

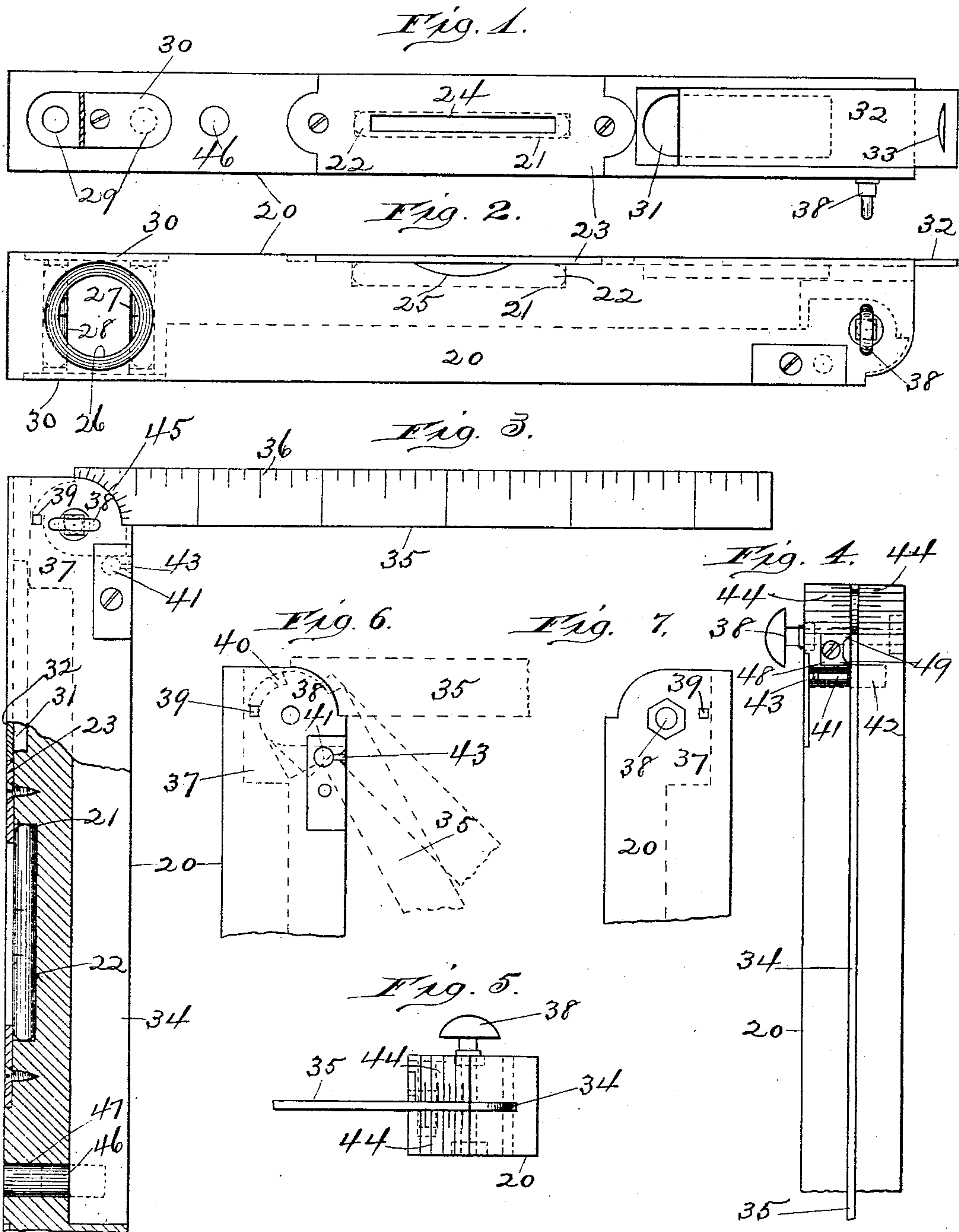
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E. GRUNDEEN.  
COMBINATION TOOL.

APPLICATION FILED NOV. 12, 1903.

NO MODEL.



Witnesses:

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# UNITED STATES PATENT OFFICE.

ERICK GRUNDEEN, OF CARNEY, MICHIGAN.

## COMBINATION-TOOL.

SPECIFICATION forming part of Letters Patent No. 751,727, dated February 9, 1904.

Application filed November 12, 1903. Serial No. 180,800. (No model.)

*To all whom it may concern:*

Be it known that I, ERICK GRUNDEEN, a citizen of the United States, residing at Carney, in the county of Menominee and State of Michigan, have invented certain new and useful Improvements in Combination-Tools, of which the following is a specification.

This invention relates to improvements in a combination-tool; and it consists in certain peculiarities of the construction, novel arrangement, and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The principal object of the invention is to provide a tool which shall combine in a small and compact form several instruments or devices, such as a try-square, a bevel, a level, and a plumb or such an instrument that can be used as any of the above-named devices.

Another object of the invention is to provide scales on the square-blade, as well as on the stock or body, to indicate the angle of adjustment desired or required.

Still another object is to provide means for locking the blade in a position at right angles to the stock or body, thus forming an accurate square the blade of which may be folded into a suitable recess or slot in the body.

Other objects and advantages of the invention will be disclosed in the subjoined description and explanation.

In order to enable others skilled in the art to which my invention pertains to make and use the same, I will now proceed to describe it, referring to the accompanying drawings, in which—

Figure 1 is a plan view of a tool embodying my invention, showing the sliding cover at one end thereof partly open to disclose a pocket or cavity in the body and illustrating one of the protecting-plates for the plumb-tubes at the other end of the body broken away. Fig. 2 is a view of one side of the tool. Fig. 3 is a view, partly in section and partly in elevation, of a portion of the tool, showing the parts arranged to form a square. Fig. 4 is a bottom or edge view of a portion of the tool. Fig. 5 is a view of one end, showing the graduated scales on the body and illustrating a portion of the blade extending at an

angle therefrom. Fig. 6 is a view in elevation of a portion of the stock or body, showing by dotted lines some of the positions to which the blade may be adjusted; and Fig. 7 is a view in elevation of a portion of the stock or body, showing the blade folded by dotted lines.

Like numerals of reference refer to corresponding parts throughout the different views of the drawings.

The reference-numeral 20 represents the stock or body, which may be made of any suitable size, form, and material, but preferably of wood and rectangular in shape, and has in one of its surfaces, which will be termed the "upper" surface or edge, a central longitudinal recess 21 to receive a tube 22, which is partially filled with liquid to form a level. The recess 21 is covered by means of a plate 23, which is provided with a longitudinal opening 24, so that the air-bubble in the tube 22 may be seen from the top of the body. Each side of the central portion of the body 20 is formed at its upper surface with a cut-away portion 25 to disclose the tube 22 or level. The body is provided near one of its ends with a transverse opening 26 to disclose the tubes 27 and 28, which I will term the "plumb-tubes" and which are partially filled with liquid. As is clearly shown in Fig. 2 of the drawings, these tubes are also transversely located in openings 29, which extend at right angles to the opening 26 and intersect each side thereof. The plumb-tubes 27 and 28 are protected at their ends by means of plates 30, which are countersunk in and secured to the upper and lower surfaces of the body. The upper surface of the body near its other end is provided with a pocket or recess 31, which may be used for the deposit of any suitable objects, but is especially intended to receive a tabulated form, which is not shown and which forms no part of this invention, but may be used in connection with the scales on the blade and body to ascertain the desired angle or bevel. The pocket 31 is closed by means of a sliding plate 32, which has in its outer end a recess 33 for the thumb-nail in removing said slide. The lower surface of the stock or body 20 is provided with a longitu-



dinal slot or groove 34 to receive the blade 35, which may be of any suitable length, and has on one or both of its surfaces a graduated scale 36, representing inches and fractions thereof. The slot or groove 34 is enlarged at one of its ends, as at 37, to permit of the adjustment of the blade 35, which is pivoted on a thumb-screw 38, transversely located in the body near that end in which the enlargement 37 is located. Extending transversely through the enlarged portion 37 of the slot or groove 34 is a pin or bar 39, which acts as a stop for the inner or secured end of the blade, which, as is shown in Fig. 6 of the drawings, is provided with an offset 40 to rest against the pin or bar 39 when it is located at a right angle to the body, in which position it may be locked by means of a sliding bolt 41, which is located and operates in a transverse recess 42 in the body near the pivot 38 of the blade. The bolt 41 is provided with a projection 43, which extends outwardly therefrom and by means of which the bolt may be slid back and forth in the recess 42 therefor.

As shown in Figs. 4 to 7, inclusive, the end of the stock or body on which the blade is pivoted is rounded and provided with graduated scales 44 to register with scales 45 on each side of the blade, which last-named scales are arranged in arcs, so that the blade may be moved to any desired angle when the bolt 41 is disengaged therefrom, thus indicating the degree of the angle, which may be ascertained by referring to the aforesaid tabulated form when the same is used. When the blade is folded so as to lie in the groove 34, as shown by dotted lines in Fig. 2 of the drawings, it is apparent that it will be concealed from view and its outer edge will be flush with the outer lower surface of the body. When in this position, the blade may be pushed outwardly at its free end by means of a push-pin 46, located in a suitable opening 47 in the body near the plumb-levers.

From the foregoing and by reference to the drawings it will be seen and readily understood that by placing the body vertically with either end uppermost a plumb will be provided by means of the air-bubbles in the tubes 27 and 28, and by placing it horizontally the tube 22, with its contents, will afford a level. By placing the blade in the position shown in Fig. 3, where it may be locked by means of the sliding bolt 41, as above set forth, it is apparent

that a square is provided, and by removing the bolt 41 from engagement with the blade the same may be turned on its pivot to any desired angle, as is clearly shown by dotted lines in Fig. 6 of the drawings.

By reference to Fig. 4 it will be seen that the bottom of the body is provided with a plate 48, located between the bolt 41 and the beginning of the curved portion of the body. This plate is provided with prongs 49 to point to the marks of the scale 45 of the blade.

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

1. The combination with the grooved body having one of its ends rounded and provided thereon with a scale, of a blade pivotally secured in one end of said groove and having an arcuate scale near said end, a locking-bolt movably located on the body near the secured end of the blade and adapted to extend across the groove, and a push-pin movably located on the body to release the blade, substantially as described.

2. The combination with the grooved body having one of its ends rounded and provided thereon with a scale, of a leveling-tube longitudinally mounted on the central portion of the body, a blade pivotally secured in one end of said groove and having an arcuate scale near said end, a locking-bolt movably located on the body near the secured end of the blade and adapted to extend across the groove, and a push-pin movably located on the body to release the blade, substantially as described.

3. The combination with the grooved body having one of its ends rounded and provided thereon with a scale, the said body having a transverse opening near its other end, plumb-tubes located on the body at right angles to the transverse opening therein and at the sides of said opening, a leveling-tube longitudinally mounted on the body at its middle, a blade pivotally secured at one end of the groove of the body and having an arcuate scale near said end, a locking-bolt movably located on the body near the secured end of the blade and adapted to extend across the groove, and a push-pin movably located on the body to release the blade, substantially as described.

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Witnesses:

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