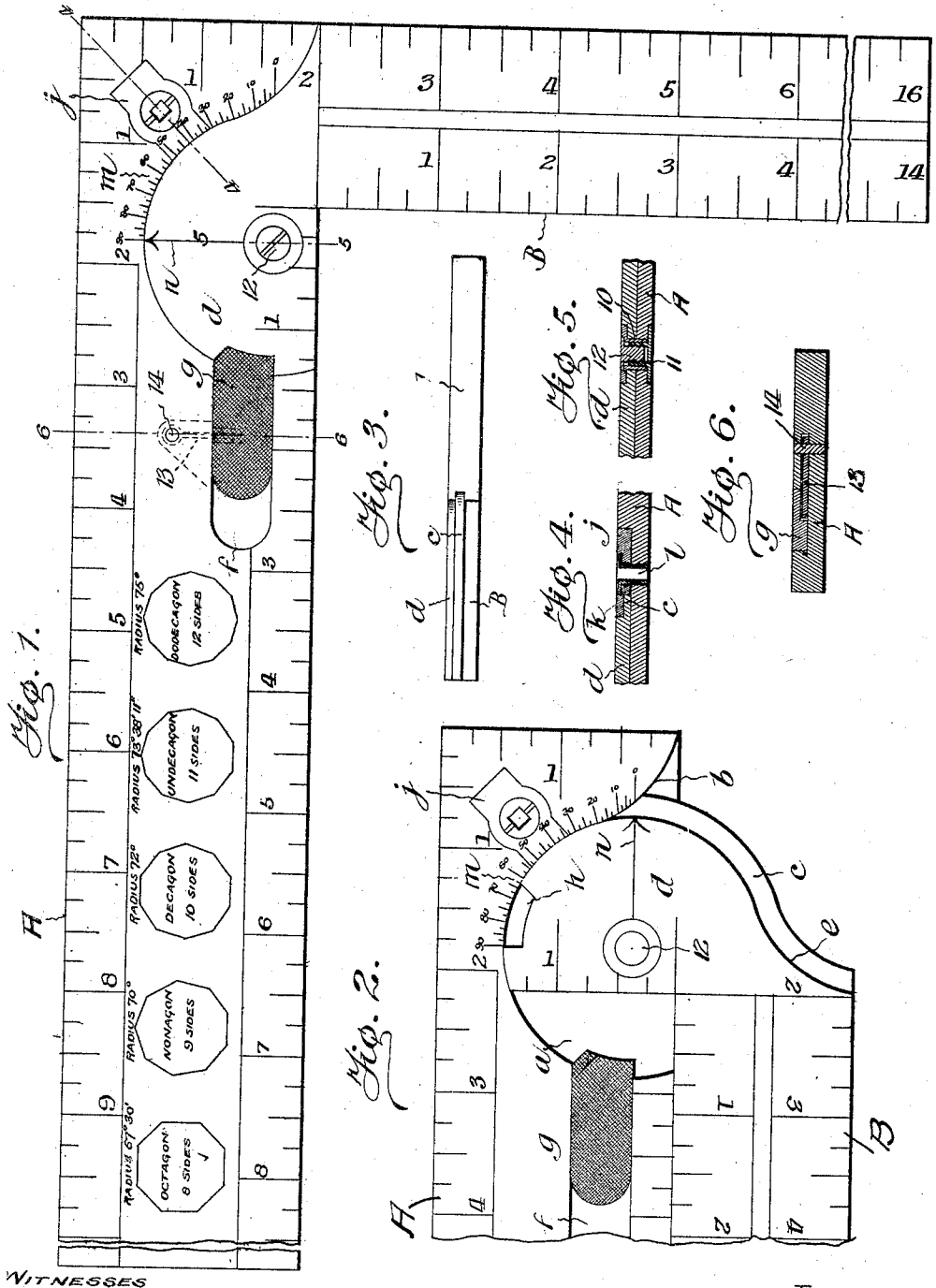
J. BARKER.

FOLDING STEEL SQUARE.

APPLICATION FILED DEC. 13, 1910. RENEWED APR. 11, 1912.

1,043,502. **Patented Nov. 5, 1912.**



WITNESSES

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FOLDING STEEL SQUARE.

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Application filed December 13, 1910, Serial No. 597,053. Renewed April 11, 1912. Serial No. 690,041.

To all whom it may concern:

Be it known that I, JOHN BARKER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Folding Steel Squares, of which the following is a specification.

My present invention relates to carpenters' steel squares of that type in which the arm and blade are arranged to fold together, and more particularly to improvements upon the steel squares described and claimed in my Patents Numbers 952,176 and 952,177, both issued to me March 15, 1910.

The principal object of my present invention is the provision of a folding steel square, embodying a protractor, and representative figures of the polygons so often used in the trade, and so important thereto, these figures having angle designations in relation to the protractor that is each figure is provided with the graduation of the protractor scale at which the blade must be set to obtain its angle cut.

Further objects, and advantages arising from novel details of structure, will be hereinafter made apparent, from the accompanying description, in which reference is made to the drawing forming a part of this specification, and in which—

Figure 1 is a plan view of my improved steel square, showing the same in the open position. Fig. 2 is a similar view of a portion thereof in the folded position. Fig. 3 is an end view of Fig. 2. Fig. 4 is a detail section taken on line 4—4 of Fig. 1. Fig. 5 is a similar view on the line 5—5 of Fig. 1, and Fig. 6 is a transverse section through the arm, taken on the line 6—6 of Fig. 1.

Referring now to these figures, the arm A, and the blade B of my improved steel square, are both provided along their inner and outer edges with the usual graduations, and the arm A is further provided with a central and longitudinally extending series of polygonal figures, each of which is designated with its respective name, the number of its sides, and the angle required to cut the same.

Adjacent to one end, and at its inner edge, the arm A is provided with a substantially semi-circular cut-out portion *a* which extends through one-half of its thickness, one side of said cut-out portion, being flared outwardly to the extreme end of the arm in order to form a convex shoulder *b*. The arm A is also provided, around the cut-out portion *a* and shoulder *b*, with an under-cut recess in which projects the extension rib *c* of the reduced semi-circular tongue *d* of the blade B, which tongue interfits the arm recess or cut-out portion *a*, and is provided with a transverse opening adapted to aline with a similar opening through the arm *a*, when the arm and blade are placed together in proper relation. The pivotal connection between the arm and blade is formed by telescoping sleeves 10 and 11, the former of which extends downwardly within the aforementioned openings, through the tongue *d*, and the latter of which extends upwardly and within sleeve 10, through the reduced part of arm A. The heads of these sleeves 10 and 11 are counter-sunk so that their surfaces lie flush with the surfaces of the tongue *d* and arm *a*, and the inner sleeve 11 is internally threaded to receive a small machine screw, the head of which is countersunk in the head of the outer sleeve 10. The tongue *d* of the blade B is offset from said blade, and is provided at one side with a concave portion *e* which abuts the convex shoulder *b* of the arm A, when the arm and blade are exactly at right angles.

The arm A is provided with a recess *f* extending parallel with the inner edge thereof and inwardly from the recess *a*, in which recess *f* is disposed a sliding locking member *g*, this member having a beveled outer end, and tensioned to project its said beveled end toward and within the recess *a*, by means of the free engaging end of a spring 13, the opposite end of which is locked within a channel in the arm A, by means of a transverse pin 14. The semi-circular edge of the tongue *d* is provided with a cut-out portion *h*, so positioned as to receive the beveled end of the locking slide *g* when the arm A and blade B are exactly at right angles, thus locking the same from inward folding movement. The arm A is further provided with a recess in its surface, extending at an angle from its recess *a*, and with a transverse threaded opening communicating with said angular recess. Fitted within this angular recess is an apertured plug *j*, at one end of which is a reduced extension *k*, which overlies the rib *c* of the blade tongue *d* and the end of which is flush with the edge of the arm recess A. A screw *l*, which passes through the aperture of plug *j* and threads into the opening in the arm A

which screw has an angular opening and a slotted head so as to receive either a key or screw-driver to adjust the same, forms means for adjusting the plug *j* so as to compress its overlying extension *k* in binding engagement with the tongue *c*, so as to lock the blade B in selected angular adjustment in relation to the protractor scale *m*, formed around the edge of the arm recess *a*, and with which a pointer *n*, of the tongue *d* cooperates.

From this it will be seen that my improved square may be readily and easily folded by sliding the locking plate *g* inwardly, and swinging the blade B against the arm A to the position shown in Fig. 2.

It will be further seen that the arm and blade may be rigidly locked in the open position by means of the locking plate *g* and that said blade B may be quickly and rigidly locked in selected angular adjustment with relation to the arm A, by means of the plug *j* and that the protractor scale when utilized in accordance with the designations of the polygons, will enable a mechanic to lay out numberless angles impossible with the ordinary square.

I claim:—

1. In a folding steel square, the combination of an arm having a semi-circular recess at one end, and provided with an undercut channel surrounding said recess, a blade having a reduced semi-circular tongue interfitting, and pivoted within, said arm recess, and provided with a rib extending around its edge and fitting within said under-cut channel, said arm having a second recess extending at an angle from its first named recess, a bearing plug mounted in said last named recess and having a reduced extension overlying the said rib of said tongue, and an adjustable member for securing said bearing plug in position and compressing the same upon said rib to lock said blade in selected angular adjustment with relation to the said arm.

2. In a folding steel square, the combination of an arm having a semi-circular recess at one end and provided with an undercut channel surrounding said recess, a blade having a reduced semi-circular tongue interfitting, and pivoted within, said arm recess, and provided with a rib extending around its edge and fitting within said under-cut channel, means carried by the arm to lock the blade at right angles thereto, said means being engageable within a recess of the blade tongue, and other means carried by the arm to lock the blade at a selected degree of angle with relation thereto, said last named means comprising a plug bearing upon and frictionally engageable with, the tongue rib.

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

JOHN BARKER.

Witnesses:
MYRON G. CLEAR,
ANNA M. MENGEL.