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(54) Protection helmet with double visor

(57) A protection helmet (10) with double visor comprising a spheroid-shaped shell or hood (12) provided with a wide opening protected by a main visor (14) in its front part made of a material with high transparency, below which an additional visor (22) with a lower height and a colour protecting from light beams is placed; said

visors are anchored to the hood (12) in two opposite points by stabilization means allowing its raising and lowering. The additional visor is placed near the hood (12) and it is provided with an integral protrusion or spoiler (26) along its upper edge projecting outwards in the opposite direction with respect to said hood and it is matched with the upper edge (28) of the main visor (14).

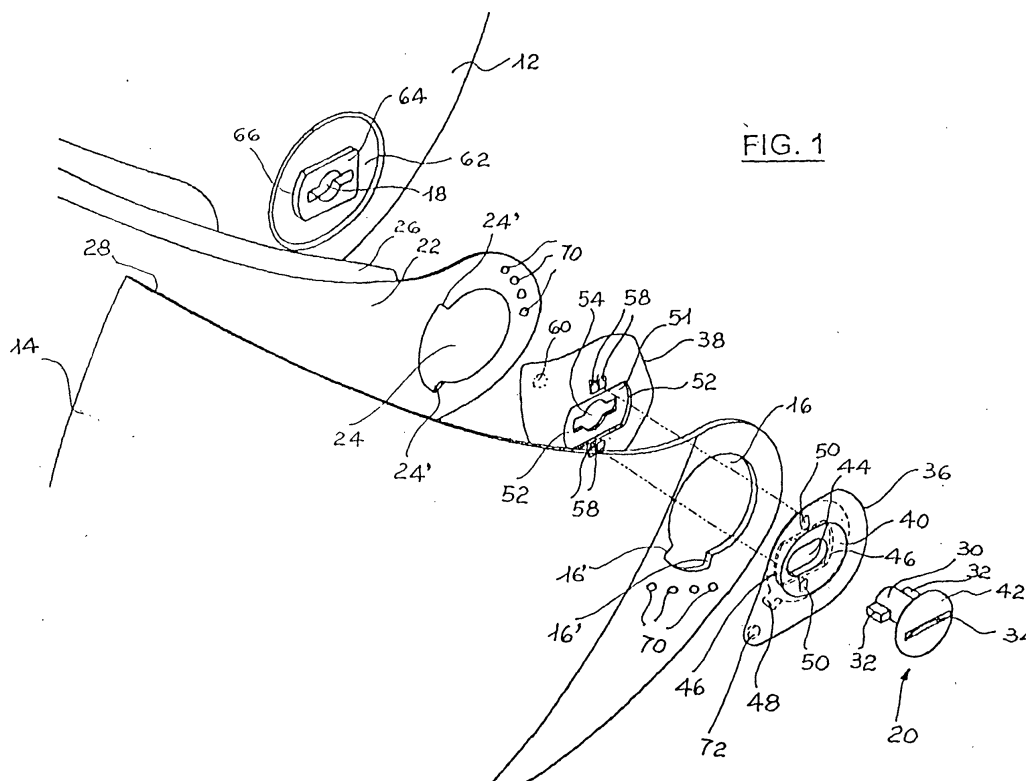


FIG. 1

Description

[0001] The present invention refers to a protection helmet with double visor.

[0002] More particularly, the present invention refers to a protection helmet of the integral or jet type, particularly suitable for motorcyclists and in general for people doing sport, provided with a double transparent visor.

[0003] The protection helmets of this type are constituted by a spheroid-shaped hood or shell in one piece made of thermoplastic materials such as ABS and, in their front part, they have a wide opening which is meant to be protected by a transparent visor; the latter being hinged to the opposite areas of the shell in order to be raised.

[0004] The visor, which is generally made of polycarbonate, is made in such a way to give the user a proper visibility in any light and weather condition and it is therefore made of materials with high transparency. As this visor does not filter the sunlight i.e. its filtering effect is very limited, there are situations wherein said visor does not properly protect from incident light beams. These kinds of situations can be troublesome for the user and arise security problems. It must be noticed that the helmet globally fits and surrounds the user's head and therefore he/she cannot wear sunglasses.

[0005] In order to remedy this drawback, protection helmets with double visor have been conceived, i.e. provided with a filtering transparent band with a limited height that is placed at eyes level. Said band is made of coloured material in order to obtain a filtering effect against light beams and glare and it is placed on the helmet behind the traditional visor whose size is slightly greater. The band itself whose profile is curved and complementary to the one of the traditional visor, constitutes an additional visor that is generally made of polycarbonate and it is connected in a movable way to the shell of the helmet in order to be raised and lowered.

[0006] The raising of the additional visor is often necessary as light conditions may suddenly change; this kind of situation takes place when motorcyclists get into a tunnel. Light conditions, even in the presence of artificial lighting, greatly reduce with respect to a sunny external environment therefore, for security purposes the coloured screen covering the eyes area must be removed.

[0007] This known solution of the use of an additional screened visor has some important drawbacks being first of all connected to the movement of the visor. As described above, the additional visor must be quickly raised when light conditions change. Moreover, this raising must be independent from the one of the main visor that should keep its position in order to protect the user's face. For this reason, the known helmets are provided with specific means to move the additional visor. Such means are generally constituted by a lever or a knob protruding from a side of the upper part of the shell or hood connected to the additional visor by tie rods and

leverages. From the manufacturing point of view, this embodiment is complex as it absolutely contemplates the above mentioned kinematics motions and the subsequent production and assembly costs.

[0008] Moreover, the presence of said movement leverage or knob is a global undesired impediment of the helmet as it protrudes from the shell or hood and this is not valuable from the aesthetic point of view.

[0009] A further important drawback of the known double visor helmets occurs when the additional visor is not used, i.e. it is not used for long periods of time and it should be removed from the helmet. In this case, in addition to the practical difficulty of removing said additional visor that requires complex manual operations another serious drawback occurs.

[0010] When the additional visor is removed, a slot between the main visor and the hood is left. This slot has a height and a longitudinal extension that substantially corresponds to the one of the above-mentioned additional visor defining an opening having a considerable size through which a great quantity of air and sometimes, in case of rain, of water enters. Moreover this flow penetrating into the hood can be troublesome for the user and can cause a reduction of the security level even for the aerodynamic swishing produced.

[0011] Object of the present invention is to remedy the above-mentioned drawbacks.

[0012] More particularly, the object of the present invention is to provide a protection helmet with double visor wherein the additional visor can be swiftly and easily moved along the shell or hood, without the use of leverages or knobs connected to the visor itself and protruding from the helmet.

[0013] A further object of the present invention is to provide a protection helmet wherein the additional visor can be easily removed and repositioned near the main one according to the user needs.

[0014] A further object of the present invention is the provision of a protection helmet that allows closing the slot that is produced when the additional visor is removed.

[0015] A further object of the present invention is the provision of a safety helmet wherein the main visor can be easily removed keeping in its position of use the additional one.

[0016] A further object of the present invention is to provide a safety helmet that can guarantee a high level of resistance and reliability in time of easy and economical manufacturing.

[0017] These and other objects resulting from the following description are achieved by the protection helmet of the present invention comprising a spheroid-shaped shell or hood provided, in its front part, with a wide opening protected by a main visor with an upper edge made of material with high transparency, at the bottom of which an additional visor with a reduced height, an upper edge and a colour suitable for the protection against light beams, said visors being anchored to the hood in

two opposite points by means that allow their raising and lowering; the present invention is characterized by the fact that the additional visor that is placed near the hood is provided, along the upper edge, with an integral protrusion or spoiler projecting outward in the opposite direction with respect to said hood matching with the upper edge of the main visor.

[0018] The functional and manufacturing features of the protection helmet of the present invention will be better understood by the detailed description that follows, wherein reference is made to the enclosed tables of drawings representing a preferred and non-limitative embodiment wherein:

Figure 1 is a schematic exploded view of a part of the helmet of the present invention with a main visor, an additional one and the relevant reciprocal connection means;

Figure 2 is a schematic side view of the protection helmet of Figure 1 with the additional visor in the use position;

Figure 3 is a schematic side view of the same helmet of Figures 1 and 2 without the additional visor.

[0019] With reference to the above-mentioned figures, the protection helmet of the present invention that is marked with 10 in Figures 2 and 3 comprises a spheroid-shaped hood or shell 12 in one piece made of thermoplastic material, provided on its front side with a wide substantially quadrangular window along which a mobile screen constituted by the usual main screen marked with 14 is placed. The latter is made of plastic material with high transparency, generally polycarbonate, and defines a curved semicircular profile following the shape of the hood 12 wherein usual paddings (not represented) are applied. The main visor 14 is anchored to the hood 12 on the opposite sides near said window and said connection, as described here below, it is of the mobile type with rotation on fulcrums in order to allow the raising and the lowering of the same visor. The latter, as the hood 12, is provided with pass-through openings that are respectively marked with 16 and 18 to couple with the stabilization means 20 that will be described here below. A secondary or additional visor 22 is placed between the main visor 14 and the hood 12 and it comprises a shaped band with a curved profile whose height is lower than the one of the main visor 14; the additional visor is made of polycarbonate or similar materials whose colour is suitable for the protection against the incident light beams. Said additional visor 22 is provided with a shaped pass-through opening 24 at its opposite free ends that is meant to be in line with the opening 16 of the main visor 14 to be connected to the hood 12. The upper edge of the additional visor 22 is provided with an integral protrusion or spoiler 26 projecting outward in the opposite direction with respect to the hood 12. In the preferred embodiment of the figures, the protrusion extension of said spoiler 26 is higher in the central area of

the additional visor 22 and it progressively lowers towards the shaped openings 24 obtained at the opposite ends of the same visor.

[0020] The base or lower side 26' of the spoiler 26 is meant to be matched with the upper edge 28 of the main visor 14 that is overlapped to the secondary or additional visor 22.

[0021] The stabilization means 20 allowing the connection to the hood 12 of the main visor 14 and the additional one 22, comprise a pivot with bayonet joint. i.e. provided with a stem 30, a head 42 from which two substantially parallelepiped-shaped diametrically opposed projections protrude.

[0022] In correspondence with each of the openings 16 of the visor 14 a pivot 20 is provided; on its head 42 a notch 34 for the coupling of a conventional operation tool such as a screwdriver or the like is advantageously obtained. Two shaped plates 36 and 38 made of plastic or other suitable material are associated to the pivots 20 on each side of the hood 12; the plate 36 is provided with a substantially circular lowering on the side facing the pivot 20 housing the head 42 of the same pivot. Along said lowering 40 a preferably oval-shaped pass-through hole 44 for the coupling of the stem of the pivot 20 with diametrically opposed projections 32 is obtained. On the opposite internal side of the plate 36 that is not exposed, a cavity comprising two opposite curved-profiled sides or areas and a protruding nib 48 is obtained. On the same internal side of the plate 36 opposite overhanging protrusions or teeth 50 placed outside said cavities with curved-profiled sides 46 are obtained.

[0023] On the external side facing the plate 36, the plate 38 comprises a lowering 51 whose shape is complementary to said cavity with curved-profiled sides 46 and therefore provided with similar curved sides 52. In the centre of said lowering 51, the plate 38 defines a pass-through opening 54 whose size allows the stem 30 of the pivot 20 and opposite projections 32 passing through.

[0024] In the upper and lower position of the lowering 51 two coupled recesses 58 whose shapes and sizes can house the teeth 50 of the plate 36 are obtained.

[0025] The internal side of the plate 38 is provided with an integral projection 60 that is obtained in an offset position; said projection couples in a hole (not represented) obtained in the hood 12 to avoid rotation movements of the same plate 38.

[0026] The opening 16 of the main visor 14 and the opening 24 of the additional visor 22 define a curved section respectively delimited by shoulders 16' and 24' constituting as many striking areas of the nib 48 of the plate 36.

[0027] The hood 12 to which the main visor 14 and the additional visor 22 are connected through the pivots 20 and the plates 36 and 38 is provided, on the opposite external sides, with a lowered circular cavity 62 from which, in a substantially central position, an integral base 64 protrudes with a curved-profiled area or side

66. On the same internal side of the plate 38 a lowered cavity (not shown) whose shape is complementary to the one of the base 64 is obtained.

[0028] Along said base 64 the mentioned pass-through opening 18 is obtained; its shape and size allow the coupling of the stem of the pivot 20 with the opposite projections 32.

[0029] Inside the hood 12, in correspondence with the openings 18 overhanging edges (not represented) to engage the projections 32 of the stem 30 of each of the pivots 20 are obtained.

[0030] Said edges develop inside the hood 12 thus forming two areas that are diametrically opposed whose protrusion is differentiated according to the presence of the additional visor 22 on the hood 22 of the helmet 10.

[0031] The main visor 14 rotates in raising and lowering through the opening 16 along the curved-profiled sides 46 of the plate 36, while the additional visor 22 rotates in raising and lowering through the opening 24 along the curved-profiled area 66 of the base 64.

[0032] Near the opening 16 of the main visor 14 and the opening 24 of the additional visor 22 small cavities 70 that alternatively match a protrusion coming out of the internal side of the plates 36 and 38 are made; by way of example, one of said protrusion is marked with 32 on the plate 36. The function of said cavities 70 and protrusions 72 is to make the visors 14 and 22 steady in various raising positions.

[0033] The assembly of the helmet 10 and its use with reference to the movement and the use of the visors 14 and 22 are quick and easy as described here below.

[0034] In its complete embodiment, said helmet is provided with both visors 14 and 22, the latter is internally placed near the hood 12 with respect to the main visor 14. The connection among the various components is obtained overlapping the additional visor 22 to the hood 12 in such a way to centre the openings 24 on the base 64 of the same hood. Then the opposite plates 38 should be positioned near said openings 24 in such a way that the pass-through openings 54 of said plate and the pass-through opening 18 of the hood 12 are in line. The main visor 14 is then overlapped to the plate 38 and, in the opening 16 of said visor, the plate 36 is placed; its teeth 50 couple with the recesses 58 of the plate 38. In this case contemplating the assembly of the additional visor 22, the coupling cavities are the external ones, i.e. the ones facing the main visor 14. The stem 30 of the pivots 20 is therefore coupled with the oval hole 44 of the plate 36, in the opening 54 of the plate 38 and in the opening 18 of the hood 12. The subsequent clockwise or counterclockwise rotation of the pivots 20 determines its engagement with the hood 12 in correspondence with the edges obtained inside it. The edges of this engagement that is carried out through the projections 32 of the pivot 20 are the ones with a lower protrusion as the space occupied is given by the depth or width of the additional visor 22. The latter, as shown in Figure 2, is placed near the main visor 14 in an interme-

mediate position between the latter and the hood 12. The upper edge 28 of the main visor 14 is in line with the spoiler 26 protruding outward from the additional visor 22. When the user raises the main visor 14, even the second one rises pushed by the edge 28. In the opposite way, the lowering of the additional visor 22 from the spoiler 26 causes the lowering and repositioning of the main visor 14 too. Said visors 14 and 22 are slightly spaced out in order to avoid possible frictions and subsequent scratches during the reciprocal movements.

[0035] During the assembly, the cavity with curved-profiled sides 46 of the plate 36 couples with the lowering 51 of the plate 38 and the latter centres on the base 64 of the hood 12 as it is provided on its internal side, as mentioned above, with a lowered cavity whose shape is complementary to the one of the same base.

[0036] The mentioned plates are therefore made steady and the two visors 14 and 22 can raise and lower following with their openings 16 and 24 the curved profile 66 of the base 64 of the hood 12 and the curved profile 46 of the plate 36.

[0037] In order to remove the additional visor 22, the pivots 20 should be unscrewed and temporarily removed, said visor should be taken away and the teeth 50 of the plate 36 should be positioned in the recesses 58 formed on the plate 38 in a more distant position than the one of the main visor 14. The subsequent coupling of the stem 30 of the pivots 20 with the openings 44, 54 and 18 determines the engagement before the rotation of the same pivots, of the visor 14 with the hood 12. The projections 32 of the mentioned pivots engage, in this case, with the most protruding edges obtained inside the hood 12 with the consequence that said main visor 14 approaches to the same hood closing the slot left by the additional visor 22 that has been removed.

[0038] The helmet 10 without visor 22 is shown in Figure 3.

[0039] It is obviously possible and advantageous to remove the main visor 14 and leave only the additional one 22 in its position as described above; in this case the teeth 50 of the plate 36 remain in their original position as no slot between the hood 12 and the additional visor 22 is created.

[0040] As it can be noticed from the above description, the advantages of the invention are clear.

[0041] In the protection helmet 10 of the present invention, the raising and the lowering of the additional visor 22 are immediately carried out without leverages connected to knobs or the like protruding from the hood 12; the user easily and swiftly moves said visor even though he/she is wearing gloves.

[0042] The possibility to quickly remove the additional visor 22 pulling back the main one 14 in order to close the slot that otherwise would be open with a consequent entrance of a considerable flow of air in the helmet 10 during the running is also particularly advantageous.

[0043] The possibility to use the helmet 10 only with the additional visor 22 removing the main one 14 is a

further advantage of the present invention.

[0044] Even though the present invention has been described and illustrated here with reference to an embodiment, which is given only by way of non-limitative example, it is clear that various changes and variants can be made. It is therefore clear that the present invention is meant to include all the changes and variants falling within the spirit and the scope of the following claims.

Claims

1. A protection helmet (10) with double visor comprising a spheroid-shaped shell or hood (12) provided with a wide opening protected by a main visor (14) in its front part made of a material with high transparency, below which an additional visor (22) with a lower height and a colour protecting from light beams is placed; said visors are anchored to the hood (12) in two opposite points by stabilization means allowing its raising and lowering. The additional visor is placed near the hood (12) and it is provided with an integral protrusion or spoiler (26) along its upper edge projecting outward in the opposite direction with respect to said hood and it is matched with the upper edge (28) of the main visor (14).
2. The helmet according to claim 1, **characterized by** the fact that said main (14) and additional (22) visors are provided with pass-through openings (16-24) at their opposite free ends defining a curved section delimited by shoulders (16'-24') in said opening said means (20-36-38) being coupled for the connection of the visors themselves to the hood (12).
3. The helmet according to claims 1 or 2, **characterized by** the fact that the hood (12) is provided with opposite protruding bases (64) on its external side comprising a curved-profiled area or side (66) and a pass-through opening (18) placed inside the hood and near said opening (18) as overhanging edges with different heights are obtained.
4. The helmet according to any of the previous claims, **characterized by** the fact that the stabilization means comprise a pivot (20) provided with a stem (30), a head (42) and two diametrically opposed projections (32) protruding from said stem (30) which are meant to alternatively engage with the different height edges formed inside the hood (12).
5. The helmet according to any of the previous claims, **characterized by** the fact that said stabilization means comprise a shaped plate (36) being provided, on its outer side facing the pivot (20), with a substantially circular lowering for the head (42) of the pivot and a pass-through hole (44) for the coupling of the stem (30) with the projections (32) of said pivot; on the opposite inner side of the plate (36) a cavity comprising two opposite areas with a curved profile (46) and a protruding nib (48) are obtained.
6. The helmet according to the claim 5, **characterized by** the fact that the inner side of the plate (36) is provided with opposite teeth (50) obtained outside said cavity whose sides show a curved profile.
7. The helmet according to any of the previous claims, **characterized by** the fact that the stabilization means comprise a shaped plate (38) comprising, on its outer side facing the plate (36) a lowering (51) with two opposite curved-profiled sides (52) whose shape is complementary to the one of the cavity with the curved-profiled sides; at the centre of the lowering (51) a pass-through opening (54) whose shapes and sizes allow the coupling of the stem (30) with the projections (32) of the pivot (20) is obtained.
8. The helmet according to claim 7, **characterized by** the fact that the shaped plate (38) is provided, in its upper part and in the lower one with respect to the lowering (51), with two coupled cavities (58) whose shape is complementary to the teeth (50) one of the plate (36), in two of said cavities (58) which are overlapped between them and opposite to the main visor (14) the teeth (50) are placed when the additional visor (22) is removed.
9. The helmet according to any of the previous claims 7 and 8, **characterized by** the fact that the shaped plate (38) is provided, on the inner side facing the hood (12) with a lowered cavity whose shape is complementary to the one of the base (64) of the hood (12) and with a pivot (60) which is meant to be coupled with a hole made in the same hood.
10. The helmet according to any of the previous claims, **characterized by** the fact that the main visor (14) and the additional visor (22) are provided with small cavities (70) placed near the relevant openings which alternatively match a protrusion (72) coming out from the inner side of both the plates (36), (38).

FIG. 1

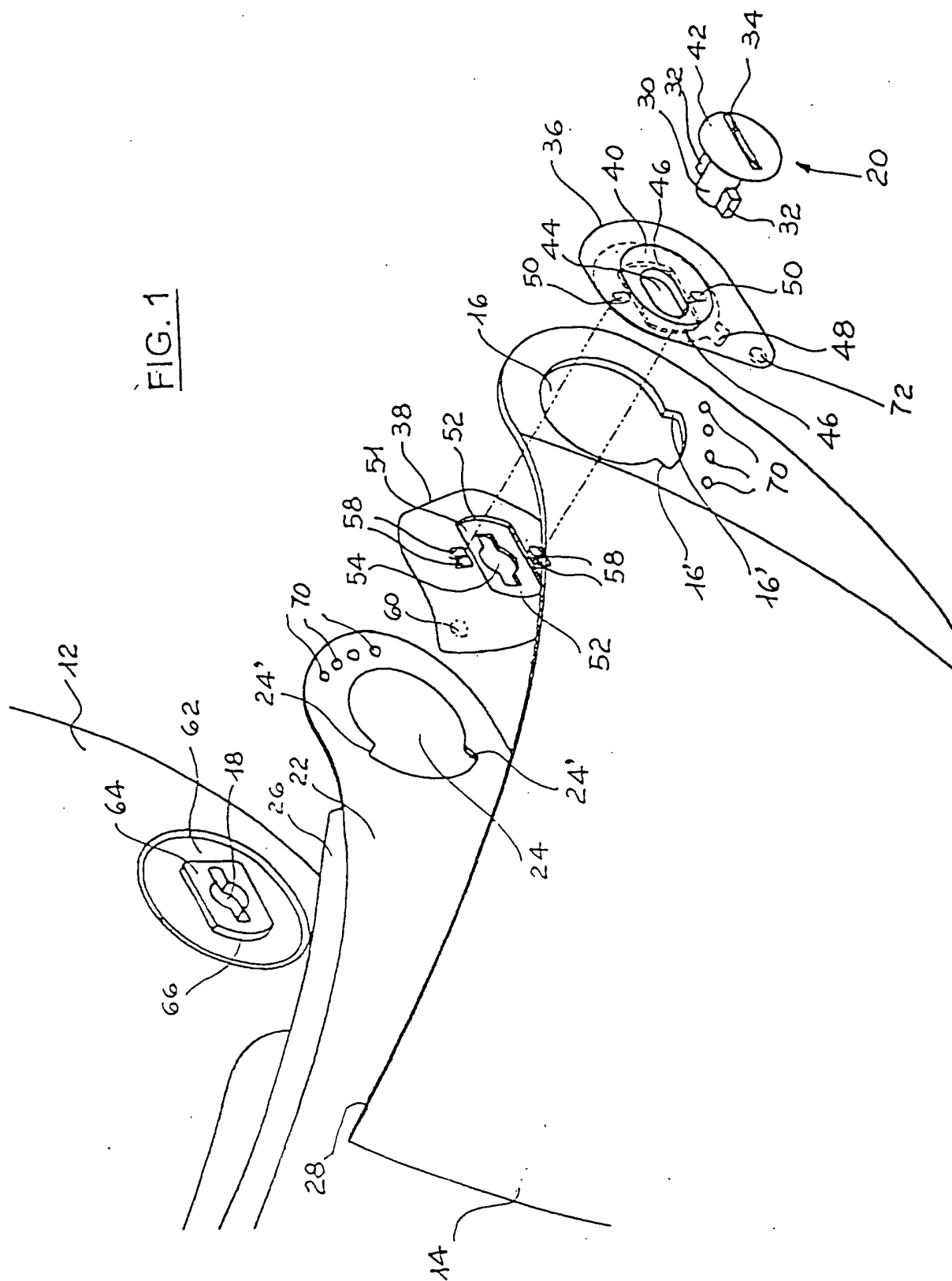


FIG. 2

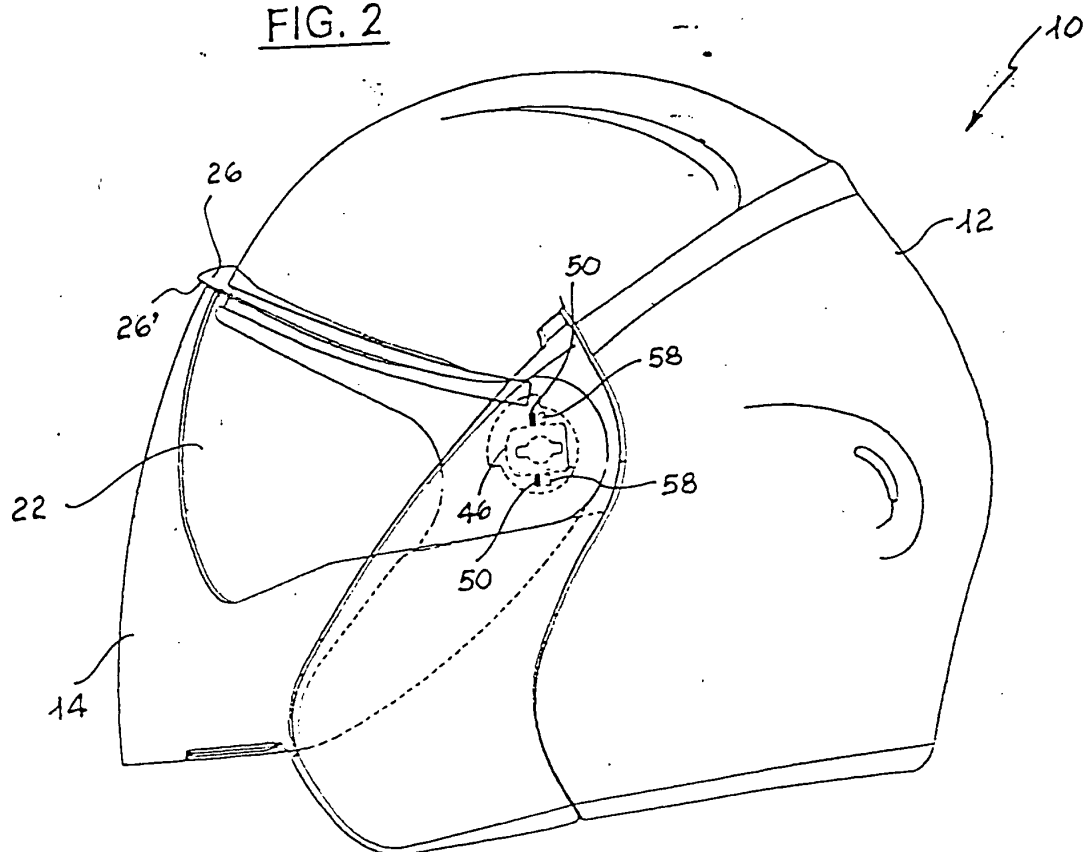


FIG. 3

