

Aug. 29, 1933.

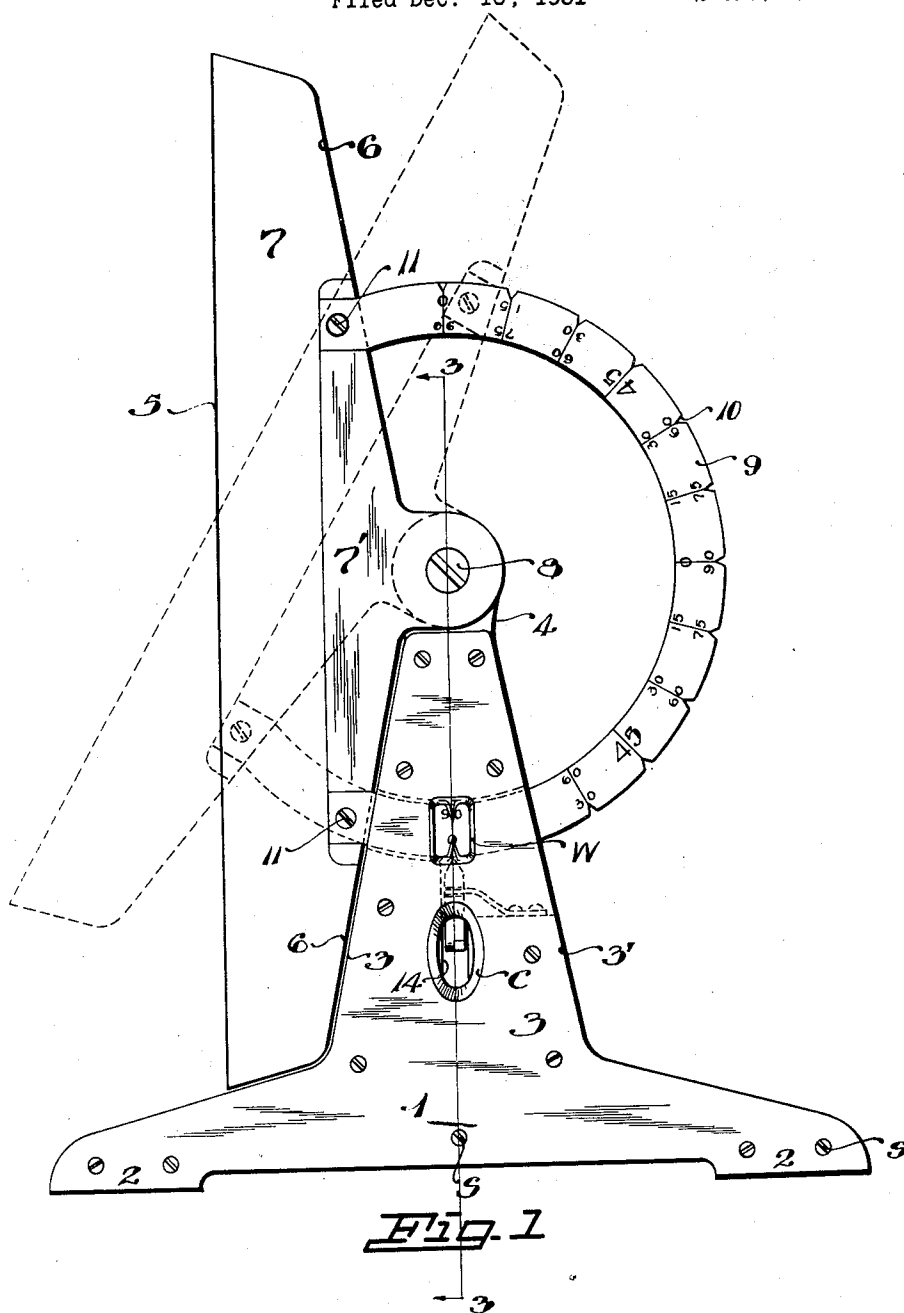
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1,924,094

DRAWING INSTRUMENT

Filed Dec. 16, 1931

2 Sheets-Sheet 1



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DRAWING INSTRUMENT

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2 Sheets-Sheet 2

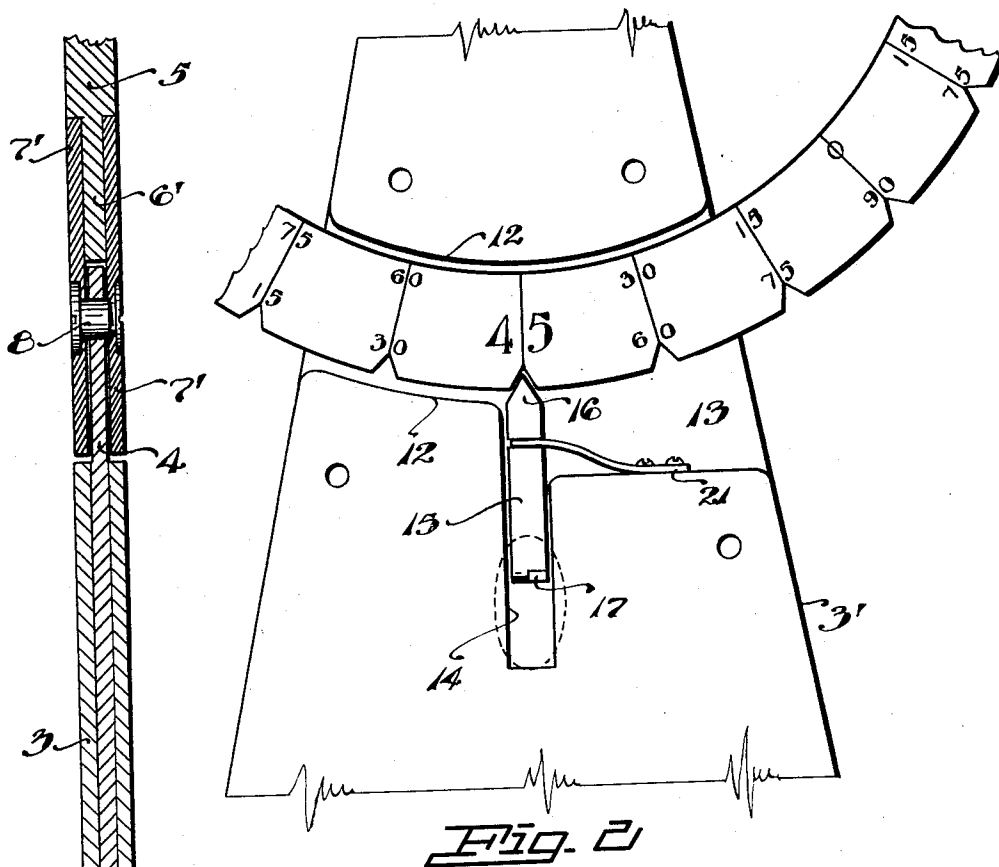


Fig. 2

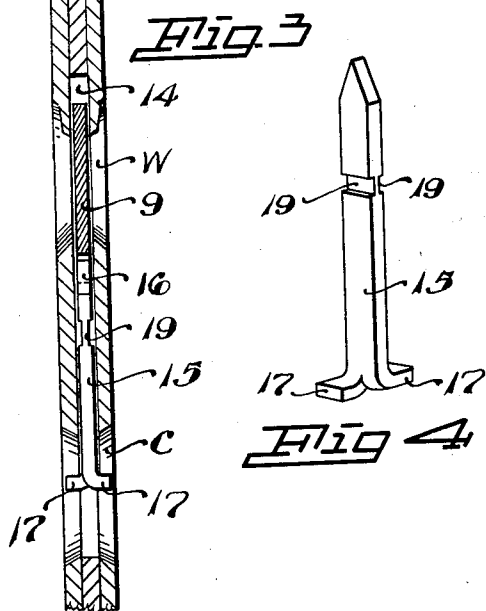


Fig. 3

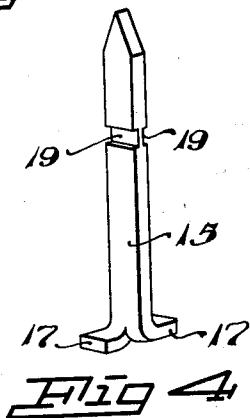


Fig 4

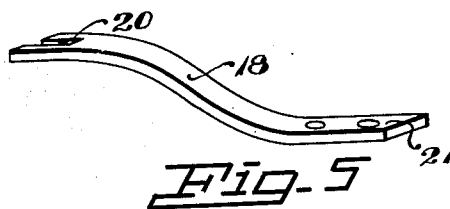


Fig-5

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UNITED STATES PATENT OFFICE

1,924,094

DRAWING INSTRUMENT

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Application December 16, 1931

Serial No. 581,318

1 Claim. (Cl. 33—75)

My present invention relates to an improved drawing instrument of the pivoted, straight edge, protractor type, for use preferably in combination with a T-square or similar straight-edge instrument, by engineers, draftsmen and others in projecting angular lines, cross-hatching sectional drawings, and for various other purposes.

The primary object of the invention is the provision of an instrument of this character which is comparatively simple in construction, and which may be adjusted to angles within the full circle of 360°, with facility and accuracy, and which is durable, and efficient in the performance of its functions.

The invention consists in certain novel combinations and arrangements of parts involving the base, straight edge and sector in their pivotal arrangement, and in accessories to these principal elements, as will hereinafter be more fully set forth and claimed. In the accompanying drawings I have illustrated one complete example of the physical embodiment of my invention wherein the parts are combined and arranged according to the best mode I have thus far devised for the practical application of the principles of my invention. While the drawings show one acceptable exemplification of the invention, it will be understood that the changes and alterations may be made therein, within the scope of my appended claim, without departing from the principles of the invention.

Figure 1 is a plan view of the instrument with the blade in perpendicular position to the base, and in dotted lines showing one angular adjustment of the blade or straight edge.

Figure 2 is an enlarged, interior view of a portion of the laminated post, disclosing the spring pressed detent for the sector.

Figure 3 is a vertical sectional view through the laminated post, and showing the pivotal arrangement and securing means for the sector.

Figure 4 is a perspective view of the spring pressed detent, detached, and Figure 5 is a perspective view of the bifurcated spring for the detent.

The base 1 of the instrument is provided with a pair of spaced, alined lugs or feet 2, 2, that are adapted to rest on and slide on a straight edge, as the blade of a T-square for a guide when the instrument is being used, and this base is provided with a post 3 that is disposed with its longitudinal center line perpendicular to the faces of the lugs 2, 2, or to the straight edge against which these lugs are used.

The base and its post are fashioned from suitable material, as celluloid, preferably with three laminations or plies, and the plies are secured together by means of screws S, or other suitable fastening means to form a rigid structure. The base and post form a triangular, geometrical figure, and the post is fashioned with lateral edges 3' that converge toward the pivot head 4 that is fashioned from the intermediate ply of the post, at the upper end of the post, the two outer plies or laminations of the post being cut away as shown.

The head 4 provides a pivotal support for the straight edge blade 5, which has back-edges 6 complementary to the converging edges 3' of the post, and a tenon 6' of the blade is set between the two flanges 7' of the pivotal head 7, which latter is pivoted on the head 4 by means of the pivot screw 8. The straight-edge blade is thus provided with rigid flanges and the latter form the slotted head 7 that is mounted on the single-thickness head 4 of the post.

A sector 9 is provided with a scale of 180° and at its outer peripheral edge the sector is fashioned with notches 10 coincident with the scale markings, and here shown as fifteen degrees apart. The ends of the sector are secured to the straight edge blade and the rigid flanges 7' of the blade by means of screws 11, and of course the center of the sector is coincident with the pivotal axis 8 of the straight edge blade.

The sector is guided in its movement by the post 3, and the post is fashioned with an interior, arcuate slot 12 to receive the sector as seen in Figure 2. In addition to the arcuate slot, the post is provided with a recess 13 opening to the arcuate slot and at one side of the post, and another interior slot 14 communicates with the arcuate slot, said slot 14 being disposed on a line in the plane of the longitudinal axis of the post and perpendicular to the line connecting the two lugs 2, 2, of the base.

Within the perpendicular slot is enclosed a spring pressed detent or latch 15, which is fashioned with a wedge-shaped point 16 for engagement with a selected notch 10 of the sector, and at its rear end the detent is fashioned with oppositely extending lugs 17 that project up into the countersunk openings C. These countersunk openings, of oval shape as shown, and located at opposite sides of the post, permit ready access of the thumb or finger to the lugs 17 for withdrawing the detent from the sector against tension of a spring blade 18. As best seen in Figure 4 the detent is fashioned at opposite sides with grooves 19, and the spring blade 18 is fashioned with a com-

plementary bifurcated end 20 to fit about or straddle the grooved part of the detent, and the spring blade is anchored at 21 to the lower wall of the recess 13. The spring is thus anchored at one end, and disposed transversely of the post, so that its bifurcated free end 20 tends to urge the detent into a notch, and hold the detent therein, after the sector is adjusted. A window or opening W is provided in each side of the post in the walls of the arcuate slot, and visible means are thus provided for sighting the position of the sector.

The instrument may be employed for drawing lines or laying off angles at either side of the pivot, and for this purpose it may be turned over bodily, or, the blade 5 may be used at either side of the pivot. Thus, in Figure 1 the blade 5 is set to draw a line perpendicular to the base, at the left side of the pivot, and it will be apparent that by turning the blade to the right side of the pivot a perpendicular line may be drawn at that side of the pivot.

By dotted lines in Figure 1, the blade 5 is shown at a 60° angle to the aligned faces of the lugs 2, 2, and the blade is retained in this position by means of the detent in engagement with the notched edge of the sector. In this position the straight-edge of the blade may be used for cross-hatching

and the instrument is slid along and guided by its straight edge support, as the blade of a T-square, or the straight edge of the blade may be used for projecting a line at the 60° angle from the horizontal. The blade of course may be turned to various angles at the left side of the pivot, and it may be turned on its pivot to the right side of the post for similar use thus permitting a range of 360° in the use of the straight edge, and the sector.

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

The combination with a base having a straight edge and a post perpendicular thereto, said post having a slot therethrough and a pivot head of reduced thickness on the post, of a straight-edge blade of substantially the same thickness as the base and post, said blade having spaced perforated flanges between which said head fits a pivot-screw joining said head and flanges, a sector of less thickness than and rigid with the blade concentric with the pivot-screw and movable through said slot, and co-acting means on the post and sector for securing the blade in adjusted position.

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