

July 19, 1927.

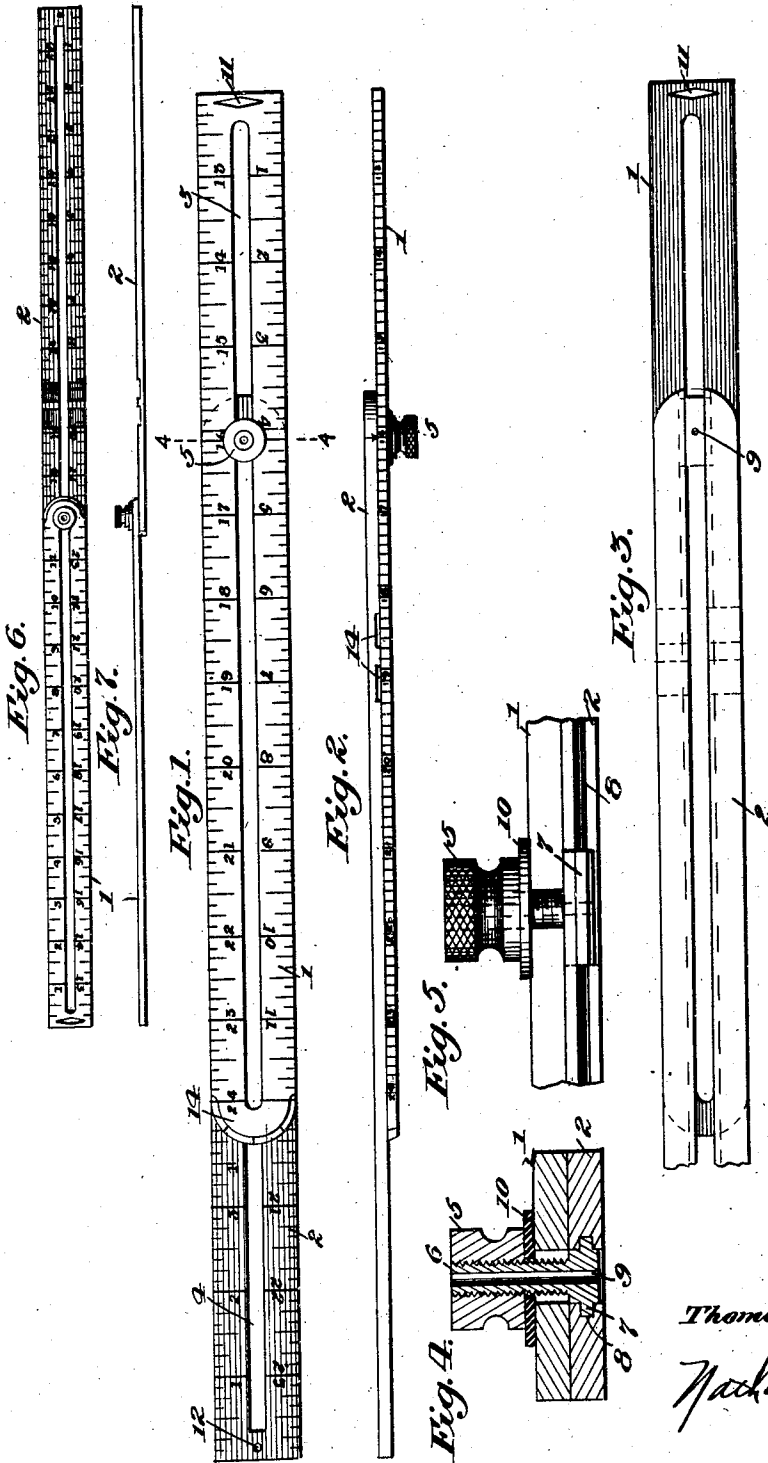
T. S. HUTCHISON

COMBINATION TOOL

Filed July 31, 1926

1,636,637

2 Sheets-Sheet 1



Inventor:
Thomas S. Hutchison,

Nathaniel French
Jlly.

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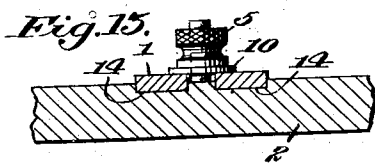
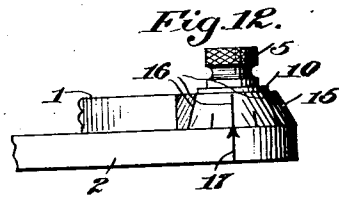
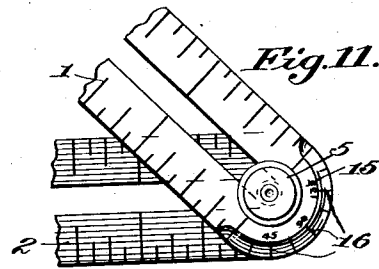
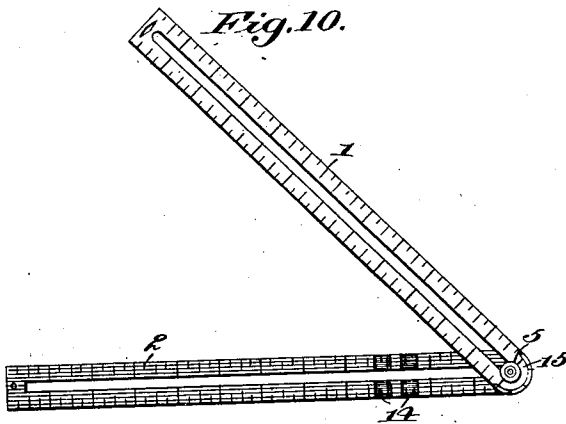
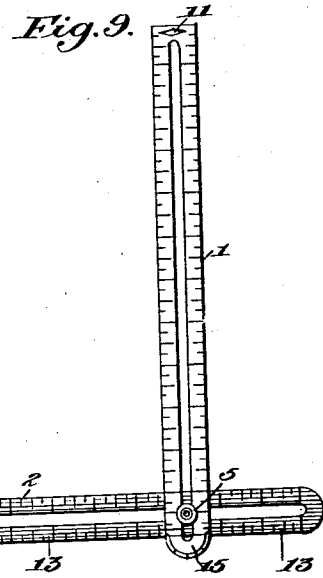
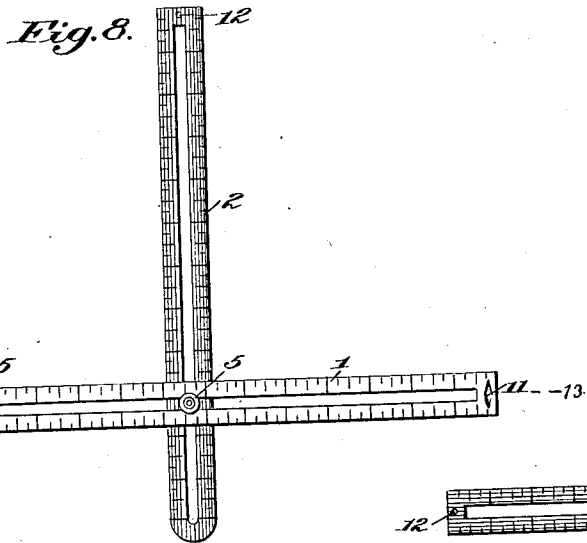
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2 Sheets-Sheet 2



Inventor:
Thomas S. Hutchison,

Nathaniel French
Att'y.

UNITED STATES PATENT OFFICE.

THOMAS SETZER HUTCHISON, OF CHICAGO, ILLINOIS.

COMBINATION TOOL.

Application filed July 31, 1926. Serial No. 126,324.

My present invention relates to improvements in combined measuring and gaging implements, more particularly to devices of this character employed by mechanics, such as carpenters and metal workers, and by draftsmen, and has for one of its objects to simplify and improve the construction and increase the efficiency and utility of devices of this character.

Another object of the invention is to provide an implement which is simple in construction, is extremely compact, and which may be quickly and accurately adjusted to produce a trysquare, a T square, a bevel adjustable to any required angle, and arranged for use right or left handed as may be preferred, a protractor for measuring angles, a compass, and a scratch awl guide, in addition to other uses within the scope of the knowledge and ingenuity of the user.

With these and other objects in view the invention consists in certain novel features of construction as hereinafter shown and described and then specifically pointed out in the claims.

In the drawings illustrative of the preferred embodiment of my invention, Figure 1 is a plan view of my improved implement arranged for use as a ruler or gage.

Figure 2 is a side view of Figure 1 showing side graduations for reading when the tool is used as a gage.

Figure 3 is a bottom view, broken away, of Figure 1.

Figure 4 is a section on the line 4—4 of Figure 1, showing the details of construction of the thumb screw lock.

Figure 5 is a view, partly broken away, showing the thumb screw guiding slots.

Figures 6 and 7 are top and side views of the device fully extended, and adapted for use as a ruler.

Figure 8 is a plan view of the device when set for use as a T square.

Figure 9 is a plan view of the device when set for use as a trysquare or as a scratch awl guide.

Figure 10 is a plan view of the proper setting for use as a bevel or as a protractor.

Figure 11 is an enlarged detailed view of the pivot elements of Figure 10.

Figure 12 is a side view of Figure 11 showing the angular positioning and determining marks.

Figure 13 is a sectional detail on the line

13—13 of Figure 8 showing a modified heavier base for the combination tool.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

My improved implement comprises an upper and lower ruler of relatively thin material for ordinary use or when carried as a pocket tool, but may have a heavier and more substantial lower ruler for use by carpenters and other mechanics who prefer a heavy base to compensate for any roughness of the wood or other material worked upon.

My improved combination tool comprises an upper ruler 1 and a lower ruler 2, each ruler having a slot 3, 4 centrally positioned and extending along substantially the entire length. Each ruler has scales engraved on the upper face in the usual manner, the scales on each ruler reading in reverse directions, as clearly shown in Figure 6. In addition, the lower ruler has an index mark engraved on one edge, to cooperate with a reverse scale engraved on the corresponding side of the upper ruler, as shown in Figure 2, this reverse scale registering exactly with the reverse scale on the upper face of upper ruler 1.

An internally threaded thumb screw 5 is used for locking the two rulers in any desired position, the screw rotating on a threaded standard 6 having flanges 7 formed on a rectangular or preferably square base integral with the standard, the flanges being slidable within grooves 8 formed within lower ruler 2, as best shown in Figure 4. The standard 6 has a centering hole 9 for the insertion of a pin or a nail to act as a pivot when the tool is used as a compass. A washer 10, loosely mounted on standard 6 below thumb screw 5, clamps the rulers together when the thumb screw is tightened.

A centering hole 12, shown in Figure 1, is used as a pencil retaining hole for drawing circles when centering hole 9 is used as a compass center by the insertion of a pin, nail, or other object of similar character; for drawing larger circles, centering hole 12 is used as the pivot point, and diamond shaped opening 11 as the pencil, or when desirable, knife positioning opening.

Attention is directed to the peculiar advantages offered by the use of a diamond shaped opening such as opening 11 of my

improved combination tool. A pencil point inserted within this opening wedges itself irrespective of thickness of lead so that the mark is always centered on the points of the diamond; since this opening is located a definite distance, preferably one-eighth inch, from the end of ruler 1, accurate positioning of the inscribing pencil is obtained. In addition, when working with sheet metal, etc., a knife blade may be inserted to make a clear circular cut.

When using my improved combination tool as a ruler, the upper and lower rulers are drawn out to full length as shown in Figure 6, the thumb screw being turned to lock the two rulers together. This forms a two foot metal ruler, adjustable to shorter lengths when desirable. The inverted scales shown in Figure 1, and the side graduations shown in Figure 2, permit my combination tool to be used as a depth or as an inside gage, the two rectangular edges acting as the outside edges. For measuring a recess or an outside shoulder situated so that direct reading is not feasible, ruler 1 may be swung around so that the square end is adjacent the square end of the lower ruler 2, thus enabling quick and accurate setting to be made.

My improved combination tool may be used as a T square by locking the upper ruler 1 into grooves 14 formed in the lower ruler 2. This position is shown in Figure 8. The use of grooves ensures an accurate and rigid setting of the tool.

My improved tool may also be transformed into an accurate try-square by locking ruler 1 in grooves 14 in the manner shown in Figure 9. In this position my device not only is an efficient try-square, but may also be used as a scratch awl guide, the diamond opening 11 affording accurate centering for a pencil, a scratch awl, or a knife blade.

To change my improved implement into a bevel, rulers 1 and 3 are positioned as shown in Figure 10. A series of graduations are provided on the circular end of ruler 1, this end being beveled as shown in Figures 11 and 12 for ease in reading. An inscribed arrow 17, shown in Figure 12, is used to determine accurate setting of the angle marks 16. When used as a protractor, my improved tool is set to the angle desired to be determined, the arrow 17 then indicating the angular reading.

In addition to the previously explained use of my device as a compass by pivoting on a nail or other similar implement inserted through openings 9 or 12, simultaneous marking of two concentric circles may be made by using a setting of the device similar to that shown in Figure 10, openings 11 and 12 serving to guide the marking tools.

Figure 13 shows a modified form of my

improved device, in which the lower ruler is heavier than the upper one; the heavier base is preferred by carpenters and other mechanics who deal with wood or other materials having rough surfaces.

My improved implement is simple of construction, is inexpensive to manufacture, and furnishes the mechanic with a single device accurately adjustable for a variety of purposes. The cost of my improved combination tool is but little more than the cost of a single tool, but it is far more advantageous than separate tools, is more portable, and convenient, and is of a high order of accuracy.

While I have herein shown and described a preferred embodiment of my invention, I do not wish to be understood as limiting myself to the precise details of construction hereinbefore described and illustrated, since changes may be made in the form, proportion, and construction of the several parts without departing from the principle of my invention as defined in the appended claims.

Having thus described my invention, what I claim is:

1. In an implement of the class described, two rulers having scales thereon, each ruler being provided with a longitudinal slot, a clamping thumb screw cooperating with the slots to set the rulers in a desired relative position, said thumb screw having a centering hole therethrough, and one of the rulers having a diamond shaped opening adjacent one end.

2. In an implement of the class described, two rulers having scales thereon, each ruler being provided with a longitudinal slot, clamping means cooperating with the slots to set the rulers in a desired relative position, and grooves cut in one ruler to accommodate the other ruler for accurately positioning one ruler at a predetermined angle to the other, one ruler having an opening adjacent one end.

3. In an implement of the class described, two rulers having scales thereon, each ruler being provided with a longitudinal slot, clamping means cooperating with the slots to set the rulers in a desired relative position, and grooves cut in one ruler to accommodate the other ruler for accurately positioning one ruler at a predetermined angle to the other, one ruler having a diamond shaped opening adjacent one end.

4. In an implement of the class described, two rulers having scales running in opposite directions on their upper faces, each ruler being provided with a longitudinal slot, a clamping device cooperating with the slots to set the rulers in a desired relative position, grooves cut in one ruler to accommodate the other ruler for accurately positioning one ruler at a predetermined angle to the other, each ruler having one rounded edge, the

rounded edge of one ruler having angular graduations marked thereon, the rounded edge of the other ruler having an index mark thereon.

- 5 5. In an implement of the class described, two rulers having scales running in opposite directions thereon, each ruler being provided with a longitudinal slot, clamping means cooperating with the slots to set the
10 rulers in a desired relative position, grooves cut in one ruler to accommodate the other ruler for accurately positioning one ruler at

a predetermined angle to the other, each ruler having one rounded edge, the rounded edge of one ruler having angular gradua- 15 tions marked thereon, the rounded edge of the other ruler having an index mark thereon, the other end of each ruler having an opening therein adjacent the edge.

Signed at Nashville, in the county of 20 Davidson and State of Tennessee, this 29 day of July A. D. 1926.

THOMAS SETZER HUTCHISON.