S. C. HOUGHTON.

ADJUSTABLE T-SQUARE.

APPLICATION FILED NOV. 6, 1916.

1,230,901. Patented June 26, 1917.

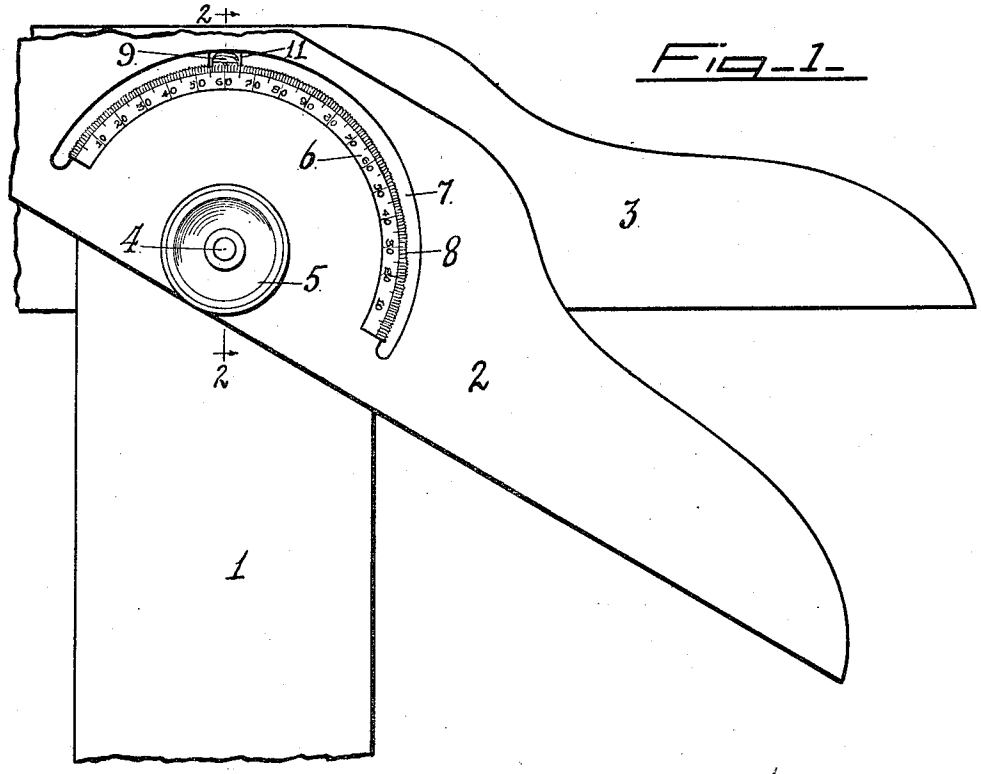


Fig. 1.

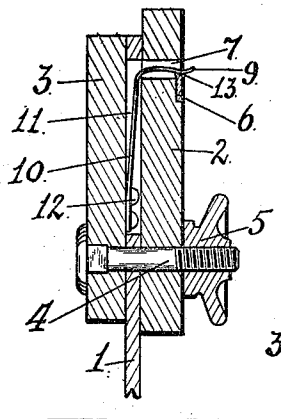


Fig. 2.

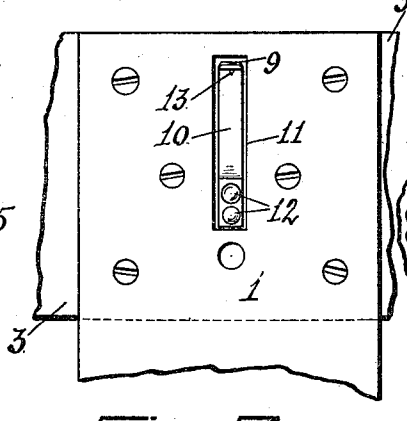


Fig. 3.

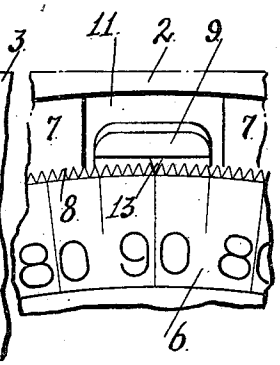


Fig. 4.

WITNESS

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ADJUSTABLE T-SQUARE.

1,230,901. Specification of Letters Patent. Patented June 26, 1917.

Application filed November 6, 1916. Serial No. 129,674.

To all whom it may concern:

Be it known that I, STEPHEN CHASE HOUGHTON, a citizen of the United States, residing at Pacific Grove, in the county of Monterey and State of California, have invented certain new and useful Improvements in Adjustable T-Squares, of which the following is a specification.

My invention relates to the class of adjustable T-squares, particularly those used by draftsmen.

In instruments of this type, the blade is adapted for adjustment to various angles with relation to the head, and for this purpose it is usual to have two heads, one of which is permanently fixed at right angles to the blade, and the other is controllably pivoted in the assemblage; the former being used against the drawing board for ordinary perpendicular work and the latter, by turning the instrument over, being used when lines are to be drawn at an angle to the perpendicular, and on either side thereof.

In the use of these T-squares, it is common practice, in order to determine the angle of the blade, and particularly to determine equivalent angles on opposite sides of the perpendicular, to use with the square, a protractor. This is the well known semi-circular sheet or plate marked off in degrees. Its use is somewhat complex, varied and inconvenient. The disadvantages of its use may be briefly stated to be the necessity for two separate instruments, and the difficulty of their conjoint use, resulting in loss of time and possible inaccuracy due to careless handling.

To obviate these disadvantages is the object of my invention, and to this end my invention consists essentially in a T-square of the adjustable type, having means for indicating the angle of its blade adjustment. More particularly it consists in an adjustable T-square having a permanent degree-scale on one of its heads, and an index-finger carried by its other head, the finger and scale coöperating to indicate the angle of the blade adjustment on either side of the perpendicular. It also consists in the novel construction, arrangement and combination of parts which I shall now fully describe, by reference to the accompanying drawings, in which—

Figure 1 is a plan view, broken, of my adjustable T-square, showing the blade inclined to the pivotally mounted head.

Fig. 2 is a section on the line 2—2 of Fig. 1.

Fig. 3 is a plan view, broken, of the upper end of the T-square, the pivotally mounted head being removed.

Fig. 4 is a plan view, broken, and enlarged, of the degree-scale and index finger.

The T-square comprises the usual blade 1, and the heads 2 and 3. For convenience in description, the head 2 may be termed the upper head and the head 3 the lower head. The lower head 3 is permanently fixed to the blade at right angles, and the upper head is pivotally mounted upon a screw pin 4 rising from the lower head, the pivotal connection being controlled by a set nut 5. This connection enables the blade, when the instrument is turned over, to be moved to various angles over the work, the pivotal head 2 then acting as the straight edge against the drawing board.

Upon the upper face of the upper head 2 is permanently fixed an arcuate plate 6 upon which is marked degrees, said plate thus being a degree-scale. The plate, which is preferably let in flush with the surface of the head, is curved on a radius of the pivotal center of the head and its graduations read from middle to ends in equivalent degrees.

In the upper head 2 is made an arcuate through-slot 7, concentric with the scale-plate 6. On the edge of the scale plate are formed notches 8, alined with the degree marks.

9 is an index finger. It is formed by the upwardly bent end of a springy arm 10, which lies, and has free movement, in a slot 11 formed in the blade 1, and is secured to the lower head 3 at 12. The finger 9 rises through and plays in the arcuate slot 7 of the upper head 2, and passes along the scale plate 6. By its position with relation to this plate, the degree of angularity of the blade 1 is indicated. To guard against loose or false play the index finger is springy with its tendency toward the edge of the scale plate, and said finger is formed with a small detent 13 adapted to engage the notches 8 in the scale plate edge. This engagement is reasonably firm of itself and proof against ordinary accidental displacement, but if further security be required, it will be found

in the usual set nut 5. The finger may, however, be easily disengaged by simply pressing it back, the spring arm which carries the finger having freedom of movement in the slot 11 of the blade.

It will now be seen that in using my improved T-square, the angle of the blade can be easily and accurately indicated and read on either side of the perpendicular, and equivalent angles may be precisely determined, all with a single instrument, thereby obviating the ownership of, search for and uncertain use of a separate instrument such as a protractor.

I claim:—

1. An adjustable T-square comprising a blade; a head secured to the blade in permanent relation; a second head; a controllable pivotal connection between said heads; a degree-scale carried by one head; and an index finger carried by the other head, said scale and finger coöperating to indicate the angle of the blade adjustment.

2. An adjustable T-square comprising a blade; a head secured to the blade in permanent relation; a second head; a controllable pivotal connection between said heads; a degree-scale carried by one head; an index finger carried by the other head, said scale and finger coöperating to indicate the angle of the blade adjustment, and means on the scale carrying head for engaging the index finger to retain the blade at the angle determined.

3. An adjustable T-square comprising a blade; a head secured to the blade in permanent relation; a second head; a controllable pivotal connection between said heads; a degree-scale-plate carried by one head, said plate having one edge provided with notches alined with the degree graduations; and a springy index finger carried by the other head and having a detent adapted to play over and to engage the notches of the scale plate, said scale plate and finger coöperating to indicate the angle of the blade adjustment.

4. An adjustable T-square comprising a blade; a head secured to the blade in permanent relation; a second head having an arcuate through-slot; a controllable pivotal connection between said heads; an arcuate degree scale plate affixed to the second head concentric with its slot; and an index finger affixed to the first head, said finger playing in the slot of the second head and in conjunction with the scale plate indicating the angle of the blade adjustment.

5. An adjustable T-square comprising a blade; a head secured to the blade in permanent relation; a second head having an arcuate through-slot; a controllable pivotal connection between said heads; an arcuate degree-scale-plate affixed to the second head concentric with its slot; and an arm lying in a slot in the blade and affixed at one end to the first head, said arm having its other end bent to form an index finger playing in the slot of the second head and in conjunction with the scale-plate indicating the angle of the blade adjustment.

6. An adjustable T-square comprising a blade; a head secured to the blade in permanent relation; a second head having an arcuate through-slot; a controllable pivotal connection between said heads; an arcuate degree-scale-plate affixed to the second head concentric with its slot and having its edge provided with notches alined with the degree graduations; and a springy arm lying in a slot in the blade and affixed at one end to the first head, said arm having its other end bent to form an index finger playing in the slot of the second head and in conjunction with the scale-plate indicating the angle of the blade adjustment, and said finger having a detent adapted to engage the notches of the scale plate.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

STEPHEN CHASE HOUGHTON

Witnesses:
WM. F. BOOTH,
D. B. RICHARDS.

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