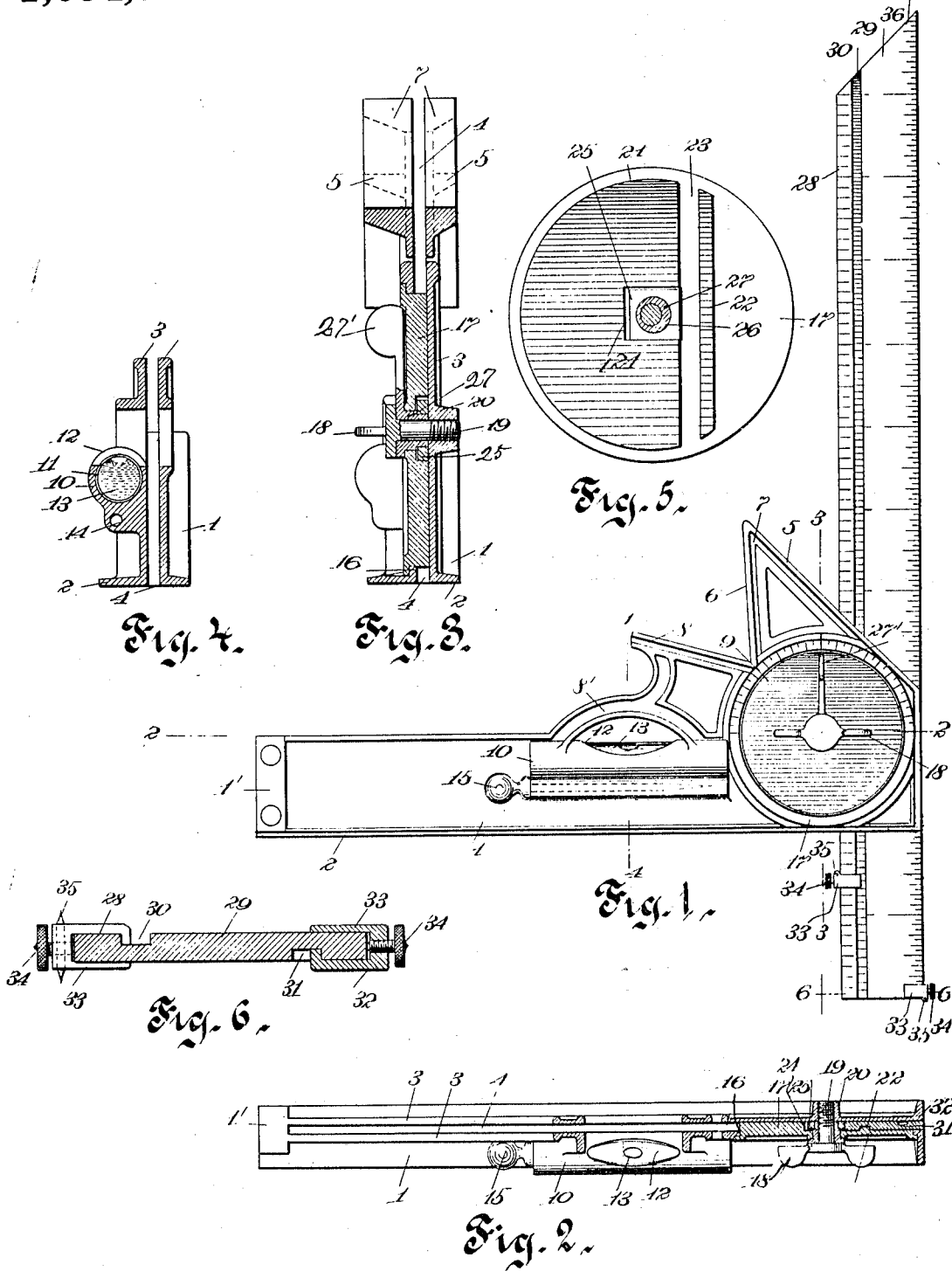


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COMBINATION TOOL.
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1,054,443.

Patented Feb. 25, 1913.



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COMBINATION-TOOL.

1,054,443.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES ANTON NORBERRY, a citizen of the United States, and a resident of Fort Bragg, in the county of Mendocino and State of California, have invented a new and Improved Combination-Tool, of which the following is a full, clear, and exact description.

My invention comprises a miter square having a pivoted blade with a protractor attachment to indicate the position of the blade, a spirit level and scratch-awl, a recess or notch in one edge to adapt the device for use as a center gage, and a plurality of means carried by the pivoted blade for marking a mortise on lumber, by the person using the tool. These features will be fully pointed out in the following description and in the claims appended thereto.

Reference is to be had to the accompanying drawings forming a part of this specification, in which the same characters of reference indicate the same parts in all the views.

Figure 1 is a top plan of my improved combination tool; Fig. 2 is a horizontal section on the line 2—2 of Fig. 1; Fig. 3 is a vertical section on the line 3—3 of Fig. 1; looking to the left; Fig. 4 is a vertical section on the line 4—4 of Fig. 1, also looking to the left; Fig. 5 is a rear view of the protractor disk; and Fig. 6 is a horizontal section on the line 6—6 of Fig. 1, looking upward.

On the drawings, the numeral 1 indicates a frame, which is preferably made in the form of a single casting of any suitable metal. From one side 2 of this frame projects a pair of parallel longitudinal ribs 3, separated by an open space 4. This open space 4 extends over the entire length of the casting 1, and through the right-hand end, but is closed at the other end by means of a terminal projection 1', integrally connected with the side 2 and the adjacent ends of the ribs 3. Adjacent the open end of the frame 1 is a beveled edge 5, which intersects a beveled edge 6, these two edges forming a triangular projection 7. The edge 6 also intersects with an edge 8, forming therewith a triangular recess 9, the purpose of which will appear later. The part forming the inclined edge 8 is supported by suitable braces 8', projecting from the frame. All the parts above mentioned may be made in

one piece if desired; or, the frame with the attachments thus far described may be made in separate parts or sections and attached together in any suitable manner.

On the side of the frame 1 is a cylindrical longitudinal projection 10 having a perforation 11 extending therethrough. This perforation receives a tube containing liquid, which serves as a spirit level, the upper part of the projection 10 being cut away at 12 to expose to view the air bubble in the liquid 13, which forms the contents of the tube. This bubble will be of course in the center of the opening 12 when the tube is in an exact horizontal position. Below the opening 11 is formed a smaller opening 14, this opening serving to receive a scratch-awl 15. This scratch-awl can be used, whenever necessary, by the workman to make marks on lumber or the like which is to be worked. Adjacent the open end of the frame 1 a circular seat 16 is formed in one of the ribs 3. This seat receives a protractor disk 17, which is held in position by means of a wing-nut 18, which is integral with a screw 19. This screw 19 has a screw-threaded end engaging a threaded boss 20 on the opposite side of the other rib. By tightening this screw, the protractor is held in any adjusted position. The protractor has divisions marked on a face adjacent the edge, and the topmost point of the seat 16 has a scratch or indentation thereon, by means of which the relative position of the frame and the protractor disk can be readily perceived. The opposite side of the protractor disk 17 has a segmental projection 21, Fig. 5 and a transverse rib 22, which is parallel with the straight edge of the segmental projection 21, and separated therefrom by a groove 23. This segmental projection has a rectangular recess 24 formed therein, said recess being concentric with the screw 19, and having its bottom flush with the flat surface of the disk 17. This recess 24 receives a rectangular block 25, which has a central opening 26 to receive an eccentric 27. This eccentric is loosely mounted on the unthreaded part of the bolt 19. Adjacent the wing-nut 18 and integral therewith, and lying across the front face of the protractor 17, is an adjusting arm 27'. By moving the arm 27', the eccentric can be turned to slide the block 25 in and out of the recess 24, and thus narrow or widen that part of the groove between its

front face and the adjacent edge of the rib 22, the arm 27' being integral with the eccentric.

The groove 23 on the protractor disk 17 receives a longitudinal rib or flange 28 on an extension blade 29. A corresponding groove is formed on this blade to receive the rib 22. This blade 29 is of the same thickness as the width of the space 4, and can be fitted into position between the ribs 3 in such a manner that it will engage the rear face of the protractor disk 17, with the flange 28 fitting in the groove 23, and the rib 22 on the protractor disk fitting in the groove 30 of the blade. The protractor disk and blade will thus rotate together; while at the same time the blade can be adjusted longitudinally because of the sliding engagement of the ribs or flanges 22 and 28 in the grooves 23 and 30. By means of the arm 27' the eccentric can be caused to move the rectangular block 25 against the edge of the flange 28, and when the screw 19 is turned home by the wing-nut 18, the eccentric will be held tight, and keep the protractor blade 29 in locked position.

The protractor blade 29 has scale divisions along both edges, these scale divisions corresponding to inches or fractions of an inch, or to millimeters and centimeters, as desired. The blade 29 is also shown as being provided with a plurality of sliding markers 33, each of these markers having an opening passing through it from one side to the other, and having an intumed end to engage the grooves 30 and 31, the groove 31 being similar to the groove 30, and formed on the opposite side adjacent the opposite edge. 34 are binding screws to hold these markers in any adjusted position, and each marker has a pair of marking points 35 projecting from the top and bottom of the same. These marking points can be fixed on the blade 29 at any suitable distance apart for the purpose of marking tenons or grooves on a stick of timber. The opposite end 36 of the blade 29 is beveled, as shown.

My tool is capable of a great variety of uses. It can be used as a square, or as a mitering device, by adjusting the blade to make any angle, except a right-angle, to the frame 1. When the blade is thus adjusted, the protractor disk 17 rotates with it, and the number of degrees through which it is adjusted at any required angle can be read off at once on the protractor disk from the zero mark on the frame. The thickness of the blade 29 being the same as the width of the space 4, the blade 29 can pass entirely through the opening 4, provided its length from the pivot to the outer end 36 is less than the length of the frame 1. This blade can also be disengaged entirely from the back of the protractor disk and rotated

about its longitudinal axis to bring its opposite face into engagement with the protractor disk. In this case the groove 31 will receive the rib 22. This construction adapts the tool for a great variety of uses, and meets almost any condition that is encountered with a tool of this sort in actual practice. My improved tool can also be used as a center gage, because of the triangular notch 9. In case it is desired to find the center or mark a line through the center of a circular piece of timber or other material, the notch 9 is fitted against the same, and the blade 29 rotated until it is parallel with the inclined edge 5. The inner edge of the blade 29 will then pass to the center of the piece, as desired. By means of the marking attachments 33, one or two tenons can be marked on a stick of timber by fitting the side 2 of the frame 1 against the edge thereof after first adjusting the blade 29 to be perpendicular to the frame 1, as shown on Fig. 1. By tilting the frame 1 around its longitudinal axis, either one of the markers 33 can be caused to mark a groove or tenon, and by holding the blade 29 perfectly horizontal, both markers 33 can be called into play. In this case, by adjusting the markers along the edges of the blade 29, marks for the grooves or tenons will be made the required distance apart. My improved tool can also be used as a surface gage by turning the blade down until it lies approximately parallel with the top of the frame. It can also be used as a bevel square, a bit and level square, or a depth gage, in a manner well known to those skilled in the art.

I wish to reserve to myself the right to make such small changes in the size and shape of the parts as fairly fall within the scope and spirit of my invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In a device of the kind described, the combination of a frame having a circular seat, a protractor disk rotatably engaging said seat, said protractor disk having scale divisions marked on one face, means for locking the protractor disk in any position, a transverse rib formed on the opposite face of the protractor disk, a blade having longitudinal grooves in its opposite faces, to receive the rib on the face of the protractor, whereby the said blade is longitudinally adjustable with respect to the protractor disk, and rotatably adjustable with respect to the frame, and separate means for locking the blade in any one of its longitudinal positions of adjustment, said means having an operating arm extending across the front face of the protractor disk, and being held in position by the means locking the protractor disk in the said frame.

2. In a device of the kind described, the combination of a frame having a circular seat therein, a protractor disk having scale divisions on its forward face engaging said seat, means for locking said protractor in any position of adjustment, a segmental projection and a transverse rib being formed on the rear face of the protractor, said projection and rib being separated by a groove, 5 a blade having grooves formed on opposite faces adjacent the edges of the same, to receive the rib on the rear face of the protractor, the edge of said blade fitting into the groove on the rear face of the protractor, said protractor having a central recess in the segmental projection thereon, a sliding block therein, and an eccentric for controlling the position of said block, to engage the edge of the blade and lock the same in 10 position, said block and eccentric therefor being concentric to the locking means for the protractor disk, and having a controlling arm extending across the front face of the protractor disk.

25 3. A mitering device comprising a frame containing a pair of longitudinal ribs, said ribs being spaced apart, one of said ribs having a circular seat in its outer face, a protractor disk mounted in said seat and having 30 scale divisions on one face thereof, means engaging said protractor disk and the other rib to hold the same in place, and a blade adjustably connected to said protractor disk and held between the same and the inner 35 face of said other rib.

4. The combination of a frame, a blade therefor, a rotatable disk mounted in said frame, said disk having a groove on one face, said blade having means to fit said 40 groove, and said disk also having a recess in the face containing the groove which opens into said groove adjacent one end thereof, and means carried by said disk in said recess and movable with respect thereto to engage the means carried by the blade 45 fitting in the groove on the disk, to force said means into snug engagement with the side of the groove.

5. In a mitering device, the combination 50 of a frame, a disk rotatably mounted in said frame, said disk having a groove formed in one face, an adjustable blade having means projecting from one face adapted to fit with-

in said groove on the disk, said disk also having a recess formed in the face contain- 55 ing the groove, said recess having an open end communicating with said groove, a sliding block mounted in said recess, and means for moving said block to engage the means projecting from the face of the blade to 60 force the said projecting means into a tight fit with the side of said groove.

6. In a mitering device, the combination of a frame, a disk rotatably mounted in said frame, said disk having a groove formed in 65 one face, an adjustable blade having means projecting from one face adapted to fit within said groove in the disk, said disk also having a recess formed in the face containing the groove, said recess being open at 70 one end and communicating with the said groove, a sliding block mounted in said recess, means for moving said block to engage the means projecting from the face of the blade and force the said projecting means 75 into a tight fit with the side of the groove, and means engaging said disk and frame to lock the protractor disk in any adjusted position.

7. In a mitering device, the combination 80 of a frame, a disk rotatably mounted in said frame, said disk having a groove formed in one face, an adjustable blade having means projecting from one face adapted to fit within said groove on the disk, said disk also 85 having a recess formed in the face containing the groove, which is open at one end and communicates therethrough with the groove, a sliding block mounted in said recess, means for moving said block to engage 90 the means projecting from the face of the blade and force the said projecting means into a tight fit with the side of the groove on the face of the disk, and means engaging said disk and said frame to lock the pro- 95 tracting disk in any adjusted position, said means also engaging the sliding block to prevent the same from becoming loose after said fastening means are tightened.

In testimony whereof I have signed my 100 name to this specification in the presence of two subscribing witnesses.

CHARLES ANTON NORBERRY.

Witnesses:

LESLIE F. THOMPSON,
CHESTER WOODRUFF.