DOOR HINGE

The present invention relates to door hinges. The invention is particularly applicable to throw hinges for large or heavy doors.

A wide variety of throw hinges is available for doors fitted to cabinets, cupboards, wardrobes, and the like. One commonly used type is the European hinge, or "cup hinge", which comprises two parts: a cup part, which is attached to the interior of the cabinet side wall; and a mounting plate, which includes a pivot arm connected to the cup part and is attached to the inside of the cabinet door.

When the door is closed, the cup part and the mounting plate are at right angles to each other, and the pivot arm is received in the cup part. In the closed configuration, the hinge is hidden from view, thereby enhancing the aesthetic appearance of the cabinet. As the door is opened, the pivot arm moves out from the cup part to throw the door outwardly away from the cabinet. In the fully open configuration, the cup part and the mounting plate are inline with each other. That is, the opened door has been rotated outwardly through 90 degrees, thereby providing access to the inside of the cabinet.

However, the European hinge is not suitable for use with large or heavy doors because the narrow section of the pivot arm is subjected to great stress under high vertical loads, leading to distortion of the hinge which causes misalignment of the door with the cabinet and difficultly in opening and closing the door. If the loads are high enough then structural failure of the hinge may occur.

Embodiments of the present invention seek to provide an improved hinge for supporting large or heavy doors.

According to a first aspect of the present invention there is provided ~~a door hinge, comprising: a body part for attaching to a door jamb, the body part including a jamb face; a door part for attaching to a door, the door part including a door face; and a pivot coupling which pivotally connects the door~~

~~part to the body part about a displaceable pivot axis, wherein the door face faces in a first direction towards the jamb face when the hinge is in a closed configuration and in a second direction when the hinge is in an open configuration.~~a door hinge for supporting a door to a door jamb and being operable between a closed configuration and a fully open configuration, the door hinge comprising: a mortised body part for attaching to a door jamb, wherein the body part includes a first jamb face having a lateral extent and a second jamb face which is generally orthogonal to the first jamb face; a mortised door part for attaching to a door, the door part including a door front face; and a pivot coupling which pivotally connects the door part to the body part, wherein the pivot coupling comprises: a first arm which is coupled to the body part about a first fixed pivot axis and to the door part about a first displaceable pivot axis, the first fixed pivot axis being located outwardly of the first jamb face, and the first displaceable pivot axis being displaced from a first location when the hinge is in the closed configuration to a second location along and away from the first jamb face in relation to the lateral extent of the first jamb face when the hinge is in the fully open configuration; and a second arm which is coupled to the body part about a second fixed pivot axis and to the door part about a second displaceable pivot axis, the second fixed pivot axis being located inside the body part, and the second displaceable pivot axis being displaced from a first location when the hinge is in the closed configuration to a second location along and away from the first jamb face in relation to the lateral extent of the first jamb face when the hinge is in the fully open configuration, wherein the door front face is generally parallel to the first jamb face when the hinge is in the closed configuration and generally orthogonal to the first jamb face when the hinge is in the fully open configuration.

An arrangement wherein the door face faces towards the, jamb face when the hinge is in a closed configuration means that the body part of the hinge can be fitted to the front, rather than to the side, of the carcass of the cabinet (or cupboard, wardrobe, or the like). This may be particularly advantageous because the hinge may not intrude into the interior space of the cabinet, thereby providing improved storage capacity and access.

According to a second aspect of the present invention, there is provided ~~a door, comprising:~~ a door hinge according to the first aspect, formed of metal.

According to a third aspect of the present invention, there is provided a door hinge according to the first aspect, formed of plastics.

~~According to a third aspect of the present invention there is provided a door hinge, comprising: a body part for attaching to a door jamb, the body part including a jamb face; a door part for attaching to a door; and a pivot coupling which pivotally connects the door part to the body part about a displaceable pivot axis, wherein the displaceable pivot axis is displaced from a first location when the hinge is in a closed configuration to a second location along and away from the jamb face when the hinge is in an open configuration.~~

Movement of the displaceable pivot axis along and away from the jamb face may advantageously enables a thick door, to which the hinge may be attached, to be thrown outwardly of a cabinet door jamb, from a closed position to an open position.

According to a fourth aspect of the present invention, there is provided a door, comprising: a door hinge ~~according to the third aspect~~ as described above.

Embodiments of the present invention will now be described by way of example, with reference to the accompanying figures in which:

Figure 1a shows a perspective view of two door hinges according to the invention, wherein the hinges are installed in respective doors and door jambs of a cabinet.

Figure 1b shows a plan view of the installed hinges of Figure 1a, wherein the hinges are in a closed configuration.

CLAIMS

1. A door hinge, comprising:
a body part for attaching to a door jamb, the body part including a jamb face;
a door part for attaching to a door, the door part including a door face; and
a pivot coupling which pivotally connects the door part to the body part about a displaceable pivot axis,
wherein the door face faces in a first direction towards the jamb face when the hinge is in a closed configuration and in a second direction when the hinge is in an open configuration.

2. A door hinge according to claim 1, wherein the door face is generally parallel to the jamb face when the hinge is in the closed configuration.

3. A door hinge according to claim 1 or 2, wherein the door face is generally orthogonal to the jamb face when the hinge is in the open configuration.

4. A door hinge according to any of claims 1 to 3, wherein the door face is juxtaposed outwardly and laterally beyond an inner edge of the jamb face.

5. A door hinge according to any of claims 1 to 4, wherein the body part includes a further jamb face which is generally orthogonal to the first jamb face.

6. A door hinge according to any of claims 1 to 5, wherein the displaceable pivot axis is displaced from a first location when the hinge is in the closed configuration to a second location along and away from the jamb face when the hinge is in the open configuration.

CONFIRMATION COPY

7. A door hinge according to claim 6, wherein the displaceable pivot axis is displaced within the projected length of the jamb face.

8. A door hinge according to any of claims 1 to 7, wherein the pivot coupling comprises:
a first arm which is coupled to the body part about a first fixed pivot axis and to the door part about the displaceable pivot axis.

9. A door hinge according to claim 8, wherein the first fixed pivot axis is located outwardly of the jamb face.

10. A door hinge according to any of claims 1 to 9, wherein the door part is further pivotally connected to the body part about a second displaceable pivot axis.

11. A door hinge according to claim 10, wherein the second displaceable pivot axis is displaced from a first location when the hinge is in the closed configuration to a second location along and away from the jamb face when the hinge is in the open configuration.

12. A door hinge according to claim 10 or 11, wherein the second displaceable pivot axis is located beyond the lateral extent of the jamb face when the hinge is in the closed configuration.

13. A door hinge according to any of claims 10 to 12, wherein the second displaceable pivot axis is displaced within the projected length of the jamb face.

14. A door hinge according to any of claims 11 to 13, wherein the second displaceable pivot axis is displaced further along the jamb face than is the first displaceable pivot axis.

15. A door hinge according to any of claims 10 to 14, wherein the second displaceable pivot axis is located outwardly of the first displaceable pivot axis when in the open and closed configurations.

16. A door hinge according to any of claims 10 to 15 when dependent on claim 8, wherein the pivot coupling further comprises:
a second arm which is coupled to the body part about a second fixed pivot axis and to the door part about the second displaceable pivot axis.

17. A door hinge according to claim 16, wherein the second fixed pivot axis of the second arm is located inside the body part.

18. A door hinge according to claim 16 or 17, wherein the first arm includes a recess for partially receiving the second arm when the hinge is in the open configuration.

19. A door hinge according to any of claims 1 to 18, wherein the door part includes a channel for receiving the pivot coupling when the hinge is in the closed configuration.

20. A door hinge according to any of claims 1 to 19, formed of metal or plastics.

21. A door hinge according to any of claims 1 to 20, wherein the hinge is configured to be mortised or concealed in a door/door jamb.

22. A door, comprising:
a door hinge according to any of claims 1 to 21.

23. A door hinge, comprising:
a body part for attaching to a door jamb, the body part including a jamb face;

a door part for attaching to a door; and

a pivot coupling which pivotally connects the door part to the body part about a displaceable pivot axis,

wherein the displaceable pivot axis is displaced from a first location when the hinge is in a closed configuration to a second location along and away from the jamb face when the hinge is in an open configuration.

24. A door hinge according to claim 23, wherein the displaceable pivot axis is displaced within the projected length of the jamb face.

25. A door hinge according to claims 23 or 24, wherein the door part includes a door face which faces in a first direction towards the jamb face when the hinge is in the closed configuration and in a second direction when the hinge is in the open configuration.

26. A door hinge according to claim 25, wherein the door face is generally parallel to the jamb face when the hinge is in the closed configuration.

27. A door hinge according to claim 25 or 26, wherein the door face is generally orthogonal to the jamb face when the hinge is in the open configuration.

28. A door hinge according to any of claims 25 to 27, wherein the door face is juxtaposed outwardly and laterally beyond an inner edge of the jamb face.

29. A door hinge according to any of claims 23 to 28, wherein the body part includes a further jamb face which is generally orthogonal to the first jamb face.

30. A door hinge according to any of claims 23 to 29, wherein the pivot coupling comprises:
a first arm which is coupled to the body part about a first fixed pivot axis and to the door part about the displaceable pivot axis.

31. A door hinge according to claim 30, wherein the first fixed pivot axis is located outwardly of the jamb face.

32. A door hinge according to any of claims 23 to 31, wherein the door part is further pivotally connected to the body part about a second displaceable pivot axis.

33. A door hinge according to claim 32, wherein the second displaceable pivot axis is displaced from a first location when the hinge is in the closed configuration to a second location along and away from the jamb face when the hinge is in the open configuration.

34. A door hinge according to claim 32 or 33, wherein the second displaceable pivot axis is located beyond the lateral extent of the jamb face when the hinge is in the closed configuration.

35. A door hinge according to any of claims 32 to 34, wherein the second displaceable pivot axis is displaced within the projected length of the jamb face.

36. A door hinge according to any of claims 33 to 35, wherein the second displaceable pivot axis is displaced further along the jamb face than is the first displaceable pivot axis.

37. A door hinge according to any of claims 32 to 36, wherein the second displaceable pivot axis is located outwardly of the first displaceable pivot axis when in the open and closed configurations.

38. A door hinge according to any of claims 30 to 37 when dependent on claim 30, wherein the pivot coupling further comprises:
a second arm which is coupled to the body part about a. second fixed pivot axis and to the door part about the second displaceable pivot axis.

39. A door hinge according to claim 38, wherein the second fixed pivot axis of the second arm is located within the body part.

40. A door hinge according to claim 38 or 39, wherein the first arm includes a recess for partially receiving the second arm when the hinge is in the open configuration.

41. A door hinge according to any of claims 23 to 40, wherein the door part includes a channel for receiving the pivot coupling when the hinge is in the closed configuration.

42. A door hinge according to any of claims 23 to 41, formed of metal or plastics.

43. A door hinge according to any of claims 23 to 42, wherein the hinge is configured to be mortised or concealed in a door/door jamb.

44. A door, comprising:
a door hinge according to any of claims 23 to 43.

CLAIMS

1. A door hinge for supporting a door to a door jamb and being operable between a closed configuration and a fully open configuration, the door hinge comprising:

a mortised body part for attaching to a door jamb, wherein the body part includes a first jamb face having a lateral extent and a second jamb face which is generally orthogonal to the first jamb face;

a mortised door part for attaching to a door, the door part including a door front face; and

a pivot coupling which pivotally connects the door part to the body part, wherein the pivot coupling comprises:

a first arm which is coupled to the body part about a first fixed pivot axis and to the door part about a first displaceable pivot axis, the first fixed pivot axis being located outwardly of the first jamb face, and the first displaceable pivot axis being displaced from a first location when the hinge is in the closed configuration to a second location along and away from the first jamb face in relation to the lateral extent of the first jamb face when the hinge is in the fully open configuration; and

a second arm which is coupled to the body part about a second fixed pivot axis and to the door part about a second displaceable pivot axis, the second fixed pivot axis being located inside the body part, and the second displaceable pivot axis being displaced from a first location when the hinge is in the closed configuration to a second location along and away from the first jamb face in relation to the lateral extent of the first jamb face when the hinge is in the fully open configuration,

wherein the door front face is generally parallel to the first jamb face when the hinge is in the closed configuration and generally orthogonal to the first jamb face when the hinge is in the fully open configuration.

2. A door hinge according to claim, wherein the door front face is juxtaposed outwardly and extends beyond the lateral extent of the first jamb face when the hinge is in the closed configuration.

3. A door hinge according to claim 1 or 2, wherein the first displaceable pivot axis is displaced within the lateral extent of the first jamb face when the hinge is moved between the closed and fully open configurations.

4. A door hinge according to any of claims 1 to 3, wherein the second displaceable pivot axis is located beyond the lateral extent of the first jamb face when the hinge is in the closed configuration.

5. A door hinge according to any of claims 1 to 4, wherein the second displaceable pivot axis is within the lateral extent of the first jamb face when the hinge is in the fully open configuration.

6. A door hinge according to any of claims 1 to 5, wherein the second displaceable pivot axis is displaced further along the lateral extent of the first jamb face than is the first displaceable pivot axis when the hinge is moved from the closed configuration to the fully open configuration.

7. A door hinge according to any of claims 1 to 4, wherein the first displaceable pivot axis is located outwardly of the second displaceable pivot axis from the first jamb face when in the fully open and closed configurations.

8. A door hinge according to any of claims 1 to 7, wherein the first arm includes a recess for partially receiving the second arm when the hinge is in the fully open configuration.

9. A door hinge according to any of claims 1 to 8, wherein the door part includes a channel for receiving the pivot coupling when the hinge is in the closed configuration.

10. A door hinge according to any of claims 1 to 9, wherein the door front face is in line with the second jamb face when the hinge is in the fully open configuration.

11. A door hinge according to any of claims 1 to 10, wherein the door part includes a door end face which is generally orthogonal to the door front face, and the door end face is opposed to the first jamb face when the hinge is in the fully open configuration.

12. A door hinge according to any of claims 1 to 11, wherein the first fixed pivot axis is located outwardly of the second jamb face.

13. A door hinge according to any of claims 1 to 12, wherein the second displaceable pivot axis is located outwardly of the second fixed pivot axis from the second jamb face in the closed configuration and inwardly of the second fixed pivot axis from the second jamb face in the fully open configuration.

14. A door hinge according to any of claims 1 to 13, formed of metal.

15. A door hinge according to any of claims 1 to 13, formed of plastics.

16. A door, comprising:
a door hinge according to any of claims 1 to 15.