distal end of the tubular portion is clenched against the tubular portion of the female button body 7 to thereby attach the female button body 7 to the cloth 8.

According to a second embodiment, as shown in FIG. 3, the shape of a recess 2 formed centrally in the rear surface of an ornamental button body 1 is totally identical with that of the first embodiment. The shape of an outer peripheral edge 9 of a flange 4 of a tubular clasp 5 is different from that of the previous embodiment, being bent so as to complement to the slant inside wall 3 of the inverted frustoconical recess 2. A cutout annular spring 6 is inserted between the bent outer peripheral edge 9 of the flange 4 and the mouth-side inside wall 3 of the recess 2.

With this arrangement, when a force is exerted on the button so as to remove the tubular clasp 5 from the recess 2 of the ornamental button body 1, the annular spring 6 will shrink so as to move along the slant inside wall 3 of the recess 2 or will expand to move along the bent outer peripheral edge 9 of the flange 4, thus keeping a balanced condition so that the flange 4 will hardly be removed from the recess 2.

In a third embodiment shown in FIG. 4, a recess 2 formed in the rear surface of an ornamental button body 1 is similar to that of the previous embodiment except that the mouth edge 10' of the recess is rounded to facilitate insertion of an annular spring 6. The annular spring 6 has a generally triangular cross section. Partly since one side surface of the annular spring 6 is complementary to the inside wall 3 of the recess 2, partly since one apex of the annular spring 6 is positioned inwardly of the rounded mouth edge 10' of the recess 2, and partly since another apex is in contact with the flange 4 of the tubular clasp 5, it is possible to compress the annular spring 6 easily so as to remove from the recess 2 so that the ornamental button body 1 can be exchanged with a new one.

In a fourth embodiment shown in FIG. 5, a recess formed in the rear surface of an ornamental button body with a bottom larger in diameter than a mouth is different from the inverted frustoconical shape of the foregoing embodiments and has a mere peripheral groove. The rounded mouth edge 10' of the recess 2 is rounded to facilitate insertion of an annular spring 6. The annular spring 6 has a trapezoidal cross section; for insertion, the annular spring 6 is forced into the recess 2 with its slant surface facing the rounded mouth edge 10' of the recess 2 of ornamental button

body 1, with its apex contacting a flange 4 of a tubular clasp 5 and with its bottom surface facing the mouth-side inside wall 3 of the recess 2. Therefore the annular spring 6 can be inserted in a simple operation and serves to secure the tubular clasp 5 to the ornamental button body 1 stably.

According to another feature of this invention, there is provided a method of manufacturing an ornamental button body assembly, comprising the steps of: inserting the flange 4 of the tubular clasp 5 into the recess 2 formed centrally in the rear surface of the ornamental button body 1 with the bottom larger in diameter than the mouth, the flange 4 being substantially equal in diameter to the mouth edge of the recess 2; forcibly inserting the annular spring 6 between the front surface of the flange 4 and the mouth-side inside wall 3 of the recess 2 while compressing the annular spring 6; and then restoring the compressed annular spring 6 to secure the tubular clasp 5 to the ornamental button body 1.

To carry out this method, an apparatus such as shown in FIG. 7 may be used. The apparatus comprises an ornamental button body holding die 11, an auxiliary die 12 and a punch 13. The holding die 11 has a flat upper surface for supporting an ornamental button body 1. The auxiliary die 12 is to be mounted on the upper surface of the holding die 11 and has vertically extending and axially aligned upper and lower through-holes 15, 14. The diameter of the upper through-hole 15 is equal not only to the outside diameter of the flange 4 of the tubular clasp 5 but also to the diameter of the edge of the recess 2 of the ornamental button body 1. The diameter of the lower through-hole 14 is equal to the outside diameter of the ornamental button body 1. The mouth edge 16 of the upper through-hole 15 is tapered to support the annular spring 6 for compression. The punch 13 has a diameter equal to the diameter of the upper through-hole 15 of the auxiliary die 12 and is reciprocatingly movable into and out of the upper through-hole 15, having an axial hollow 17 large enough to receive the tubular portion of the clasp 5.

In use, the ornamental button body 1 with its front surface facing downwardly is placed on the holding die 11, and then the flange 4 of the tubular clasp 5 is inserted into the recess 2 of the ornamental button body 1, whereupon the auxiliary die 12 is positioned above the ornamental button body 1. Meanwhile the ornamental button body 1 is placed in the lower through-hole 14 and then the annular spring 6 is placed on the tapered mouth edge 16 of the upper through-hole 15. Then the punch 13 is lowered to compress the annular spring 6 and then to insert the compressed annular spring 6 into the recess of the ornamental button body 1, whereupon the compressing action is released to restore and hence expand the annular spring 6 to secure the tubular clasp 5 to the ornamental button body 1.

With the ornamental button body assembly of this invention, since the tubular clasp is attached to the ornamental button body merely by compressing and expanding the annular spring, it is very simple in construction and can be manufactured with ease.

Particularly since no mechanical deformation process is given to the flange of the tubular clasp while the tubular clasp is attached to the ornamental button body, precise and reliable attachment can be achieved, thus guaranteeing products free from defects. Furthermore, since no forcible pressing force of the punch is exerted directly on the ornamental button body during assembling, any damage would not be given to the front surface of the ornamental button body, thus obtaining a neat ornamental button body assembly.

Claims

1. An ornamental button body assembly, comprising:
 - (a) an ornamental button body (1) having in its rear surface a recess (2) with a bottom larger in diameter than a mouth;
 - (b) a tubular clasp (5) having at one end a flange (4) substantially equal in diameter to a mouth edge (10) of said recess (2), said flange (4) being received in said recess (2); and
 - (c) an annular spring (6) disposed between said flange (4) and a mouth-side inside wall (3) of said recess (2).
2. An ornamental button body assembly according to claim 1, wherein said recess (2) has an inverted frustoconical contour.
3. An ornamental button body assembly according to claim 2, wherein said flange (4) of said clasp (5) being bent along an outer peripheral edge (9) so as to form a complement to the sloping inside wall of said frustoconical recess (2).
4. A method of manufacturing an ornamental button body assembly, comprising the steps of:
 - (a) inserting a flange (4) of a tubular clasp (5) into a recess (2) formed in a rear surface of an ornamental button body (1) with a bottom larger in diameter than a mouth, the flange (4) being substantially equal in diameter to a mouth edge (10) of said recess (2);
 - (b) forcibly inserting an annular spring (6) between a surface of the flange (4) and a mouth-side inside wall (3) of the recess (2) while compressing the annular spring (6); and
 - (c) then restoring the compressed annular spring (6).

FIG. 1

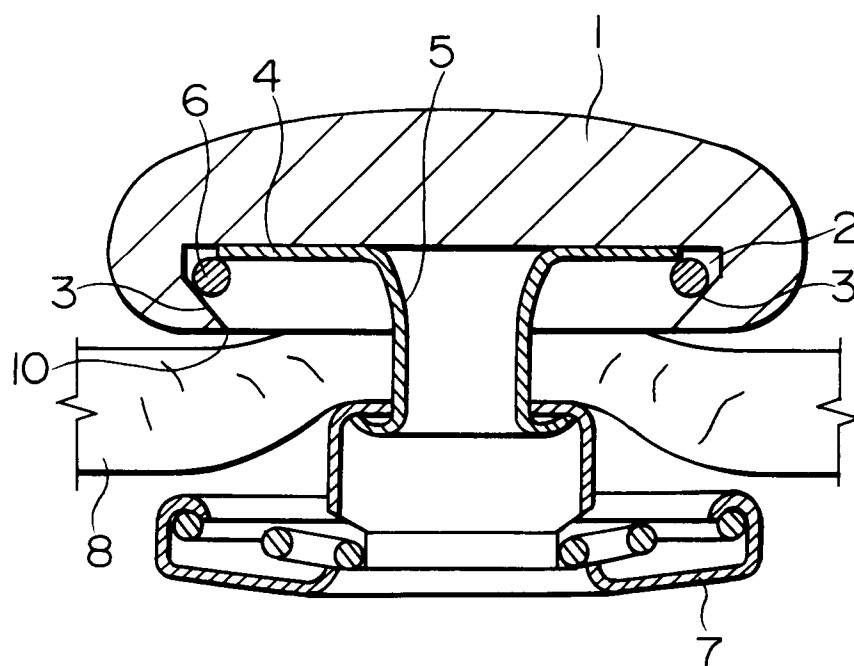


FIG. 2

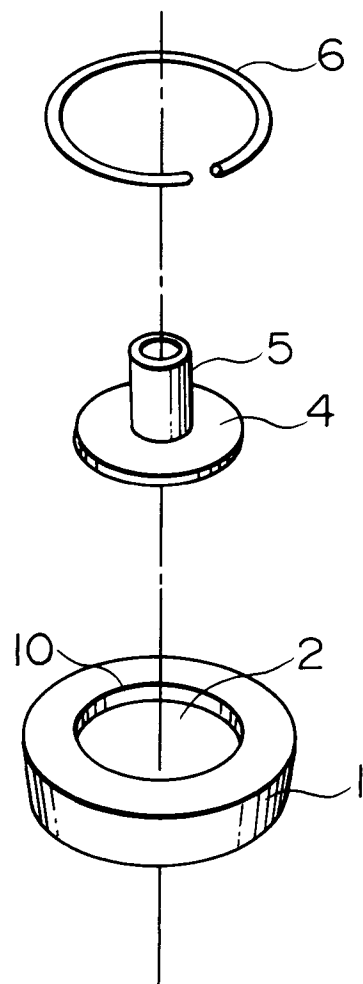


FIG. 3

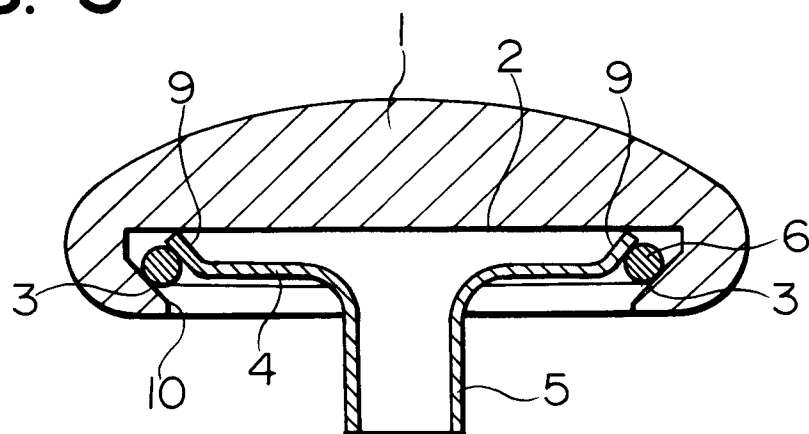


FIG. 4

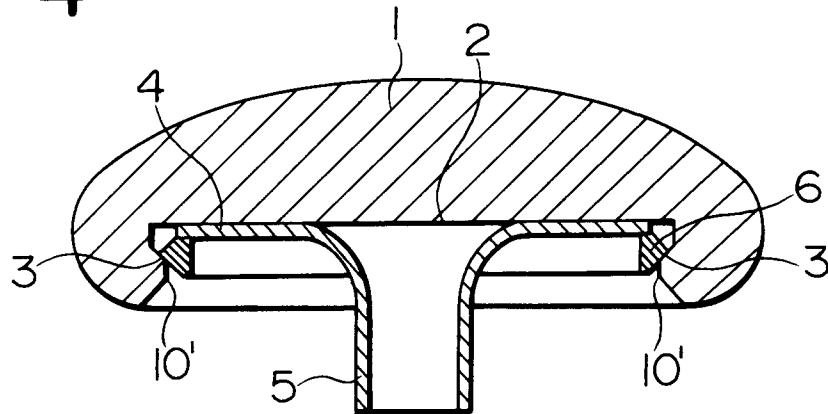


FIG. 5

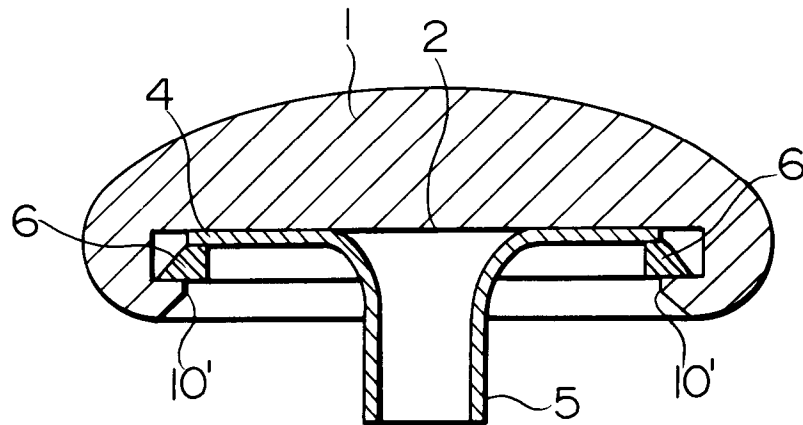


FIG. 6

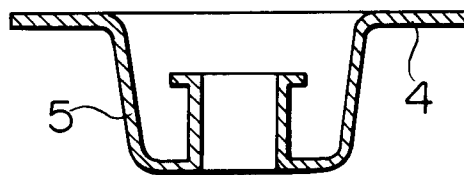
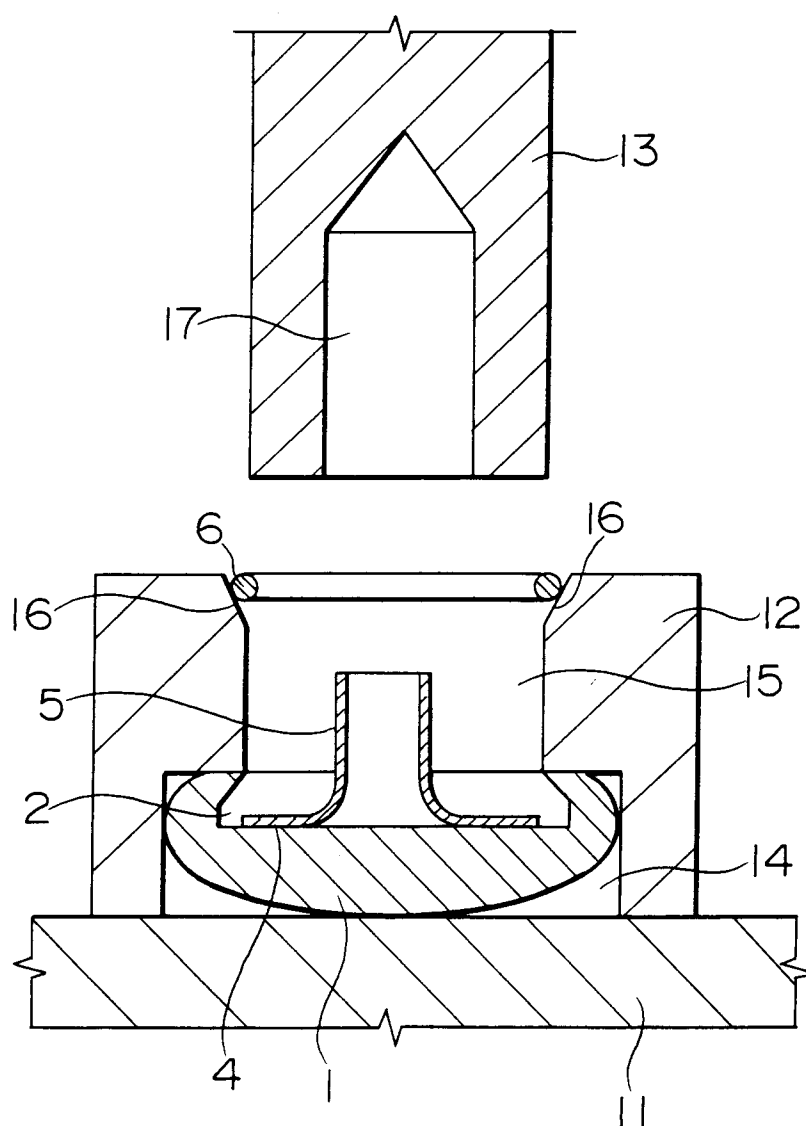


FIG. 7





European Patent
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EUROPEAN SEARCH REPORT

Application Number

EP 92 30 9538

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.5)
A	DE-A-1 936 163 (WILLIAM PRYM-WERKE KG) * figures 1,4,5,7,8 * ---	1,2,4	A44B17/00 A44B1/04
D,A	JP-A-5 836 503 (.....) * figures 1-6 * ---	4	
D,A	JP-U-2 130 214 (.....) * figures 1-6 * ---	4	
A	EP-A-0 090 131 (WILLIAM PRYM-WERKE KG) * figures 1,4,5,7 * ---	1	
A	US-A-1 831 291 (J. W. DEWS) * figure 11 * -----	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			A44B A41H
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 22 FEBRUARY 1993	Examiner FAIRBANKS S.A.
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