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(54) Door support and marker

(57) Door support means for supporting a door with a settable height gap between its bottom edge and the floor comprise a base plate 10 having mounted thereon means 21, 22 for holding upright a door placed thereon and mechanical advantage means 15 - 19, 23 for raising the height of the door. The plate may also have strut means mounted thereon for supporting the door; the strut means may either further support the door when the door is resting on the door support means, or may support the door support means against the floor when the door support means are attached to a side of the door. A device for marking the side of the a door to enable it to be cut to fit the frame comprises a U-shaped member 41 which fits around the edge of the door, having a flange 42 at one end for bearing against a door frame and marker means 47 at the other end which bear against the door, to mark the door as the device is slid along the edge of the door. A hinge position marker is also provided and comprises a thin plate with ribs along both sides of a pair of opposite edges such that by inserting the plate between a door and the jamb from which it is to be hung, the ribs marking suitable positions for the hinge plates on the door and jamb.

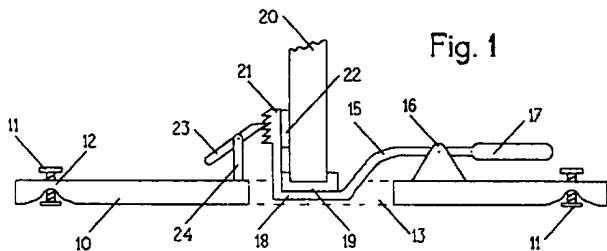


Fig. 1

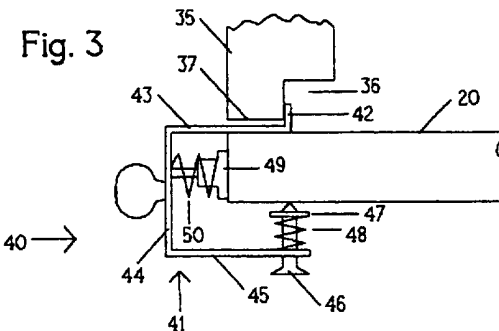


Fig. 3

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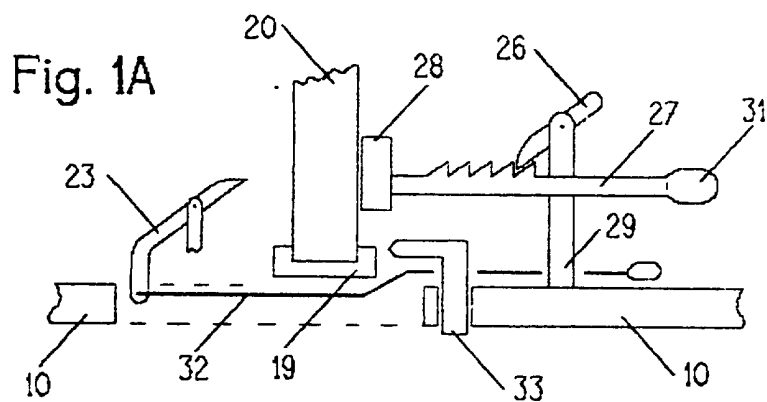
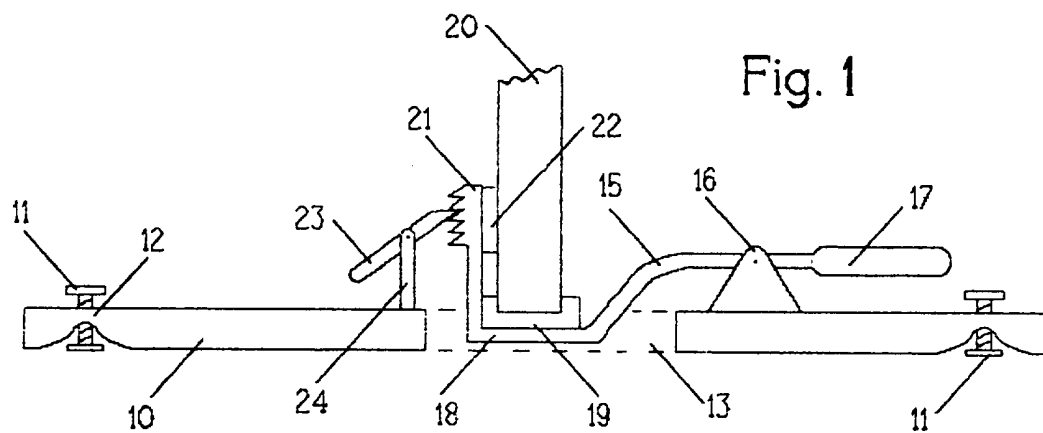


Fig. 4

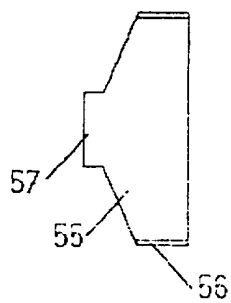
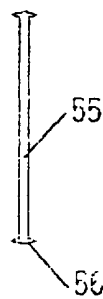


Fig. 4A



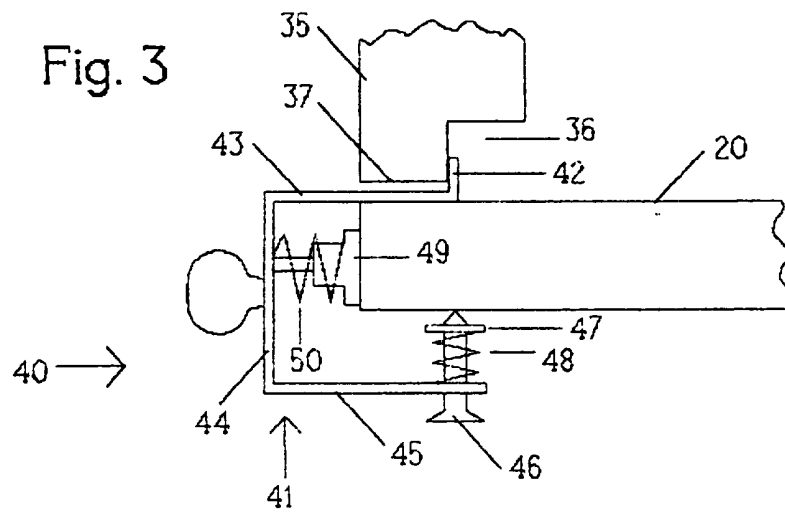
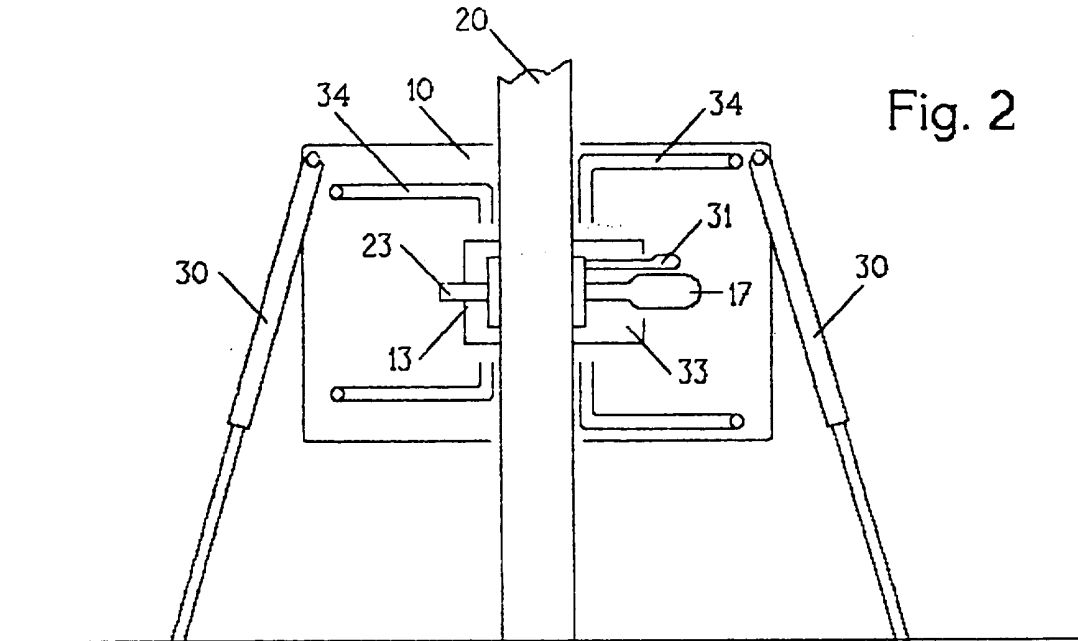


Fig. 5

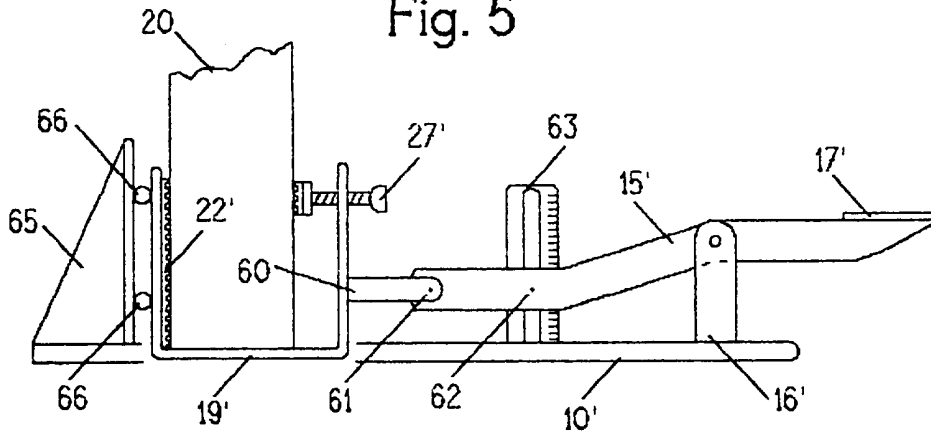
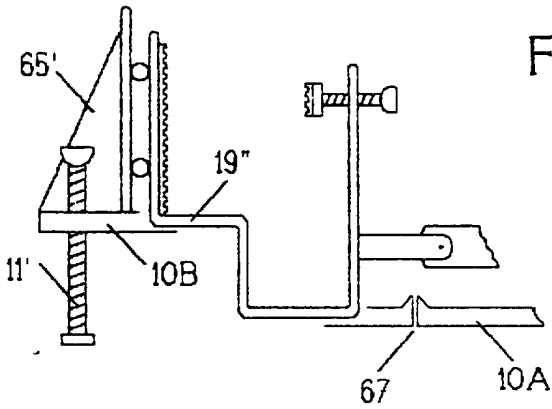


Fig. 5A



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Carpenter's Tools

The present invention relates to carpenter's tools, and is particularly concerned with tools for assisting in the hanging of doors.

The process of hanging a door (ie fixing a door to the door frame, with any associated cutting and adjustment) requires considerable care and precision. It is necessary to hold the door at a small but controlled distance off the floor; it may be necessary to trim the width of the door; and it is necessary to cut the recesses for the hinges in matching positions in both the door and the frame.

The general object of the present invention is to provide means which assist in the hanging of doors.

According to one aspect, the invention provides door support means for supporting a door with a settable height gap between its bottom edge and the floor, comprising a base plate having mounted thereon means for holding upright a door placed thereon and mechanical advantage means for raising the height of the door. The mechanical advantage means may comprise screw means or wedge means, but preferably comprise lever means. The plate may also have strut means mounted thereon for supporting the door; the strut means may either further support the door when the door is resting on the door support means, or may support the door support means against the floor when the door support means are attached to a side of the door.

According to a second aspect, the invention provides door support means for supporting a door, comprising a base plate having mounted thereon means for supporting a door placed thereon and strut means for supporting the door in the vertical position.

According to a third aspect, the invention provides door support means for supporting a door, comprising a base plate having mounted thereon means for attaching the door support means to the side of a door and strut means for supporting the door support means against the floor.

According to a fourth aspect, the invention provides a device for marking the side of the a door to enable it to be cut to fit the frame, comprising a U-shaped member which fits around the edge of the door, having a flange at one end for bearing against a door frame and marker means at the other end which bear against the door, to mark the door as the device is slid along the edge of the door.

According to a fifth aspect, the invention provides a hinge position marker comprising a thin plate with ribs along both sides of a pair of opposite edges such that by inserting the plate between a door and the jamb from which it is to be hung, the ribs mark suitable positions for the hinge plates on the door and jamb.

Various tools embodying the different aspects of the invention will now be described, by way of example, with reference to the drawings, in which:

Figs. 1 and 1A are side views of various portions of a door support device;

Fig. 2 is a side view of the door support device in a secondary position;

Fig. 3 is a top view of a door marking device;

Figs. 4 and 4A are side and edge views of a hinge position marking device; and

Figs. 5 and 5A are side views of modified forms of door support device.

Referring to Fig. 1, the door support device comprises a rectangular base plate 10 with various further components attached thereto. This plate can be levelled by means of four adjustable feet 11 at its corners; the feet 11 are retained in recesses 12 so that they can be moved out of contact with the floor if desired. Alternatively, it can rest directly on the floor.

The plate has a rectangular aperture 13 cut in it. A lever 15 is mounted on a pivot support 16, with one end 17 formed as a pedal and the other end 18 cranked to lie within the aperture 13 in the plate 10. The end 18 carries a cradle 19 which supports the bottom edge of a door 20, and has a vertical extension 21 with a pad 22 to engage one face of the door 20. The extension 21 of lever 15 has a set of teeth opposite the pad 22, as shown, and a pawl 23 is mounted on a pivot support 24 and spring loaded (by a spring not shown) to engage with these teeth. Hence when the pedal 17 is depressed by the user's foot, the door 20 is lifted in its cradle 19, and the lever 15 and hence the door 20 is retained in position by the teeth and pawl 23.

Fig. 1A shows further parts of the mechanism of the door support means. A bar 27 has a pad 28 at its end to engage with the face of the door opposite pad 22. (Fig. 2 shows a single such pad, but a pair of pads spaced laterally across the door support means may be provided.) The bar 27 slides in a guide 29, and has teeth as shown. A pawl 26 is mounted at the top of the guide 29, and is spring loaded (by a spring not shown) to engage with the teeth on bar 27. Thus by pushing bar 27 against the door by means of a handle 31 at its end, the door can be gripped between the pads 22 and 28.

The pawl 26 can be released by pushing its outer end downwards. Similarly, the pawl 23 can be released by pushing its outer end downwards; this pawl can also be released from the other side of the door by pulling its outer end inwards by means of a rod mechanism 32.

A height indicator 33 is mounted on the base plate 10, and has a pointer which is adjacent to the cradle 19, which may have a height scale marked on it. The height indicator may alternatively be mounted to slide vertically in the base plate 10, so that its bottom end rests on the floor.

The door support device can also be attached to a vertical edge of the door, as shown in Fig. 2, to hold a door either upright or lying on a long edge. The plate 10 has a pair of legs 30 attached to it, which can be pivoted and locked in position. The plate is attached to the side edge of the door, and the legs 30 are extended and locked in position to hold the door vertical. The top edge of the door is then available to be operated on, eg to cut hinge recesses. The legs 30 may be extendable, and may be detachable.

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Alternatively or additionally, struts 34 may be mounted on the plate 10. These struts are hinged so that they can lie flat on the plate 10, one lying just inside the other, or can be hinged up through about 60° to grip the door 20 as shown and locked into position to hold the door upright on the plate.

Fig. 3 shows a door marking device 40. The free edge of door 20, shown in top view, swings against a door frame or jamb 35. The free edge of the door 20 should fit into the rebate 36, but it may happen that the door is slightly too large, so that it projects instead beyond the rebate 36 as shown. If this happens, it is necessary to cut a strip off the edge of the door. The purpose

of the door marking device is to mark the edge of the door to show exactly how much needs to be cut off.

The device 40 consists of a strip member 41 which is bent into sections 42-45 and has various components attached to it. Section 42 is a flange intended to slide against the side of the rebate 36; section 44 is somewhat longer than the thickness of the door 20; section 43 spaces section 44 away from section 42 by somewhat more than the excess width of the door, ie the thickness of the strip to be cut off the door; and section 45 is somewhat longer than section 43.

Section 43 has a pad 49 coupled to it by a spring coupling 50, which presses section 43 away from the edge of the door and hence holds section 41 against the side of the rebate 36. (The pad 49 may be wider than shown.) Section 45 has mounted in it a scriber 46, which is spring-loaded by a washer 47 and spring 48 to press against the door 20. The point of the scriber is exactly opposite the face of section 41 which bears against the side of the rebate 36.

In use, the scriber 46 is pulled back temporarily and the device 40 is placed in the position shown over the edge of the door. The device is then temporarily pushed hard up against the edge of the door, compressing the spring coupling 50, and the door is moved up against the jamb to the position shown. The device is then allowed to move under the spring coupling 50 to the position shown. It is then moved up and down along the edge of the door; as a result, the scriber 46 scribes out a line along the edge of the door which exactly matches the side of the rebate 36. The door can then be removed and cut down to the size required by cutting along the scribed line. 1

Fig. 4 shows side and edge views of a hinge position marking device 55. The length of this device matches the length of a standard hinge, and it has projecting ribs 56 on both sides at each end opposite a projecting outer edge 57.

In use, the door (not shown) is placed in position in the door frame, and the device 55 is placed with its edge against the crack between the door and the frame on the side where the door is to be hinged. The device is then pressed into that crack, eg by striking its outer edge 57 with a hammer. This forces the device a short distance into the crack, so that the ribs 56 form indentations in the edge of the door and the corresponding region of the frame. The posi-

tions of the (usually 2 or 3) hinges are thus marked out. The recesses for the hinges can then be cut in the door edge and the frame (with the door being taken out of the frame, of course). The hinges can then be attached first to the door and then the frame (or the other way around); the recesses in the frame (or door) will automatically be in the right positions to receive the hinges.

Figs. 5 and 5A are side views, in simplified and partial form, of variants of the door support device of Figs. 1, 1A, and 2; corresponding parts have the same references with added primes.

In the Fig. 5 device, the door cradle 19' is located towards one end of the base plate 10' rather than approximately centrally. The cradle includes a pair of spaced-apart screw elements 27' for gripping the door 20 firmly against the other side of the cradle. The left-hand side of the cradle 19' bears against the edge of an angled plate 65, via a set of bearings 66.

The lever 15' is mounted on a pivot support 16', and its left-hand end terminates in an open fork. The cradle 19' carries a pair of projections 60 with a rod 61 extending between them. This rod is held in the fork of the lever 15', so that when the right-hand end 17' of the lever is pushed down, it pivots about the pivot support 16' and so raises the cradle 19'.

The lever 15' also engages with a latching element 63 attached vertically to the base plate 10', to hold the lever at the level to which it is raised. The latching element 63 may incorporate a scale to allow measurement and setting of the height of the cradle 19' (and hence of the door). The lever 15' carries a pin 62 which engages in a vertical slot in the element 63.

Fig. 5A shows a form of the door support device for use on an external door frame incorporating a water bar. The cradle 19" has a crank in its base, and the main support frame 10A-10B is similarly cranked. The feet 11' at the left-hand end of the support frame are lengthened to allow them to be set with their lower ends level with the feet at the other end of the support frame.

The support frame is constructed of two portions 10A and 10B which are bolted together at 67. The support frame of the Fig. 5 door support device may be similarly split into two parts, so that the same right-hand part can be used with a flat cradle and left-hand part or a cranked cradle and left-hand part.

Claims

1 Door support means for supporting a door with a settable height gap between its bottom edge and the floor, comprising a base plate having mounted thereon means for holding upright a door placed thereon and mechanical advantage means for raising the height of the door.

2 Door support means according to claim 1 wherein the mechanical advantage means comprise lever means.

3 Door support means according to either previous claim wherein the plate has strut means mounted thereon for supporting the door.

4 Door support means according to claim 3 wherein the strut means further support the door when the door is resting on the door support means, and support the door support means against the floor when the door support means are attached to a side of the door.

5 Door support means according to any previous claim wherein the base plate and cradle are cranked.

6 Door support means according to claim 5 wherein the base plate comprises two portions bolted together.

7 Door support means for supporting a door, comprising a base plate having mounted thereon means for supporting a door placed thereon and strut means for supporting the door in the vertical position.

8 Door support means for supporting a door, comprising a base plate having mounted thereon means for attaching the door support means to the side of a door and strut means for supporting the door support means against the floor.

9 A device for marking the side of the a door to enable it to be cut to fit the frame, comprising a U-shaped member which fits around the edge of the door, having a flange at one end for bearing against a door frame and marker means

at the other end which bear against the door, to mark the door as the device is slid along the edge of the door.

10 The combination of door support means according to any one of claims 1 to 8 and a device for marking a door according to claim 9.

11 A hinge position marker comprising a thin plate with ribs along both sides of a pair of opposite edges such that by inserting the plate between a door and the jamb from which it is to be hung, the ribs mark suitable positions for the hinge plates on the door and jamb.

12 The combination of door support means according to any one of claims 1 to 8 and a hinge position marker according to claim 11.

13 Door support means substantially as herein described.

14 A device for marking the side of the a door to enable it to be cut to fit the frame, substantially as herein described.

15 A hinge position marker substantially as herein described.

16 Any novel and inventive feature or combination of features specifically disclosed herein within the meaning of Article 4H of the International Convention (Paris Convention).

Relevant Technical Fields

- (i) UK Cl (Ed.N) E1S (SAV), B8J
 (ii) Int Cl (Ed.6) E04F 21/00, B66F 15/00

Search Examiner
 MR A MITCHELL

Date of completion of Search
 3 OCTOBER 1995

Databases (see below)

(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

Documents considered relevant following a search in respect of Claims :-
 1-8

(ii)

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X	GB 2226005 A (GRIFFITHS)	1, 2
X	GB 2225769 A (KAAHEY)	1, 2
X	GB 2220973 A (GRIFFITHS)	1, 2
X	US 5048806 (DEUTSCH)	7, 8
X	US 4978132 (WILSON)	1, 2
X	US 4810151 (SHERN)	7, 8
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