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CARPENTER'S SQUARE AND BEVEL.

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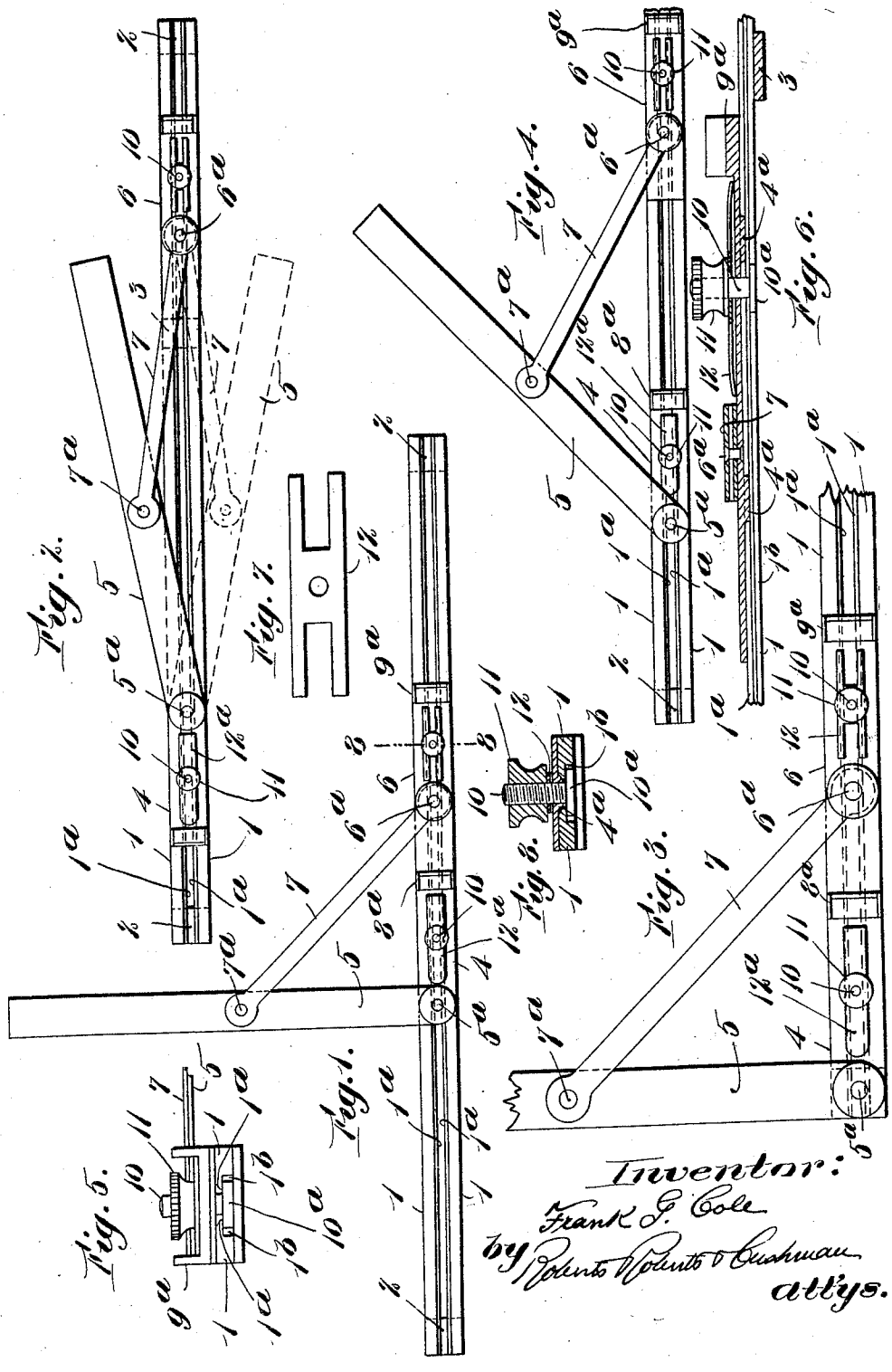
1,408,800. Patented Mar. 7, 1922.



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UNITED STATES PATENT OFFICE.

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CARPENTER'S SQUARE AND BEVEL.

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Application filed May 19, 1920. Serial No. 382,454.

To all whom it may concern:

Be it known that I, FRANK G. COLE, a citizen of the United States of America and resident of Haverhill, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Carpenters' Squares and Bevels, of which the following is a specification.

This invention relates to measuring instruments and particularly to carpenters' squares and bevels and has for its object the provision of an adjustable instrument of which the members are capable of assuming any angle with each other from zero degrees to ninety degrees and which shall moreover be adapted for use either right handed or left handed to suit the exigencies of the work or the peculiarities of the workman. In the drawings hereto annexed which illustrate this invention,

Fig. 1 is a plan view of an adjustable square and bevel with a radius at right angles to the base;

Fig. 2 is a plan of the same instrument showing the manner in which the radius may be reversed from one side of the base to the other;

Fig. 3 is a plan view partly broken away illustrating the instrument in condition for use as an ordinary square;

Fig. 4 is a plan view illustrating the condition of the instrument when used as a 45° bevel;

Fig. 5 is an end view viewed from the right of Fig. 1;

Fig. 6 is a longitudinal section through the middle of the radius slide showing portions of the base;

Fig. 7 is a detail showing a plan view of one of the clamping springs; and

Fig. 8 is a cross section taken on the line 8—8 of Fig. 1.

The base of the instrument illustrated in the drawings consists of two parallel straight edged members 1—1 which are spaced apart and joined by end yokes 2—2 and if desired intermediate yokes 3. The parallel members or rails 1—1 are beveled at 1^a along their inner edges and undercut at 1^b the two beveled edges forming a lodgment for beveled lugs such as 4^a which are secured at the under sides of the slides presently to be described. The rails 1—1 are also undercut at 1^b so as to provide lodgment for the flat heads 10^a of clamping bolts 10. The base comprising parallel rails 1—1 is substantially the same as that described in my United States Patent No. 1,079,110, dated Nov. 18, 1913, and the adjustable clamping means by which the slides are secured to the base as desired are substantially the same and operate in generally the same manner as the clamping means for the adjustable square and bevel members described in the said patent.

In the improvements here described there are employed two adjustable slides, both mounted in a way which extends lengthwise of the base and preferably from end to end thereof. One of these, marked 4 in the drawings, is the radius slide since it constitutes the support on which the radius 5 is pivotally mounted at 5^a. The other marked 6 is the strut slide since it carries pivotally mounted upon it at 6^a, the strut 7 which is also pivotally secured to the radius 5 at 7^a, a suitable distance from the radius pivot 5^a. The adjustable clamping means by which the slides 4 and 6 respectively may be secured at desired positions upon the base consist of the screw threaded bolts 10 provided with the flat heads 10^a, the latter lodged in the undercuts 1^b on the rails 1; plate springs 12—12^a perforated to admit the bolts 10, and knurled nuts 11. Each spring 12 and 12^a bears at its ends upon the top of a slide, either slide 4 or slide 6, so that when the nut 11 is tightened the beveled lug such as 4^a is drawn to a seat on the beveled edges 1^a of the rails 1 and is thus accurately centered on the base. By slackening the nut 11 either slide may be sufficiently released from the base rails 1 so as to be lifted therefrom and be turned pivotally upon the bolt 10. I have shown both slides 4 and 6 thus mounted although in practice it will hardly be necessary to slacken the slide 6 more than enough to slide it on the base rails 1. The above mentioned parts are so proportioned that when the slides 4 and 6 are placed with their adjacent ends abutting, the radius 5 will stand at a predetermined angle, preferably 90°, with the rails 1 of the base. The base and radius thus form a square and the radius may be placed at any desired position on the base either intermediate of the ends as shown in Fig. 1 or at the end as shown in Fig. 3. To set the radius 5 as a bevel the clamping means of the radius slide 4 or strut slide 6, or both, are slackened and one or both slides moved along the base until

the radius 5 assumes the desired angle of relationship with the base. The 45° relationship is shown in Fig. 4. If it be desired to lay the radius 5 parallel with the base so as to use the base simply as a straight edge or for purposes of packing and transportation the clamping means of radius slide 4 are slackened until the beveled lugs 4^a may slip out of their lodgment on the beveled edges 1^a of the edges 1 and then the slide 4 is turned upon its clamping bolt 10 as a pivot so that it lies in the position shown in Fig. 2, when the radius 5 may be turned upon its pivot 5^a and slipped under the strut 7. If it be desired to change the instrument from a right handed to a left handed square or bevel the radius 5 is passed under the strut 7 until as indicated in dotted lines in Fig. 2 it projects from the other side of the base. Then if desired the radius slide 4 can again be pivotally reversed so that its end may be abutted against the end of the strut slide 6. Occasionally it may be desirable to have means for aligning the base to a surface, other than those provided by the outer edges of the rails 1—1, and with this in view I provide the alignment lugs 8^a and 9^a secured respectively to the radius slide 4 and strut slide 6. The outer flat sides of these alignment lugs when the slides 4 and 6 are set and centered by their clamping means, are flush with the outer edges of the rails 1—1 and thus provide alignment points for contact with a plane surface.

The mode of operation of my improved carpenter's instrument will be obvious from the foregoing description. The advantages to be derived from it are that in a single instrument which is easily folded within the compass of a simple straight edge the workman has a square or bevel which may be made to assume and therefore measure any angle from zero degrees to ninety degrees, in which the radius may be made to project from any point along the length of the base, and in which the radius may be shifted from one side to the other of the base at will.

I claim:—

1. In a carpenter's instrument, the combination of a straight base having a straight way lengthwise thereof, a radius-slide, a radius pivoted on the radius-slide, a strut slide, a strut pivoted on the strut slide and to the radius at a distance from the radius pivot, both said slides mounted to slide in the said way, and clamping means to set the slides on the base.

2. In a carpenter's instrument, the combination of a straight base, a radius-slide, a radius pivoted on the radius-slide, a strut slide, a strut pivoted on the strut slide and to the radius at a distance from the radius pivot, and clamping means to set the slides on the base, the radius standing at a right angle to the base when the two slides are abutted against each other.

3. In a carpenter's instrument, the combination of a straight base, a radius-slide, clamping means, comprising a bolt, to set the radius-slide on the base, said radius-slide being pivotally reversible on the said bolt, a radius pivoted on the radius-slide to swing to either side of the base, a strut slide, a strut pivoted on the strut slide and to the radius at a distance from the radius pivot, and clamping means to set the strut slide on the base.

4. In a carpenter's instrument, the combination of a straight base, a radius-slide, a radius pivoted on the radius-slide at one end thereof, a strut slide, a strut pivoted on the strut slide and to the radius at a distance from the radius pivot, and clamping means to set the slides on the base, the radius standing at a right angle to the base when the two slides are abutted against each other.

5. In a carpenter's instrument the combination of a straight base a plurality of slides mounted thereon, clamping means for said slides including bolts one of said slides being pivotally reversible on its bolt; and pivotally connected arms pivoted to said slides.

6. A carpenter's instrument comprising, in combination, a base having a straight way lengthwise thereof, a radius, a pivot on the base, whereon the radius is mounted, a strut, pivotally secured at one end to the radius, a strut-pivot on said base whereon the other end of the strut is mounted, one of said base-pivots being slidably mounted on said base, an abutment fixed with relation to the other base pivot and adapted by contact with the slidable base-pivot to fix the radius at a predetermined angle with the base.

Signed by me at Boston, Massachusetts. this 18th day of May, 1920.

FRANK G. COLE.