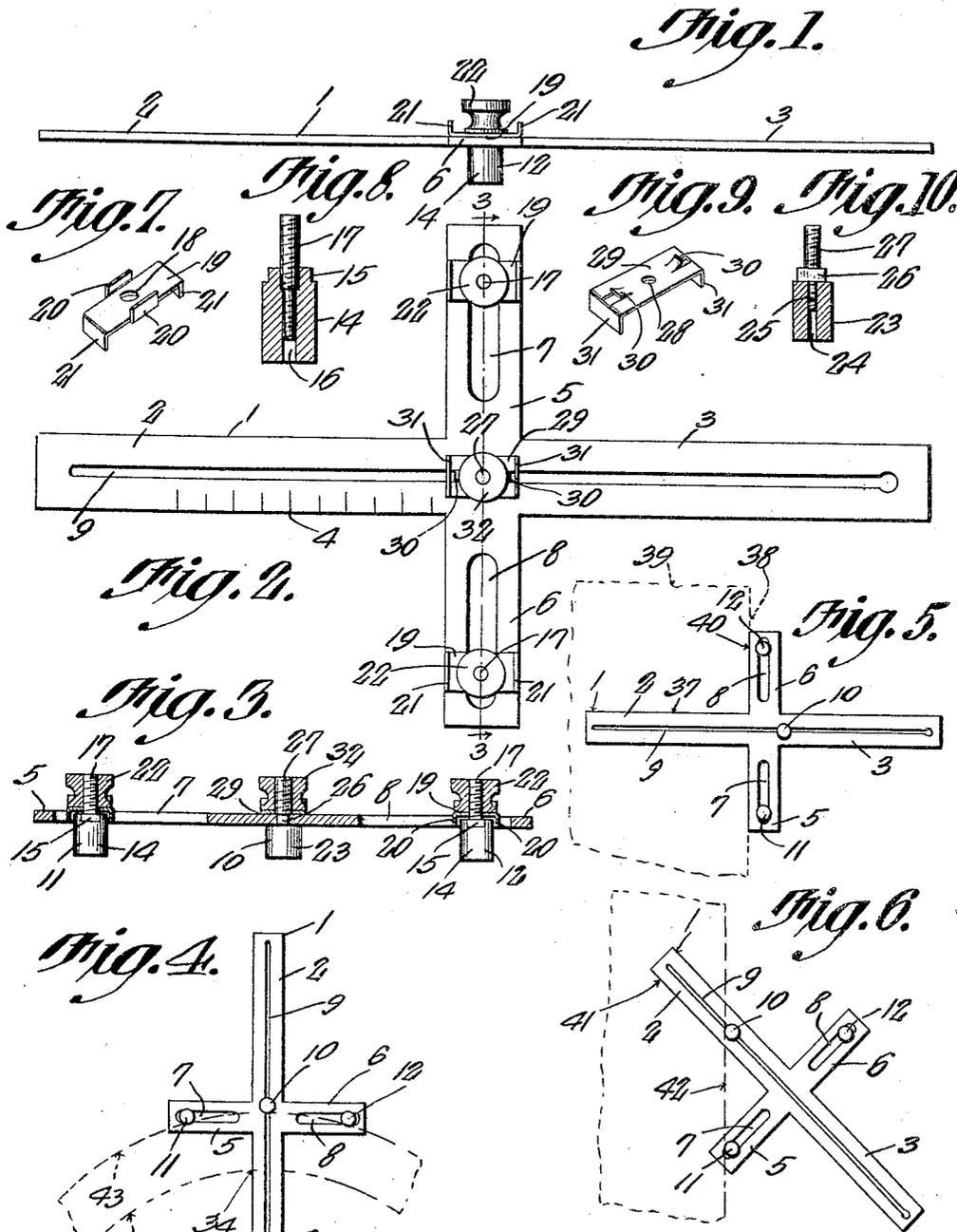


T. H. SMITH.
 CARPENTER'S TOOL.
 APPLICATION FILED NOV. 4, 1912.

1,118,067.

Patented Nov. 24, 1914.



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UNITED STATES PATENT OFFICE.

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CARPENTER'S TOOL.

1,118,067.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, THEODORE H. SMITH, a citizen of the United States, residing at Richmond, in the county of Henrico and State of Virginia, have invented a new and useful Carpenter's Tool, of which the following is a specification.

The tool herein described is adapted to be employed for locating the radii of segmental rings, for laying off angles other than a right angle, for laying off right angles, as a straight edge and as a try-square.

One object of the present invention is to provide a body member of novel form, along which studs are adapted to slide, to permit the fiducial position of the tool to be employed in laying off the radii of segmental rings, in defining angles other than a right angle, and under other circumstances which will suggest themselves readily to the user.

The invention aims, further, to provide novel means for assembling the studs slidably with the body.

It is within the scope of the invention to improve generally and to enhance the utility of, devices of that type to which the present invention appertains.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention can be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawing:—Figure 1 shows the invention in side elevation; Fig. 2 is a top plan; Fig. 3 is a section on the line 3—3 of Fig. 2; Figs. 4, 5 and 6 are plan views showing various applications of the tool, Figs. 4, 5 and 6 being diagrammatic in nature; Fig. 7 is a perspective of one of the plates with which certain of the studs are assembled; Fig. 8 is a longitudinal section of that stud which coöperates with the plate shown in Fig. 7; Fig. 9 is a perspective of another stop plate; and Fig. 10 is a longitudinal section of the stud which coöperates with the stop plate shown in Fig. 9.

In carrying out the invention there is provided a tool 1 which is in the form of a Latin cross. The tool comprises a body 1 comprising parts 2 and 3, the part 2 being graduated along one edge as indicated at 4.

The tool further includes aligned, oppositely extended arms 5 and 6, disposed at right angles to the body 1. In the arm 5 there is a longitudinal slot 7 and in the arm 6 there is a longitudinal slot 8. The slots 7 and 8 at their inner ends terminate short of the longitudinal center of the body 1. In the body 1 there is a longitudinal slot 9 extended across the line of juncture between the body 1 and the arms 5 and 6.

Studs are mounted to slide in the slots 7, 8 and 9, and in order to facilitate the description of the operation of the tool, the primary stud which is slidable in the slot 9 is denoted by the numeral 10, the numeral 11 indicating the secondary stud which is slidable in the slot 7 and the numeral 12 indicating the secondary stud which is slidable in the slot 8.

A detailed description of the several studs will now be given, and, thereafter, the studs will be referred to by their general reference characters 10, 11 and 12.

The studs 11 and 12 are of identical construction, and a description of one of them will suffice for both. Each of the studs 11 and 12 comprises a cylinder 14 which bears against one face of one of the arms 5 and 6, the arm 6 being considered in the present instance. The cylinder 14 is provided with a flat end 15 which registers slidably in the slot 8, but engages the edges of the slot 8 against rotation. The cylinder 14 is equipped with a threaded bore 16, receiving one end of a screw 17 which extends through the slot 8. The screw 17 projects through an opening 18 in a plate 19, adapted to engage the other face of the arm 6, the plate 19 having along its longitudinal edges, tongues 20 which register in the slot 8. At its ends, the plate 19 is equipped with upstanding finger pieces 21. A set nut 22 is threaded upon the protruding end of the screw 17 and bears against the plate 19, so that the arm 6 is clamped between one end of the cylinder 14 and the plate 19. From the foregoing construction it will be obvious that the cylinder 14 may be clamped at any position intermediate the ends of the slot 8.

The slot 9 in the body 1 is somewhat narrower than the slots 7 and 8 in the arms 5 and 6, and the stud 10 which coöperates with the slot 9 is of slightly different construction from the studs 11 and 12. In constructing the stud 10, a cylinder 23 is provided, one end of the cylinder 23 abutting

against one face of the body 1. The cylinder 23 is equipped with a threaded bore 24, receiving one end of a spindle 25 having an enlarged, flattened part 26 which registers in the slot 9 against rotation, the spindle 25 terminating in a threaded head 27 extended through an opening 28 in a plate 29 adapted to bear against the other face of the body 1, the plate 29 having struck therefrom, tongues 30 which are received in the slot 9. At its end, the plate 29 is provided with up-standing finger pieces 31. A set nut 32 is threaded upon the head 27, and it will be seen that by rotating the set nut 32, the cylinder 23 may be clamped at any point along the body 1.

Some of the uses to which the tool may be put, will now be described, other uses suggesting themselves readily to the user.

Suppose, referring to Fig. 4, that it is desired to lay off the radius of a segment of a ring. The studs 11 and 12 are moved to the remote ends of the slots 7 and 8 respectively, if the ring is of large radius, or to the adjacent ends of the slots 7 and 8, if the ring is of small radius. The studs 11 and 12 are then placed against the outer edge 43 of the ring, and the stud 10 is moved in the slot 9 until it abuts against the edge 43. If, then a mark be made upon the ring, through the slot 9, the radius of the ring, or a line defining one end of a ring forming section, will be laid off. The same result can be accomplished by placing the three studs 11, 10 and 12 in abutment with the inner edge 33 of the ring. If the tool is moved to the left until the stud 11 rides off one end of the segment, the studs 10 and 12 will still position the slot 9 radially of the ring. If the tool be moved to the right until the stud 12 rides off the right hand end of the segment, the studs 11 and 10 will maintain the slot 9 radially disposed.

Referring to Fig. 5 it will be seen that the studs 11 and 12 may be clamped at any points in the slots 7 and 8, the stop parts 21 being placed against one edge 38 of the material, so as to prevent the edge 40 of the tool from overlapping the material. A pencil is passed along the edge 37 of the part 2, to define a right angle with the edge 38 of the material, and the mark thus made will extend to the edge 38 of the material, because the parts 21 and 31 prevent the edge 40 of the tool from overlapping the material. Suppose, however, that the line along the edge 37 is to be drawn so close to the edge 39 of the material that the stud 12 and its part 21 cannot be used to an advantage. Under such circumstances, a straight edge, or the edge 38 of the material may be brought into engagement with the parts 21 of the studs 11 and 12, the stud 10 being then moved until its part 31 abuts against the straight edge or against the edge 38 of the material.

Then, if the tool be advanced toward the edge 39 until the stud 12 lies beyond the edge 39 the parts 31 and 21 of the studs 10 and 11, engaging the edge 38 of the material, will position the edge 37 of the tool at right angles to the edge 38. It will be understood readily that the edge 40 of the arm 6 and the edge 37 of the part 2, being rectangularly disposed, may be employed as a try-square. Any other corresponding edges of the tool having a like relation may be used similarly.

In Fig. 6 another operation is shown, and suppose that it is desired to lay off an angle which is greater or less than a right angle. Under such circumstances, the stud 11 is clamped in place in the slot 7 and the stud 10 is moved along the slot 9 until the center of the stud 10 registers upon one of the graduations 4 of the part 2 of the body, these graduations 4 being so marked as to represent different angles between the edge 41 of the part 2 and the edge 42 of the material. If a pencil be passed along the edge 41, an angle will be defined with the edge 42, and this angle will correspond with the appropriate graduation 4.

In practice, all parts of the tool are fashioned from metal, although any other structural material may be employed when expediency demands.

Having thus described the invention, what is claimed is:—

1. A tool of the class described comprising in a rigid structure, a body and alined oppositely extended arms disposed at right angles to the body; studs; means for mounting the studs on the arms for right-line movement longitudinally of the arms; another stud; means for mounting the last named stud on the body for right-line movement longitudinally of the body into and out of alinement with the studs on the arms; and means for holding the studs against movement.

2. A tool of the class described comprising a body and alined oppositely extended arms disposed at right angles to the body, the arms and the body respectively being provided with slots and the slot in the body being extended, unbrokenly and open, entirely through the point of juncture between the arms and the body; studs mounted in the slots, one stud being movable, longitudinally of the body, across the point of juncture between the arms and the body, and the other studs being movable longitudinally of the arms; and means for holding the studs against movement.

3. A tool of the class described, taking the form of a rigid Latin cross and comprising a body and alined, oppositely extended arms, the arms being provided with independent longitudinally disposed slots, the body being provided with a longitudinal slot extended, unbrokenly and open, entirely

through the point of juncture between the arms and the body; a stud mounted to slide in the slot in the body across the longitudinal center of the arms; studs mounted to slide in the slots of the arms; and means for holding the studs against movement.

4. In a tool of the class described, a body and projecting arms having slots; studs mounted to move in the slots; each stud comprising a cylinder abutting against one face of the tool over both edges of one slot; a spindle inserted into the cylinder and having a flattened part engaged in said slot against rotation, the flattened part having a threaded extension; a plate through which the extension passes, the plate having tongues engaged in the slot and being provided at its ends with finger pieces; and a nut on the extension, the nut engaging the plate.

5. In a tool of the class described, a body and an arm disposed at an angle to said body; a movable member; means for securing the movable member to the arm for movement longitudinally of the arm and within the contour of the arm; a second movable member; means for securing the second movable member to the body for movement longitudinally of the body and within the contour of the body, said members having relatively movable parts ca-

pable of adjustment whereby the same may be located close to one edge of the arm and adapted to engage one edge of a piece of material to prevent the arm from overlapping the material, whereby a mark may be struck along one edge of the body to the extreme edge of the material.

6. In a device of the class described, a tool comprising a body and alined arms projecting from the body; secondary members; means for mounting the secondary members adjustably along the arms and including parts coinciding with the edges of the arms; a primary member; means for mounting the primary member for movement along the body into and out of alinement with the secondary members; the primary member and one secondary member being adapted to engage one edge of a piece of material to prevent one arm from overlapping the material, whereby a mark may be struck along one edge of the body to the extreme edge of the material.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

THEODORE H. SMITH.

Witnesses:

C. H. GEARING,
E. L. KIDD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."