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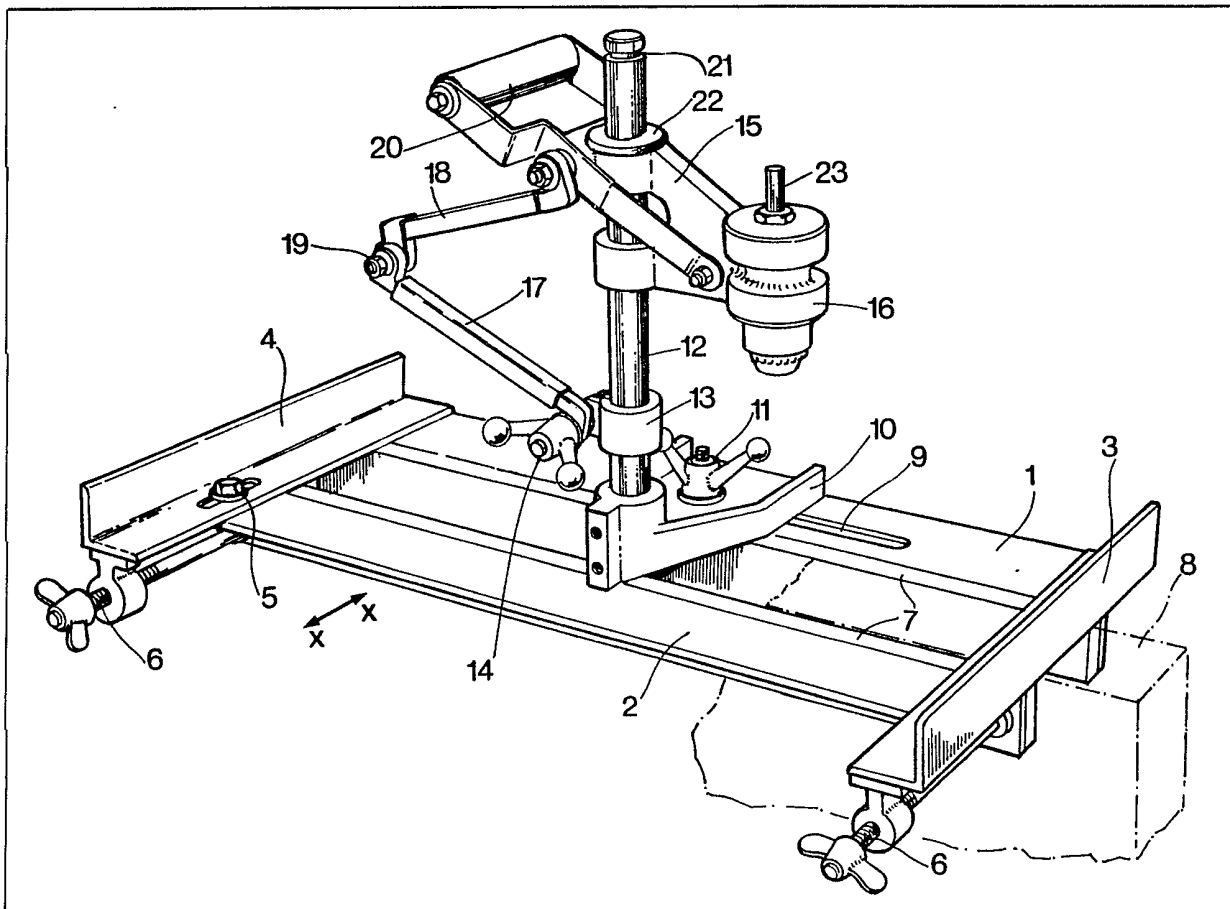
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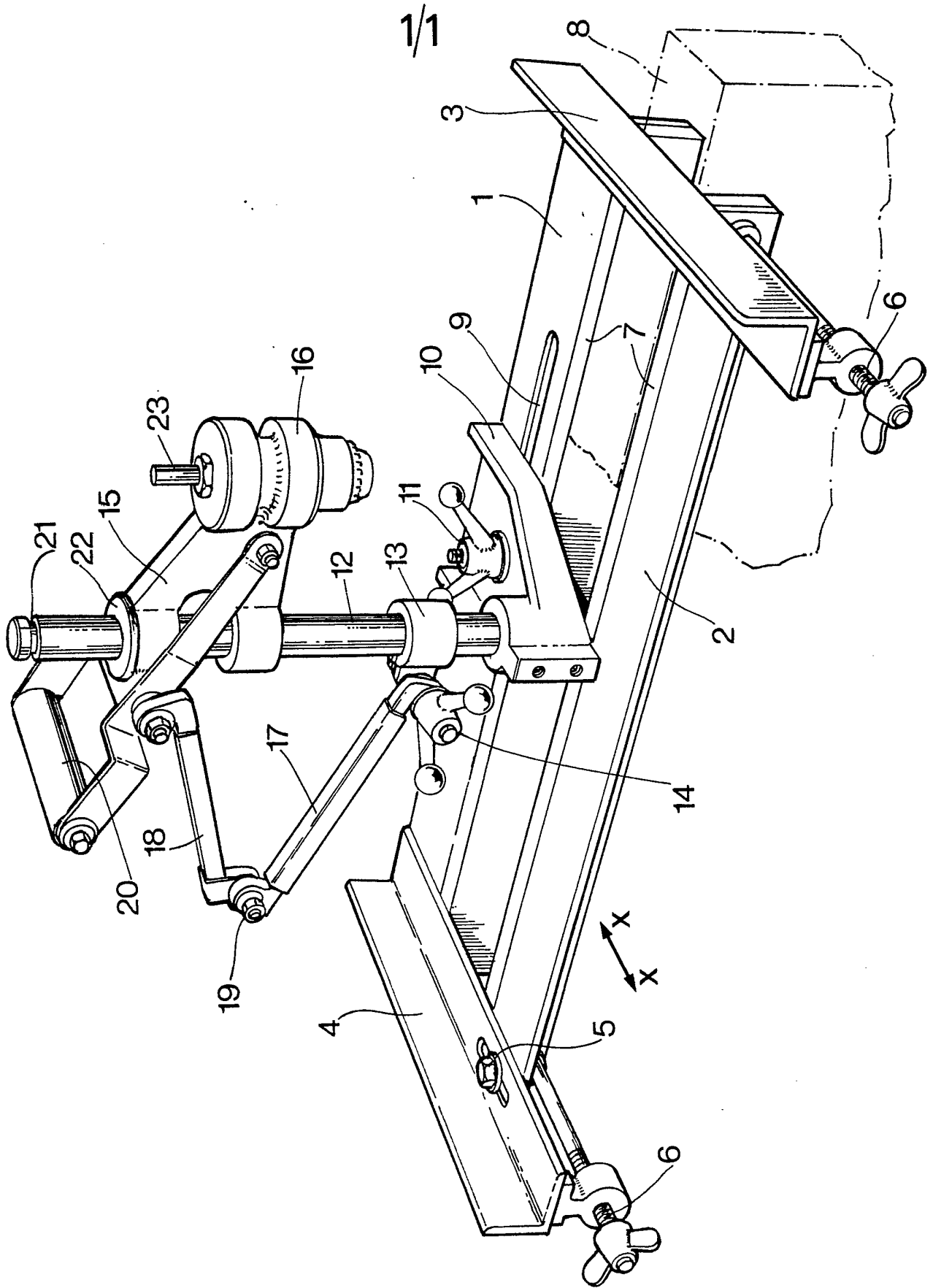
(54) A jig to enable a lock-receiving mortise or other slot or hole to be cut in a face of a workpiece

(57) A jig for cutting a lock receiving mortise in an edge face 8 of a door comprises a frame 1-4 having a pair of jaws 1, 2 which are clamped on to the door such that the upper surfaces of jaws 1, 2 define a base surface which extends in the same plane as the edge face 8 of the door. The frame 1-4 carries a pillar-type drill stand having a base 10 slidable along a slot 9 in

the jaw 1. The base 10 carries a column 12. A mounting 15 is slidable vertically on the column 12 and carries a drill chuck 16 which can be rotated with respect to the column 12 to align the chuck 16 with a longitudinal centre-line of the intended mortise. A first hole is drilled by driving the chuck 16 and lowering the mounting 15 by means of a handle 20. Further parallel holes are drilled by sliding the base 10 along the slot 9. In this way the mortise can be accurately cut perpendicularly to the edge face 8.



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SPECIFICATION

A jig to enable a lock-receiving mortise or other slot or hole to be cut in a face of a workpiece

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10 The invention relates to a jig to enable a lock-receiving mortise or other slot or hole to be cut in a face of a workpiece. The jig is particularly, but not exclusively, concerned with the cutting of a lock-receiving mortise in an edge face of a door.

15 A lock-receiving mortise is often cut by drilling a number of parallel holes in the edge face of a door, the holes merging or being merged together to form the mortise or other slot. This operation may be performed when the door has been removed from its frame or before it has been mounted in the frame and
20 by supporting the door with the edge face horizontal and uppermost or the operation may be performed by drilling the holes in the edge face when the door is *in situ*. The operation may be performed in either case by using
25 a hand-held portable drilling machine, e.g., a portable electric drill, without any form of guide or jig and so the holes would not be drilled with precision and there would be a risk of damage to the door or injury to the
30 user. An object of the invention is to provide a jig for holding a drilling chuck or a portable drilling machine accurately with respect to the door during the drilling operation, whereby the holes which merge or are merged together
35 to form the mortise or other slot will be drilled accurately perpendicularly to the edge face in the correct required positions and with safety. Another object of the invention is to provide a jig to simplify the operation and also to enable
40 the mortise or other slot to be cut either with the door removed from its frame or *in situ*. Yet another object is to provide a jig which is adjustable to accommodate different thicknesses of door or other workpieces.

45 According to the invention the jig comprises a frame defining a flat base surface and including a pair of jaws arranged to be clamped on to the workpiece and to locate the frame in a required position with respect to
50 the workpiece in which the flat base surface is located in the same plane as said workpiece face or is parallel to it; a pillar-type drill stand having a base mounted on or arranged to be mounted on said flat base surface of the
55 frame and a column extending perpendicular to said base and upwardly perpendicular to said flat base surface of the frame with respect to said workpiece face; a guideway in said flat base surface of the frame, whereby
60 the base of the drill stand is slidable longitudinally of the frame relative to the workpiece; releasable clamping means between the base and the frame; a mounting slidable on the column towards or away from the base for
65 carrying a drill chuck and means for sliding

the mounting on the column whereby a drill can be fed towards or withdrawn from the workpiece to drill a first hole therein in a precise position in accordance with the setting
70 of the jig and whereby a subsequent hole or holes can be drilled parallel to said first hole by appropriately sliding the base along the frame and feeding the drill in each of its reset positions.

75 Conveniently the mounting is carried on a collar slidable longitudinally of the column towards and away from a fixed collar clamped thereon, the slidable collar and the fixed collar being respectively carried on a pair of arms
80 pivotally connected together at a position laterally remote from the column, the slidable collar having handle means attached thereto, whereby the arms can be opened and closed in the manner of a hinge to move the slidable
85 collar away from or towards the fixed collar.

The column may have therein at least one circumferential groove and the slidable collar may carry a spring-loaded detent which is engageable in the or one of the grooves in the
90 column to locate the slidable collar from axial movement on the column until the detent has been removed from the groove.

The chuck carried by the mounting may be driven by a portable drilling machine also supported by the mounting and removable therefrom. Alternatively the chuck may be a
95 chuck of a portable drilling machine supported by the mounting, the drilling machine and the chuck being removable therefrom.

100 In a preferred construction, the jaws may be of right angle section elongate members, one outer face of each of the members defining together said flat base surface and the other outer face of each of the members together
105 defining the gripping faces of the jaws. The gripping faces of the jaws may be lined with wood or other material which will grip but not damage the front and rear surfaces of the door or other workpiece.

110 By way of example one embodiment of the jig in accordance with the invention is now described with reference to the accompanying perspective drawing which shows the jig clamped on a door or other workpiece in an
115 edge face of which a mortise or other slot is to be cut.

The jig comprises a pair of elongate right angle section members 1, 2, conveniently of steel which are bridged by end right angled
120 members 3 and 4. Each of the members 3 and 4 is fixed to the member 1, for example by welding and carries a clamping screw 6 by which the member 2 may be moved towards or away from the member 1 in the direction
125 of arrows X. Guide bolts 5, of which one only is shown, pass through elongate slots in the members 3 and 4 and engage the member 2. In use, the frame comprising the members 1-4 is placed on the edge face of the door 8
130 so that the horizontal surfaces, with reference

to the drawing, of the members 3 and 4 rest on the edge face of the door 8 with the members 3 and 4 on either side of the position on which the mortise is to be cut.

5 The member 2 is then moved towards the member 1 by means of the clamping screws 6 until the door is firmly gripped. The vertical, as shown, edges of the members 1 and 2 which constitute the jaw surfaces carry
10 hardwood cheeks or liners 7 which will grip the door 8 without damage to its front and rear surfaces.

The upper surfaces, as shown, of the members 1 and 2 together form the aforesaid flat
15 base surface and they carry a base 10 of a pillar-type drill stand comprising the base 10 and an upstanding column 12. The base 10 is slidable longitudinally of the member 1 and its movement is guided by an elongate slot 9
20 which in use is parallel to the adjacent surface of the door 8. The base 10 is clamped in a required position by a bolt passing through the slot 9 and a tightening nut 11.

The column 12 has a lower collar 13
25 mounted thereon and an upper chuck-carrying mounting 15 having a pair of collars which are slidable on the column 12 above the collar 13. The collar 13 carries an arm 17 and the mounting 15 carries an arm 18.
30 These two arms are pivotally connected together by a pivot 19 at their ends which are laterally spaced from the column 12. The mounting 15 also carries a handle 20 by which the mounting 15 can be raised or
35 lowered with respect to the collar 13 by opening or closing the arms 17 and 18 in the manner of a hinge. The lower collar 13 may be clamped to the column 12 by means of a tightening nut 14. The mounting 15 carries a
40 chuck 16 which is rotatable about an upright axis. Before use, the upright centre line of the chuck 16 is aligned with the longitudinal centre line of the edge face of the door 8 by swivelling the whole assembly comprising the
45 collar 13, the mounting 15 and the arms 17 and 18 about the upright axis of the column 12 by means of the handle 20. The collar 13 is then clamped in the position required and at the height required by means of the nut
50 14. The chuck 16 can then be raised and lowered by means of the handle 20 which is used to open and close the arms 17 and 18 hence to raise and lower the mounting 15. The chuck 16 has a driving spindle 23 which
55 is engaged by a portable drilling machine such as an electric drill or may be driven in some other way. To limit the vertical movement of the mounting 15, the upper end of the column 12 is provided with a circumferential groove 21 into which a spring loaded
60 detent 22 is engageable. When the mounting 15 has been moved sufficiently far upward by means of the handle 20, the spring loaded detent 22 will automatically engage the
65 groove 21 and so hold the mounting 15 and

the chuck 16 in its extreme upward position. When a hole is to be drilled, the operator removes the spring loaded detent 22 from the groove 21 and then lowers the chuck 16 by
70 means of the handle 20. Then on raising the mounting 15 and the chuck 16 by means of the handle 20, the spring loaded detent 22 will engage in the slot 21 again.

After a first hole has been drilled, the
75 tightening nut 11 is loosened and the base 10 and the whole of the assembly carried thereby is slid along the groove 9 to a new position in which a second hole is to be drilled and the base 10 is reclamped to the
80 member 1 by means of the nut 11. By drilling a plurality of holes in this way close to each other, the mortise will be cut, either by the holes merging with each other or being merged by using a chisel or similar tool.

85 The jig described therefore enables a mortise to be accurately and easily cut perpendicularly to the edge face of the door 8 and at the required position both laterally and longitudinally in the edge face which is shown
90 uppermost in the drawing.

The base 10 and the whole assembly carried thereby may be bodily removed from the member 1 and may then be mounted on a workbench and used in the manner of a
95 conventional pillar drill stand.

Although the chuck 16 is shown carried by the mounting 15, the mounting 15 may be a cradle for receiving a portable drilling machine, for example an electric drill having its
100 own chuck.

Although in the drawing only one circumferential groove 21 is shown at the top of the column 12, one or more circumferential grooves at different heights can be provided.
105 The spring loaded detent 22 would be engageable in each of these additional grooves according to the height of the mounting 15 and so the mounting 15 could be held in any one of a number of intermediate height positions according to the number of and positions of the additional grooves corresponding to groove 21.

CLAIMS

115 1. A jig to enable a lock-receiving mortise or other slot or hole to be cut in a face of a workpiece, the jig comprising a frame defining a flat base surface and including a pair of jaws arranged to be clamped on to the work-
120 piece and to locate the frame in a required position with respect to the workpiece in which the flat base surface is located in the same plane as said workpiece face or is parallel to it; a pillar-type drill stand having a base
125 mounted on or arranged to be mounted on said flat base surface of the frame and a column extending perpendicular to said base and upwardly perpendicular to said flat base surface of the frame with respect to said
130 workpiece face; a guideway in said flat base

surface of the frame, whereby the base of the drill stand is slidable longitudinally of the frame relative to the workpiece; releasable clamping means between the base and the

5 frame; a mounting slidable on the column towards or away from the base for carrying a drill chuck and means for sliding the mounting on the column whereby a drill can be fed towards or withdrawn from the workpiece to
10 drill a first hole therein in a precise position in accordance with the setting of the jig and whereby a subsequent hole or holes can be drilled parallel to said first hole by appropriately sliding the base along the frame and
15 feeding the drill in each of its reset positions.

2. A jig as claimed in Claim 1 in which the mounting is carried on a collar slidable longitudinally of the column towards and away from a fixed collar clamped thereon, the
20 slidable collar and the fixed collar being respectively carried on a pair of arms pivotally connected together at a position laterally remote from the column, the slidable collar having handle means attached thereto,
25 whereby the arms can be opened and closed in the manner of a hinge to move the slidable collar away from or towards the fixed collar.

3. A jig as claimed in Claim 2 in which the column has at least one circumferential
30 groove therein and the slidable collar carries a spring-loaded detent which is engageable in the or one of the grooves in the column to locate the slidable collar from axial movement on the column until the detent has been
35 removed from the groove.

4. A jig as claimed in any preceding claim in which the chuck carried by the mounting is arranged to be driven by a portable drilling machine also supported by the mounting and
40 removable therefrom.

5. A jig as claimed in any one of Claims 1-3 in which the chuck is a chuck of a portable drilling machine to be supported by the mounting, the drilling machine together
45 with the chuck being removable therefrom.

6. A jig as claimed in any preceding claim in which the jaws are right angle section elongate members, one outer face of each of the members defining together said flat base
50 surface and the other outer face of each of the members together defining the gripping faces of the jaws.

7. A jig as claimed in Claim 6 in which the gripping faces of the jaws are lined with
55 wood or other material which will grip but not damage the front and rear surfaces of the work or other workpiece.

8. A jig to enable a lock-receiving mortise or other slot or hole to be cut in a face of a
60 workpiece, the jig being constructed and arranged substantially as described herein and shown in the accompanying drawing.

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