

HELMET ASSEMBLY

FIELD OF THE INVENTION

[0001] This invention relates to helmet assemblies, more particularly to motorcycle helmets with improved shield mounts.

BACKGROUND OF THE INVENTION

[0002] Helmet assemblies, such as motorcycle helmets, typically have a visor or shield. The visor/shield is usually a semi-transparent or transparent plastic such as a polycarbonate or acrylic polymer pivotable from an up position to a down position. The shield is pivotably mounted on a mounting bracket on the helmet. Sometimes separate covers are used to cover up the mounting bracket in an aesthetically appealing manner.

[0003] However, known connections between the shield and the cover are relatively complex. It would therefore be desirable to provide a helmet assembly of fewer parts, which is of low cost design and which is relatively easy to manufacture.

SUMMARY OF THE INVENTION

[0004] In accordance with a first aspect, a helmet assembly comprises a helmet, and a pair of mounting brackets affixed to the helmet, and a shield mount comprising a shield and a pair of covers releasably snap fit connected to the shield. The shield

and covers are pivotable together between an up position and a down position, and in the down position each cover conceals one of the pair of mounting brackets.

[0005] From the foregoing disclosure and the following more detailed description of various embodiments it will be apparent to those skilled in the art that the present invention provides a significant advance in the technology of helmet assemblies. Particularly significant in this regard is the potential the invention affords for providing a high quality, aesthetically attractive helmet assembly with easy to replace covers. Additional features and advantages of various embodiments will be better understood in view of the detailed description provided below.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] Fig. 1 is an isometric view of a helmet assembly with a visor and a pair of covers in accordance with one embodiment (showing mounting brackets and right cover in phantom).

[0007] Fig. 2 is an exploded isometric view of the helmet and shield mount, showing the shield and covers attached together and separate from the mounting brackets.

[0008] Fig. 3 is an isolated exploded isometric view of the mounting bracket, release lever, cover and part of the shield on the right side.

[0009] Fig. 4 is an isolated view of the right mounting bracket and cover when the visor is in a down position.

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2 [0010] Fig. 5 is an isolated view of the right mounting bracket and cover when the
3 visor is in an intermediate position, permitting separation of the cover from the
4 mounting bracket when the release lever is biased away from the catch.
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6 [0011] Fig. 6 is an isolated view of the right mounting bracket and cover when the
7 visor is in an up position.
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9 [0012] Fig. 7 is a isolated view of the left cover and mounting bracket.
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11 [0013] It should be understood that the appended drawings are not necessarily to
12 scale, presenting a somewhat simplified representation of various features illustrative
13 of the basic principles of the invention. The specific design features of the helmet
14 assembly as disclosed here, including, for example, the specific dimensions of the
15 release lever biasing device, will be determined in part by the particular intended
16 application and use environment. Certain features of the illustrated embodiments
17 have been enlarged or distorted relative to others to help provide clear
18 understanding. In particular, thin features may be thickened, for example, for clarity
19 of illustration. All references to direction and position, unless otherwise indicated,
20 refer to the orientation illustrated in the drawings.
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22 DETAILED DESCRIPTION OF CERTAIN EMBODIMENTS

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24 [0014] It will be apparent to those skilled in the art, that is, to those who have
25 knowledge or experience in this area of technology, that many uses and design

variations are possible for the helmet assembly disclosed here. The following detailed discussion of various alternate features and embodiments will illustrate the general principles of the invention with reference to a helmet assembly suitable for use as a motorcycle helmet. Other embodiments suitable for other applications will be apparent to those skilled in the art given the benefit of this disclosure.

[0015] Turning now to the drawings, Fig. 1 shows a helmet assembly 10 comprising a helmet 20, a shield mount 100 comprising a visor or shield 30 and left and right covers 40 and 50, respectively. Left and right mounting brackets 60 and 70, corresponding to the left and right covers, are mounted on the helmet. The shield comprises a transparent or semi-transparent (such as tinted) plastic, and the covers are formed of an opaque material to hide the brackets behind them. The covers engage the corresponding mounting bracket and releasably secure the shield mount to the helmet. As shown in the Figs., advantageously the shield is remote from the mounting brackets 60, 70. Remote is used here to mean that the shield 30 is not directly connected to the mounting brackets. Instead, aesthetically attractive covers may act to form a pivotable and releasable connection between the shield 30 and the mounting brackets while covering the mounting brackets, at least when the shield and cover are in the down position.

[0016] Fig. 2 shows the shield mount (shield 30 and covers 40, 50) detached from the helmet and mounting brackets. As shown, the shield mount is pivotable about the mounting brackets (and the helmet) between an up position and a down position. The down position can be limited by bottom surface 38 of cover engaging surface 39 on the helmet, for example. When attached to the mounting brackets the covers are

1 in a locked position (pivotal over a travel range between the up position and the
2 down position). As described in greater detail below, release levers 80 and 90 allow
3 separation of the shield mount from the mounting brackets.

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5 [0017] In accordance with a highly advantageous feature, each cover can be
6 releasably snap fit connected to the shield 30. Both the covers 40 and 50, and
7 shield 30 can comprise resiliently deformable plastic so that one can be bent with
8 respect to the other to disconnect one from the other. As shown in Fig. 3, the shield
9 30 defines a first slot 33, a second slot 37 and an opening 35. Right cover 50 has
10 first capture pin 143 which is engageable with the shield at the first slot 33, a second
11 capture pin 145 which is engageable with the shield at the second slot 37, and a tab
12 47, preferably ramp shaped, is engageable with the opening 35. Capture flanges
13 142, 144 extend from each capture pin. When assembled, as shown in Figs. 4-6, a
14 portion of the shield is positioned between the cover and each capture flange. Three
15 point connection between the shield and each cover secures each cover in place
16 with respect to the shield.

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18 [0018] Preferably, as shown in the drawings, the first slot 33 extends into the shield
19 at about a right angle with respect to the second slot. The exact angle would be in
20 part a function of the slope of the back edge and side edges of the shield, and could
21 be more or less than 90 degrees. In the embodiment shown in the Figs., the angle is
22 slightly more than 90 degrees because the lower side edge slopes mildly downward.

23
24 [0019] When the right cover 50 is attached to the bracket, the cover has a row of
25 teeth 48 which engage teeth 71 on the bracket. Pivot 41 engages the bracket, and

1 detent 99 limits rotation of the cover with respect to the bracket. Figs. 4-6 show the
2 shield 30 and cover 50 in one of three positions, a down position (Fig. 4), an
3 intermediate position (Fig. 5) and an up position (Fig. 6). The release lever 90 is
4 positioned in a channel 74 defined in part by flanges 75 and 79. Release lever 90
5 has a projection 77 which normally cooperates with surface 78 of the mounting
6 bracket to captivate catch 49 of the cover, resisting separation of the cover (and
7 therefore the shield mount) from the mounting bracket. The catch 49 rotates with the
8 cover and engages the corresponding mounting bracket, resisting detachment of the
9 cover from the corresponding mounting bracket. Optionally the cover is formed as a
10 unitary or one-piece construction, such that the catch, row of teeth, capture pin and
11 flange are all formed from a single material. Detent 99 of the cover can rotate about
12 pivot 41 over a travel range limited by ends 97 and 98, unless the shield or cover
13 contacts another item.

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15 [0020] As shown in the drawings, a flange 88 of the mounting bracket 70 acts as a
16 biasing member biasing the release lever toward a locked position, and in the locked
17 position the projection 77 closes an opening 76 (labeled in Fig. 3). In accordance
18 with an advantageous feature, flange 88 is a unitary extension of the mounting
19 bracket. When a user of the helmet assembly wishes to disconnect the shield mount
20 from the mounting brackets, he pushes on the release lever 90, and overcomes the
21 force of the biasing member 88. Catch 49, which previously had been captivated
22 between the helmet and the mounting bracket, can be pulled through opening 76,
23 allowing disengagement of the cover from the mounting bracket. In the embodiment
24 shown in the drawings, disengagement occurs at an intermediate position (Fig. 5)
25 between the up position and the down position.

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2 [0021] Fig. 7 shows the left side cover 40 and left side mounting bracket 60. Each is
3 essentially a mirror image of the corresponding right side components. For
4 releasable snap fit assembly of the cover to the shield, capture flanges 42 and 44
5 engage openings 133 and 137, respectively, and ramp 147 engages opening 135.
6 Release lever 80 is movable and partially captivated between flanges 175 and 179,
7 and has a projection 177 which cooperates with bracket portion 178 to resist
8 separation of catch 149. Catch 149 travels along bracket portion 148 in a single run
9 channel, advantageously reducing the size of the bracket. Row of teeth 148 engage
10 teeth 171 to provide a tactile sensation of series of discrete positions for the shield
11 mount. With this helmet assembly, the number of parts has been reduced, and
12 substituting one cover for another is a straightforward procedure.

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14 [0022] From the foregoing disclosure and detailed description of certain
15 embodiments, it will be apparent that various modifications, additions and other
16 alternative embodiments are possible without departing from the true scope and
17 spirit of the invention. The embodiments discussed were chosen and described to
18 provide the best illustration of the principles of the invention and its practical
19 application to thereby enable one of ordinary skill in the art to use the invention in
20 various embodiments and with various modifications as are suited to the particular
21 use contemplated. All such modifications and variations are within the scope of the
22 invention as determined by the appended claims when interpreted in accordance
23 with the breadth to which they are fairly, legally, and equitably entitled.

CLAIMS

What is claimed is:

1. A helmet assembly comprising, in combination:
 - a helmet; and
 - a pair of mounting brackets affixed to the helmet; and
 - a shield mount comprising a shield and a pair of covers releasably snap fit connected to the shield;wherein the shield and covers are pivotable together between an up position and a down position, and in the down position each cover conceals a corresponding one of the pair of mounting brackets.
2. The helmet assembly of claim 1 wherein the shield is remote from the pair of mounting brackets.
3. The helmet assembly of claim 1 wherein each cover has a first capture pin which is engageable with the shield at a first slot, a second capture pin which is engageable with the shield at a second slot, and a tab which is engageable with the shield at an opening formed in the shield.
4. The helmet assembly of claim 3 wherein each capture pin has a corresponding capture flange extending beyond the corresponding pin such that the shield is positioned between each capture pin and the cover when the covers are attached to the shield.

1 5. The helmet assembly of claim 3 wherein the first slot extends into the shield at
2 about a right angle with respect to the second slot.

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4 6. The helmet assembly of claim 1 wherein each cover is releasably attached to
5 its corresponding mounting bracket, and further comprising a release lever
6 corresponding to each mounting bracket, wherein actuation of the release lever to a
7 release position allows the cover to separate from the corresponding mounting
8 bracket.

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10 7. The helmet assembly of claim 6 wherein each cover has a catch, and the
11 catch engages each corresponding mounting bracket, resisting detachment of each
12 cover from its corresponding mounting bracket.

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14 8. The helmet assembly of claim 7 wherein each mounting bracket has a biasing
15 member biasing the release lever toward a locked position, in the locked position the
16 release lever closes an opening, and movement of the release lever to the release
17 position allows the catch to move through the opening.

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19 9. The helmet assembly of claim 8 wherein the cover can separate from the
20 corresponding mounting bracket at an intermediate position between the up position
21 and the down position.

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23 10. The helmet assembly of claim 1 wherein the shield is made of one of a semi-
24 transparent and transparent material, and the cover is made of an opaque material.