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A HINGE**1. Background of invention**

The present invention relates to hinges for use generally on doors.

5 Traditionally butt hinges are constructed using a central pin from which two flanges extend. These hinges need to be chiseled and mortised into timber doors or recessed into metal doors with reinforcement plates. If this is fabricated in a factory, as they usually are, the hinges face the problems of alignment, trimming, cutting doors, relative hinge positions changed, etc, due to differences in floor to ceiling heights depending on location and premises.

10 The alternative is to customize the hinges on site but due to current hinge designs, much carpentry and metalworking is required to install the hinges into the door. This is one of the main reasons for the excessive amount of time and effort currently required to install door hinges and to mount the door to its frame.

15 This does not obviate the parts of the hinge from being observable on the edge of the door leaf and frame respectively.

2. Summary of invention

It is an object of this invention to provide a hinge capable of being installed so that a door may be mounted to its frame with less time and effort.

The invention is a hinge comprising:

- 20 a. two bases;
- b. a plurality of hollow cylinders are arranged axially and spaced along each of the bases;
- c. a plurality of fixer holes located on each of the bases in the spaces between the cylinders

25 whereby when the bases are mounted co-axially adjacent to each other the hollow cylinders on one base fits into the spaces between the cylinders in the other base.

3. Brief description of drawings

An example of the method in this invention will now be described by reference to the following drawings.

30 Fig. 1 is a perspective view of a preferred embodiment of a hinge secured on a door and frame in accordance with the invention.

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Fig. 2 is a side view of two parts of the hinge.

Fig. 3 is a side view of the hinge mortised into a door and frame.

Fig. 4 is a side view of a variation of the hinge mortised into a door and frame.

Fig. 5 is a cross-sectional view of a mounted base of the hinge without the cylinder.

5 Fig. 6 is side views of various possible shapes of the hinge.

4. Description of the preferred embodiments

The objective of the invention is to allow the hinge to be secured to a door and frame directly without the need to chisel or shape the door or frame to create a recess to accommodate the flanges of the hinge.

10 In one preferred embodiment, the hinge comprises a base **2A** preferably constructed with a concave surface **6** to receive a quadrant of a hollow cylinder **8** so that the latter sits snugly in the concave surface of the base. A plurality of hollow cylinders are fixed and spaced along the base. For the ease of manufacture, the space **10** should preferably be of equal dimension.

15 A fixer hole **12** is machined into the concave surface of the base where the space **10** is located. The hinge would be secured to a door or frame through these fixer holes.

The hinge comprises another counterpart base **2B** of a similar configuration. The hinge is completed by both bases meeting by fitting the cylinders **8** on one base **2A**
20 into the space **10** of the other base **2B**.

To install the hinge, one base **2A** is mounted on a door leaf surface **14** while the other base **2B** is mounted on a frame **16** by means of mounting screws **18** through the fixer hole **12**. The bases are mounted close enough to each other so that the cylinders **8** on both bases are aligned into a straight row when the cylinders on one
25 base fit into the spaces **10** on the other. Once aligned, they are held in place with a pin **20** dropped through the cylinders and secured. See Fig. 1 and Fig. 2.

The mounting screw **18** used to secure the hinge should preferably have a deep thread and short shank. It can be directly screwed through the base using it as a template. The mounting screw will penetrate the door and frame (the mounting
30 surface) at an angle to give better stability and not let in perpendicular to the mounting surface. In this embodiment, the mounting screw, because of its angular

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penetration into the mounting surface, is visible between the mounting surface and the cylinder **8**. See Fig. 3.

This unsightly feature may be overcome by making the base **2A/2B** wider at the mounting surface so as to completely conceal the mounting screw. See Fig. 4

5 Where the hinge has to be made more robust for heavy doors, a small rebate **22** on the base can be used to hug the edge of the mounting surfaces **14 and 16** respectively leaving a 3mm gap (which is the industry standard) in between. See Fig. 5.

10 This is to allow the mounting screw **18** to be placed nearer to the edge without being visible when the door is open. In this way the mounting screw may be of a larger diameter to carry heavier load and still not be visible. This type of mounting screw is not self-tapping and requires pre-drilling. Pre-drilling can be done directly through the base **2A and 2B** or with a template.

15 In another preferred embodiment, the hinge cylinder **8** can be shorter in length so that when assembled, gaps are visible in between. These gaps are for inserting washers or ball bearings so as to allow for smoother turning and carrying heavier load.

20 In another preferred embodiment, to prevent unauthorized removal of the pin **20**, the pin may have a groove **24** encircling a circumference of its shank through which a safety screw may be inserted to hold the pin in place. Any attempt to remove the pin would be obstructed by the safety screw. A suitable hole may be made through a cylinder **8** in order for the safety screw to pass through. The safety screw is inserted into the hinge when the door is open and hence accessible only when the door is open. See Fig. 2.

25 In another preferred embodiments, both the bases and cylinders **8** may take on various shapes. See Fig. 6.

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CLAIMS

1. A hinge comprises the following:

- a. two bases;
- b. a plurality of hollow cylinders are arranged axially and spaced
5 along each of the bases;
- c. a plurality of fixer holes located on each of the bases in the spaces
between the cylinders

whereby when the bases are mounted co-axially adjacent to each other the
hollow cylinders on one base fits into the spaces between the cylinders in
10 the other base.

- 2. The hinge, according to claim 1, wherein the bases are shaped so as to
conceal mounting screws in the fixer holes.
- 3. A hinge substantially as hereinbefore described with reference to the
accompanying drawings.