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(54) **Face shield device**

(57) A face protection device, particularly for using tools for farming and gardening works, comprises a cap (1) provided with a visor (2), and a transparent shield (3) releasably secured to the visor (2). The shield (3)

provides for a peripheral rigid frame (9) with side holes (5), and the visor is equipped with side holes (6) for releasably joining the shield (3) through engagement means (4) further allowing the rotation of the shield in respect of the visor (2) (Fig. 1).

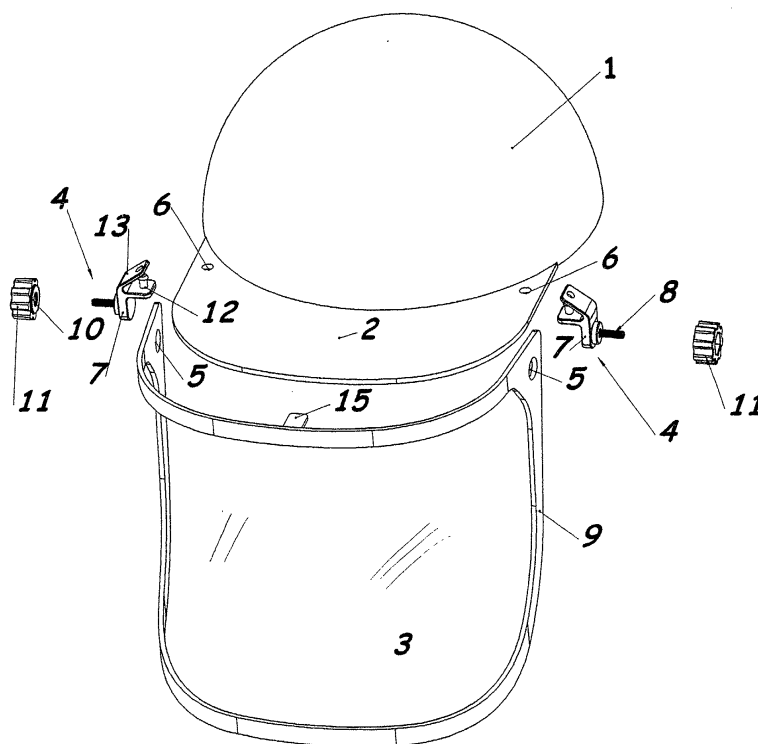


Fig. 1

Description

[0001] The present invention relates to a face shield arrangement comprising a cap with visor and a face protective shield.

[0002] This invention proves to be particularly advantageous when using tools for farming and gardening works, such as bush cutters, hedge trimmers, etc. to protect the wearer's face from objects which could hit the user's face when the tool is being operated. Nevertheless, its employment is not limited in any way to this type of protection.

[0003] There are known several and various devices comprising a cap combined with a protective shield. Some devices, adapted to be used under working and industrial conditions, comprise a helmet or a rigid and resistant cap together with a face protecting shield, such as those disclosed for example by US-A-2 834 017, US-A-3 577 564 or US-A-4 975 981.

[0004] Further applications provide for a face shield equipped with a headband as disclosed in US-A-5 440 760, US-A-4 884 296 or US-A-4 853 974, or a band with a spacing visor (US-A-5 647 060) or a shield with visor and headband integrally formed for medical applications (US-A-4 852 186).

[0005] The use of a transparent splashproof shield provided with a visor for the application to a surgeon's cap is disclosed by US-A 4 850 049.

[0006] There are further known caps with visors to which flexible surfaces can be fasten, such as for example for protecting the wearer's face from ultraviolet radiation (US-A-5 924 129) or mosquito nets (US-A-2 344 811).

[0007] The known devices have drawbacks and limitations, such as the need of a suitably made cap, a reduced spacing from the wearer's face unless proper spacing members are used, and an insufficient protection against small-size objects moving at high speed, and moreover they are uncomfortable to be worn and removed.

[0008] It is therefore an object of the present invention to overcome the above mentioned drawbacks and limitations of the prior art devices, and more particularly to provide a face shielding device that can be easily fitted to a conventional peaked cap (e.g. with a visor), and offers a real protection against solid objects, and being provided with a shield which can be raised and lowered simply and quickly.

[0009] According to another aspect the present invention relates to a face protecting shield comprising a transparent protective surface and a peripheral reinforcing frame, and equipped with side holes for fitting the shield to the visor of a cap.

[0010] The above objects are achieved through a face protection device according to claim 1, and a face protecting shield according to claim 10. Further advantageous features are recited in the dependent claims.

[0011] The present invention will now be disclosed

with particular reference to the attached drawings, supplied by way of nonlimiting examples, in which:

Fig. 1 is a perspective view of a preferred embodiment of the invention;

Fig. 2 illustrated in details the structure of the engagement means; and

Fig. 3 illustrates a different embodiment of the engagement means.

[0012] Throughout all the Figures, equal or substantially equivalent parts have been designated by the same references.

[0013] With reference to Figure 1, a protection device according to the invention comprises a cap, a soft hat or more generally a flexible headgear 1 provided with a (relatively stiff) visor 2, and a transparent protective shield 3 which can be releasably (i.e. in a non-permanent way) secured to the visor through two (or more) engagement means 4 by using holes 5 drilled in the shield.

[0014] The shield 3 is preferably implemented by using transparent plastic material sheet, or through a netting (of plastic material or with painted or plastified metallic wires), and surrounded by a peripheral stiffening frame or rim 9 which preferably extends along the whole periphery of the shield 3, and in which the holes 5 are preferably drilled. One or more spacers 15 protrude from the upper portion of the frame 9 to prevent the lowering of the shield 9 below the level of the visor 2.

[0015] More precisely and also with reference to Fig. 2, according to an embodiment of the present invention, each one of the engagement means 4 is preferably implemented through a connecting member 7 of a plastic material that can be snap-fastened to the visor at one of two holes 6 laterally drilled in the visor. Such holes can be punched by means of a simple tool, and in case reinforced with metallic or plastic eyelets (not shown in Figure 1).

[0016] More precisely, as illustrated in Figure 2, a threaded pin 8 (preferably of plastic material) protrudes from the body of the connecting member 7 and is adapted to be inserted into one of the shield side holes 5 and locked through a nut 10, with this latter being preferably embedded into a knob 11 large enough for allowing a manual tightening. The connecting member 7 is formed with a main body from which a pin 12 protrudes, the free end of the pin being enlarged, and with a strap 13 elastically fastened to the connecting member and provided with a hole 14 for snap-engaging the pin 12, after this latter has been led into the hole 6 drilled in the visor, thus securing together the visor rim and the protective shield 3. Preferably, the connecting member 7 is integrally formed as a one-piece plastic member.

[0017] In addition to allowing the fastening and disengaging of the shield, the means 4 also consent a rotation of the shield 3 which can be raised above the visor and easily lowered again when required.

[0018] Fig. 3 shows an embodiment of the engagement means 4 wherein the connecting member 7 includes both the threaded pin 8 and the pin 12 with its free end enlarged, while a separate small plate 18, with a hole 19, accomplishes the snap-locking function.

[0019] Although the invention has been illustrated with reference to a preferred embodiment, it is generally subjected to other applications and modifications, which fall within the scope of the invention, particularly in respect of the engagement means, as it will be evident to the skilled of the art.

Claims

1. A face protection device comprising a cap (1) provided with a visor (2), and a transparent protective shield (3) releasably fitted to said visor (2), **characterised in that** said transparent shield (3) comprises a peripheral rigid frame (9), and is provided with at least two side holes (5), and **in that** said visor is provided with side holes (6) for joining said shield (3) to said visor through engagement means (4) further allowing the rotation of said shield (3) in respect of the visor (2).
2. A protection device according to claim 1, **characterised in that** the side holes (5) of said shield are drilled in said peripheral rigid frame (9).
3. A protection device according to claim 1 or 2, **characterised in that** each of said engagement means (4) comprises a connecting member (7) which can be snap-fastened to the visor (2) of said cap at one of said visor holes (6), and a threaded pin (8) adapted to be inserted into one of said side shield holes (5) and to be tightened by a nut (10).
4. A protection device according to claim 3, **characterised in that** said connecting member (7) comprises a protruding pin (12), having its free end enlarged, and a strap (13) elastically secured to the connecting member (7) and provided with a hole (14) for snap engaging said pin (12) and the rim of the visor into which said pin has been inserted.
5. A protection device according to claim 3, **characterised in that** said connecting member (7) comprises a protruding pin (12), having its free end enlarged and being adapted to snap engaging a separate small plate (18) provided with a hole (19) to join together said shield (3) and said visor (2).
6. A protection device according to the preceding claims, **characterised in that** said connecting member (7) is formed as a one-piece member of plastic material.
7. A protection device according to claim 6, **characterised in that** one end of said threaded pin (8) is embedded into said connecting member (7).
8. A protection device according to the preceding claims, **characterised in that** said nuts (10) are embedded into knobs (11) of plastic material allowing for a manual tightening of the nuts.
9. A protection device according to the preceding claims, **characterised in that** said shield (3) comprises a transparent plastic sheet or a netting, and **in that** said visor holes (6) are reinforced by metallic or plastic eyelets.
10. A face protective shield (3) comprising a transparent protecting surface and a peripheral reinforcing frame (9), provided with side holes (5) for fitting said shield to the visor (2) of a cap (1).

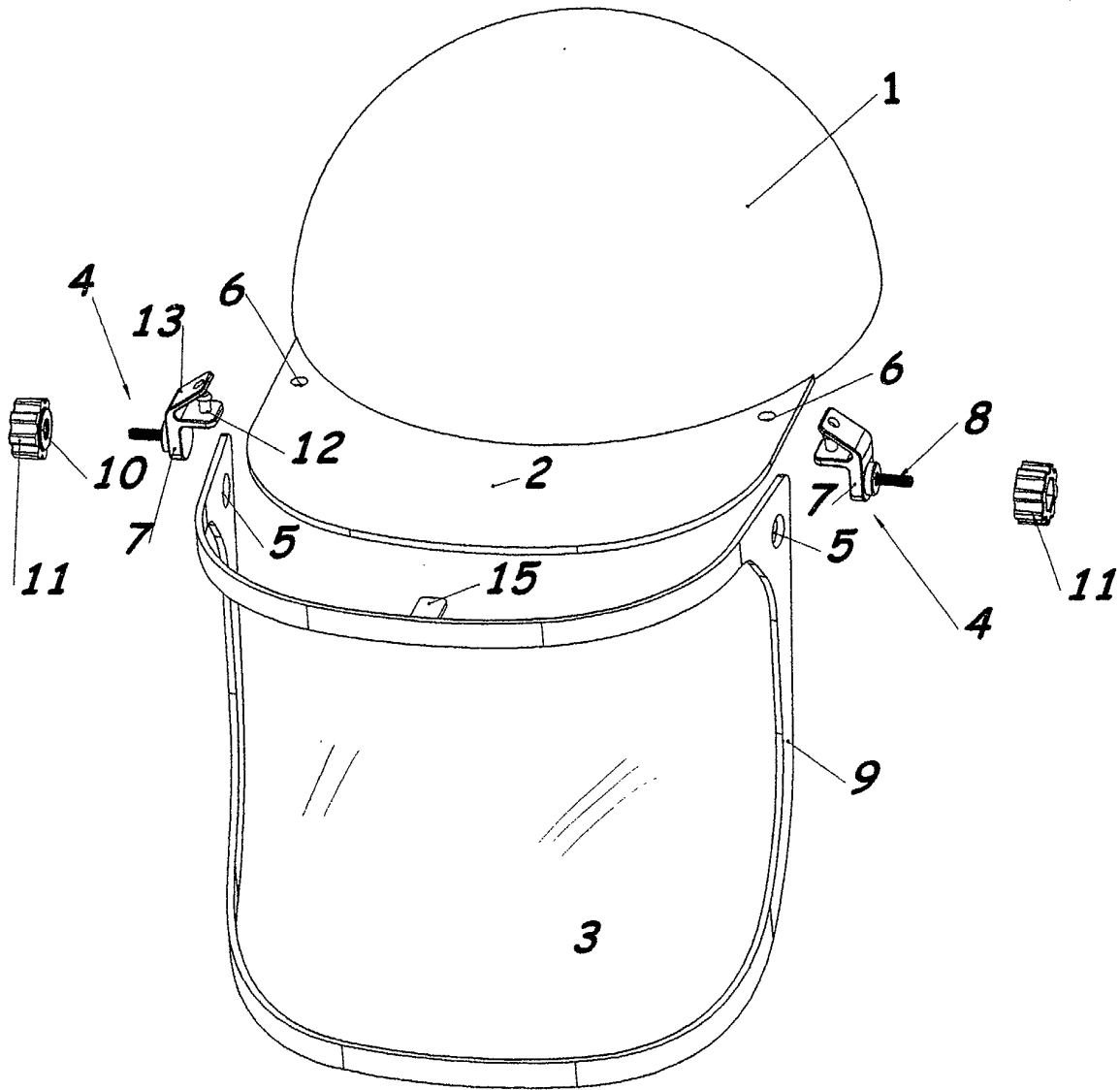


Fig. 1

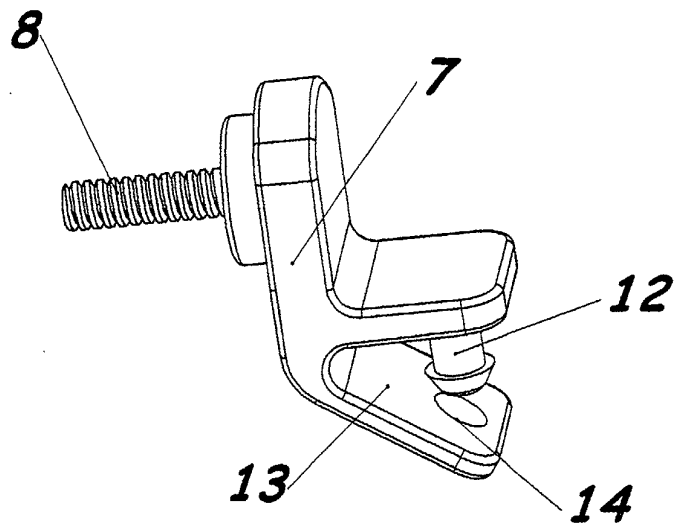


Fig. 2

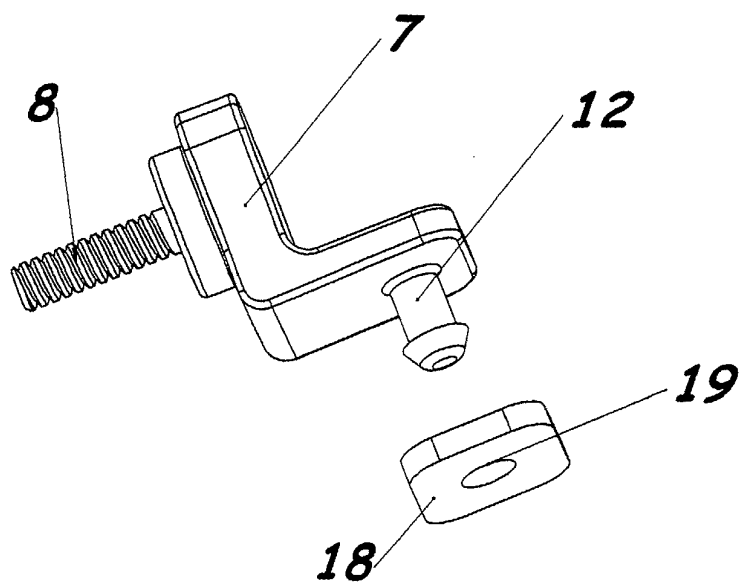


Fig. 3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 02 42 5155

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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			A42B
Place of search		Date of completion of the search	Examiner
THE HAGUE		25 September 2002	Bourseau, A-M
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			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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25-09-2002

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