A. GANGWISCH.

PROTRACTOR.

APPLICATION FILED AUG. 27, 1917.

1,277,403.

Patented Sept. 3, 1918.

Fig. 1

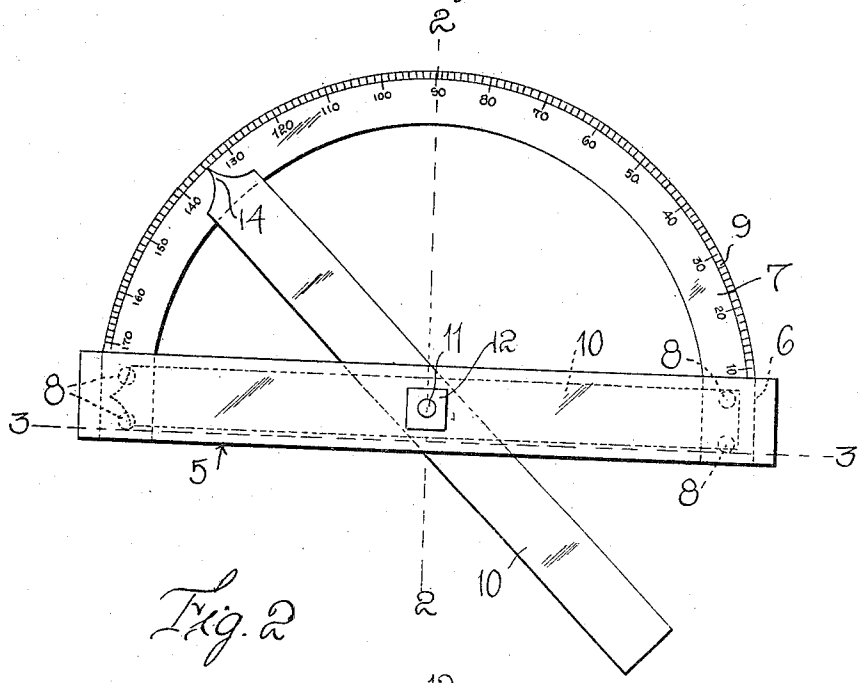


Fig. 2

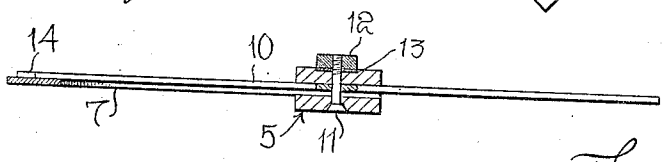
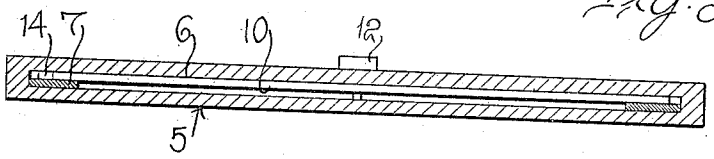


Fig. 3



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UNITED STATES PATENT OFFICE.

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PROTRACTOR.

1,277,403. Specification of Letters Patent. Patented Sept. 3, 1918.

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To all whom it may concern:

Be it known that I, ALBERT GANGWISCH, a citizen of the United States, residing at Stockton, in the county of San Joaquin and State of California, have invented certain new and useful Improvements in Protractors, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to an improved protractor, and has for its primary object to provide a very simple and serviceable device of this character especially designed for use by carpenters and builders for laying off timbers or beams employed in roofing buildings and various other analogous purposes.

It is one of the particular objects of the invention to provide a device of the above character which is so constructed that the marking of the guide lines for the terminal bevels of rafters may be greatly facilitated, and the use of the ordinary metal tri-square, such as carpenters generally employ, dispensed with.

It is also one of the detail objects of the invention to provide a protractor embodying a body bar, said body bar being provided with a longitudinal slot therein, a degree scale fixed at its ends in said slot, and a blade pivotally mounted in the slot of the body bar and having a narrow point at one end movable over the graduated surface of the degree scale, suitable means being provided for securing the blade in adjusted position.

With the above and other objects in view, my invention consists in the novel features of construction, combination and arrangement of parts to be hereinafter more fully described, claimed, and illustrated in the accompanying drawing, in which:

Figure 1 is a side elevation illustrating the preferred embodiment of my improved protractor;

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1; and

Fig. 3 is a section taken on the line 3—3 of Fig. 1, showing the adjustable blade in its folded position within the base.

Referring in detail to the drawing, 5 designates a base or body bar which is of rectangular form and is provided with a longitudinally extending slot 6. In the opposite ends of the slot 6 in the bar 5, the ends of a degree scale 7 are disposed and are rigidly secured against one of the side walls of the slot 6 by the screws or other suitable fastening elements indicated at 8. One side of the scale bar 7 is graduated at its outer edge to 180° as shown at 9.

A metal blade 10 is disposed through the slot 6, centrally thereof, and this blade is fixed intermediate of its ends for pivotal turning movement in a path concentric to the degree scale 7 upon a bolt 11 which is mounted in the bar 5 and extends across the slot 6 therein. A nut 12 is threaded upon one end of this bolt and operates against a washer 13 countersunk in one face of the bar 5. By threading the nut inwardly on the bolt, the metal blade 10 may be drawn tightly against one side wall of the bar 5 to retain the same within the slot 6 in its folded position, or to tightly clamp said blade in an adjusted position with respect to the scale bar 7. This blade is preferably of a length substantially equivalent to the length of the slot in the bar 5, and is provided at one of its ends with an index point 14 for movement over the degree scale 9.

In the use of the device, the blade 10 may be quickly and accurately set in position by loosening the nut 12 and then moving the point 14 of the blade to the desired degree graduation upon the scale 9. One edge of the bar 5 is then engaged with the timber and the line indicating the angle or bevel upon which the timber is to be cut is drawn along one edge of this blade. After using the device, the blade 10 may be folded or moved entirely within the slot 6, and the nut 12 then tightened. Thus, the blade is housed or protected and the possible breakage or distortion of the same obviated.

From the foregoing description, taken in connection with the accompanying drawing, the construction, manner of use, and several advantages of my invention will be clearly and fully understood. It is, of course, manifest that the device can be made in various sizes, and while I have herein shown a particular manner of connecting the ends of the protractor bar 7 to the body bar 5, various other means for making such connection may be resorted to. The device as a whole is exceedingly simple in construction, strong and durable, and may obviously be manufactured at small cost.

While I have herein shown and described the preferred construction and arrangement

of the several elements employed, it is to be understood that the same are susceptible of considerable modification therein and I, therefore, reserve the privilege of adopting all such legitimate changes as may be fairly embodied within the spirit and scope of the invention as claimed.

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

1. A protractor including a rigid body bar having a longitudinal slot therein, a scale fixed to the opposite ends of said bar, a bolt rotatably mounted centrally in the bar, a blade fixed upon said bolt for movement at one of its ends over the scale, said blade being foldable into the slot in the body bar, and a nut threaded upon the bolt and coacting with the body bar to move the bolt axially through the body bar and frictionally clamp said blade against one of the side walls of the slot.

2. A protractor including a body bar having a longitudinal slot therein, a semicircular scale fixed at its ends to one of the side walls of said slot, a bolt loosely mounted in the body bar centrally thereof and traversing said slot, a blade fixed upon said bolt and having a pointer on one of its ends movable over the degree scale, said blade being foldable into the slot in the body bar to extend in parallel relation to said bar, and a clamping nut threaded upon one end of said bolt to move the same axially through the body bar and draw the blade into tight clamping frictional engagement against one of the side walls of said slot.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

ALBERT GANGWISCH.

Witnesses:
RAY ULRICH,
H. K. HANNA.

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