R. H. RUSSELL.

MECHANICAL TOOLS.

No. 171,176. Patented Dec. 14, 1875.

Fig. 1.

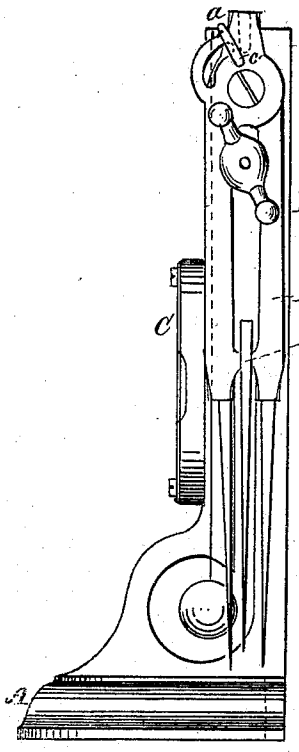


Fig. 2.

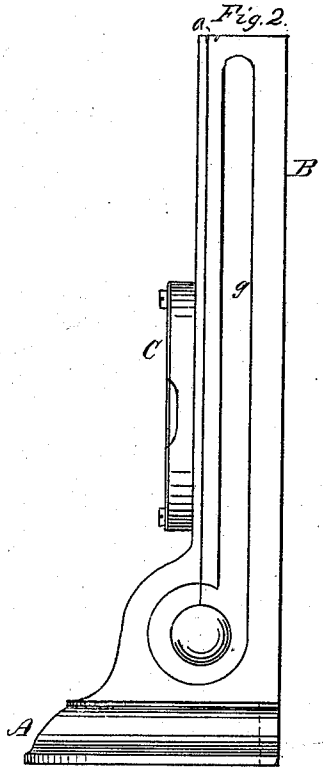


Fig. 3.

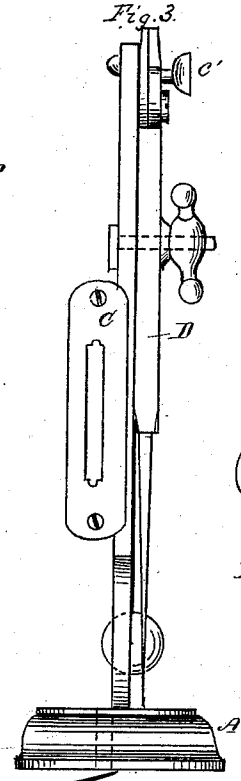


Fig. 4.

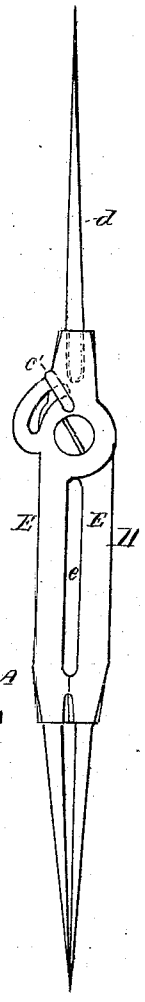


Fig. 5.

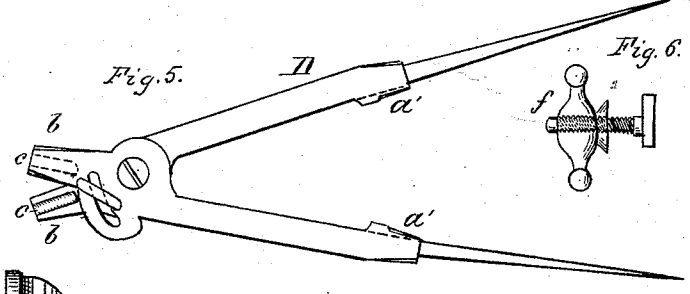


Fig. 6.

Fig. 7.

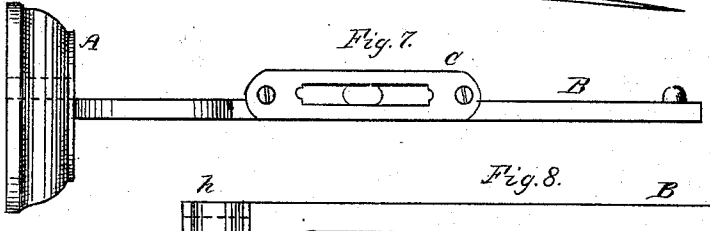
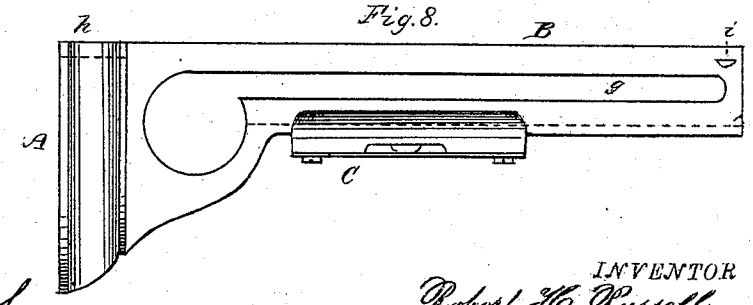


Fig. 8.



WITNESSES

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IMPROVEMENT IN MECHANICAL TOOLS.

Specification forming part of Letters Patent No. **171,176**, dated December 14, 1875; application filed December 23, 1874.

To all whom it may concern:

Be it known that I, ROBERT H. RUSSELL, of the city of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Mechanical Tools; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings represent a side view of my invention, showing the different mechanical instruments or tools in a compact form. Fig. 2 is a similar view of the square, vertical, and horizontal level and plummet; Fig. 3, an end view of Fig. 1; Fig. 4, a perspective view of the compasses, with the marking awl or pointer inserted in the end; Fig. 5, a similar view of the compasses, with the marking awl or pointer removed; Fig. 6, a detached view of the set-screw used in securing the compasses to the blade of the square; Fig. 7, a horizontal end view of the square, vertical, and horizontal level; and Fig. 8, a horizontal side view of the same.

This invention consists in the construction and combination of a number of mechanical instruments or tools in a compact form, as will be hereinafter more fully set forth.

The following instruments or tools are comprised in the combination, viz: A square, vertical, and horizontal level, plummet, surface-gage, compasses, shears, and marking awl or pointer, and are constructed and combined in one in the following manner: The square is constructed with a broad base, A, so that when resting upon a level surface the blade B will be perpendicular. Soldered or otherwise secured to the blade B, as shown, is a spirit-level, C, so that it may be used either horizontally or vertically, with equal facility. The top of said blade is provided with suitable grooves *a*, from which to suspend a plummet line or cord, one side of the blade having also the requisite groove *a* extending from the top to the bottom, there being at the latter point a hole in the blade where the plummet-weight is suspended.

The compasses D are so constructed as that they may also be used as shears, the ends *b* extending beyond the pivoted point for this purpose, as shown. Said ends *b* are also provided with grooves *c*, which, when the compasses are closed, form a socket for the reception of the marking awl or pointer *d*, which, when inserted therein, prevents the compasses from opening, as will be readily understood. The shanks E are so shaped as that when the compasses are closed a slot, *e*, is formed between them, which admits of a set-screw, *f*, for the purpose of securing the compasses to the blade of the square, a corresponding slot, *g*, being made therein for the purpose, the two combined forming a surface-gage, which, by means of the slot and set-screw, is adjustable either vertically or horizontally, all as shown.

The base of the square is provided with a suitable groove, *h*, and the blade with a hub-rest, *i*, to admit of the square being clamped to a straight-edge when a level, longer than the square, is required to be used. The shanks E are also provided with grooves *a'*, so that when the tool is not in use the pointer or awl *d* may be inclosed between said shanks, and the whole be folded together in one compact form, as shown.

It will be observed that the compasses and marking awl or pointer are held in adjustment by a suitable set-screw, *c'*.

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

1. The compound instrument, consisting of the plumb and square frame A B, provided with level C, and with a groove, *g*, and set-screw *f*, holding the compasses in position, substantially as described and set forth.

2. The compasses D, provided with the ends *b b*, for the purpose of using the same as shears, said ends having grooves *c c* for the reception of the marking-awl *d*, substantially as shown and described.

In testimony that I claim the foregoing as my own invention I affix hereto my signature in presence of two witnesses.

ROBERT H. RUSSELL.

Witnesses:

GEO. H. WILSON,

GEO. W. FRANCIS.