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(54) **GLASS DOOR AND HINGE ARRANGEMENT**

GANZGLASTÜR UND SCHARNIERANORDNUNG

PORTE EN VERRE ET ÉQUIPEMENT DE CHARNIÈRE

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Description

[0001] This invention relates to a door, such as a cabinet door, fitted with a hinge arrangement.

[0002] Known hinges for glass cabinet doors, similar to "European" cabinet hinges for wooden doors, are sold by Häfele GmbH & Co KG and by Arturo Salice SpA. A hinge part typically includes a shallow, hollow cylinder, suitable for lodging in a round through-hole in the door. The hinge part is screwed to an external plate located on the outside of the door, clamping the door between the hinge part and the external plate.

[0003] These known hinges are suitable for lightweight glass doors, e.g. those less than about 8 mm in thickness. However, they cannot support heavier glass doors.

[0004] WO 97/43511 A1 describes a glass door according to the preamble of claim 1. DE 85 36 840 U1 and US 2004/020130 describe arrangements in which a hinge plate has a recess in an edge thereof.

[0005] With the aim of providing a hinge for a thick or heavy door, and/or reducing the number of hinges required, the present invention provides a glass door according to claim 1.

[0006] The hinge part can advantageously be that of a known cabinet hinge. In known wooden cabinets, the door is thicker than the external depth of the cup-shaped part of the hinge, which is inserted into a recess in the door. The invention surprisingly uses such hinge parts in doors that are thinner than this depth, the additional depth being accommodated in the recess in the external plate.

[0007] The cup-shaped part may be generally cylindrical. The recess may also be cylindrical, with a diameter essentially matching the external diameter of the cup-shaped part.

[0008] The hinge part includes at least one hole and the plate includes at least one screw recess arranged to register with the respective hole(s), for screwing the hinge part to the plate, to clamp the door therebetween. The hole(s) is located in a peripheral flange of the hinge part. In particular, two holes may be provided. The arrangement may include screw sleeves locatable in the door, between the holes and the screw recesses.

[0009] An inner gasket may be provided, locatable between the hinge part and the door. An outer gasket may be locatable between the door and the plate. The inner and/or outer gasket may include one or more openings through which the cup-shaped part and/or the screws can pass.

[0010] The door has the opening through which the cup-shaped part extends. The opening has a shape that is generally circular but has one or more extensions for the screw(s).

[0011] The invention will now be described in more detail, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 is an exploded sectional view of a hinge arrangement according to an embodiment of the in-

vention;

Figure 2 shows an external plate of the hinge arrangement of Figure 1; and

Figure 3 shows a glass door for use with the hinge arrangement.

[0012] The drawings show components of a hinge arm for the external (door) side of a hinge. A hinge part 1 is generally of conventional shape, comprising a hollow, generally cylindrical cup 2 and a peripheral flange 3. However the depth of the cup 2 is significantly greater than that of a known glass door hinge. The hinge part 1 can be formed of metallic or plastics material.

[0013] In use, the hinge part 1 is screwed to an external plate 4, e.g. of aluminium, by means of screws 5. The external plate has a milled circular recess 6 sized to receive that part of the cup 2 that protrudes through a glass door 7. Thus, the internal diameter of the recess 6 matches the external diameter of the cup 2, whilst the depth of the recess 6 is at least as great as the difference between the external depth of the cup 2 and the thickness of the door 7, and preferably approximately equal to that difference.

[0014] The cup 2 extends through an opening 8 in the door 7, shown in Figure 3. This opening is generally circular, with two extensions 9 extending generally in the line of a chord of the circle. In this example, for ease of manufacture, the opening 8 communicates with an inner edge of the door 7.

[0015] The screws 5 are screwed through cylindrical plastics spacers 10, housed in the extensions 9, and into threaded screw recesses 11 provided in the external plate 4 above and below the recess 6.

[0016] An inner gasket 12 is located between the flange 3 and the door 7. This may have holes for the screws 5 and may extend around the cup 2 on one side thereof.

[0017] An outer gasket 13 is located between the door 7 and the external plate 4. This has a central circular hole for the cup 2. It may also be provided with holes for the screws 5. The pre-made holes for screws in both gaskets 12, 13 are optional, particularly if the machine screws shown are replaced by self-tapping screws.

[0018] In the known glass door hinge, the bottom of the cup is flush with the external surface of the door. By contrast, in the present hinge, the cup 2 extends into the recess 6, supporting the external plate 4 more securely and clamping the door more efficiently. This means that thicker, heavier doors can be used with a simple hinge.

Claims

1. A glass door (7) fitted with a hinge arrangement, the hinge arrangement comprising a hinge part (1) including a cup-shaped part (2), and a plate (4) having

a recess (6) in a face thereof, for receiving an outermost portion of the cup-shaped part (2), the hinge part (1) and the plate (4) being located on opposite sides of the glass door (7) having an opening (8) for the cup-shaped part, **characterised in that** the hinge part (1) includes at least one hole, located in a peripheral flange (3) of the hinge part, and the plate (4) includes at least one screw recess (11) arranged to register with the respective hole(s), for screwing the hinge part (1) to the plate, to clamp the door therebetween; the cup-shaped part (2) extending through the opening (8) in the door (7), which opening (8) has a shape that is generally circular but has one or more extensions (9), each for allowing a screw (5), for screwing the hinge part (1) to the plate, to pass through the door.

2. A door according to claim 1, wherein the cup-shaped part (2) is generally cylindrical.
3. A door according to claim 2, wherein the recess (6) is cylindrical, with a diameter essentially matching the external diameter of the cup-shaped part (2).
4. A door according to claim 1, 2 or 3, wherein the number of holes is two.
5. A door according to any preceding claim, including screw sleeves (10) locatable in the door, between the holes and the screw recesses (11).
6. A door according to any preceding claim, including an inner gasket (12), locatable between the hinge part and the door.
7. A door according to claim 6, wherein the inner gasket (12) includes one or more openings through which the cup-shaped part (2) and/or one or more screws can pass.
8. A door according to any preceding claim, including an outer gasket (13), locatable between the door and the plate.
9. A door according to claim 8 wherein the outer gasket (13) includes one or more openings through which the cup-shaped part (2) and/or one or more screws can pass.

Patentansprüche

1. Glastür (7), die mit einer Scharnieranordnung ausgestattet ist, wobei die Scharnieranordnung ein Scharnierteil (1) mit einem becherförmigen Teil (2) und eine Platte (4) mit einer Aussparung (6) in seiner Fläche zur Aufnahme eines äußersten Abschnitts des becherförmigen Teils (2) aufweist, und das

Scharnierteil (1) und die Platte (4) auf gegenüberliegenden Seiten der Glastür (7) mit einer Öffnung (8) für den becherförmigen Teil angeordnet sind, **dadurch gekennzeichnet, dass** das Scharnierteil (1) zumindest ein Loch aufweist, das sich in einem Umfangsflansch (3) des Scharnierteils befindet, und die Platte (4) zumindest eine Schraubenaussparung (11) aufweist, die so angeordnet ist, dass sie mit dem/den jeweiligen Loch/Löchern übereinstimmt, um das Scharnierteil (1) mit der Platte zu verschrauben um die Tür dazwischen zu klemmen; das becherförmige Teil (2), erstreckt sich durch die Öffnung (8) in der Tür (7), wobei die Öffnung (8) im Allgemeinen kreisförmig ist, aber eine oder mehrere Verlängerungen (9) aufweist, von denen jede einer Schraube (5), zum Verschrauben des Scharnierteils (1) mit der Platte, durch die Tür zu gelangen ermöglicht.

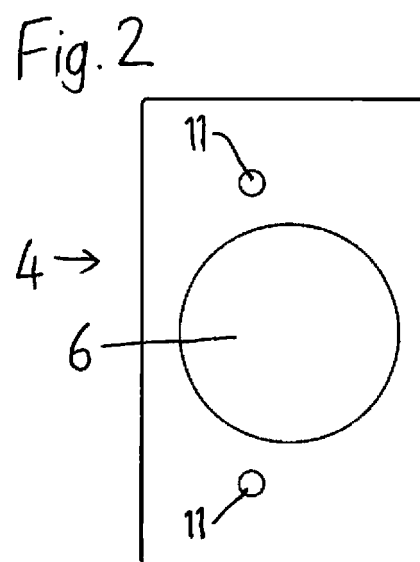
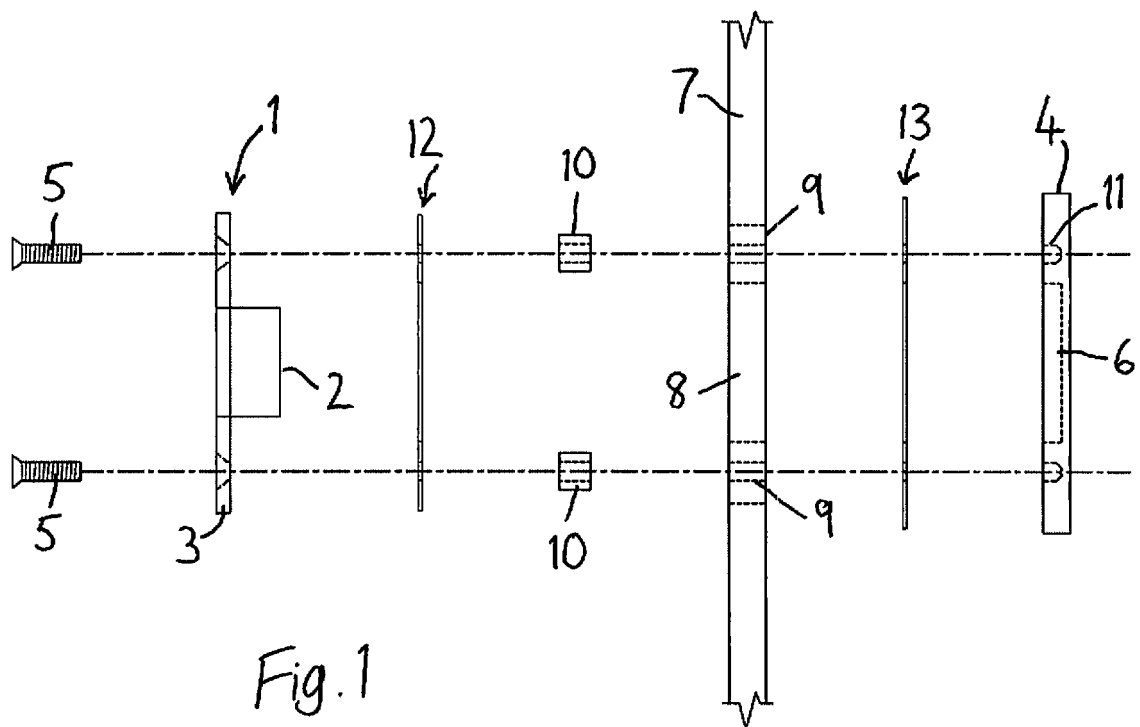
2. Tür nach Anspruch 1, wobei das becherförmige Teil (2) im Allgemeinen zylindrisch ist.
3. Tür nach Anspruch 2, wobei die Aussparung (6) zylindrisch mit einem Durchmesser ist, der im Wesentlichen dem Außendurchmesser des becherförmigen Teils (2) entspricht.
4. Tür nach Anspruch 1, 2 oder 3, wobei die Anzahl der Löcher zwei ist.
5. Tür nach einem vorangehenden Anspruch, umfassend Schraubenhülsen (10), die in der Tür, zwischen den Löchern und den Schraubenaussparungen (11) angeordnet werden können.
6. Tür nach einem vorangehenden Anspruch, umfassend eine innere Dichtung (12), die zwischen dem Scharnierteil und der Tür angeordnet werden kann.
7. Tür nach Anspruch 6, wobei die innere Dichtung (12) eine oder mehrere Öffnungen aufweist, durch die das becherförmige Teil (2) und/oder eine oder mehrere Schrauben hindurchgelangen können.
8. Tür nach einem vorangehenden Anspruch, umfassend eine äußere Dichtung (13), die zwischen der Tür und der Platte angeordnet werden kann.
9. Tür nach Anspruch 8, wobei die äußere Dichtung (13) eine oder mehrere Öffnungen aufweist, durch die das becherförmige Teil (2) und/oder eine oder mehrere Schrauben hindurchgelangen können.

Revendications

1. Porte en verre (7) dotée d'un équipement de charnière, l'équipement de charnière comprenant une partie de charnière (1) incluant une partie en forme

de coupelle (2), et une plaque (4) présentant un évidement (6) dans une face de celle-ci, destiné à recevoir une partie la plus à l'extérieur de la partie en forme de coupelle (2), la partie de charnière (1) et la plaque (4) étant situées sur des côtés opposés de la porte en verre (7) présentant une ouverture (8) pour la partie en forme de coupelle, **caractérisée en ce que** la partie de charnière (1) inclut au moins un trou, situé dans une collerette périphérique (3) de la partie de charnière, et la plaque (4) inclut au moins un évidement pour vis (11) agencé pour coïncider avec le(s) trou(s) respectif(s), afin de visser la partie de charnière (1) sur la plaque, de sorte à serrer la porte entre elles ; la partie en forme de coupelle (2) s'étendant à travers l'ouverture (8) dans la porte (7), laquelle ouverture (8) a une forme qui est globalement circulaire mais qui présente un ou plusieurs prolongements (9), chacun étant destiné à recevoir une vis (5), afin de visser la partie de charnière (1) sur la plaque, de sorte à traverser la porte.

2. Porte selon la revendication 1, dans laquelle la partie en forme de coupelle (2) est globalement cylindrique.
3. Porte selon la revendication 2, dans laquelle l'évidement (6) est cylindrique, avec un diamètre correspondant sensiblement au diamètre externe de la partie en forme de coupelle (2).
4. Porte selon la revendication 1, 2 ou 3, dans laquelle le nombre de trous est de deux.
5. Porte selon l'une quelconque des revendications précédentes, incluant des manchons pour vis (10) positionnables dans la porte, entre les trous et les évidements pour vis (11).
6. Porte selon l'une quelconque des revendications précédentes, incluant un joint intérieur (12), positionnable entre la partie de charnière et la porte.
7. Porte selon la revendication 6, dans laquelle le joint intérieur (12) inclut une ou plusieurs ouvertures à travers lesquelles la partie en forme de coupelle (2) et/ou une ou plusieurs vis peuvent passer.
8. Porte selon l'une quelconque des revendications précédentes, incluant un joint extérieur (13), positionnable entre la porte et la plaque.
9. Porte selon la revendication 8, dans laquelle le joint extérieur (13) inclut une ou plusieurs ouvertures à travers lesquelles la partie en forme de coupelle (2) et/ou une ou plusieurs vis peuvent passer.



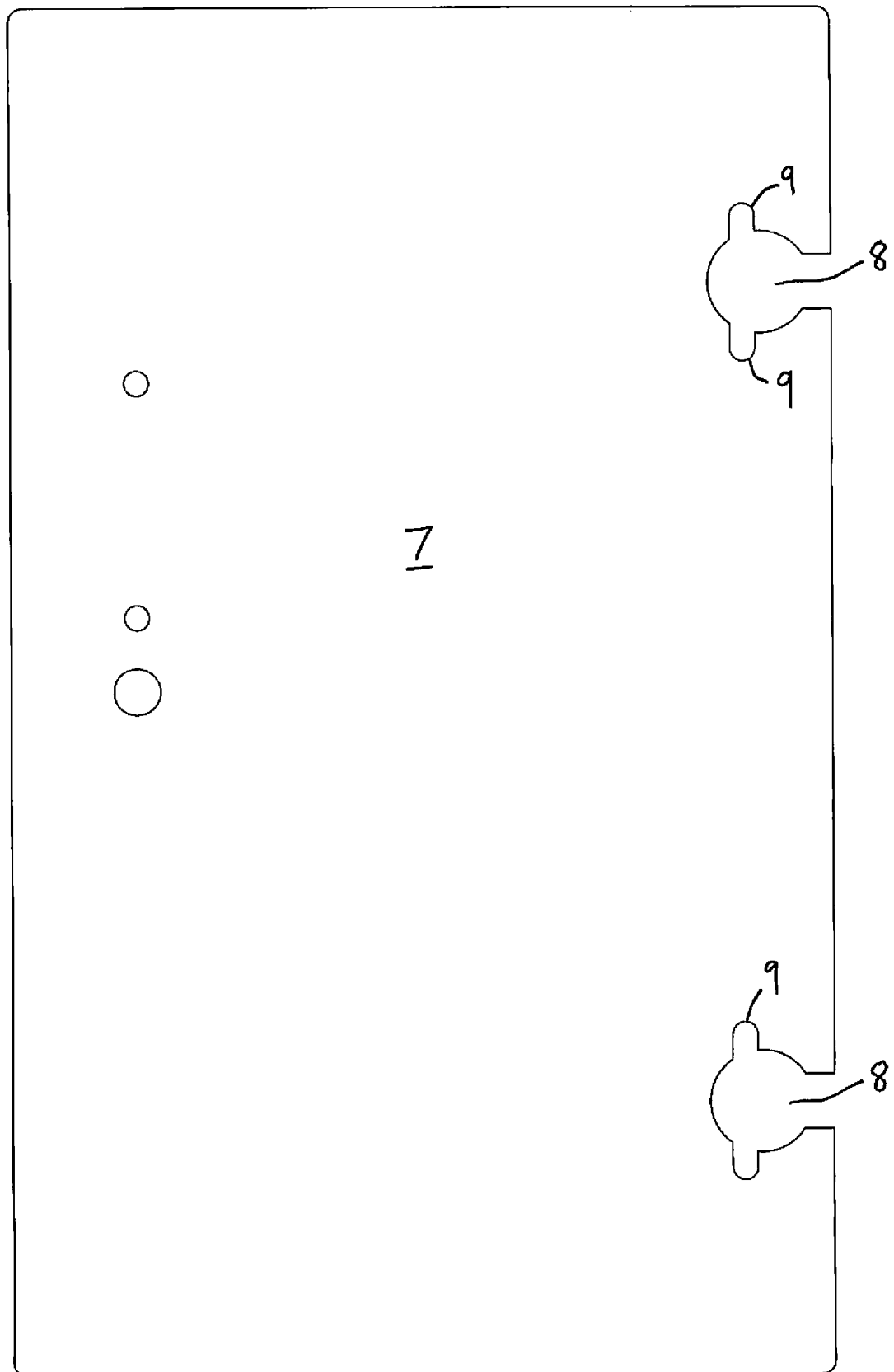


Fig. 3

REFERENCES CITED IN THE DESCRIPTION

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