

No. 666,346.

Patented Jan. 22, 1901.

W. V. GOELZER.
CARPENTER'S SQUARE.

(Application filed Nov. 22, 1899.)

(No Model.)

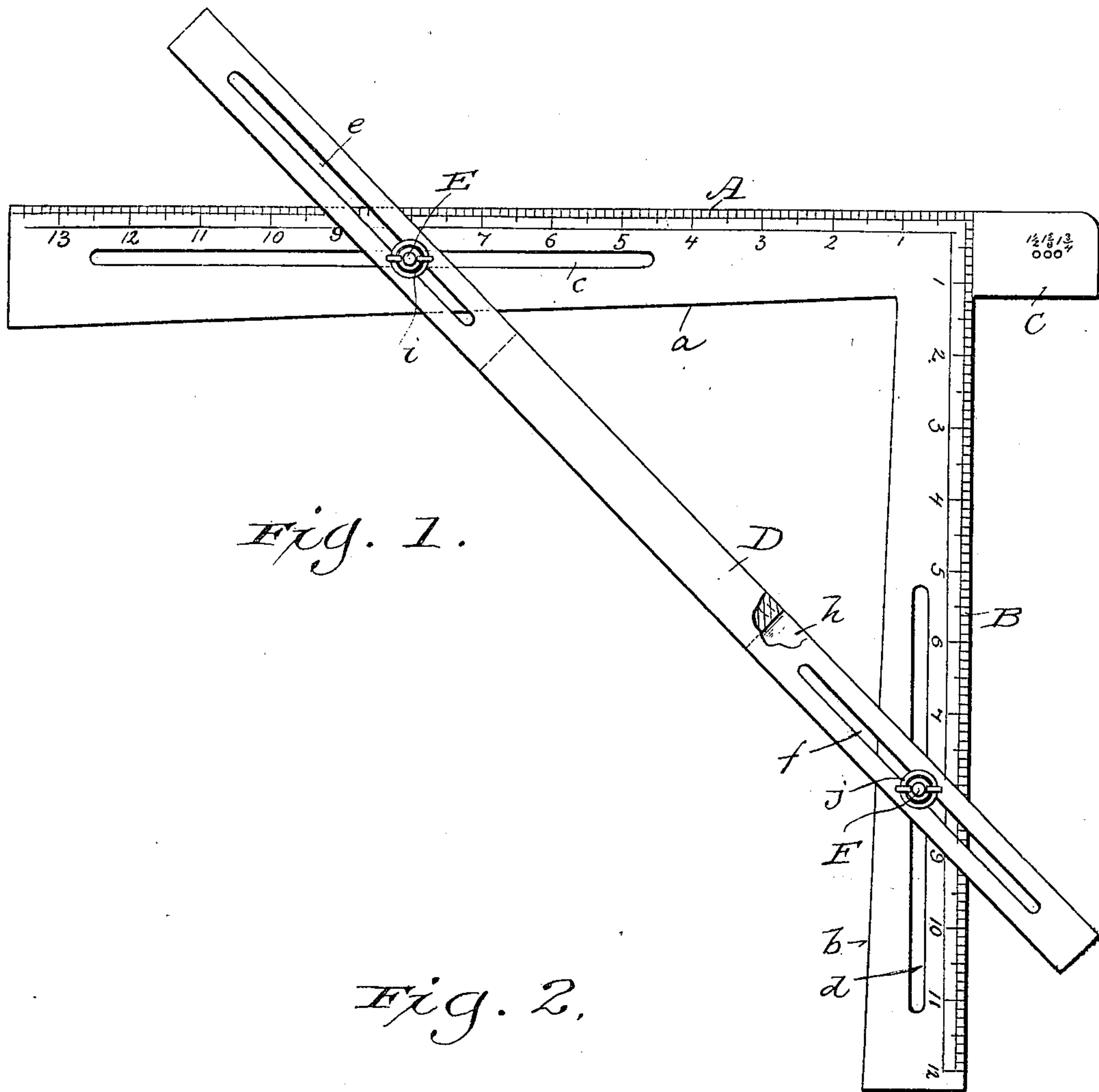


Fig. 1.

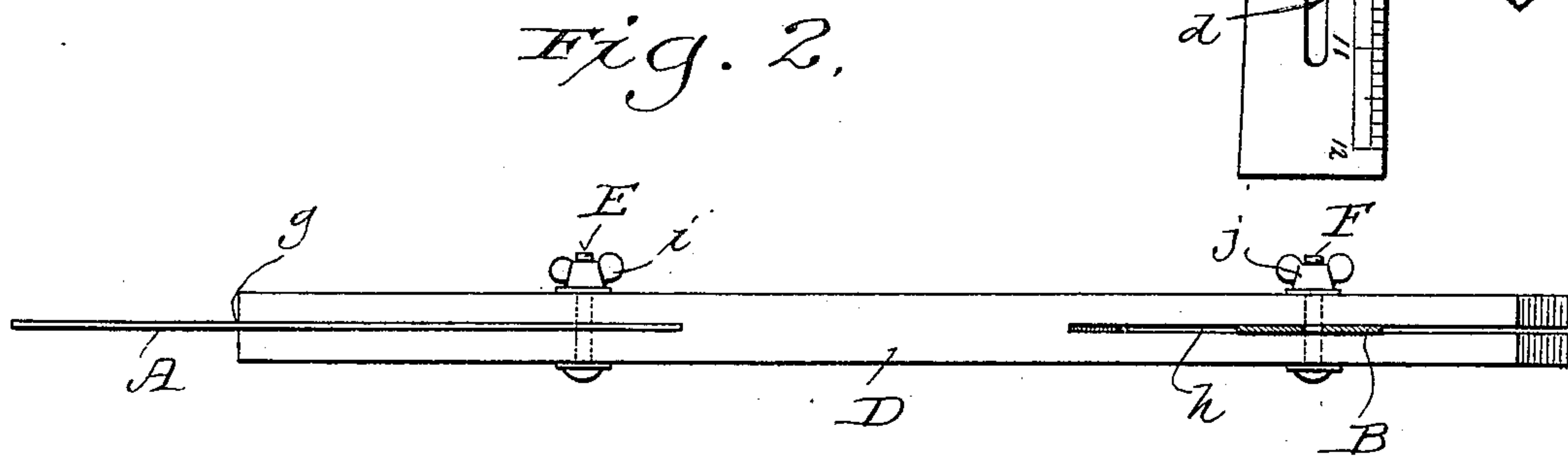


Fig. 2.

Witnesses:

Geo W Young
B. C. Roloff

Inventor
William V. Goelzer.

By H. G. Underwood.
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM V. GOELZER, OF MILWAUKEE, WISCONSIN, ASSIGNOR OF TWO-THIRDS TO HENRY J. GOELZER AND PETER GOELZER, OF SAME PLACE.

CARPENTER'S SQUARE.

SPECIFICATION forming part of Letters Patent No. 666,346, dated January 22, 1901.

Application filed November 22, 1899. Serial No. 737,846. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM V. GOELZER, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Carpenters' Squares; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has especial reference to a carpenter's square designed for use in laying out and building stairs; and it consists in certain peculiarities of construction and combination of parts, as will be fully set forth hereinafter and subsequently claimed.

In the drawings, Figure 1 is a plan view of my improved device, partly broken away at one point; and Fig. 2 is an edge view or an end elevation of the same with one arm of the square in section.

Referring by letter to the drawings, A B represent the two arms of the square, (preferably of steel,) which along their outer edges (on both sides) are provided with the usual scale-graduations of inches and fractions thereof, as is customary with ordinary squares, said outer edges being at right angles to each other, while the inner edges *a b* of said arms in my device are not parallel with the outer edges, but converge therefrom. In line with the arm A there is a projection (marked C) integral with the square and having a closely-assembled series of holes therethrough, said holes in this illustration being marked " $1\frac{1}{2}$," " $1\frac{5}{8}$," and " $1\frac{3}{4}$," for a purpose hereinafter explained. The described arms A B are further provided with longitudinal slots *c d*.

D represents a guide, which preferably is formed of wood and provided with the slots *e f* adjacent to each end and with the slots or kerfs *g h* at right angles to the first-named slots for the reception of the arms of the square, the slots or kerfs *g h* being open through the ends of the said guide.

E F represent set-screws whose shanks pass through the slots *e f* in the guide and the slots *c d* in the square when the parts are assembled as shown in the drawings, and *i j* are thumb-nuts on said set-screws for securing all the parts of my device firmly together after the proper adjustment has been made.

The just-described construction of my guide D, with the kerfs *g h* extending through the

ends and toward but not to the solid center of said guide, is one of the essential features of my invention, possessing several advantages, one being that in assembling the parts the guide is merely pushed against the square instead of having to thread the square-arms through holes in the guide; but the most important feature resulting from my novel construction is the secure hold of the guide upon the square-arms, resulting from the clamping together of the open free forked ends upon the square-arms between them when the thumb-nuts are tightened on the set-screws.

In building stairs it is customary to prepare the side pieces or stringers of pieces of lumber of the proper size and length and to mark thereon lines for the risers and treads of the steps. For the simplest form of stairs the stringers are merely sawed out on the said lines, and in order to use my device the set-screws are loosened and the guide D adjusted so that its upper edge coincides with the proper graduation on the arm A of the square for the depth of the tread and with the proper graduation on the arm B of the square for the height of the riser, and then the thumb-nuts are tightened and the guide D laid against the edge of the stringer and lines drawn along the outer edges of the square, the device being then moved along the proper distance to lay out the lines for the next step, and so on the entire length of the stringer. If, however, the steps are to be inclosed or boxed in between the stringers, then when the desired adjustment has been made, as before, for the depth of tread and height of riser the guide D is laid against the edge of the stringer and the lines drawn not only along the outer edges of the square, as before, but also along the oblique inner edges *a b* of the two arms A B, and lines (for the nosing) are also drawn around the projecting part C of the square. Now suppose that the nosing of the tread is to project an inch and a half beyond the vertical line of the riser. Then an awl is stuck through the first of the holes in the part C of the square, which hole is marked " $1\frac{1}{2}$," to mark the point for the insertion of a bit, as hereinafter explained, and the guide D is slid along the edge of the stringer and the lines for the next step marked out, as before, and so on. Then the wood between the

lines of the square is housed out by the use of proper tools to the required depth, (usually about half an inch,) a bit being first employed at the awl-mark, then stiff-backed
 5 saws along the straight and oblique lines marked out by the arms A B, and then a chisel or other proper tool to remove the wood between the saw-kerfs. The treads and risers whose ends are to be inserted in the thus
 10 housed-out places in the stringers are formed of equal thickness throughout the length of each tread or each riser, and hence there are left spaces between the inner edges of the said treads and risers and the adjacent walls of
 15 the housings in the stringers, said walls being oblique to the line of said inner edges of the risers and treads, and the spaces thus left are filled by driving in wedges, so as to tightly secure the said risers and treads in place.
 20 I regard my peculiar projection C as of great importance, and the construction of a projection integral with the angle of the immovably-united square-arms, the said projection having a closely-assembled series of holes
 25 therethrough, is a novel feature in devices of this class that adds greatly to the convenience, durability, and efficiency of the tool and is an essential part of my invention, doing away with the use of separate removable
 30 projections and being every way better and cheaper. Another feature of importance lies in the smooth imperforate edges of my square-arms and their freedom from any attachments or connections either at their ends or
 35 adjacent to their edges.
 While, as thus described, my square is particularly applicable to use in stair-building, it is also useful in laying out rafters and in other work of the carpenter and builder, and
 40 by reason of having the scale-graduations on both sides of the square-arms, as stated, the device is equally useful for laying out work from either the right or left of a given point, in addition to which, as the two arms of the
 45 square are rigidly and integrally united, as clearly shown in Fig. 1 of the drawings, all risk or danger of error or inaccuracy in the laying out of the work (such as is liable to happen from the slight accidental disarrangement
 50 of separable or movable square-arms, no matter how tightly the same are originally secured together) is entirely obviated, thereby overcoming a serious defect, which has heretofore resulted in entirely spoiling the
 55 work in many cases. It will further be remembered that the outer edges of the two immovably-united square-arms A B form a perfect square at absolute right angles to each other, and this is also a very important feature
 60 of my device, coupled with the described oblique inner edges *a b* of the said two arms A B, the object of which construction has already been described, and my device has the further advantage of adjustability resulting
 65 from the slots *e f* adjacent to the opposed ends of the guide D, by means of which and the coöperating set-screws E F, whose shanks,

as heretofore stated, pass through the just-named slots and also through the slots *c d* in the arms A B, absolutely perfect alinement
 70 of said guide may be obtained by adjustment at both ends thereof or at either end, as required in any given instance, which I believe to be entirely novel with my device.

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

1. A carpenter's square, comprising two immovably-united arms extending at right angles to each other, and free from connection
 80 at their outer ends, the outer edges of said arms extending at right angles, and the inner edges at oblique angles, to each other, the said arms being longitudinally slotted, and having smooth imperforate edges, in combination
 85 with a guide, having open bifurcated ends and a solid integral center, and transverse slots at each end intersecting the said bifurcated ends, and adjustable fastening devices for uniting the said square-arms and
 90 guide.

2. A carpenter's square, comprising two immovably-united arms projecting at right angles to each other and free from connection
 95 at their outer ends, each arm having a slot therethrough, and the outer edges of said arms being at right angles to each other and provided with scale-graduations, while the inner edges of said arms extend in straight lines
 100 oblique to the lines of the outer edges, in combination with an adjustable guide, each end of which is bifurcated by means of a longitudinal kerf extending through said end toward, but not to, the center of the guide, and
 105 there being a transverse slot through each end of the said guide, intersecting the said adjacent kerf, and set-screws whose shanks pass through the said slots at both ends of the said guide, and through the adjacent slots
 110 in the square-arms.

3. In a carpenter's square, a pair of immovably-united arms extending permanently at right angles to each other and having their inner edges formed in straight lines oblique
 115 to the straight lines of their outer edges, one of said arms having a projection integral therewith, and having a straight inner lower edge in line with the corner of the inner edges of said arms, and at right angles to the outer
 120 edge of the other of said arms, together with a closely-assembled series of perforations extending through said projection entirely and some considerable distance beyond the line of said outer edge of the said other arm, in combination with an adjustable kerfed and
 125 slotted guide and set-screws.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

WILLIAM V. GOELZER.

Witnesses:

H. G. UNDERWOOD,
 F. R. BUELL.