J. W. EVANS.

PITCH SQUARE.

APPLICATION FILED OCT. 29, 1918.

1,438,432. Patented Dec. 12, 1922.

Fig. 1.

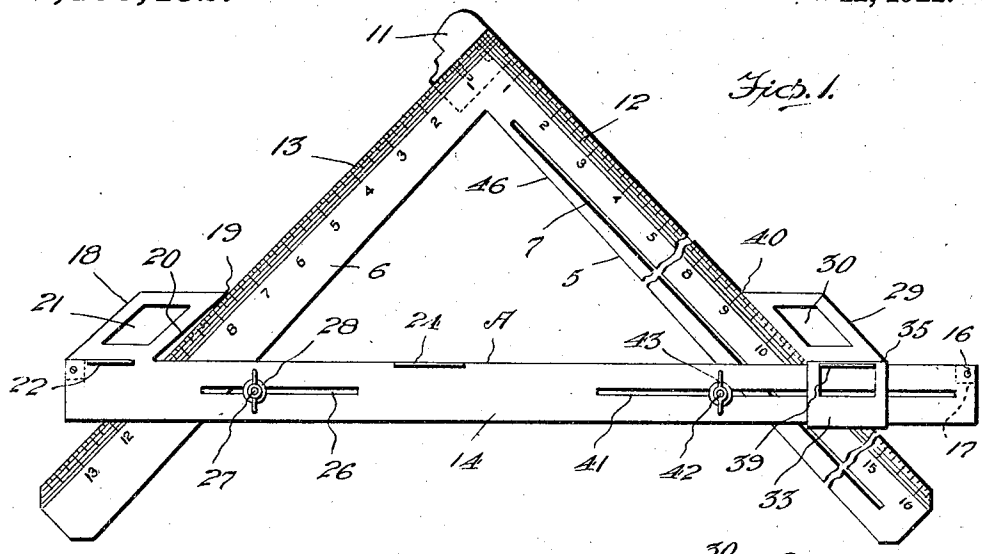


Fig. 2.

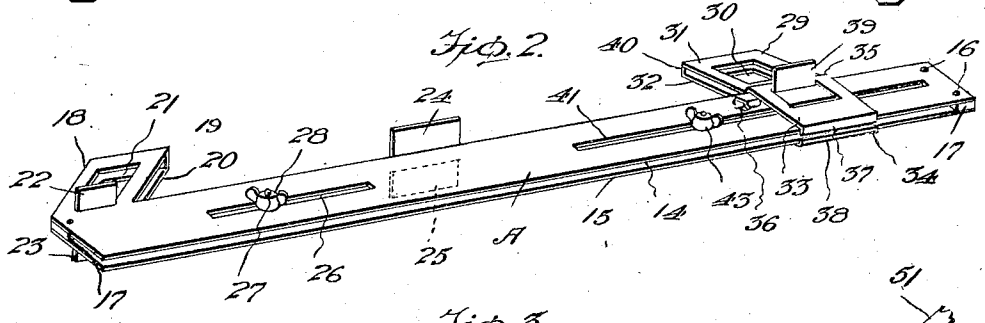


Fig. 3.

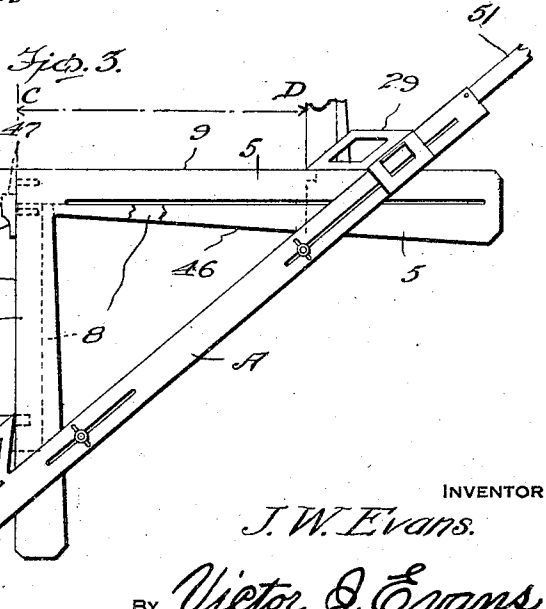
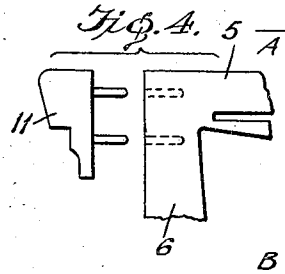


Fig. 4.



WITNESSES

Paul M. Hunt

INVENTOR

J. W. Evans.

BY Victor J. Evans

ATTORNEY

Patented Dec. 12, 1922. 1,438,432

UNITED STATES PATENT OFFICE.

JOHN W. EVANS, OF CINCINNATI, OHIO.

PITCH SQUARE.

Application filed October 29, 1918. Serial No. 260,134.

To all whom it may concern:

Be it known that I, JOHN W. EVANS, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented new and useful Improvements in Pitch Squares, of which the following is a specification.

This invention is a square more particularly adapted for the cutting of lumber or other material to the correct angles for proper assembly and construction, which assembly and construction may comprise stair building, stringers, and horses.

One object of the invention is to provide a square having a blade and a tongue at the juncture of which is a removable nosing attachment for the purpose of marking the space to receive the stair nosing.

Another object is to provide a square having both its blade and tongue tapered inwardly, so that the angle between the inner edges of the square is different and slightly less than the angle between the outer edges, the blade being provided with a slot that is substantially parallel with the outer or marking edge. The space between the slot and the inner inclined edge of the blade defining space for the usual wedges.

Still another object is to provide a square with a movable fence to cooperate with the blade and tongue in the formation of angles for the different cuts of timber and other material that may be used in stair work, stringers and horses.

Broadly stated, the invention comprises a square having a blade and a tongue of varying widths, both of which are graduated upon their outer edges the blade being provided with a slot extending longitudinally thereof, a fence movably mounted on the square and having angular members thereon to cooperate with the external or marking edges of the square, a nosing gage carried at the juncture of the blade with the tongue, and means to secure the fence at predetermined points on the square.

One practical form of construction and assembly will be described and illustrated in the accompanying drawings, in which:—

Figure 1 is a front elevation of the square and fence;

Figure 2 is a perspective view of the fence; and

Figure 3 is a view showing the square as applied to the treads and risers of stairs.

Figure 4 is a fragmentary view of the nosing attachment and a fragmentary portion of the square, illustrating the manner of securing the attachment thereto.

In the preferred embodiment about to be described, the square comprises the blade 5 and the tongue 6. The blade 5 may be provided with a slot 7 that preferably extends in a direction parallel to the outer marking edge of the blade.

The blade and tongue may both be of tapered formation, so that the inner and outer edges define different angles, the difference in the angles corresponding in shape to the shape of the wedge 8 commonly employed for the treads and risers, indicated at 9 and 10 respectively.

At the juncture of the blade 5 with the tongue 6, the square may be formed to accommodate the nosing attachment 11. This attachment may be secured to the square in any approved manner, and if desired, the securement may be such as will permit of the ready removal and replacement as the nature of the work requires. As an example of one of the various means which may be employed for removably securing the nosing attachment 11 to the square, the said nosing attachment is provided with spaced dowel pins which are receivable in sockets formed in the edge of the square.

The external edges of the blade and tongue respectively are provided with markings and graduations, the blade markings being indicated at 12, and the tongue markings at 13. These markings may be any usual desired markings that may be effectively employed for the nature of the work.

Adapted to cooperate with the square is a movable fence indicated generally by the letter A. If desired the fence may be constructed to have the two side members 14 and 15, which are connected together by the screws 16, serving to secure the spacing elements 17 between the sides.

The fence A may have at one end a gage 18, which may be formed as an integral part of the fence, and the latter may be formed with a longitudinal slot to accommodate the blade and tongue.

The gage 18 is preferably angularly formed so that a relatively sharp edge corner or point 19 is formed to cooperate with the markings 13 on the tongue, as shown, the gage 18 is diamond-shaped and the

upper side lies in a plane parallel to the fence A. The side of the gage that extends upward from the fence A to the point 19 does not ordinarily touch the edge of the tongue, except when the gage is in certain positions. This side of the gage is indicated at 20. The gage 18 may have its central portion cut-away to form the aperture 21 as shown to lighten the construction.

The shape of this aperture 21 conforms generally to the shape of the gage and may therefore be substantially diamond-shaped. The lower side of this aperture 21 may have extending therefrom the flanges 22 and 23. These flanges may also serve as stops, and may be secured in any one of a various number of ways, such as providing a slot entirely through the member A and inserting a strip of sufficient length to project through and extend upon opposite sides of said member, laterally therefrom. The strip may be soldered, brazed or frictionally held in position. These stops are placed against the rear edge of a stringer when laying out the gains for treads and risers.

The side members 14 and 15 may have formed thereon or secured thereto, the flanges 24 and 25, that may also serve as stop members. As shown these flanges 24 and 25 are positioned at a point intermediate of the length of the side members 14 and 15.

The side members 14 and 15 may have slots 26, one of which may be seen in Figure 1. Adapted to cooperate with these slots are bolts 27 having the thumb nut or adjusting and tightening nut 28. As indicated the bolt passes through both sides of the fence A and serves to hold the sides in firm engagement with the tongue when in an adjusted position. As shown these slots lie between the flanges 24 and 25 and gage 18.

In Figure 1, at the right hand end of the fence A, there is shown another gage 29 that may be formed in a similar manner to the gage 18. This gage may also be provided—with a cutout portion or aperture 30 to lighten the construction and may conform generally to the shape of the gage.

As shown, this gage 29 may be formed of a single piece of material bent to produce the parallel sides of the gage, which sides may be generally indicated at 31 and 32. The sides 31 and 32 may be connected to fence engaging sides 33 and 34 by means of the shouldered or bent portions 35 and 36. These shoulders 35 and 36 may also serve as bearing portions that are adapted to ride on the upper edge of the side members of the fence A.

These sides 33 and 34 are preferably so formed that they will quickly engage with the side members of the fence. In order to assist this function, the sides 33 and 34 may have inturned flanges that contact the underside of the fence A. The fence then will pass through the gage 29 which will be held on the fence by the shouldered portions 35 and 36 and the inturned flanges 37 and 38. If desired, the sides 33 and 34 may be formed of resilient material so that the sides may be forced into engagement with the members 14 and 15 forming the fence A.

As shown, the sides 31 and 32 are spaced apart and their inner surfaces conform to lie in the same relative planes as the sides 14 and 15, and also between the sides 31 and 32 forming the gage 29.

Adjacent the shouldered or bent portions 35 and 36, the gage may have extending therefrom the flanges 39, one of which is more particularly shown in Figure 1. These flanges may also serve as stock members. If desired, the flanges may consist of a stamped-out portion that extends angularly to the sides 33 and 34. The flanges 22, 24 and 39 serve as stops for the fence.

The gage 29 being angularly formed produces the relatively sharp edge, corner or point 40 that cooperates with the markings 12 formed upon the blade. By means of these sharp corners 19 and 40, the fence may be accurately positioned relatively to the blade and tongue.

The fence A may have formed in the members 14 and 15 slots 41 which register transversely through the side members. Adapted to cooperate with these slots 41 is a bolt 42 having the thumb nut or adjusting and tightening nut 43. As indicated, the bolt 42 passes through both sides of the fence by means of these slots 41 and serves to hold the sides in firm engagement with the blade when the fence is in an adjusted position. As shown, these slots extend from adjacent the right hand end near the spacing element 17 to a point near the flanges 24 and 25. These slots may also lie in the same plane as the slots 26.

In Figure 3, there is shown a tread 9 and a riser 10 that are held in place by means of the wedge 8. To produce the shape of the wedge lines are marked along the slot 7 and the inner edge of the blade 5, which inner edge may be indicated at 46. The nosing attachment 11 will then be accurately positioned to form the groove 47 that holds the molding or binding strip 48.

As shown in Figure 1, the fence is set so that the marking gage 18 has its point 19 located at the 7½ inch mark on the tongue 6. The point 40 of the gage 29 is located at the 9 inch mark on the blade 5. The blade then corresponds to the width of the tread 9 and the tongue corresponds to the height of the riser 10. In Figure 3 the height of the riser is determined on the tongue at A—B, while the run of the tread is indicated at C—D.

By adjusting the gauge 29 on the fence

and the latter upon the blade and tongue of the square, the device may be set for risers of different height and treads of different widths.

This device as has been described will thus be seen to be more particularly adapted for use in stair work where the treads and risers are morticed into the horse and are held in place by means of the wedges 8.

The slot 7 may if desired, be of such width that it will permit a marking instrument to be passed therethrough so that a straight edge may be produced upon the wedge at the same time the lower edge of the wedge is marked by passing the marking tool along the edge 46.

Having described the invention, what is claimed is:—

1. A square comprising a blade and tongue arranged at right angles and having graduations or markings thereon, a fence, means for adjustably securing the fence to the square and gauges carried by the fence, each of said gauges extending from one edge of the fence for cooperation with the graduations on the square and one of said gauges having a frictional sliding engagement with the fence.

2. A square comprising a blade and tongue arranged at right angles and having graduations or markings thereon, a fence, means for adjustably securing the fence to the square and gauges carried by the fence, each of said gauges extending from one edge of the fence for cooperation with the graduations on the square and one of said gauges being formed of a single piece of material bent to include a fence receiving slot and an indicating member adapted to register with said graduations.

In testimony whereof I affix my signature.

JOHN W. EVANS.