No. 787,172. PATENTED APR. 11, 1905.

G. E. HASSON.

COMBINATION TOOL.

APPLICATION FILED MAR. 2, 1904.

2 SHEETS—SHEET 1.

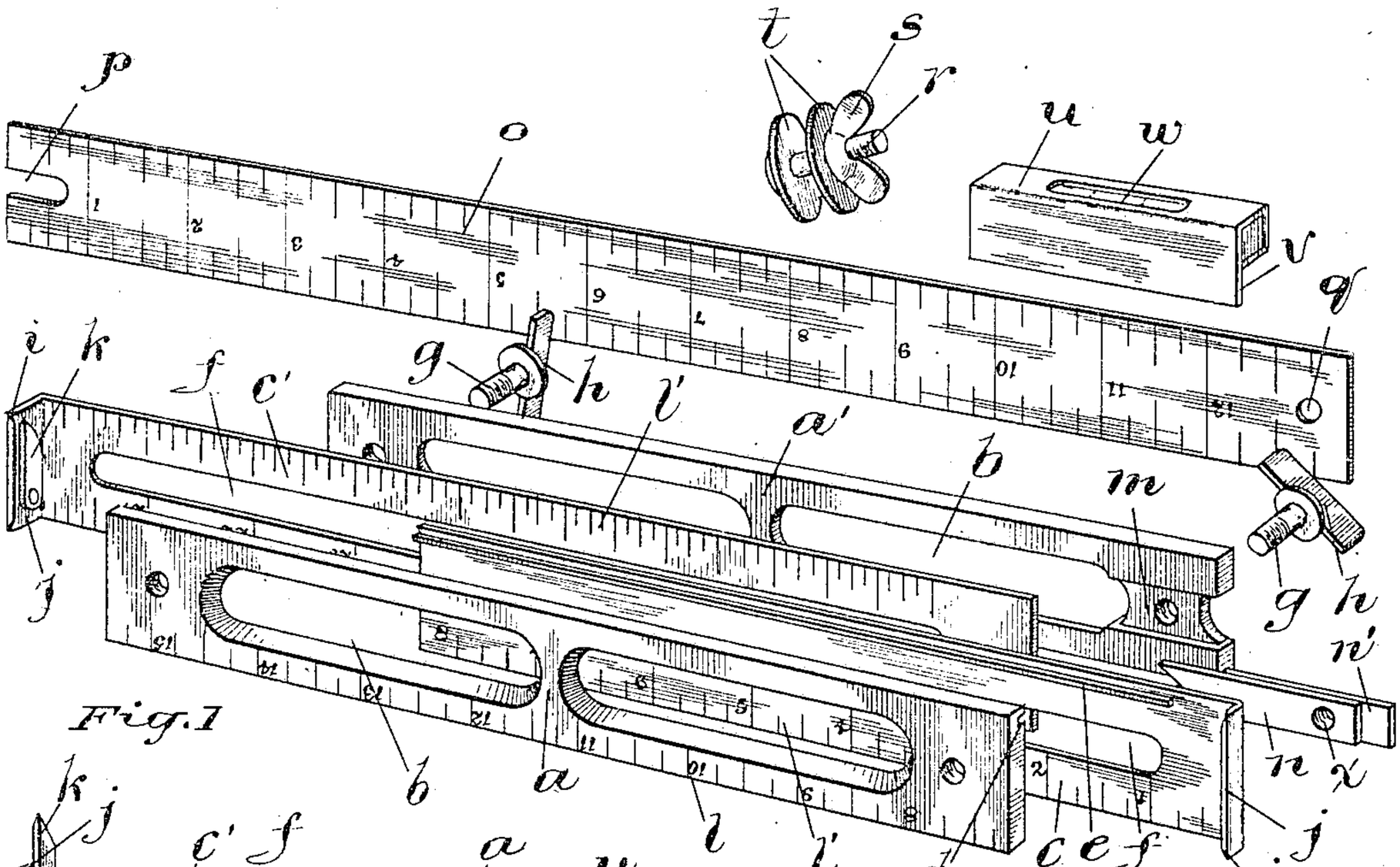

Fig. 1

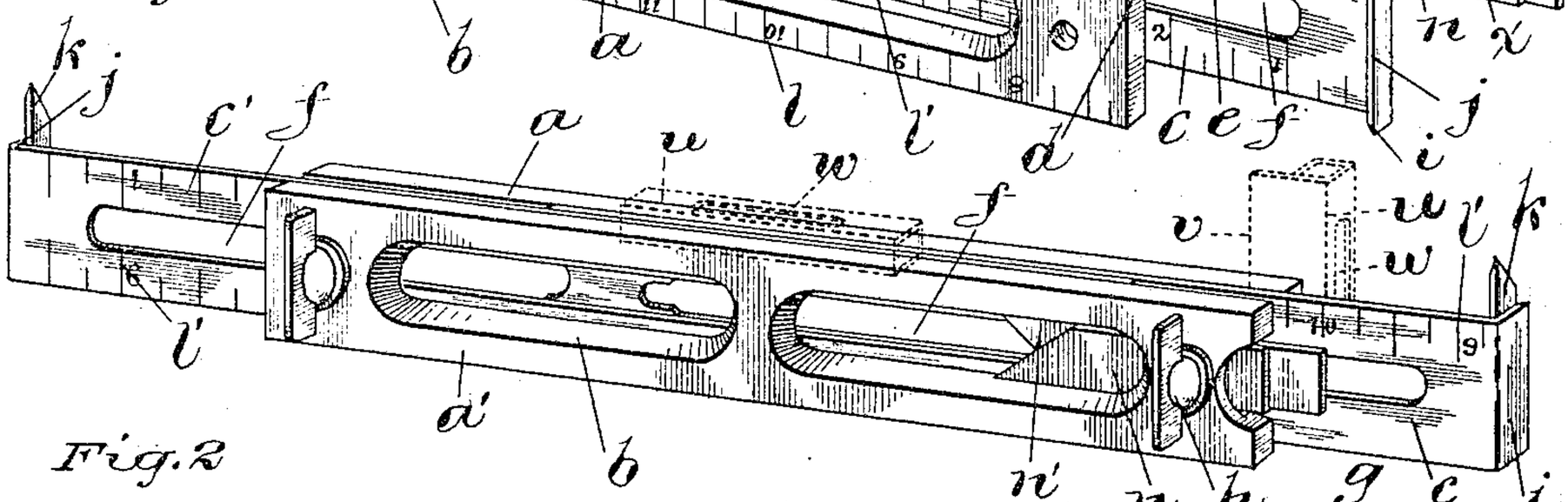

Fig. 2

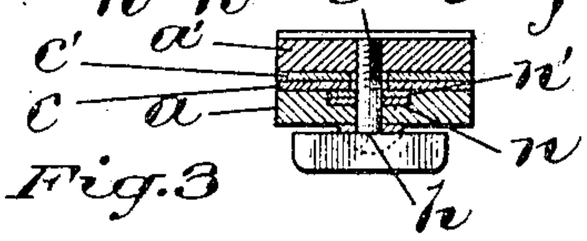

Fig. 3

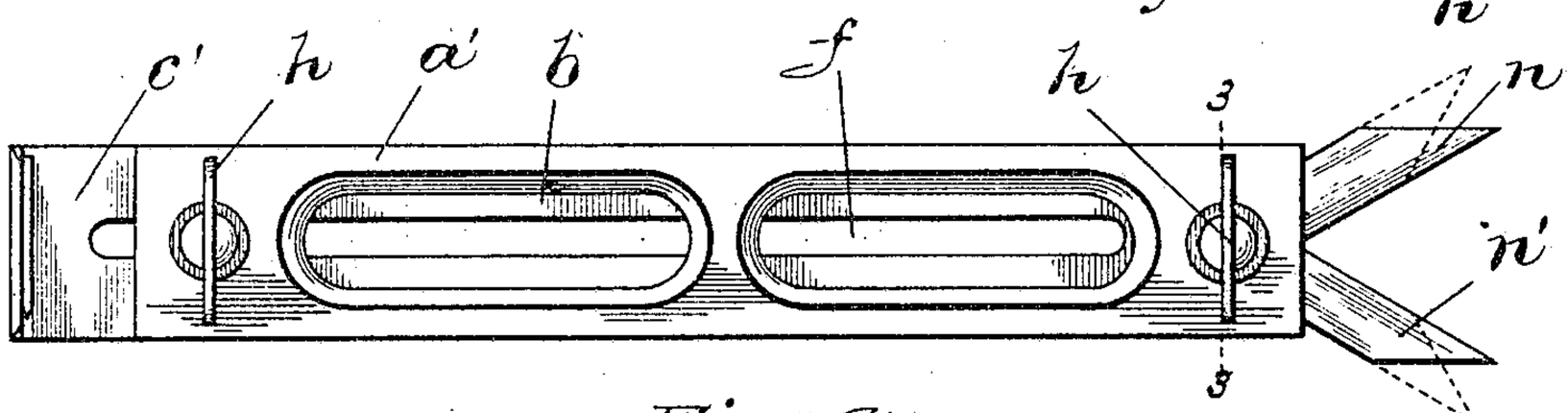

Fig. 4

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his attorneys

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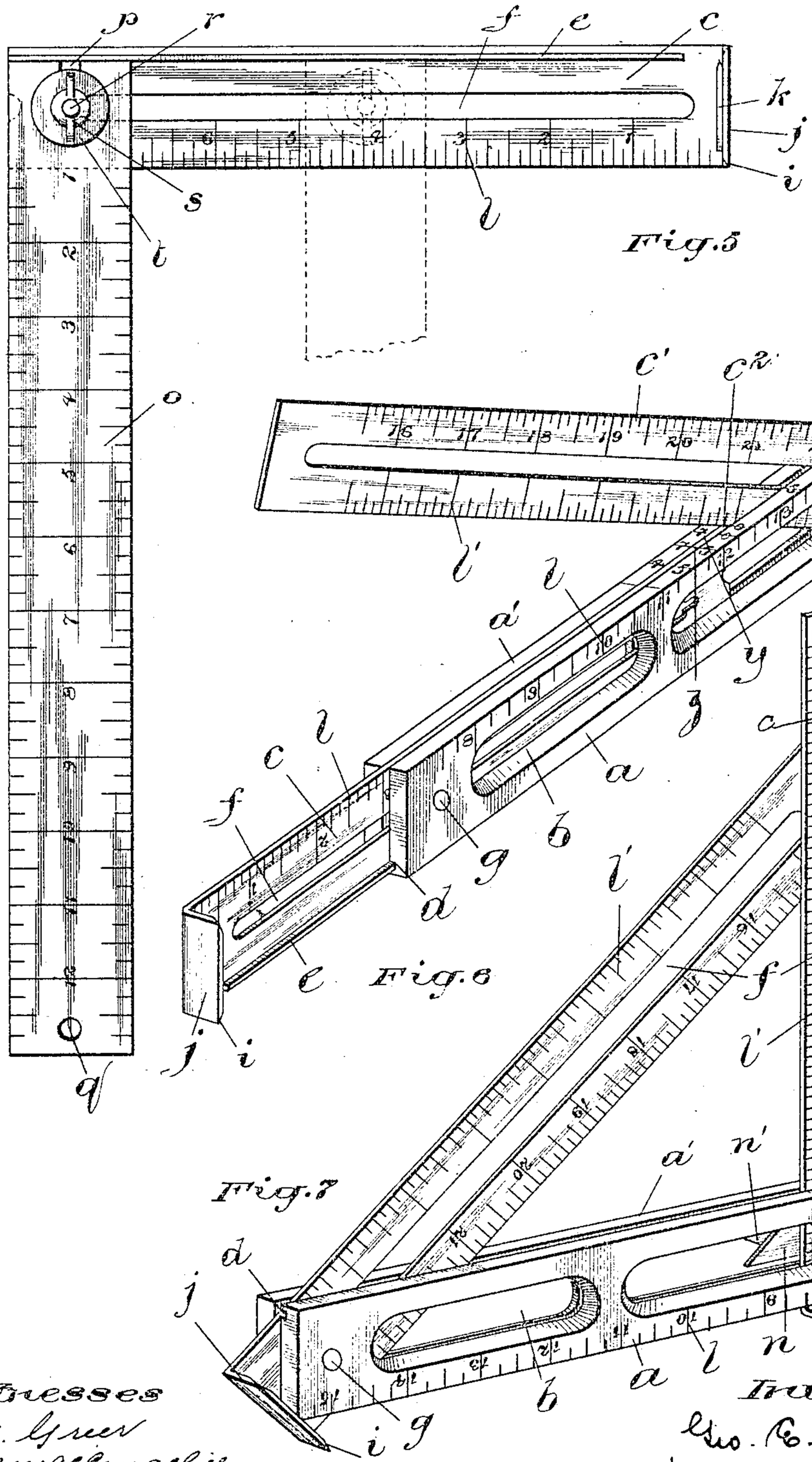

Fig. 5

Fig. 6

Fig. 7

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No. 787,172. Patented April 11, 1905.

UNITED STATES PATENT OFFICE.

GEORGE E. HASSON, OF TORONTO, CANADA.

COMBINATION-TOOL.

SPECIFICATION forming part of Letters Patent No. 787,172, dated April 11, 1905.

Application filed March 2, 1904. Serial No. 196,211.

To all whom it may concern:

Be it known that I, GEORGE E. HASSON, carpenter, of the city of Toronto, in the county of York and Province of Ontario, Canada, have invented a new and useful Improvement in Combination-Tools, of which the following is a full, clear, and exact description.

My invention relates to a tool that can be readily changed for a diversity of uses and to fill different requirements that might arise in trades, such as a carpenter's.

The invention further consists in a multiplicity of parts that are adapted to be fitted to one another in different relations, so that the occasional omission of an element or the addition of it in a different position will combine to form different tools, such as squares, levels, and similar instruments of precision.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective of the elements of the device, these elements all being separated. Fig. 2 is a perspective view of the device assembled and showing it adapted to be used as a level or plumb. Fig. 3 is a section on lines 3 3 in Fig. 4. Fig. 4 is a side view of the device arranged as a combination straight-edge and compass. Fig. 5 shows a portion of the tool assembled as a carpenter's L-square and showing in dotted lines its use as a T-square. Fig. 6 is a perspective view showing the device arranged to be used as a bevel-square, and Fig. 7 shows a bevel and try square.

Like letters refer to like parts throughout the specification and drawings.

The device consists of two body-pieces *a* and *a'* and are provided with perforations *b* to lighten them and for the convenience in sometimes observing the work that is being done.

Interposed between the body-pieces *a* and *a'* are two overlapping extension-plates *c* and *c'*, adapted to be drawn outwardly from each end and also be arranged at an angle to the body-pieces *a* and *a'* for other purposes that will be hereinafter specified. In the body-piece *a* is a groove *d*, adapted to receive a rib *e* on the side face of the plate *c* and insure the plate in parallel relation with the body-piece *a* when the plate is drawn outward. Each of the plates *c* and *c'* is provided with a slot *f*, through which passes the screw *g* of a thumb-nut *h*, passing through the ends of the body-pieces *a* and *a'* and holds the parts together and which may be loosened for adjusting the parts and tightened again to hold them in their adjusted position. One end of each of the plates *c* and *c'* is bent over at right angles, having their corners *i* sharpened. Pivoted on the inside of the turned-over part *j* is a scriber-point *k*. As shown in Fig. 2, these points *k* are shown in position to be used for marking, and therefore would figure as a scriber and would act instead of pencils or for marking from either end and can be arranged to give the correct distances between the points by means of the scales *l* and *l'*, arranged along the edge of the body-piece *a* and the plates *c* and *c'*, respectively, or the the points *k* can be used to mark a line parallel with the edge of an article being worked upon by measuring the distance and marking it from the end of the plate *c* or *c'* that happens to be next adjacent the points *k* and also permits the device being used as a compass.

In the inside face of the body-piece *a'* at one end is a cut-away section *m* to receive two small plates *n* and *n'*, each of the plates *n* and *n'* having their ends pointed or beveled. Through each of the plates *n* and *n'* is a circular opening *o*, through which passes the bolt *q* of the adjusting-nut *h*. As shown in Fig. 4, the plates *n* and *n'* are adjusted where they can be used as a compass and, again, if turned as shown in dotted outlines may be used as a pair of calipers. When not in use, these plates are folded away in the cut-away section *m*, as shown in Fig. 2.

An extra plate *o* is provided with a slot *p* at one end and a perforation *q* at the other end and adapted to engage with some of the before-mentioned parts in a manner to be hereinafter described, and a bolt *r*, with a thumb-nut *s*, and disks *t* are also used in conjunction with some of the remaining elements to form certain tools. A level *u* is provided, having a projecting strip *v* and a bulb *w*, adapted to engage with the parts to form a level or plumb. It will be evident that these different elements can be brought into innumerable relations

with one another to form different kinds of tools for the use of carpenters and men in similar vocations.

In Fig. 2 I show the device arranged to be used as a straight-edge, and in dotted lines I show the level *u* arranged that the device may be used as a level or plumb, and I also show the points *k* arranged that the device may be used as a compass or calipers.

In Fig. 5 I show the device arranged as a carpenter's L-square, where one of the plates *c* is removed from between the body-pieces *a a'* and fastened to the end of the plate *o* by means of the bolt *r*, passing through the slot *f* in the plate *c* and the slot *p* in the plate *o*, having a a disk *t* on each end of the bolt *r* and all being held together by the thumb-nut *s*. The end of the plate *o* fits against the rib *e* on the plate *c* and insures the proper angular relation between the two plates. As indicated in dotted lines, the plate *o* may be placed in the center of the plate *c* and fastened in the same way to provide a T-square.

To arrange the device as a square, one of the thumb-nuts *h* is unscrewed sufficiently to allow the plate *c* to be drawn out and placed at right angles at one end of the body-pieces *a* and *a'*, so that the rib *e* fits against the end of one of the body-pieces and insures a true square and also prevents the plate *c* from shifting. The plate is also held firmly in place by tightening the thumb-nut *h*. The plate *c* is shown in the position to form a square in Fig. 7.

In Fig. 6 the device is shown as arranged as a bevel-square. To set the device to be used as a bevel-square, the thumb-nuts *h* are loosened sufficiently to permit one end of the plate *c'* being raised from between the body-pieces *a* and *a'* and the plates being drawn outward. Along the upper edges of the body-pieces *a* and *a'* are a series of marks and numerals *y* to indicate the different degrees. To get a desired angle, the plate *c* is drawn outwardly from the end until the mark *z* on the edge of the plate *c* is brought opposite the desired degree. Then the thumb-nut *h* is tightened and stops its further movement and the lower edge of the plate *c'* is allowed to rest on the point c^2 of the plate *c* and the desired angle will be had with the body-pieces *a* and *a'*.

In Fig. 7 I show an arrangement whereby one of the plates is arranged at right angles with the body-pieces and the other at an angle whereby they make a square and bevel-square, or both of the plates can be arranged in parallel relation, both being at right angles to the body-pieces, or a number of different positions can be had.

It will be evident that I have illustrated only a portion of the different uses to which the device may be put as a tool and have only illustrated a small number of the different combinations; but I have endeavored to illustrate at least one example of the different uses to which the device might be put.

The level might be used in conjunction with some of the other combinations besides the ones illustrated in Fig. 2.

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

1. A combination-tool comprising two body-pieces, slotted plates overlapping and interposed between the said body-pieces, screws having thumb-nuts passing through the said body-pieces and slotted plates, graduations arranged on the plates and body-pieces, so that the graduations will be continuous when said plates are drawn outward, one end of each of the extension-plates being bent over at right angles, a scriber-point pivoted on the side face of the bent-over part, substantially as described.

2. A combination-tool comprising two body-pieces, overlapping slotted plates interposed between said body-pieces, a rib on the side face of one of said plates, said rib engaging with a groove in one of said body-pieces, said rib adapted to retain said plate in true alinement with the said body-pieces when drawn outward, fastening means to hold said parts assembled, and in sliding and pivotal relation to one another, substantially as specified.

3. In a combination-tool, two parallel body-pieces, two overlapping slotted extension-plates interposed between the body-pieces, a rib on the face of one of the said plates engaging in a groove in one of the said body-pieces, adjusting-screws passing through the ends of the said body-pieces, and the slots in the said plates, said plates being adaptable to be extended endwise, one of the plates adaptable to be set at any angle with the said body-pieces, and the other to be arranged at right angles with the said body-pieces, by the said rib engaging with the end of the body-piece, said plates adaptable of being held in any of the said positions by the said adjusting-screws, substantially as described.

4. A combination-tool comprising two parallel body-pieces, two overlapping extension-plates interposed between said body-pieces, said body-pieces and plates having graduations along their side faces, two pointed pivotal plates contained in a cut-away in one end of one of the said body-pieces, slots in the said extension-plates, and circular openings in the pivotal plates, fastening-screws passing through the ends of the said body-pieces and through the slots and openings in the said extension and pivotal plates, said extension and pivotal plates adaptable of being adjusted into various angles with the said body-pieces, and held in said positions by the said fastening-screws, substantially as described.

5. In a combination-tool, two parallel body-pieces, two overlapping slotted extension-plates interposed between said body-pieces,

two pivotal plates interposed between said extension-plates and a cut-away section in one of the said body-pieces, said extension and pivotal plates held in divergent relations with the said body-pieces, by adjusting and fastening screws passing through the ends of the said body-pieces, and through the slots and circular openings in the said extension and pivotal plates, graduations arranged along the sides of the body-pieces and extension-plates, and degrees marked along the upper edges of the said body-pieces, substantially as described.

Signed at Toronto this 31st day of October, 1903.

GEORGE E. HASSON.

Witnesses:
GEORGE B. MACCANACHIE,
M. GREER.