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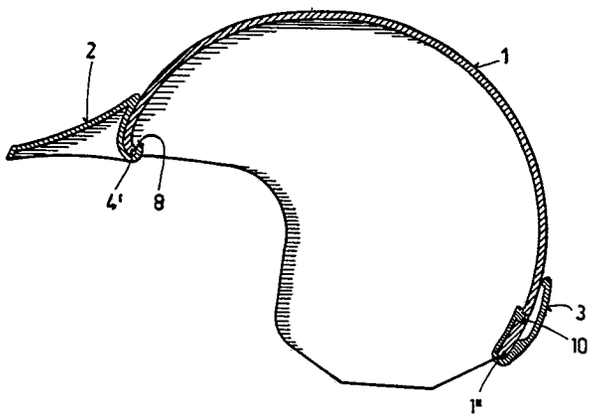
(54) Protection helmet without metallic connections for motor and pedal cyclists.

(57) A protective helmet to be used by motor and pedal cyclists, sportsmen and the like, comprising in a first mode a helmet shell (1) and eye shield (2) which are snap-fitted together, and which are of non-metallic material, the interconnection of the parts being achieved by virtue of the resiliency of the material of the parts.

The eye shield (2) may be rotatable between an operative in-use position and a raised out-of-the-way position. In a second mode, there is provided a goggles-retention band clip (3) which in snap-fitted to the helmet shell (1), the shell (1) and clip (3) again being of non-metallic material the resiliency of the material selected ensuring the connection of the clip (3) to the helmet shell (1).

The helmet shell (1) may, if necessary, be provided with suitable formations (4, 5, 10) for ensuring the effective clipping-on the eye shield (2) and/or goggles-retention band clip (3) to the helmet shell (1).



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Protective helmet without metallic connections for motor and pedal cyclists.

This invention relates to protective helmets such are used by motor and pedal cyclists and sportsmen, and an object of the invention is to provide a protective helmet of a type, in accordance with a first aspect of the invention, having an eye shield which is connected to a helmet shell in such a fashion as to render the utilisation of metallic connecting parts unnecessary, and on the other hand in accordance with another aspect of the invention, is provided with a goggle band retention means, preferably at the rear of the helmet, which is connected to the helmet in such a fashion as to render the utilisation of metallic connecting parts unnecessary. In a preferred case, the helmet will be provided both with a eye shield and the goggles band retention means.

In general, known protective helmets are provided both with an eye shield and a goggles band retention means, the latter being at the rear of the helmet, such eye shield and goggles band retention means being connected to the helmet shell by metallic parts such as rivets, plates, clips or the like. It has been found that the said metallic parts in due course oxidise and, in the case of iron and steel parts, become rusty, which results in the parts becoming unsightly, becoming weakened, or becoming jammed.

In the case of the eye shield which is usually pivotable upwardly from the in-use position to an out of use position or is detachable from the shell, if the metallic mounting becomes jammed there is the serious danger to

the user that in the event of an accident or impact, if the eye shield receives a blow and does not yield, there may be a high stress on the user's head caused by lever action through the jammed eye shield, with the serious possibility of severe damage to the user's neck or head. On the other hand, if the corrossion of a metallic part leads to weakening of the connection between the eye shield and helmet, the eye shield may become detached permanently, which may render the helmet useless.

If the means for holding the goggles band at the rear of the helmet becomes so corroded as to detach permanently from the helmet, then the loss of holding of the goggles band can lead to difficulties in use, if for example the goggles band travels too far up the rear of the helmet or travels down over the bottom edge of the helmet, as the effectiveness of the goggles will be lost.

In the known mounting arrangement for the means for retaining the goggles band, strips of different materials fixed to press studs are used. The press studs can be pressed to receiving plates rivetted to the rear of the helmet, and to retain the goggles band, the strips are detached by releasing the press stud, the goggles band is fixed in position, and then the press stud is re-fastened. The press studs and rivots are of metallic material and are liable to oxidation and/or rusting as they are exposed to the weather.

With the arrangement according to the present invention, the abovementioned disadvantages are obviated or mitigated.

In accordance with a first aspect of the invention, there is provided a protective helmet having a helmet shell and an eye shield, characterised in that the helmet shell and eye shield are of non-metallic material, the eye

shield is preferably but not necessarily rotatably mounted on the shell so as to be movable between an operative position and a raised inoperative position, the eye shield and shell being held connected by virtue of the resiliency of the material of the eye shield or the helmet shell or both, whereby, for the holding of the eye shield to the helmet, the use of rivets, screws, press studs or other metallic parts, which are liable to oxidation, corrosion and jamming is not necessary.

In accordance with a second aspect of the invention there is provided a protective helmet having a helmet shell and a goggles band clip, characterised in that the helmet shell and goggles band clip are of non-metallic material, the goggles band is clipped preferably on the rear of the shell, so as to form a loop preferably at the rear of the helmet for receiving the band of, a pair of goggles worn by the user of the helmet, the goggles clip and shell being held connected by virtue of the resiliency of the material of the goggles clip, or the helmet shell or both, whereby, for the holding of the band clip to the helmet, the use of rivets, screws, press studs or other metallic parts which are liable to oxidation, corrosion and jamming, is not necessary.

The non-metallic material of the shell, eye shield and/or goggles band retention clip, is preferably a stampable elastic synthetic resin or a polyester resin reinforced with glass fibres.

The helmet according to the present invention, by arranging for the helmet shell, eye shield and/or goggles band retaining clip to be made of non-metallic material, and connectable by virtue of the resiliency of material used, ensures the prevention of corrosion and rusting and jamming resulting from corrossion and rusting, whilst yet, in the preferred case, providing the functionality of the

eye shield to rotate from its operative to its inoperative position and enabling the ready clipping of the goggles band retention clip, to the helmet shell.

The aspects of the present invention are illustrated in an embodiment of each, with reference to the accompanying drawings, wherein:-

Fig. 1 is a sectional side view of a helmet according to and embodying the aspects of the present invention;

Fig. 2 is a front view of the helmet shell of the helmet shown in Fig. 1;

Fig. 3 is a an underneath plan view of the eye shield of the helmet shown in Fig. 1;

Fig. 4 is a side view in section and to an enlarged scale of a detail of the helmet shown in Fig. 1; and

Fig. 5 is a front view of the goggles band retention clip of the helmet shown in Fig. 1.

Referring to the drawings, the illustrated helmet comprises a helmet shell 1, an eye shield 2, and a goggles band retention clip 3. Each of these three parts is made of elastic synthetic resin, and the parts are connected by snap fitting together relying on the resiliency of the material used for the parts. The eye shield 2 and clip 3 are capable of being disconnected from and connected to the helmet shell 1 repeatedly and by snap fitting action, and to this end there are complimentary projections and recesses on the respective parts, which projections and recesses are produced by the method of forming the parts, for example, stamping, moulding or the like. Each of the parts is a one-piece item.

It can be appreciated therefore that the interconnection of the parts 1, 2 and 3 does not require the use of any metallic means such as rivets or press studs, which could in use corrode, fail or jam.

The arrangement which is used for connecting the eye shield 2 to the helmet shell 1, consists in that the helmet shell has at the front above the face aperture, two recesses apertures, loop holes or bores 4 and 5, as best illustrated in Fig. 2, which receive pins 6, 7 as shown in Fig. 3 which are integral parts of the eye shield 2. Additionally, the eye shield is provided at the rear with a hook or clasp portion 8 which is also formed during the manufacture of the eye shield, and in the operative position shown in Fig. 1, the clasp 8 frictionally and resiliently engages the front peripheral edge 1' as shown in Fig. 1, of the helmet shell. The eye shield 2 can be moved against the holding action of the hook 8 to an upper, out of the way and inoperative position, and is still retained connected to the shell 1 by virtue of the pins 6 and 7 engaging recesses 4 and 5 in resilient fashion.

As regards the goggles band retention clip 3, which is illustrated in enlarged scale in Figs. 4 and 5, this clip is a substantially U-shaped component having inner and outer limbs 3' and 3'' of different lengths the expressions inner and outer being applied to the respective positions taken by the limbs 3' and 3'' when the clip is clipped to the helmet shell as shown in Figs. 1 and 4. The outer limb 3' has at its end an inwardly directed projection which bears resiliently against the outside of the helmet shell 1, thereby to define a closed loop 9 for receiving a goggles band. The band is inserted in the loop 9 simply by flexing the branch or arm 3'' to move the free end of such arm clear of the shell 1, the band is inserted and then the arm is released and

it springs back to the position shown in Fig. 4.

The inner limb 3 is provided with an inwardly extending pin 3', which is snapped fitted in an aperture 10 provided in the region 1''', whereby the clip 3 is resiliently held to the lower rear edge 1'' of the helmet shell. To disconnect the clip, the end of the inner limb 3 is deflected resiliently inwardly relative to the shell 1 to release the pin 3''' from the hole 10.

Other arrangements for the connection of the clip 3 to the shell 1 are possible. For example, instead of the pin being provided on the clip 3, the helmet shell 1 could be formed with a protruberance drawn out during the formation of the shell 1, to engage a recess in the limb 3' of the clip. Alternatively, such a protruberance might have a recess for receiving the pin 3' when provided on the clip 3.

The shape of the various parts may be altered to suit requirements, without departing from the scope of the invention as defined by the appended claims, and it is not necessary that the eye shield should be rotatable on the shell 1, or that the band clip should be located at the rear of the helmet. There could be two of the described band clips respectively at the sides of the helmet shell 1.

CLAIMS

1. A protective helmet having a helmet shell and an eye shield, characterised in that the helmet shell (1) and eye shield (2) are of non-metallic material, the eye shield (2) preferably is rotatably mounted on the shell so as to be movable between an operative position and a raised inoperative position, the eye shield and shell being held connected by virtue of the resiliency of the material of the eye shield or the helmet shell or both, whereby, for the holding of the eye shield to the helmet, the use of rivets, screws, press studs or other metallic parts, which are liable to oxidation, corrosion and jamming, is not necessary.

2. A helmet according to claim 1, characterised in that the eye shield is rotatable and has spaced pins (6, 7), which engage in receiving apertures (4,5), in the helmet shell enabling the eye shield to be rotated between said positions.

3. A helmet according to claim 1 or 2, characterised in that the eye shield (2) has to the rear thereof, a clasp portion (8) which resiliently clasps the peripheral edge of the shell (1) when the eye shield is in the operative position in order to hold the eye shield resiliently in said operative position.

4. A protective helmet having a helmet shell and a googles band clip, characterised in that the helmet shell (1) and goggles band clip (3) are of non-metallic material, the goggles band clip (2) is clipped preferably on the rear of the shell so as to form a loop at the rear of the helmet for receiving the band of a pair of goggles worn by the user of the helmet, the goggles clip and shell being held connected by virtue of the resiliency of the material of the goggles clip or the helmet shell or

both, whereby, for the holding of the band clip to the helmet the use of rivets, screws, press studs or other metallic parts, which are liable to oxidation, corrosion and jamming, is not necessary.

5. A helmet according to claim 4, characterised in that the goggles clip (3) is U-shaped in cross section and the limbs (3',3'') of the clip (3) lie to opposite sides of the shell (1), the limb (3'') which lies to the outside of the shell having a projection at the end thereof which rests on the shell (1), keeping the adjacent portion of the limb (3'') out of contact with the shell (1) thereby efining said loop (9) for receiving the goggles band.

6. A helmet according to claim 4 or 5, characterised in that the inner limb (3') of the clip (3) has a pin (3''') which is resiliently received in a bore (10) in the shell (1) or in a recess in a protruberance (1''') on the inside of the shell (1).

7. A protective helmet having a helmet shell, an eye shield and a goggles band clip, characterised in that the helmet shell (1), the eye shield (2) and the goggles band clips (3) are of non-metallic material, the eye shield (2) preferably is rotatably mounted on the shell so as to be movable between an operative position and a raised inoperative position, the eye shield and shell being held connected by virtue of the resiliency of the material of the eye shield or the helmet shell or both, the goggles band clip (2) is clipped preferably on the rear of the shell so as to form a loop at the rear of the helmet for receiving the band of a pair of goggles worn by the usr of the helmet, the goggles clip and shell being held connected by virtue of the resiliency of the material of the goggles clip or the helmet shell or both, whereby, for the connection of the eye shield and band clip in the shell the use of rivets, screws, press studs or other metallic parts, which are liable to oxidation, corrosion

and jamming, is not necessary.

8. A helmet according to any of claim 1 to 7, characterised in that the helmet shell (1) and the eye shield (2) or the goggles clip (3), or all three are of stampable elastic synthetic resin.

9. A helmet according to any of claims 1 to 7, characterised in that the hlemt shell (1) and the eye shield (2) or the goggles clip (3), or all three are of polyester resin reinforced by glass fibre.

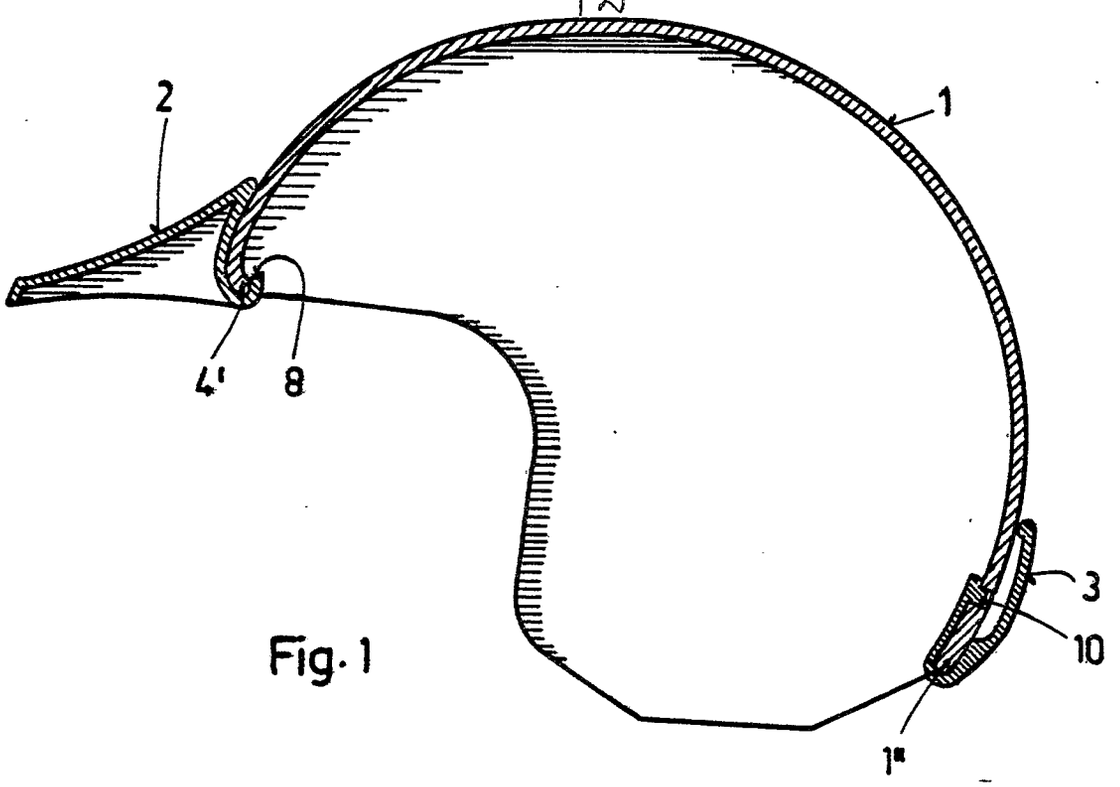

Fig. 1

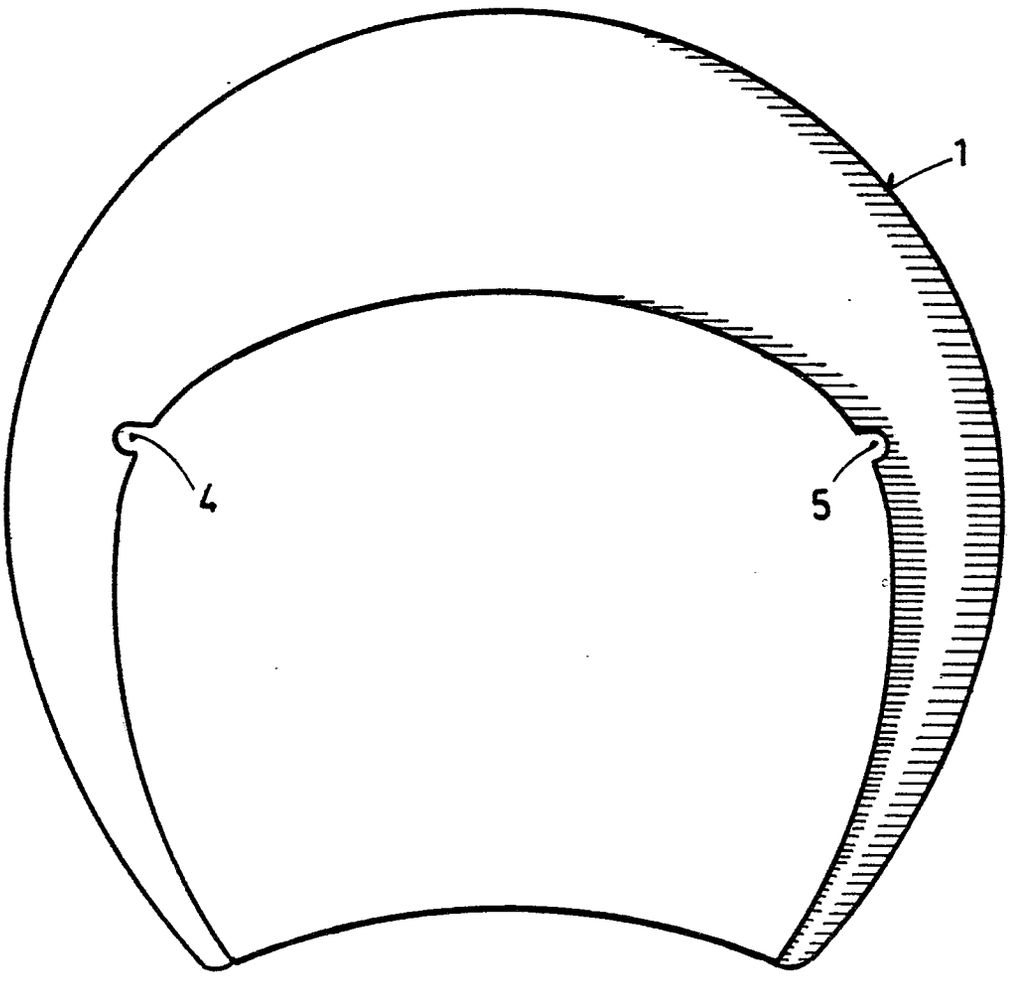

Fig. 2

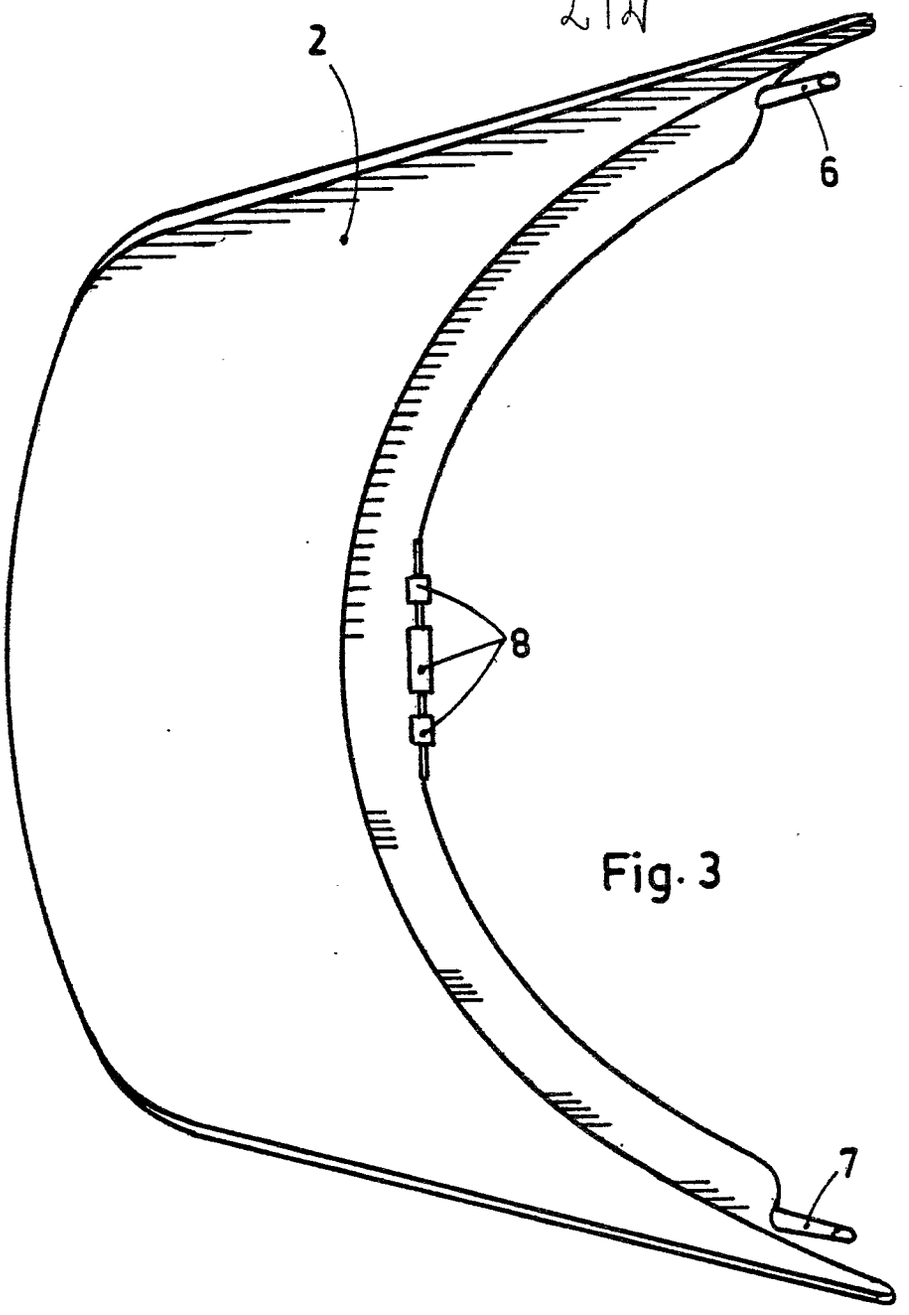

Fig. 3

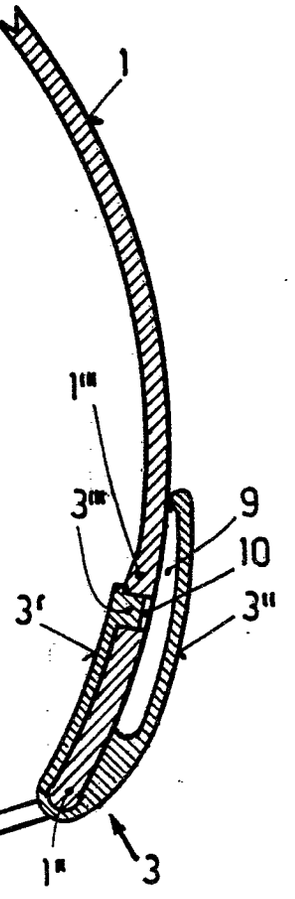

Fig. 4

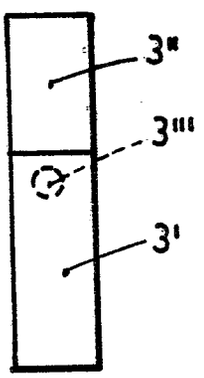

Fig. 5

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Application number

EP 81 81 0406

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EUROPEAN SEARCH REPORT

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
A	US - A - 2 855 604 (AUSTIN) * Column 1, lines 15-20; column 2, lines 22-35, 49-72; column 3; column 4, lines 1-13; claims; figures *	1,3,7-9
A	US - A - 2 934 767 (SCHOENER) * Claim; figures *	1
A	US - A - 4 210 972 (BACLIT) * Column 3, lines 63-68; column 4, lines 1-22; claims; figures *	1-3,7-9
A	GB - A - 1 560 723 (HELMETS) * Page 2, lines 14-35; claim 1; figure 4 *	1-3,7-9
A	US - A - 3 685 054 (RASCHKE) * Claim 1; figures *	1,3
A	US - A - 2 834 017 (SIMPSON et al.) * Claim; figures *	1-3,7-9
PA	US - A - 4 276 657 (MONTESI) * Whole document *	4-9

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CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)

A 42 B 3/00

TECHNICAL FIELDS SEARCHED (Int.Cl. 3)

A 42 B

CATEGORY OF CITED DOCUMENTS

X: particularly relevant if taken alone
Y: particularly relevant if combined with another document of the same category
A: technological background
O: non-written disclosure
P: intermediate document
T: theory or principle underlying the invention
E: earlier patent document, but published on, or after the filing date
D: document cited in the application
L: document cited for other reasons

&: member of the same patent family, corresponding document

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	09-02-1982	BOURSEAU

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EUROPEAN SEARCH REPORT

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
A	FR - A - 2 386 994 (FONDERMAN) * Whole document *	4-9
A	GB - A - 545 642 (COWELL) * Page 2, lines 94-111; claim 2; figures 2,4,5 *	4-9
A	US - A - 3 703 750 (IRWIN JR.) * Whole document *	4-9
A	US - A - 3 273 163 (ANDREWS III) * Whole document *	4-9
A	GB - A - 1 578 351 (DU PONT CANADA) * Claims 1,9 *	8,9

CLASSIFICATION OF THE APPLICATION (Int. Cl.³)

TECHNICAL FIELDS SEARCHED (Int. Cl.³)