W. McGOWAN.

COMBINATION SQUARE, MITER, AND GAGE TOOL.

APPLICATION FILED MAY 20, 1914.

1,127,468. **Patented Feb. 9, 1915.**

2 SHEETS—SHEET 1.

Fig. 1.

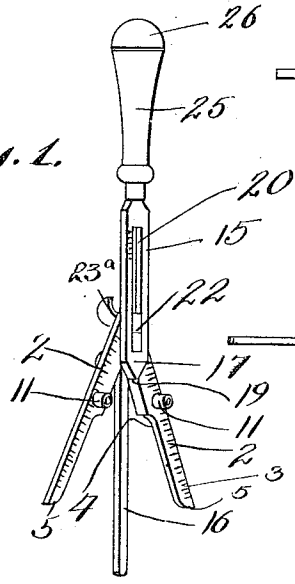


Fig. 3.

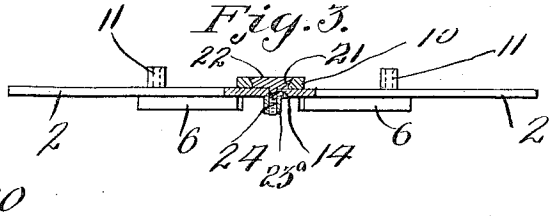


Fig. 2.

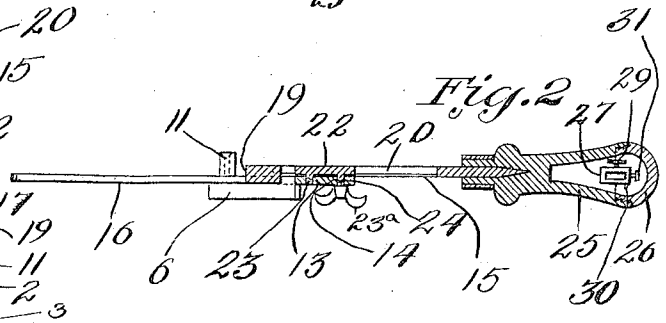


Fig. 9.

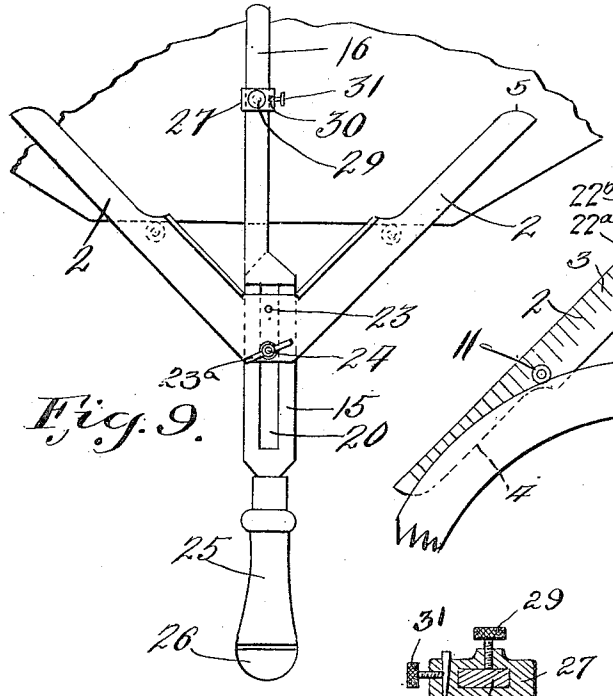


Fig. 4.

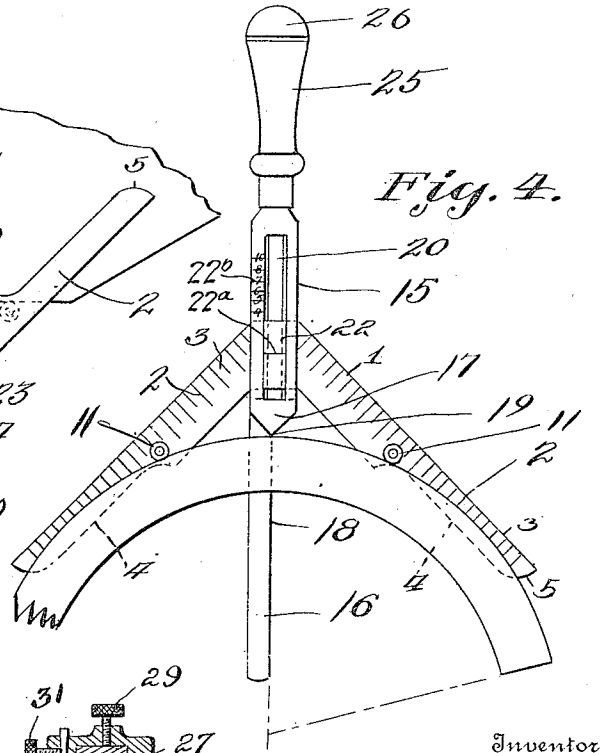


Fig. 10.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 6.

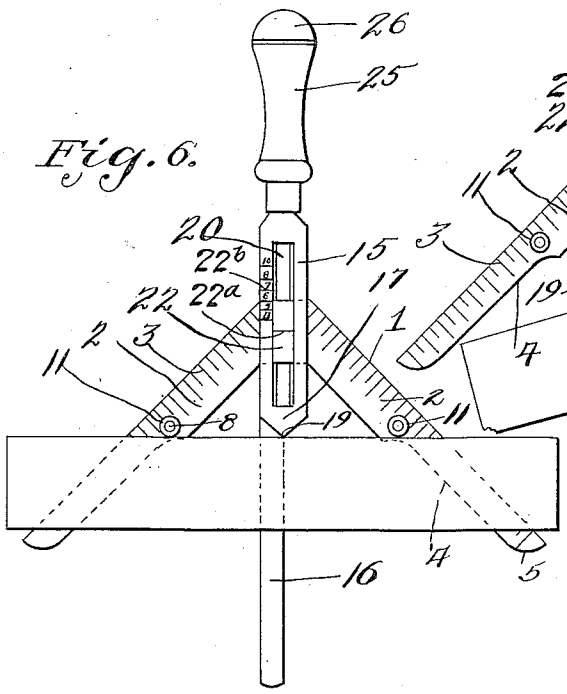


Fig. 5.

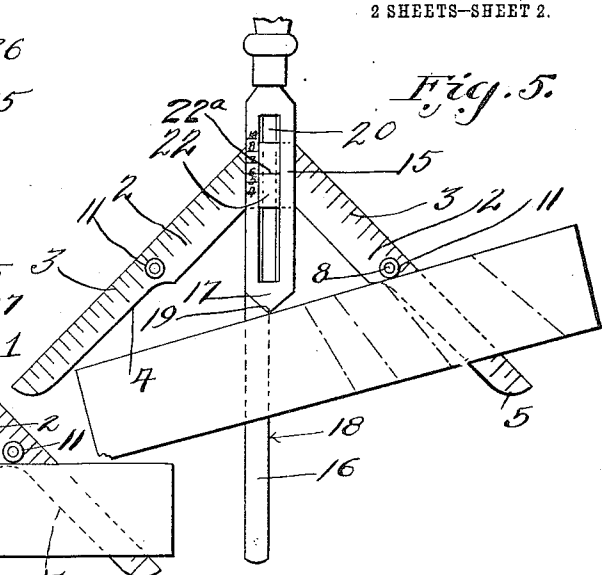


Fig. 7.

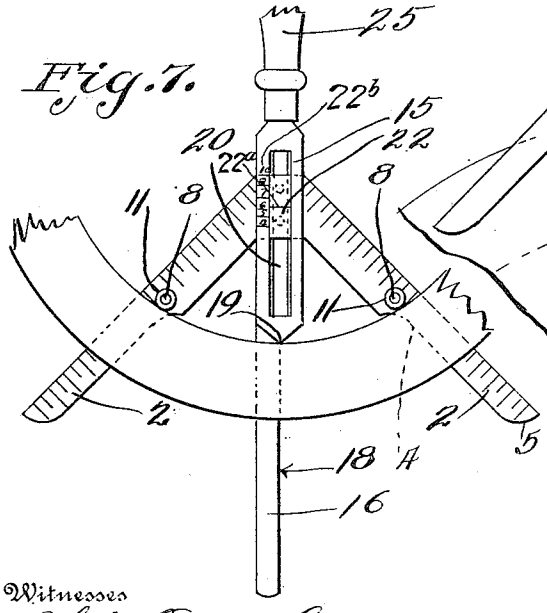
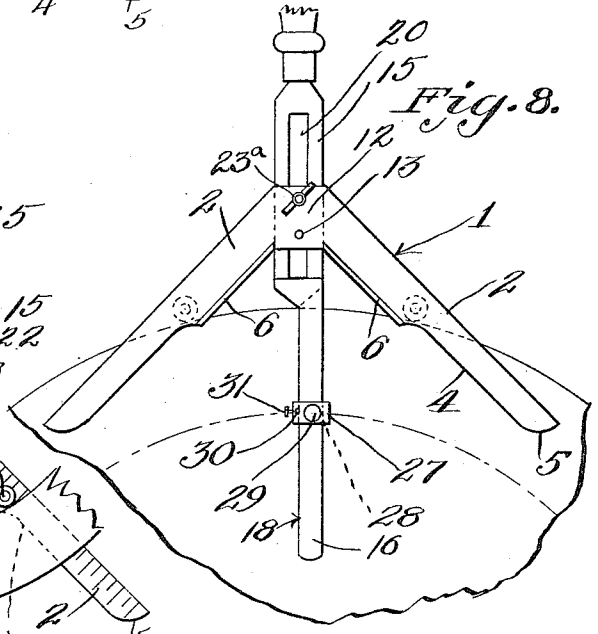


Fig. 8.



Witnesses

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UNITED STATES PATENT OFFICE.

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COMBINATION SQUARE, MITER, AND GAGE TOOL.

1,127,468. Specification of Letters Patent. Patented Feb. 9, 1915.

Application filed May 20, 1914. Serial No. 839,801.

To all whom it may concern:

Be it known that I, WILLIAM McGOWAN, a citizen of the United States, residing at Spickard, in the county of Grundy and State of Missouri, have invented a new and useful Combination Square, Miter, and Gage Tool; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a combination square, miter and gage tool or instrument, designed particularly for use by carpenters and like mechanics.

The invention aims as one of its objects to provide the device of this nature whereby circular rims or segment rims and the like may be divided and marked in such wise that various miter joints may be cut, in cabinet construction, as well as in house building and the like.

As another object it is the aim of the invention to provide such a device, whereby straight pieces of timber or board may be marked, and then cut for miters, so that sections of straight pieces may be joined to form true polygons of various diameters.

Another object of the invention is the provision of a device that may be used in conjunction with the inner or outer edge of a circular rim, whereby the same may be divided.

This improved device is also exceedingly useful in marking miter joints for roof rafters or arches of windows.

One of the features of the invention is to provide a device which eliminates the necessity of ascertaining the center of a circular piece, before the same is marked for various miters.

In reducing the improved device to practice, it may be found necessary to subject the details of construction to alterations, falling within the scope of what is claimed.

Another object of the invention is the provision of means upon a central blade of the device enabling the same to be used not only as a gage for marking a straight piece of timber whereby the same may be ripped, but may be used as a gage for marking any form of circular, diamond-shaped or polygonal shaped piece, whereby the central portion of the piece may be cut or sawed by means of a profile, circular or scroll saw, thereby leaving the opening in the piece to correspond with the outer contour or shape.

The invention comprises further features and combination of parts, as hereinafter set forth, shown in the drawings and claimed.

In the drawings:—Figure 1 is a perspective view of the improved tool or instrument. Fig. 2 is a longitudinal sectional view. Fig. 3 is a transverse sectional view through the parts 14, 22, 23 and 24 shown in Fig. 2. Fig. 4 is a plan view, showing the instrument or tool used for marking miters upon a circular rim or strip. Fig. 5 is a plan view showing the instrument in conjunction with a straight strip, whereby miters may be marked, so that the sections of the strip may be joined to form a polygon as illustrated in another figure of the drawing. Fig. 6 is a view using the instrument whereby a miter may be marked at each end of a strip. Fig. 7 is a view showing the instrument utilized upon the inner edge of a circular strip, whereby the same may be marked for cutting miters. Fig. 8 is a plan view employing the instrument as a gage whereby the inner portion of a circular piece may be marked or scratched so that its interior portion may be cut away leaving an opening corresponding to the contour concentrical with the outer edge. Fig. 9 is a plan view illustrating a polygon shaped piece and the instrument used as a gage for scratching or marking or scoring a line corresponding in contour to the shape of the polygon. Fig. 10 is a detail view of the scoring tool 30.

Referring more especially to the drawings, 1 designates a carpenter's square, the arms of which, designated by the numeral 2, are provided with the usual graduations 3. The inner edges of said arms for substantially half their length are cut away, as shown as at 4, which cutaway edges round off at the extremities of said arms, as shown at 5. The inner portion of said arms for the other half of their length are constructed with laterally extending flanges 6, designed for engaging the periphery of a circular or polygonal shaped piece, said flanges extending at an angle to the periphery of the piece. The ends of said flanges 6 are used sometimes for engaging the periphery of a circular or otherwise shaped piece, so that the slotted blade 15 may be adjusted radially

toward the center of said piece, whereas when the square is arranged so that the rollers 11 will engage the periphery of the piece as shown in the drawings, this manner of adjusting the slotted blade could not be attained, owing to the point or apex contacting with the periphery of the piece. In using the ends of said flanges in this manner, the square may be arranged so that the slotted blade may be adjusted to find one radius, after which the square may be arranged in another position and the slotted blade adjusted, to find another radius at right angles to the first radius and intersecting the same, thereby ascertaining the center of the circular piece. In adjusting the slotted blade the slide 22 of the square is adjusted so that the mark on said slide will coöperate with anyone of the graduations at the edge of the slot in said blade. Upon the faces of the arms opposite the faces to which the flanges are attached, are provided lugs 8 on which rollers 11 are journaled. These rollers are also designed to engage the periphery of a circular or polygonal shaped piece, as shown in the drawings. Where the two arms form a junction, as indicated at 12, a pair of apertures 13 and 14 is formed. Referring to the drawings it will be seen that a slotted blade 15 is provided having an extension leg 16. This extension leg is offset from one face of the blade 15 as shown, while the lower end of the blade terminates in a V-shaped portion 17, the apex of which alines with one edge 18 of the extension leg 16, so that when the leg is utilized in finding the center of a circular piece, the apex 19 of said V-shaped portion 17 will engage the periphery of the circular piece, at the same time the rollers 11 engage the periphery. The two arms of the square are provided for the purpose of supporting said rollers 11, so that the rollers will engage the periphery of a circular or otherwise shaped piece so that when the apex 19 engages the periphery of the piece, the tool is well balanced with reference to the piece, so that the leg 16 of the slotted blade will always extend radially to the piece. This same result is attained when the ends of said flanges 6 engage the periphery of the piece. But in the case when the ends of the flanges engage the piece, the apex 19 is not utilized. When either the rollers 11 or the ends of said flanges engage the edge of a straight piece as shown in Fig. 6, then the tool may be used as a gage, the scoring or scratching tool 30 upon the leg 16 is used to score a line, indicating where the piece should be cut. By permitting one of the rollers 11 of the square and the apex 19 to engage the edge of a straight piece as shown in Fig. 5, and by adjusting the slotted blade in various positions, different lines may be scored by a pencil sliding against one of the arms of the square, so as to indicate various miters, as shown in Fig. 5. By disposing the extension leg 16 in this manner and scoring a line and re-arranging the device but in a similar way using another radius, and scoring a second line intersecting the first one, the center of the circular piece may be located. As before stated, in using the instrument in this way the apex 19 and the rollers 11 should always engage the periphery of the piece.

The elongated slot 20 of the blade 15 has its longitudinal edges beveled, as shown in the transverse sectional view, as at 21, and an elongated slide correspondingly shaped in cross section and designated by the numeral 22 fits the slot, from the opposite side of the blade upon which the square is arranged. This slide 22 is provided with a pair of lugs 23 and 24, the lug 24 being threaded. These lugs pass through the apertures 13 and 14, that is, the threaded lug 24 passes through the aperture 14 while the lug 23 passes through the aperture 13, there being a thumb nut 23^a upon the threaded lug 24 engaging the square at the junction of the arms thereof, to hold the square in position. By this construction the square may be adjusted to any position relative to the apex of the blade 15, or adjacent one end or the other of the elongated slot. The blade 15 is provided with a hollow handle 25 having a threaded closure 26, for the reception of the slide 27. The slide 27 is provided with an opening 28 to receive the extension leg, there being a thumb screw 29 for holding the slide 27 in adjusted position. This slide 27 has a scratching or scoring tool 30 extending transversely thereof, being held in adjusted positions by means of a thumb screw 31. By placing the slide 27 upon the extension leg, and adjusting the same in the desired position, the instrument may be used as a carpenter's or other mechanic's gage tool, as illustrated in one or two of the figures. When the slide 27 is not employed, the same may be placed in the hollow handle.

The slide 22 is provided with a mark 22^a scored thereon transversely, which mark is designed to coöperate with the graduations 22^b on one side of the slotted blade 15. This slide is set so that the mark 22 will register with one or another of the graduations 22^b, so that the square may be set in the proper position in order that the rollers 11 may assume positions relative to the apex 19, in order that miters of different angles may be scored on a straight strip as shown in Fig. 5. In other words, if the mark 22^a is set opposite the graduations 4, a miter of one angle may be scored on the strip, and if the mark is set opposite the graduations 6, or opposite the graduations 8, a miter of another

angle may be scored, as shown in Fig. 5. In scoring these miters the apex 19 and one of the rollers 11 engages one edge of the strip, one arm extending angularly across the strip, after which the miter is scored or marked.

It is deemed unnecessary to further describe the various uses of the instrument or tool, owing to the well defined illustration of the accompanying drawings.

The invention having been set forth, what is claimed as new and useful is:—

1. A combination miter and gage tool comprising a slotted blade having a V-shaped portion at one end and provided with an extension leg offset upon one side of the blade, a square having its arms disposed so as to make equal angles with one longitudinal edge of the leg, and means for holding the square adjustably to the slotted blade.

2. A combination miter and gage tool comprising a slotted blade having a V-shaped portion at one end and provided with an extension leg offset upon one side of the blade, a square having its arms disposed so as to make equal angles with one longitudinal edge of the leg, and means for holding the square adjustably to the slotted blade, said means comprising a slide in the slot of the blade and provided with lugs, said square having apertures to receive said lugs, and a thumb screw threaded on one of said lugs.

3. A combination miter and gage tool comprising a slotted blade having a V-shaped portion at one end and provided with an extension leg offset upon one side of the blade, a square having its arms disposed so as to make equal angles with one longitudinal edge of the leg, and means for holding the square adjustably to the slotted blade, said extension leg being used for locating the center of the piece and scoring a line radiating from the center, and constituting means for receiving a scoring gage tool.

4. A combination miter and gage tool comprising a slotted blade having a V-shaped portion at one end and provided with an extension leg offset upon one side of the blade, a square having its arms disposed so as to make equal angles with one longitudinal edge of the leg, and means for holding the square adjustably to the slotted blade, the arms of the square having rollers, which together with the apex of the V-shaped end of the blade engage the edge of a piece, with the arms of the square extending substantially across the piece, whereby miter marks may be scored.

5. A combination miter and gage tool comprising a slotted blade having a V-shaped portion at one end and provided with an extension leg offset upon one side of the blade, a square having its arms disposed so as to make equal angles with one longitudinal edge of the leg, and means for holding the square adjustably to the slotted blade, said means comprising a slide in the slot of the blade and provided with lugs, said square having apertures to receive said lugs, and a thumb screw threaded on one of said lugs, said extension leg being used for locating the center of a circular piece and as a rule for scoring radiating lines, and constituting means for receiving a scoring gage tool, the arms of the square having rollers, which together with the apex of the V-shaped end of the blade engage the edge of a piece, with the arms of the square extending substantially across the piece, whereby miters may be scored.

6. A combination miter and gage tool comprising a slotted blade provided with an extension blade offset upon one side of the blade, a square having its arms disposed so as to make equal angles with one longitudinal edge of the leg, means for holding the square adjustably to the slotted blades, said means comprising a slide in the slot of the blade and provided with lugs, said square having apertures to receive said lugs, a thumb screw threaded on one of said lugs, said extension leg being used for locating the center of a circular piece, and, as a rule, for scoring radial lines, and constituting means for receiving a scoring tool, the arms of the square having rollers for engaging the periphery of a circular piece whereby miters may be scored, said arms having laterally extending flanges which may be used in lieu of the rollers.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM McGOWAN.

Witnesses:
NORTON BURKEHOLDER,
L. RAMAH NICHOLS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."