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⑤④ **Unitary construction crash helmet.**

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DE-A-2 846 636
DE-A-3 110 909
GB-A-1 576 647
US-A-3 815 152
US-A-4 042 974
US-A-4 081 865

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Description

This invention relates to an integral type crash helmet, of the kind defined in the preamble of claim 1.

In the field of protective helmets for sporting applications, and particularly of motorcyclist crash helmets, increasingly wider acceptance are gaining some so-called integral type helmets which are comprised of a cap extending to the front into a chin guard which leaves a front window open which is then closed by a detachable visor.

Already with a construction of that type the helmet fits with difficulty because it must be adequately tightened around the wearer's head.

To avoid, then, the inconvenience of air circulation the bottom mouth of the helmet is usually provided with closures or padding which restrict its opening toward the neck.

With these added accessories, the operations of slipping the helmet on and off are particularly difficult.

On the other hand, the helmet cannot fit too loosely on the user's head, for in this case it would fail to provide protection.

A crash helmet of the kind defined in the preamble of claim 1 is disclosed in DE—A—2 846 636 and has a chin guard pivoted to the cap; thereby it can be swung upwards and raised in order to facilitate helmet slipping on and off. However this known helmet is not yet completely reliable and comfortable for the wearer for the following reasons. If closures or paddings are provided at the bottom mouth of the helmet, then the problem of fouling of the air contained in the restricted space between the visor and the wearer's head and of visor fogging arises, otherwise there is an inconvenient and uncomfortable air circulation at this bottom mouth.

US—A—4 042 974 discloses a helmet not of the integral type having a perforated shield slidably attached to the cap for protecting the lower face area from high-impact particles.

GB—A—1 576 647 describes crash helmet open at the lower part of the wearer's face and having a mask for avoiding vapour condensing on the inner surface of the visor.

Therefore the task of this invention is to provide an integral type crash helmet which can overcome the problems encountered with known helmets.

Within this task, it is an object of the present invention to provide a crash helmet which, although it fits closely around the wearer's head leaving but small clearance and allows easy slipping on and off operations, presents a controlled circulation of breathing air and in particular solves the problem of the fouled air and of the visor fogging.

A not unimportant object consists in providing a crash helmet which is safe, strong and comfortable.

The above task and objects, as well as other objects, which will be apparent hereinafter, are

achieved by the invention, as defined in the appended claims.

The features and advantages of the invention will be readily apparent from the following detailed description of two preferred embodiments thereof, given herein by way of illustration and not of limitation with reference to the accompanying drawings, where:

Figure 1 is a fragmentary lateral view of a crash helmet incorporating a chin guard according to this invention;

Figure 2 is a sectional view on line II—II of Fig. 1, of the chin guard hooking on and off device;

Figure 3 is a sectional view taken on a horizontal plane on line III—III of Fig. 1 through the helmet, showing the ventilation and breathing means;

Figure 4 shows a crash helmet incorporating an equivalent chin guard unhooking device;

Figure 5 is a sectional view on line V—V of Fig. 4 of the equivalent devices for hooking the chin guard to the cap.

With reference to Figures 1—3, a crash helmet of the unitary construction type is fabricated with a cap 1 which extends with its bottom front portion into a chin guard 2 of conventional shape while the window 3 which is fabricated on the front is closed by a transparent visor 4 pivoting through known connection devices about a center 5 such that it can be opened by raising it.

The chin guard 2 comprises an arcuate element which is complementary to the front portion of the cap from which it is divided by a separation line indicated at 6.

At the two ends adjoining said separation line 6 said chin guard is configured to have a double wall formed by outer wall 7 and inner wall 8 adapted to define by the interspace formed therebetween a pocket like laterally open seat 9 for the insertion of a guide 10 rigid with the helmet cap. The guide 10 has the shape of a rectangular tongue projecting from the edge 6 of the helmet cap 1 with an elongated hole or slot 11 formed in the middle for allowing passage therealong of the button or control cylinder 12.

Said guide 10 can slide within the seat 9 to enable a back and forth travel movement of the chin guard 2, with respect to the guide 10.

The travel distance is determined by the slot 11 formed in the guide 10, wherein a small control cylinder 12 is inserted which is rigid with the end of the element 8.

Said element 8 is an elastic one and has at its free end a hooking tooth 13 adapted to engage in a projection 14 of the cap 1.

With the tooth 13 hooked onto the projection 14 the chin guard 2 is made rigid with the cap 1 and the helmet forms a strong monolithic structure.

To open the chin guard 2 or slide it forward, one acts by depressing the small cylinder 12 which protrudes outwardly through a hole 15 formed in the wall 7 and by pushing forward the chin guard is caused to slide to the dash-line position, indicated at 16 in Figure 1.

At this point, a wider passage space will be

determined such that the helmet slipping on and off is made much easier.

The chin guard 2 supports on its interior a small mask 17 which with the chin guard closed will cover the nose and mouth of the helmet wearer.

That mask has two conduits 18 and 19 which after extending out of the two holes 20 and 21 formed in the chin guard itself extend in two air intakes 22 and 23 formed on the chin guard outside and facing rearwardly with respect to the direction of motion.

Said structure associated with the chin guard always permits breathing external air to the helmet thus avoiding both the problem of fouling of the air contained in the restricted space between the visor 4 and motorcyclist's head and the problem of visor fogging.

In a second embodiment shown in Figures 4 and 5 there is again illustrated a crash helmet having a cap 24 and a chin guard 25 which are complementary to each other and divided along a separation line 26. The ends of the chin guard 25 adjoining the line 26 have a pocket like middle seat 27 wherein a blade element 28 associated with the cap 24 is inserted, said association being implemented such that relative sliding can be provided between the parts.

At the deepest portion of the seat 27 is a spring 29 which presses against said blade element 28 to cause ejection of the chin guard 25 from the cap 24.

A tooth hooking element 30 associated with the chin guard 25 and hooking onto a matingly shaped tooth 31 rigid with the cap 24 enables rigid hooking of the chin guard and cap.

A control button 32 which may be operated from the outside allows disengagement of the hooking device 30 by mere pressure.

Also in this case like with the solution previously described by pressing from the outside onto the element 32 the chin guard 25 is released and moved forward into a position indicated at 132 in Figure 4 and limited by a snub-nose 33 formed on the blade element 28 which slides through a preset distance in a recessed cam guide 34 formed in the chin guard 25.

Also with this second embodiment even though not explicitly shown in Figures 4 and 5 installation of a small mask of the type indicated at 17 in Figures 1 and 3 is made feasible.

Also in this case the translation of the chin guard allows an easier insertion of the helmet and correct positioning of the breathing mask 17.

A crash helmet fabricated in accordance with all that has been described and illustrated fully achieves the invention objects and affords countless advantages.

First, it allows easier slipping on and off of the helmet itself which can therefore have less clearance left around the wearer's head to fit closely and safely.

The translation of the chin guard enables the use of a breathing mask which as mentioned has important advantages in that the user even with

the helmet fully closed can breathe non-polluted and non-fouled air from the narrow space.

Air renewal is constant owing to the provision of the intakes on the helmet exterior.

Also in the event of an accident the chin guard can be easily released allowing rescuers to slip off the helmet without causing further damage to the victim.

Of course, in addition to the two embodiments described the solution of the controllably sliding chin guard in a forward direction may be implemented in countless other ways without departing from the protective scope of the invention.

The materials and dimensions may be any selected ones to meet individual requirements.

Claims

1. An integral type crash helmet comprising a cap (1, 24) and a chin guard (2, 25) formed as separate parts movable relative to each other, and locking means (13—14, 30—31) rigidly and selectively locking the chin guard (2, 25) to the cap (1, 24), characterized in that one of said parts (1, 2, 24, 25) has slide guides (10, 28) inserted in respective matingly shaped seats (9, 27) provided in the other part, ventilation means (17, 22, 23) in communication with a zone inwardly facing said chin guard (2, 25) being provided, said ventilation means including openings defining means (22, 23) facing rearwardly with respect to the direction of motion.

2. A crash helmet according to Claim 1, characterized in that said slide guide (10, 28) present a travel limiter (10—12; 33—34) such that the chin guard can move through a desired distance outwards from the cap but not separate therefrom.

3. A crash helmet according to Claim 1 characterized in that said locking means comprise a hook (13, 30) at the end of a blade element (8, 30) made rigid with either part of the elastically deformable helmet and adapted to engage with a projection or seat (14, 31) provided on the other part of the helmet.

4. A crash helmet according to one or more of the preceding claims, characterized in that said blade element (8, 30) can be controlled from the outside by depressing a button (12, 32) to release the chin guard (2, 25) from the cap (1, 24).

5. A crash helmet according to the preceding claims, characterized in that said button (12) is located on the chin guard (2).

6. A crash helmet according to one or more of the preceding claims, characterized in that said button (32) is located on the helmet cap (24), and in that springs (29) are provided for urging the chin guard (25) forward in the pressed condition of the button (32).

7. A crash helmet according to one or more of the preceding claims, characterized in that associated internally with said chin guard (2, 25) is a mask (17) covering nose and mouth of the helmet wearer with the chin guard (2, 25) in the closed condition.

8. A crash helmet according to one or more of the preceding claims, characterized in that said mask (17) is provided with conduits (18, 19) which open onto the chin guard exterior into air intakes (22, 23).

Patentansprüche

1. Schutzhelm von einheitlichem Aufbau, bestehend aus einer Haube (1, 24) und einem Kinnschutz (2, 25), die als getrennte, relativ zueinander bewegbare Teile ausgebildet sind, und Verriegelungseinrichtungen (13—14, 30—31), welche den Kinnschutz (2, 25) starr und wahlfrei an der Haube (1, 24) verriegeln, dadurch gekennzeichnet, dass einer der genannten Teile (1, 2, 24, 25) Gleitführungen (10, 28) besitzt, die jeweils in am anderen Teil vorgesehenen Passitzten (9, 27) eingesetzt sind, wobei Lüftungseinrichtungen (17, 22, 23) vorgesehen sind, die mit einer innen dem Kinnschutz (2, 25) gegenüberliegenden Zone in Verbindung stehen, und die Lüftungseinrichtungen Öffnungen bildende Einrichtungen (22, 23) aufweisen, die in bezug auf die Fahrtrichtung nach hinten weisen.

2. Schutzhelm nach Anspruch 1, dadurch gekennzeichnet, dass die Gleitführung (10, 28) einen Wegbegrenzer (10—12, 33—34) aufweist, so dass der Kinnschutz über einen gewünschten Abstand von der Haube nach aussen bewegbar, von dieser jedoch nicht trennbar ist.

3. Schutzhelm nach Anspruch 1, dadurch gekennzeichnet, dass die Verriegelungseinrichtungen aus einem Haken (13, 30) am Ende eines Blatteiles (8, 30) bestehen, der mit einem der Teile des elastisch verformbaren Helmes fest verbunden und zum Eingriff mit einem auf dem anderen Teil des Helmes vorgesehenen Vorsprung oder Sitz (14, 31) vorgesehen ist.

4. Schutzhelm nach einem oder mehreren der vorhergehenden Ansprüche, dadurch gekennzeichnet, dass der Knopf (8, 30) von aussen Eindringen eines Knopfes (12, 32) zwecks Freigabe des Kinnschutzes (2, 25) von der Haube (1, 24) betätigbar ist.

5. Schutzhelm nach den vorhergehenden Ansprüchen, dadurch gekennzeichnet, dass der Knopf (12) auf dem Kinnschutz (2) angeordnet ist.

6. Schutzhelm nach einem oder mehreren der vorhergehenden Ansprüche, dadurch gekennzeichnet, dass der Knopf (32) auf der Helmhaube (24) angeordnet ist und Federn (29) vorgesehen sind, um den Kinnschutz (25) bei gedrücktem Knopf (32) nach vorne zu drücken.

7. Schutzhelm nach einem oder mehreren der vorhergehenden Ansprüche, dadurch gekennzeichnet, dass dem Kinnschutz (2, 25) innen eine die Nase und den Mund des Helmbenützers bei geschlossenem Kinnschutz (2, 25) schützende Maske (17) zugeordnet ist.

8. Schutzhelm nach einem oder mehreren der vorhergehenden Ansprüche, dadurch gekennzeichnet, dass die Maske (17) mit Kanälen (18, 19) versehen ist, welche an der Aussenseite des Kinn-

schutzes in Lufteinlassöffnungen (22, 23) münden.

Revendications

1. Casque de protection du type intégral, comprenant une coiffure (1, 24) et une mentonnière de protection (2, 25) formées en tant que parties séparées mobiles l'une par rapport à l'autre, et des moyens de verrouillage (13—14, 30—31) verrouillant de façon rigide et sélective la mentonnière (2, 25) à la coiffure (1, 24), caractérisé en ce qu'une desdites parties (1, 2, 24, 25) présente des guides de coulissement (10, 28) insérés dans des sièges (9, 27) respectifs conformés de façon correspondante et prévus dans l'autre partie, des moyens de ventilation (17, 22, 23) en communication avec une zone faisant face intérieurement à ladite mentonnière (2, 25), étant prévus, lesdits moyens de ventilation comportant des ouvertures définissant des moyens (22, 23) orientés vers l'arrière par rapport à la direction de déplacement.

2. Casque de protection selon la revendication 1, caractérisé en ce que lesdits guides de coulissement (10, 28) présentent des moyens de limitation de déplacement (10, 12; 33, 34) tels que la mentonnière de protection peut se déplacer d'une distance souhaitée vers l'extérieur de la coiffure, mais non se séparer de celle-ci.

3. Casque de protection selon la revendication 1, caractérisé en ce que lesdits moyens de verrouillage comprennent un crochet (13, 30) à l'extrémité d'un élément de lame (8, 30) solidaire de l'une ou l'autre partie du casque déformable élastiquement et adapté pour s'engager avec une saillie ou un siège (14, 31) prévu sur l'autre partie du casque.

4. Casque de protection selon une ou plusieurs des revendications précédentes, caractérisé en ce que ledit élément de lame (8, 30) peut être commandé de l'extérieur en pressant un bouton (12, 32) pour libérer la mentonnière (2, 25) de la coiffure (1, 24).

5. Casque de protection selon les revendications précédentes, caractérisé en ce que ledit bouton (12) est situé sur la mentonnière (2).

6. Casque de protection selon une ou plusieurs des revendications précédentes, caractérisé en ce qu'ledit bouton (32) est situé sur la coiffure (24) du casque, et en ce que des ressorts (29) sont prévus pour solliciter la mentonnière (25) vers l'avant dans la condition pressée du bouton (32).

7. Casque de protection selon une ou plusieurs des revendications précédentes, caractérisé en ce qu'un masque (17), associé intérieurement à ladite mentonnière (2, 25), couvre le nez et la bouche du porteur du casque, la mentonnière (2, 25) étant en condition fermée.

8. Casque de protection selon une ou plusieurs des revendications précédentes, caractérisé en ce que ledit masque (17) est muni de conduits (18, 19) qui s'ouvrent à l'extérieur de la mentonnière dans des entrées d'air (22, 23).

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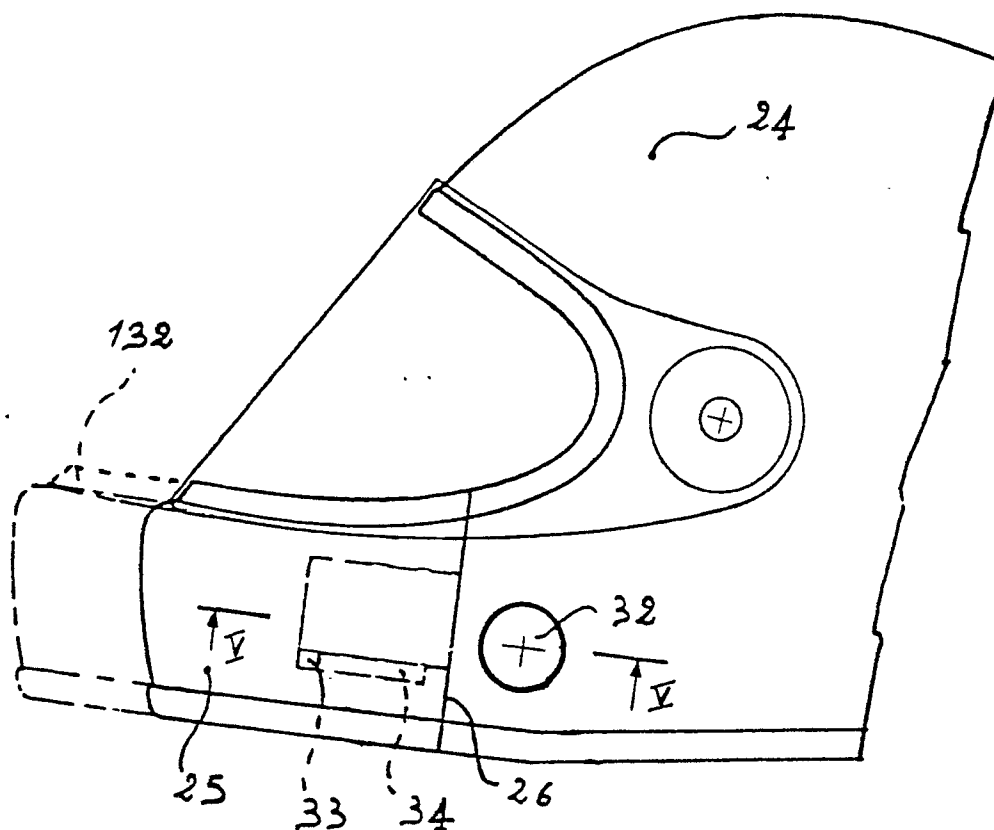


Fig 4

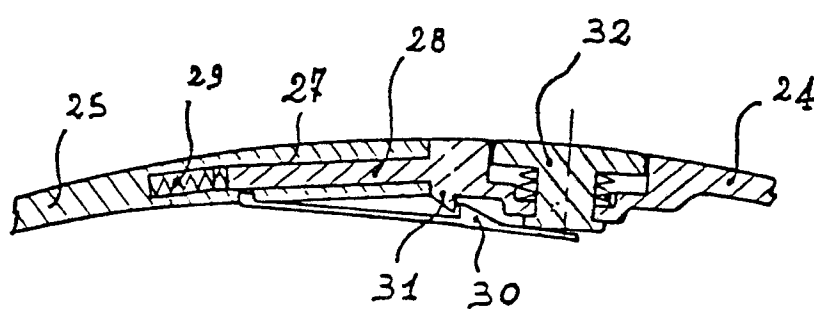


Fig 5