[0006] One embodiment provides a protective helmet including:

[0007] a front shell; and

[0008] a rear shell hingedly movable with respect to the front shell to provide:

[0009] an open configuration in which the helmet is able to be placed on a user's head or removed from the user's head; and

[0010] a closed configuration wherein the rear shell is releasably lockingly engaged to the front shell for securely containing the head within the helmet;

[0011] a multiple point locking system including:

[0012] an upper dorsal connection for hingedly connecting the rear shell to front shell, thereby to enable movement between the closed configuration and the open configuration.

[0013] one or more lower side connections for releasably locking the front shell to the rear shell thereby to selectively lock the helmet in the closed configuration; and

[0014] an emergency release mechanism configured to simultaneously release the hinge and unlock the lower side connections such that the rear shell is removable from the front shell.

[0015] One embodiment provides a protective helmet including:

[0016] a front shell having a primary vision aperture formed therein; and

[0017] a rear shell hingedly movable with respect to the front shell to provide:

[0018] an open configuration in which the helmet is able to be placed on a user's head or removed from the user's head; and

[0019] a closed configuration wherein the rear shell is releasably lockingly engaged to the front shell;

[0020] a protective cage assembly including a protective cage that overlies the primary vision aperture; and

[0021] a protective cage mounting assembly formed of resilient material, the protective cage mounting assembly being mounted intermediate the protective cage assembly and the front shell such that the resilient material allow limited damped movement of the protective cage assembly with respect to the front shell.

[0022] One embodiment provides a protective helmet including:

[0023] a front shell having a primary vision aperture formed therein; and

[0024] a rear shell hingedly movable with respect to the front shell to provide:

[0025] an open configuration in which the helmet is able to be placed on a user's head or removed from the user's head; and

[0026] a closed configuration wherein the rear shell is releasably lockingly engaged to the front shell;

[0027] wherein the front shell includes a first edge complimentarily engageable with a second edge on the rear shell;

[0028] wherein the first and second edges include respective complimentary inter-engaging locating formations extending substantially along the length of the edges, these locating formations being mutually locatingly engaged when the helmet is in the closed configuration to substantially transversely locate the front shell with respect to the rear shell;

[0029] wherein the complementary locating formations and shells are configured such that, when progressing the helmet from the open configuration to the closed configuration,

CLAIMS

1. A protective helmet including:

a front shell; and

a rear shell hingedly movable with respect to the front shell to provide:

an open configuration in which the helmet is able to be placed on a user's head or removed from the user's head; and

a closed configuration wherein the rear shell is releasably lockingly engaged to the front shell for securely containing the head within the helmet;

a multiple point locking system including:

an upper dorsal connection for hingedly connecting the rear shell to front shell, thereby to enable movement between the closed configuration and the open configuration.

one or more lower side connections for releasably locking the front shell to the rear shell thereby to selectively lock the helmet in the closed configuration; and

an emergency release mechanism configured to simultaneously release the hinge and unlock the lower side connections such that the rear shell is removable from the front shell.

2. A protective helmet according to claim 1 wherein the emergency release mechanism includes a tab member that is configured to be manually engaged thereby to simultaneously release the hinge and unlock the lower side connections such that the rear shell is removable from the front shell.

3. A protective helmet according to claim 2 wherein manually engaging the tab member includes lifting the tab member.

4. A protective helmet according to claim 2 wherein the tab member is physically coupled to the hinge and side connections.

5. A protective helmet according to claim 4 wherein the tab member is physically coupled to the hinge and side connections by a set of cables, the cables being coupled at their respective proximal ends to the tab member.

6. A protective helmet according to claim 5 wherein manually engaging the tab member acts on the cables thereby to simultaneously move components connected to the distal ends of those cables.

7. A protective helmet according to claim 6 wherein one of the cables is connected at its distal end to a movable latch member of one of the lower side connections.

8. A protective helmet according to claim 7 wherein the movable latch member is moveable between a locked position for maintaining the helmet in the closed configuration and an unlocked position for allowing the helmet to be progressed from the closed configuration to the open configuration, and wherein manually engaging the tab member moves the movable latch member to the unlocked position.

9. A protective helmet according to claim 8 wherein the movable latch member is resiliently biased into the locked position.

10. A protective helmet according to claim 6 wherein one of the cables is connected at its distal end to a hinge pin which is locatable in a complementary hinge aperture thereby to at least in part define the upper dorsal connection.

11. A protective helmet according to claim 10 wherein manually engaging the tab member retracts the hinge pin out of the complementary hinge aperture.

12. A protective helmet according to claim 11 wherein the hinge pin is resiliently biased into the hinge aperture.

13. A protective helmet according to claim 10 wherein a plurality of the cables are connected at their distal ends to respective hinges pin which are each locatable in respective plurality of complementary hinge apertures thereby to define the upper dorsal connection.

14. A helmet according to claim 2 wherein the tab member is maintained in a secured position by a retainer.

15. A helmet according to claim 14 wherein the retainer is rotatably releasable thereby to permit manipulation to the tab member.

16. A helmet according to claim 16 wherein the retainer maintains the tab member in a secured position against the force of a resilient bias, such that upon rotational release of the retainer the resilient bias presents the tab member in a location configured for manual manipulation.

17. A helmet according to claim 1 wherein front and rear shells include respective first and second edges, wherein the first and second edges include respective complimentary inter-engaging locating formations, these locating formations being mutually locatingly engaged when the helmet is in the closed configuration to substantially transversely locate the front shell with respect to the rear shell.

18. A helmet according to claim 17 wherein the locating formations are defined at one or more locations by the cross-sectional profiles of the first and second edges.

19. A helmet according to claim 1 including:

a first fitting zone on the front shell for engagement with the forehead region of the head;

a second fitting zone for engagement with a chin region of the head; and

a third fitting zone on the rear shell for engagement with a posterior region of the head when the helmet is in the closed configuration thereby to provide a three zone fitting system for securely containing the head within the helmet;

wherein the second fitting zone is provided on an adjustable chin cup for cupping and securing the chin region, and wherein there is a spacing intermediate the outer side of the chin cup and the front shell thereby to allow limited resiliently opposed movement of the jaw upon frontal impact.

20. A helmet according to any preceding claim wherein the front and rear shells are configured such that, when in the closed configuration, the helmet is configured for securely containing the head via a closure boundary defined by respective edges of the front and rear shells.

21. A protective helmet including:

a front shell having a primary vision aperture formed therein; and

a rear shell hingedly movable with respect to the front shell to provide:

an open configuration in which the helmet is able to be placed on a user's head or removed from the user's head; and

a closed configuration wherein the rear shell is releasably lockingly engaged to the front shell;

a protective cage assembly including a protective cage that overlies the primary vision aperture; and

a protective cage mounting assembly formed of resilient material, the protective cage mounting assembly being mounted intermediate the protective cage assembly and the front shell such that the resilient material allow limited damped movement of the protective cage assembly with respect to the front shell.

22. A protective helmet according to claim wherein the front and rear shells are configured such that, when in the closed configuration, the helmet is configured for securely containing the head via a closure boundary defined by respective edges of the front and rear shells.

23. A protective helmet according to claim 21 or claim 22 wherein the protective cage assembly includes the protective cage and one or more cover members.

24. A protective helmet according to any one of claims 22 to 23 wherein the protective cage mounting assembly includes one or more resilient regions that respectively connect to one or more regions of the protective cage.

25. A protective helmet according to any one of claims 21 to 24 including:

a first fitting zone on the front shell for engagement with the forehead region of the head;

a second fitting zone for engagement with a chin region of the head; and

a third fitting zone on the rear shell for engagement with a posterior region of the head when the helmet is in the closed configuration thereby to provide a three zone fitting system for securely containing the head within the helmet;

wherein the second fitting zone is provided on an adjustable chin cup for cupping and securing the chin region, and wherein there is a spacing intermediate the outer side of the chin cup and the front shell thereby to allow limited resiliently opposed movement of the jaw upon frontal impact.

26. A protective helmet according to any one of claims 21 to 25 including a multiple point locking system, the multiple point locking system including:

an upper dorsal connection for hingedly connecting the rear shell to front shell, thereby to enable movement between the closed configuration and the open configuration.

one or more lower side connections for releasably locking the front shell to the rear shell thereby to selectively lock the helmet in the closed configuration; and

an emergency release mechanism configured to simultaneously release the hinge and unlock the lower side connections such that the rear shell is removable from the front shell.

27. A protective helmet including:

a rear shell hingedly movable with respect to the front shell to provide:

an open configuration in which the helmet is able to be placed on a user's head or removed from the user's head, and

a closed configuration wherein the rear shell is releasably lockingly engaged to the front shell;

wherein the front shell includes a first edge complimentarily engageable with a second edge on the rear shell;

wherein the first and second edges include respective complimentary inter-engaging locating formations extending substantially along the length of the edges, these locating formations being mutually locatingly engaged when the helmet is in the closed configuration to substantially transversely locate the front shell with respect to the rear shell;

wherein the complementary locating formations and shells are configured such that, when progressing the helmet from the open configuration to the closed configuration, there is continuous progressive engagement the locating formations of the front shell and the locating formations of the rear shell.

28. A protective helmet according to claim 27 wherein, on each shell, the locating formations each follow a threaded path along their respective edges, thereby to provided for the continuous progressive engagement.

29. A protective helmet according to claim 28 wherein the threaded path is a helical threaded path.

30. A protective helmet according to claim 29 wherein the helical threaded path is defined in three dimensions by less than one full turn of a helix.

31. A protective helmet according to claim 29 wherein the helical threaded path is defined at least in part by the geometric configuration of the first and second edges.

32. A protective helmet according to claim 29 wherein the helical threaded path is defined at least in part by the geometric configuration of the locating formations.

33. A protective helmet according to claim 29 wherein the helical threaded path is defined at least in part by the geometric configuration of the first and second edges and at least in part by the geometric configuration of the locating formations.

34. A protective helmet including:

a front shell; and

a rear shell hingedly movable with respect to the front shell to provide:

an open configuration in which the helmet is able to be placed on a user's head or removed from the user's head; and

a closed configuration wherein the rear shell is releasably lockingly engaged to the front shell for securely containing the head within the helmet;

a multiple point locking system including:

an upper dorsal connection for hingedly connecting the rear shell to front shell, thereby to enable movement between the closed configuration and the open configuration.

one or more lower side connections for releasably locking the front shell to the rear shell thereby to selectively lock the helmet in the closed configuration; and

an emergency release mechanism adjacent the upper dorsal connection configured to simultaneously release the lower side connections such that, following removal of a hinge pin that provides the hinged connection between the front and rear shells, the rear shell is removable from the front shell.

35. A protective helmet substantially as herein described with reference to any one of the embodiments of the invention illustrated in the accompanying drawings and/or examples.

[0006] One embodiment provides a protective helmet including:

[0007] a front shell; and

[0008] a rear shell hingedly movable with respect to the front shell to provide:

[0009] an open configuration in which the helmet is able to be placed on a user’s head or removed from the user’s head; and

[0010] a closed configuration wherein the rear shell is releasably lockingly engaged to the front shell for securely containing the head within the helmet;

[0011] a multiple point locking system including:

[0012] an upper dorsal connection for hingedly connecting the rear shell to front shell, thereby to enable movement between the closed configuration and the open configuration.

[0013] one or more lower side connections for releasably locking the front shell to the rear shell thereby to selectively lock the helmet in the closed configuration; and

[0014] an emergency release mechanism configured to simultaneously release the hinge and unlock the lower side connections such that the rear shell is removable from the front shell.

[0015] One exemplary protective helmet includes:

[0016] a front shell having a primary vision aperture formed therein; and

[0017] a rear shell hingedly movable with respect to the front shell to provide:

[0018] an open configuration in which the helmet is able to be placed on a user’s head or removed from the user’s head; and

[0019] a closed configuration wherein the rear shell is releasably lockingly engaged to the front shell;

[0020] a protective cage assembly including a protective cage that overlies the primary vision aperture; and

[0021] a protective cage mounting assembly formed of resilient material, the protective cage mounting assembly being mounted intermediate the protective cage assembly and the front shell such that the resilient material allow limited damped movement of the protective cage assembly with respect to the front shell.

[0022] One exemplary protective helmet includes:

[0023] a front shell having a primary vision aperture formed therein; and

[0024] a rear shell hingedly movable with respect to the front shell to provide:

[0025] an open configuration in which the helmet is able to be placed on a user's head or removed from the user's head; and

[0026] a closed configuration wherein the rear shell is releasably lockingly engaged to the front shell;

[0027] wherein the front shell includes a first edge complimentarily engageable with a second edge on the rear shell;

[0028] wherein the first and second edges include respective complimentary inter-engaging locating formations extending substantially along the length of the edges, these locating formations being mutually locatingly engaged when the helmet is in the closed configuration to substantially transversely locate the front shell with respect to the rear shell;

[0029] wherein the complementary locating formations and shells are configured such that, when progressing the helmet from the open configuration to the closed configuration,

CLAIMS

1. A protective helmet including:

a front shell; and

a rear shell hingedly movable with respect to the front shell to provide:

an open configuration in which the helmet is able to be placed on a user's head or removed from the user's head; and

a closed configuration wherein the rear shell is releasably lockingly engaged to the front shell for securely containing the head within the helmet;

a multiple point locking system including:

an upper dorsal connection for hingedly connecting the rear shell to front shell, thereby to enable movement between the closed configuration and the open configuration.

one or more lower side connections for releasably locking the front shell to the rear shell thereby to selectively lock the helmet in the closed configuration; and

an emergency release mechanism configured to simultaneously release the hinge and unlock the lower side connections such that the rear shell is removable from the front shell.

2. A protective helmet according to claim 1 wherein the emergency release mechanism includes a tab member that is configured to be manually engaged thereby to simultaneously release the hinge and unlock the lower side connections such that the rear shell is removable from the front shell.

3. A protective helmet according to claim 2 wherein manually engaging the tab member includes lifting the tab member.

4. A protective helmet according to claim 2 wherein the tab member is physically coupled to the hinge and side connections.

5. A protective helmet according to claim 4 wherein the tab member is physically coupled to the hinge and side connections by a set of cables, the cables being coupled at their respective proximal ends to the tab member.

6. A protective helmet according to claim 5 wherein manually engaging the tab member acts on the cables thereby to simultaneously move components connected to the distal ends of those cables.

7. A protective helmet according to claim 6 wherein one of the cables is connected at its distal end to a movable latch member of one of the lower side connections.

8. A protective helmet according to claim 7 wherein the movable latch member is moveable between a locked position for maintaining the helmet in the closed configuration and an unlocked position for allowing the helmet to be progressed from the closed configuration to the open configuration, and wherein manually engaging the tab member moves the movable latch member to the unlocked position.

9. A protective helmet according to claim 8 configured for the movable latch member to be resiliently biased into the locked position.

10. A protective helmet according to claim 6 wherein one of the cables is connected at its distal end to a hinge pin which is locatable in a complementary hinge aperture thereby to at least in part define the upper dorsal connection.

11. A protective helmet according to claim 10 wherein manually engaging the tab member retracts the hinge pin out of the complementary hinge aperture.

12. A protective helmet according to claim 11 configured for the hinge pin to be resiliently biased into the hinge aperture.

13. A protective helmet according to claim 10 wherein a plurality of the cables are connected at their distal ends to respective hinges pin which are each locatable in respective plurality of complementary hinge apertures thereby to define the upper dorsal connection.

14. A helmet according to claim 2 configured for the tab member to be maintained in a secured position by a retainer.

15. A helmet according to claim 14 wherein the retainer is rotatably releasable thereby to permit manipulation to the tab member.

16. A helmet according to claim 15 configured for the retainer to maintain the tab member in a secured position against the force of a resilient bias, such that upon rotational release of the retainer the resilient bias presents the tab member in a location configured for manual manipulation.

17. A helmet according to claim 1 wherein front and rear shells include respective first and second edges, wherein the first and second edges include respective complimentary inter-engaging locating formations, these locating formations being mutually locatingly engaged when the helmet is in the closed configuration to substantially transversely locate the front shell with respect to the rear shell.

18. A helmet according to claim 17 wherein the locating formations are defined at one or more locations by the cross-sectional profiles of the first and second edges.

19. A helmet according to claim 1 including:

a first fitting zone on the front shell for engagement with the forehead region of the head;

a second fitting zone for engagement with a chin region of the head; and

a third fitting zone on the rear shell for engagement with a posterior region of the head when the helmet is in the closed configuration thereby to provide a three zone fitting system for securely containing the head within the helmet;

wherein the second fitting zone is provided on an adjustable chin cup for cupping and securing the chin region, and wherein there is a spacing intermediate the outer side of the chin cup and the front shell thereby to allow limited resiliently opposed movement of the jaw upon frontal impact.

20. A helmet according to claim 1 wherein the front and rear shells are configured such that, when in the closed configuration, the helmet is configured for securely containing the head via a closure boundary defined by respective edges of the front and rear shells.

21. A protective helmet including:

a front shell; and

a rear shell hingedly movable with respect to the front shell to provide:

an open configuration in which the helmet is able to be placed on a user's head or removed from the user's head; and

a closed configuration wherein the rear shell is releasably lockingly engaged to the front shell for securely containing the head within the helmet;

a multiple point locking system including:

an upper dorsal connection for hingedly connecting the rear shell to front shell, thereby to enable movement between the closed configuration and the open configuration.

one or more lower side connections for releasably locking the front shell to the rear shell thereby to selectively lock the helmet in the closed configuration; and

an emergency release mechanism adjacent the upper dorsal connection configured to simultaneously release the lower side connections such that, following removal of a hinge pin that provides the hinged connection between the front and rear shells, the rear shell is removable from the front shell.