Dec. 24, 1929. J. F. MEYER 1,740,473

MORTISE GAUGE

Filed Dec. 5, 1927

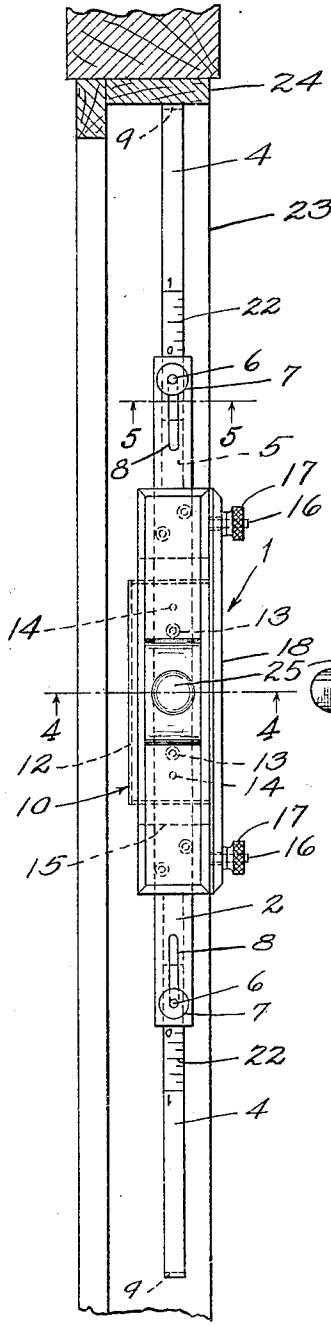


Fig. 1

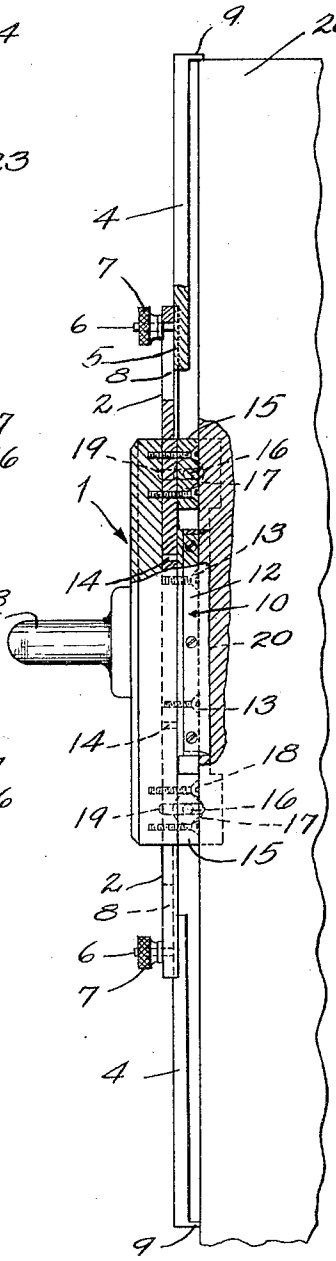


Fig. 2

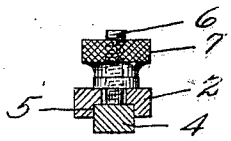


Fig. 5

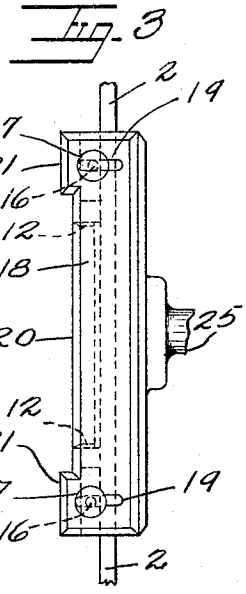


Fig. 3

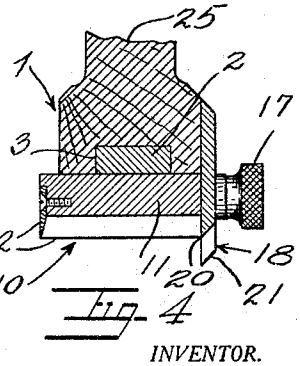


Fig. 4

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UNITED STATES PATENT OFFICE

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MORTISE GAUGE

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The invention forming the subject matter of this application relates to marking tools and particularly to marking tools adapted to aid in accurately cutting out hinge seats. The hinge seats on the door frame and on the door must be in registry with each other so as to leave sufficient clearance above the top and below the bottom of the door for allowing free movement of the door in the door frame. In order to accurately mark the location of hinge seats the door must be placed and supported in the door frame, then the registering hinge seats are marked following the outline of the hinge. In other instances rough measurements are made to determine the location of the hinge and the outline of the hinge seat is scratched on the door frame and on the door by means of a sharp instrument following the outline of the hinge. In the latter case the door must be lifted by the carpenter and held in place in the door frame to check up on the accuracy of his measurements and it is a very frequent occurrence that a re-marking of the hinge seat location is necessitated on account of insufficient clearance, or other similar reasons, which may be caused by inaccurate measurements.

The primary object of the invention is the provision of a tool for accurately marking the location and the outline of registering hinge seats upon the door and the door frame without necessitating the supporting of the door in the door frame.

Another object of the invention is the provision of a tool by which the location and the outline of registering hinge seats is marked on the door and on the door frame in such a manner that a predetermined clearance is maintained between the door and the door frame after the hinges are attached to the marked hinge seats.

Another object of the invention is the provision of a marking tool which impresses to a definite depth the outline of registering hinge seats on a door and on a door frame and on which a depth gauge is provided for indicating on the face of the door jamb or door the exact depth to which the hinge seat is to be cut.

A further object of the invention is the provision of a marking tool adapted to impress the outline of a hinge seat on a door frame and which also impresses a corresponding outline of a hinge seat on the door itself without necessitating any change or further adjustment of the cutting blades; the adjustment of the marking tool for impressing a complementary hinge seat is effected by simply reversing the device as a unit.

A further object of the invention is the provision of a marking tool for impressing the hinge seat upon a door and on a door frame, said marking tool to be adjustable to any required spacing from the top of the door or the headjamb respectively.

A still further object of the invention is to provide a marking tool which is highly useful and simple in construction. Convenience of arrangement, lightness and comparative inexpensiveness of manufacture are further objects which have been borne in mind in the production and development of the invention.

With the foregoing, and other objects in view, my invention resides in the combination and arrangement of parts and in the details of construction hereinafter described in the claims, it being understood that changes in the precise embodiment of the invention hereinafter disclosed may be made within the scope of the appended claims without departing from the spirit of the invention.

The invention is clearly illustrated in the accompanying drawings in which

Figure 1 is a plan view of the marking tool showing the same in operative position on a door jamb;

Figure 2 is a side elevation of the device showing the same in operative position on the end of the door;

Figure 3 is a side elevation of the device especially illustrating the adjustable depth gauge thereon.

Figure 4 is a sectional view of the tool, the section being taken on the line 4—4 of Figure 1 and Figure 5 is a sectional detail view taken on the line 5—5 of Figure 1.

Referring to the accompanying drawings wherein similar reference characters desig-

nate similar parts throughout, the various figures described above adequately illustrate my invention and the following detailed description is commensurate with the above mentioned drawings in enabling an artist to construct and assemble the constituent parts of the same.

In carrying out my invention, I make use of a tool holder denoted in its entirety by the numeral 1. The tool holder 1 is preferably made of wood or other similar material which readily reacts to the blows of a hammer without creating excessive vibration. A guide rod designated by the numeral 2 extends thru the tool holder 1 and is imbedded in a recess 3 as is clearly shown in Figure 4 so that the top surface thereof is flush with the surface of the tool holder 1.

Arms 4 are slidable in a recess 5 extending longitudinally in the guide rod 2. The securing of the arms in any adjusted position is accomplished by the use of studs 6 extending from an end of each arm, the studs being threaded so as to receive knurled nuts 7. In an operative position the studs extend thru elongated slots 8 disposed in the opposite ends of the guide rod 2. When the nuts 7 are unscrewed the studs 6 being slidable in said slots permit the movement of the arms relative to the guide rod 2. The clearance between the door and the door frame is measured by projections 9 extending from the free ends of the arms 4 in opposite direction to the studs 6 and at right angles to the arms. The projections 9 are thus adapted to engage either the lower face of the head jamb or the top of the door in a manner to be hereinafter described.

The outline of the hinge seat is impressed upon the door jamb by means of a tool 10 comprising a blade holder 11 and blades 12 thereon. The blade holder 11 is secured to the guide rod 2 by means of screws 13. The blades 12 are secured to the blade holder 11 and are so disposed thereon as to form three sides of a rectangular hinge seat, the fourth side of the hinge seat being formed by the edge of the door jamb or of the door. The tool holder 1 is adapted to receive different size tools and to mark different size hinge seats. The size of the hinge depends on the size of the door. A plurality of threaded holes 14 are disposed in pairs symmetrically on the opposite sides of the center line of the tool holder 1. It is evident that the replacement of a tool involves merely the removal of the screws 13 and the replacing of the tool 10 thus detached by another tool of an appropriate size, in said latter tool the screw holes being in alignment with the symmetrically disposed threaded holes 14. The aforesaid arrangement permits the equal spacing of the arms 4 from the ends of the tool 10.

The guide rod 2 is secured to the tool holder 1 by means of blocks 15 disposed at the opposite ends of the tool holder, said blocks being secured to the tool holder 1 by screws extending thru said guide rod 2 and into the tool holder 1. The blocks do not protrude beyond the blade holder 11. The studs 16 extend from the sides of the blocks adjacent to the bladeless side of the blade holder 11, the studs being threaded so as to receive knurled nuts 17. In order to prevent the slipping of the tool away from the edge of the door jamb or the door and to bring the bladeless side of the blade holder 1 in alignment with said edge, I employ a depth gauge 18. Slots 19 in the depth gauge 18 slidably receive the studs 16 so that said depth gauge may be readily adjusted to any relative position on the blocks 15. Said depth gauge has a marking edge 20 thereon which may be adjusted to any desired depth by the sliding of the gauge 18 over the studs 16. Usually the depth gauge is adjusted so that the marking edge 20 thereof is in alignment with the cutting edge of the blades 12. In order to obviate the danger of the slipping of the marking tool the depth gauge 18 is provided at both ends thereof with additional bearing surface at the tongues 21 thereof, said tongues being disposed at the opposite ends of the marking edge 20 and extend beyond the same so as to bear against the side of the door jamb or the door, thereby maintaining the bladeless side of the blade holder 11 in alignment with the edge of the door or the door jamb.

In operation the arms 4 of the marking tool are first adjusted to a position so that the clearance gauges 9 are at the proper distance from the cutting blades. Care must be taken that the clearance gauges 9 on both arms 4 are at an equal distance from the cutting blades. In order to facilitate the accurate adjustment of the arms 4, graduations 22 are marked on the arms adjacent to the ends of the guide rod 2 so that the relative position of the arms 4 to the guide rod 2 can be accurately determined by reading the graduations. By tightening up the nuts 7 the arms are secured in the adjusted position.

The next step is the insertion of the proper tool 10 to impress a certain size hinge seat. The tool 10 is placed in the tool holder 1 and the guide rod 2 so that the screw holes thereof are in alignment with the threaded holes in the guide rod 2, then the tightening up of the screws 13 firmly secures the tool 10 to the guide rod 2 and the tool holder 1.

The impressing of a hinge seat mark on a door jamb 23 is effected by placing the tool upon the door jamb 23 in such a position that the edge of the blades 12 rest upon the door jamb and the tongues 21 of the depth gauge 18 bear upon the side thereof. Now, the tool is slid upwardly until the top surface of the clearance gauge 9 abuts against the lower

surface of the headjamb 24; thus the accurate location of the hinge seat is positively determined. A cushion block 25 is inserted into the outside face of the tool holder 1 so as to receive the blows from a hammer, by which the blades 12 are driven into the door jamb 23 to the desired depth, thereby defining the boundaries of the hinge seat. The arms 4 are made of such material as to have sufficient resiliency to slightly rebend when the end of the clearance gauge 9 is pressed against the door jamb 23.

After the blades 12 are driven into the door jamb 23, the depth of the hinge seat is marked on the outside of said door jamb by marking a straight line at the edge 20 of the depth gauge 18; said marking may be effected by the use of any sharp instrument.

The same tool is used for marking the hinge seat on the end of the door. It is to be noted that the hinge seat on the door is the counterpart of the hinge seat on the door jamb. In the present practice the measurements on the door must be symmetrical but in the opposite direction to the marks on the door jamb. The reversing of the tool is accomplished by turning the tool until the lower arm 4 is brought in an uppermost position and the clearance gauge 9 thereon rests upon the top of the door 26, as it is clearly shown in Figure 2. It is evident that the bladeless side of the blade holder 11 is now in alignment with the edge of the door on which the hinge is to be secured. By bringing the tongues 21 into contact with the face of the door 26 the marking tool is adjusted in the accurate location and in the proper alignment with the hinge seat on the door jamb 23.

It is to be noted that the distance between the hinge seat and the headjamb 24 was measured from the top surface of the clearance gauge 9, while the distance between the top of the door and the hinge seat on the door is measured from the lower face of the clearance gauge 9; thus when the hinge seats are held in alignment there is a clearance space provided between the top of the door and the headjamb 24, said clearance space being equal the thickness of the clearance gauge 9.

The blades 12 are driven into the door in the manner heretofore described and the depth of the hinge seat is marked by a sharp instrument along the marking edge 20. After the gauge is removed the cutting of the hinge seat involves merely the application of a chisel on the line indicating the depth of the hinge seat; then the chisel cut is extended to the boundaries defined by the impression made by the blades 12.

It will be recognized that a particularly small device is provided for accurately locating and defining the size of a hinge seat, at the same time accurately determining the clearance between a door and a door jamb, caused by the particular location of the hinge seats thereon. The device combines accuracy and flexibility of adjustment with a ruggedness of construction and positiveness of operation, especially adapting it for its use. Being a unitary character the setting up of the device does not require any extraordinary skill, therefore, it readily lends itself to effective application by the labor ordinarily available.

Having thus described my invention, what I now claim as novel and desire to secure by Letters Patent, is:

1. A device of the character described comprising a base block, cutting blades defining three sides of a rectangle secured to the base block, an adjustable depth gauge forming the fourth side of the rectangle adjustable perpendicularly to the plane of the cutting edges of the cutting blades secured to the base block, and means for adjustably securing the base block from the end of a door at a predetermined distance.

2. A device of the character described comprising a base block, cutting blades defining three sides of a rectangle secured to the base block, longitudinally channeled rods extending from the base block, gauge arms slidable in the channels, spacing members carried by the arms and means for securing the arms in adjusted position with relation to the rods.

3. A device of the character described comprising a base block, cutting blades defining three sides of a rectangle secured to the block, longitudinally channeled rods extending from the diametrically opposite ends of the block, resilient gauge arms slidable in the channels and means for securing the gauge arms against slidable movement with relation to the rods.

4. A device of the character described comprising a base block, cutting blades defining three sides of a rectangle secured to the block, longitudinally channeled rods having elongated slots in the face thereof and communicating with the channels, gauge arms capable of reciprocal movement within the channels, a screw-threaded stud carried by each gauge arm and extending through the corresponding elongated slot and nuts for engaging the studs.

In testimony whereof I affix my signature.

JOHN F. MEYER.