

930,411.

Fig. 2

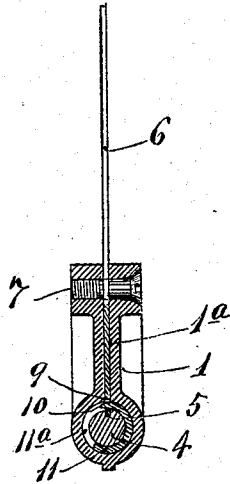


Fig. 1

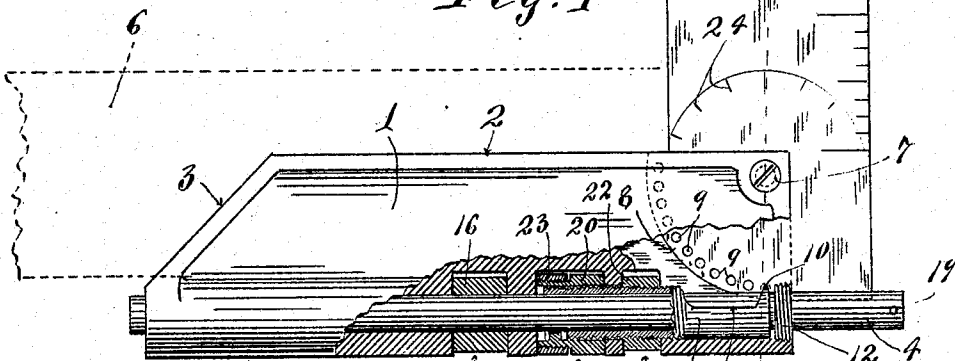


Fig. 3

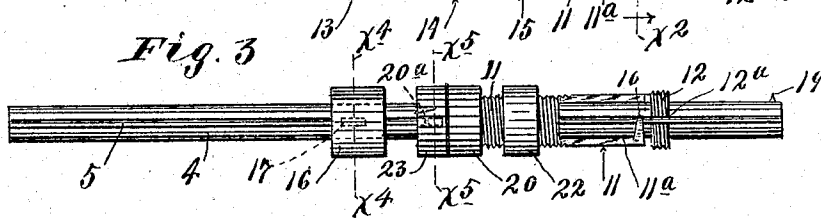


Fig. 4

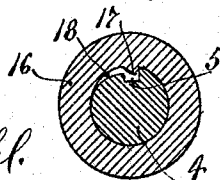
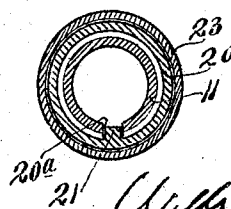


Fig. 5



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UNITED STATES PATENT OFFICE.

JOHN E. NORDLIE, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR OF ONE-FOURTH TO OLE BROWN AND ONE-EIGHTH TO ORVILLE C. BROWN, OF MINNEAPOLIS, MINNESOTA.

COMBINATION-TOOL.

No. 930,411.

Specification of Letters Patent.

Patented Aug. 10, 1909.

Application filed February 26, 1909. Serial No. 480,208.

To all whom it may concern:

Be it known that I, JOHN E. NORDLIE, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Combination-Tools; 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.

My invention has for its object to provide an improved combination square, bevel square and gage, and to this end it consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a view chiefly in side elevation, but with some parts broken away and with some parts sectioned, showing the improved tool; Fig. 2 is a section taken on the line $x^2 x^2$ of Fig. 1; Fig. 3 is a detailed view showing the plunger of the tool and certain parts mounted thereon removed from working position; Fig. 4 is an enlarged section taken on the line $x^4 x^4$ of Fig. 3; and Fig. 5 is an enlarged section taken on the line $x^5 x^5$ of Fig. 3.

The head 1 of the square is preferably a casting which is formed with a true longitudinally extended working edge 2 and, at one end, with a bevel surface 3 that extends at an angle of 45° to the said straight edge 2. The back portion of the head 1 is formed with a longitudinally extended seat in which a plunger or sliding bolt 4 is mounted for endwise movements only. This plunger 4 is formed with a groove 5 that preferably extends from end to end thereof.

At one corner of the head 4 a flat graduated blade 6 is pivotally connected by a screw 7. The head 2 is provided with a deep slot 1^a that extends from end to end thereof and within which the blade 6 is mounted to work. Said blade, at its inner end, is provided with a segmental portion 8 that remains always within the deep slot 1^a of the head 1 and a portion thereof is always within the groove 5 of the plunger 4, so that the latter is thereby held against ro-

tation but is, nevertheless, free for endwise sliding movements. The segmental portion 8 of the blade 6 has a multiplicity of closely positioned holes 9 that are adapted to be engaged by the curved lock finger 10 of a lock sleeve 11 mounted on the plunger 4 and located within a suitable seat provided therefor in the head 1. The main body portion of the lock sleeve 11 is threaded, but from its threaded portion toward its outer end, to-wit, its righthand end, as shown in Figs. 1 and 2, it is cut away at 11^a so that it will clear the segmental portion 8 of the blade 6.

The numeral 12 indicates a threaded plug which is screwed into the pivot end of the head 1. This plug 12 is slit or cut through at 12^a to afford clearance for the segmental portion 8 of the said blade 6.

At its back, the head 1 is provided with three notches 13, 14 and 15. Mounted on the plunger 4, and located within the notch 13, is a cam acting lock sleeve 16 that is provided with an internal cam lug 17 that co-operates with a reduced eccentric cam surface 18 of the said plunger 4. This cam surface 18 extends from one side of the groove 5 a short distance circumferentially of the plunger 18. Normally, the cam lug 17 is within the groove 5 and the plunger 4 is then free for endwise movements. When, however, the lock sleeve 16 is oscillated so as to force the cam lug 17 on to the cam surface 18, the said plunger will be frictionally locked against endwise movement. At its right hand projecting end, the plunger 4 is provided with a sharp tooth 19 which serves as the marking or scratching device of the gage when the adjacent end of the head 1 is placed against a board or other object and drawn over the same. The lock sleeve 16, therefore, affords means for locking the plunger 4 with this tooth 19 secured at any desired distance away from the adjacent end of the head 1.

Located within the notch 14, and loosely surrounding the threads of the threaded portion of the lock sleeve 11, is a threadless collar 20 that is provided with a key lug 21 that engages a longitudinal slot 20^a formed in the threaded portion of the lock sleeve 11. By means of this collar 20, the lock sleeve 13 may be oscillated so as to throw its lock finger 10 into or out of engagement with any one of the holes 9 in the segmental portion

8 of the blade 6. As is evident, the blade 6 may be locked in approximately any desired angular position in respect to the straight edge 2 of the head 1, by engagement of the lock finger 10 with one of the holes 9. When this is done, the final and very accurate setting of the blade 6 may be accomplished by endwise movement of the so-called lock sleeve 11, which movement is effected by an annular nut 22 which is located in the notch 15 and works with threaded engagement on the threaded portion of said lock sleeve 11.

To secure the lock sleeve 11 either in its operative or inoperative position, an annular lock nut 23 is mounted on a reduced threaded portion of the operating collar 20. When this lock nut 23 is screwed away from the shoulder of the collar 20, it will press against one extremity of the slot 14 and will force the other end of said collar 20 against the other extremity of said notch 14 and thereby lock the said collar and, consequently, the lock sleeve 11 against rotation.

At its pivoted end, the blade 6 is preferably graded in degrees, as indicated at 24, to indicate the angle position thereof in respect to the straight edge 2 of the head 1.

This improved tool, while capable of very general use, has been especially designed for use by carpenters and builders and is particularly adapted for use in the framing of buildings, in the laying out of stairs, cutting of rafters, joists and other parts of a house.

When the blade 6 is turned into its folded position, as shown by dotted lines in Fig. 1, it is capable of being carried in a pocket or being packed within very small space.

The segmental portion 8 of the blade 6 might have notches in lieu of the perforations 9, but this would be the equivalent of the said perforations.

The beveled end surface 3 of the head 1 is useful in laying out certain kinds of work at an oblique angle when the blade 6 is set at a right angle to the straight edge 2 of the said head.

What I claim is:

1. In a tool of the kind described, the combination with a head and a blade pivoted thereto, of a lock device mounted for both rotary and endwise movements in said head and having a part adapted for interlocking engagement with the pivoted end portion of said blade, under rotary movement and means for moving said sleeve endwise to adjust said blade, substantially as described.

2. In a tool of the kind described, the combination with a head and a blade pivoted thereto, said blade having a perforated segmental portion at its pivoted end, of a lock sleeve mounted for rotary and endwise movements within said head and having a lock finger engageable with the perforations of said blade, and an adjusting nut seated in said head and having a threaded engage-

ment with said sleeve for imparting endwise movements thereto, substantially as described.

3. In a tool of the kind described, the combination with a head and a blade pivoted thereto, and provided with a perforated segmental portion at its pivoted end, of a lock sleeve mounted for endwise and rotary movements in said head and provided with a lock finger engageable with the perforations of said blade, an adjusting nut seated in said head and having threaded engagement with said lock sleeve for imparting endwise movements thereto, and an operating collar seated in said head and connected to said lock sleeve for rotation therewith but permitting free endwise movements of said lock sleeve, substantially as described.

4. In a tool of the kind described, the combination with a head and a blade pivoted thereto, said blade having a perforated segmental portion at its pivoted end, of a lock sleeve mounted in said head for rotary and endwise movements and provided with a lock finger engageable with the perforations of said blade, an adjusting nut mounted in said head and having threaded engagements with said sleeve for imparting endwise movements thereto, an operating collar mounted in said head and connected for rotation with said operating sleeve but permitting free endwise movements thereof, and a lock nut on a threaded portion of said operating collar serving to lock the latter and, hence, said operating sleeve against rotation.

5. In a tool of the kind described, the combination with a bifurcated head and a blade pivotally mounted therein and provided at its pivoted end with a segmental portion, of a plunger mounted for endwise movements in said head and provided with a longitudinal groove in which the segmental end of said blade works to hold said plunger against rotation, substantially as described.

6. In a tool of the kind described, the combination with a bifurcated head and a blade pivotally mounted therein and provided at its pivoted end with a perforated segmental portion, of a plunger mounted for endwise movements in said head and having a longitudinal groove in which the segmental portion of said blade works to hold said plunger against rotation, said plunger having a sharp tooth at its projecting end, a lock sleeve seated in said head and mounted for endwise and rotary movements on said plunger and having a lock tooth for engagement with the perforations of said blade, an adjusting nut seated in said head and having threaded engagement with said lock sleeve for imparting endwise movements thereto, an operating collar seated in said head and connected for rotation with

said lock sleeve but permitting free endwise movements thereof, and a lock sleeve seated in said head and having an internal cam lug adapted to be positioned within the longitudinal groove of said plunger to permit endwise movements thereof, the said plunger having an eccentric cam surface with which said cam lug is engageable to lock said

plunger against endwise movements, substantially as described.

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

JOHN E. NORDLIE.

Witnesses:

ALICE J. SWANSON,
H. D. KILGORE.