(No Model.)

J. C. SPENCER & J. G. SMITH.

COMBINED RULE, SQUARE, BEVEL, CALIPERS, DIVIDERS, &c.

No. 380,360. Patented Apr. 3, 1888.

Fig. 1.

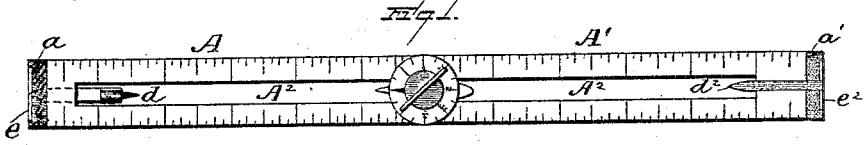


Fig. 2.

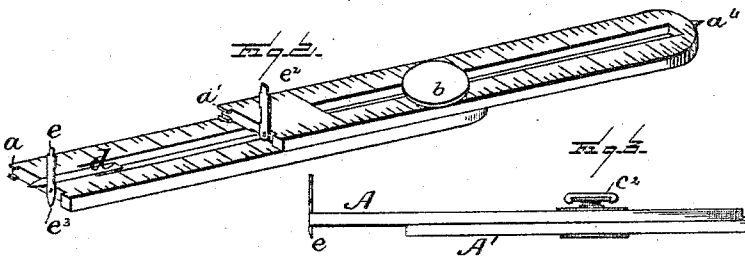


Fig. 3.

Fig. 4.

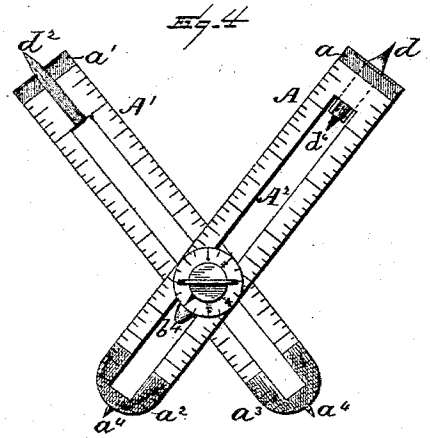


Fig. 5.

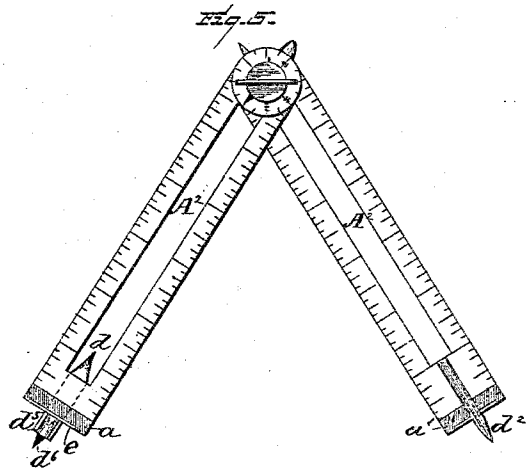


Fig. 7.

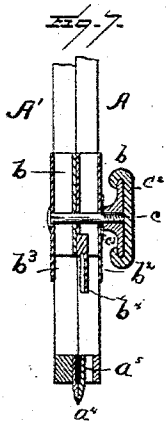


Fig. 6.

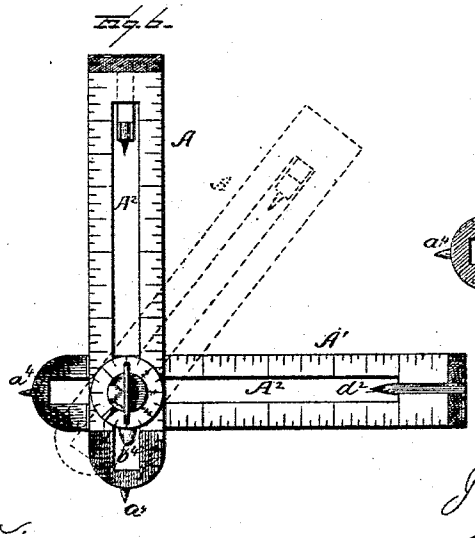


Fig. 8.

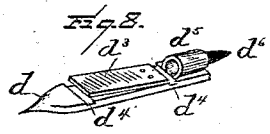
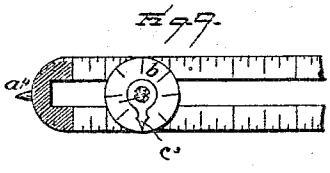


Fig. 9.



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UNITED STATES PATENT OFFICE.

JAMES C. SPENCER, OF ROCHESTER, AND JAMES G. SMITH, OF JAMESTOWN, NEW YORK.

COMBINED RULE, SQUARE, BEVEL, CALIPERS, DIVIDERS, &c.

SPECIFICATION forming part of Letters Patent No. 380,360, dated April 3, 1888.

Application filed January 5, 1888. Serial No. 259,873. (No model.)

To all whom it may concern:

Be it known that we, JAMES C. SPENCER, a citizen of the United States, residing at Rochester, in the county of Monroe, State of New York, and JAMES G. SMITH, a citizen of the United States, residing at Jamestown, in the county of Chautauqua, State of New York, have invented certain new and useful Improvements in Multiple Tools, of which the following is a specification, reference being had therein to the accompanying drawings.

Our invention relates to the construction of what are known as "multiple tools," which consist of a combination, in one piece or in one organization, of a number of different tools so combined and arranged that it can be made to serve for a variety of purposes, and is at the same time compact in shape and convenient to handle.

This invention consists in combining with the free end of a carpenter-rule movable protruding spurs and a movable pivot, by means of which the rule can be used as calipers, gage, proportional dividers, ordinary dividers, bevel, and square, the spurs at two of the ends being withdrawn within the rule at will and the spurs at the other two ends being protected by a blunt shield extending beyond the sharp end of said spurs.

In the accompanying drawings, Figure 1 represents the tool extended as a foot-rule, the end spurs being retracted. Fig. 2 represents the same as calipers, the pivoted fingers at the ends being turned up at right angle with the broad face of the rule. Fig. 3 represents the same as a gage, the sharp end of one of the fingers upon one branch of the tool being used as a scribe, while the end of the other branch serves as a rest and guide. Fig. 4 represents the tool as proportional dividers with spurs projecting from its four ends. Fig. 5 represents the same as ordinary dividers, a spur projecting from one end and a pencil-holder and pencil at the other. Fig. 6 represents the tool as a square and bevel. Fig. 7 represents the pivot of the tool and adjacent parts on a larger scale. Fig. 8 represents one of the removable spurs. Fig. 9 represents the pointer for angles.

The tool consists of two parts, A A′, preferably of wood, with sheet-metal incasing ends a a' and a^2 a^3. These parts A A′ are slotted longitudinally nearly their whole length, as at A^2, for the passage of the tongues b upon the washers b^2 b^3, used to clamp the parts in connection with the pivot-bolt c and its thumb-nut c^2. One end of the parts A A′ is provided with movable spurs d d^2, having dovetailed sides that fit in dovetailed grooves cut longitudinally in the ends of said parts, and to prevent said spurs from escaping inwardly when retracted, as shown in Fig. 1, they are provided with flat springs d^3, to bear against the bottom of the grooves made for their reception, and thus be retained by friction; but when the movable spurs are extended so as to project from the ends of the tools, as shown in Figs. 4 and 5, they are retained in that position by means of fingers e e^2, pivoted to the end of the tool, and made to engage with a groove, d^4, in the side of said spurs. When the two fingers e e^2 are turned up, (or down,) the tool can be used as calipers, as shown in Fig. 2. The inner end of the finger e is ground to a cutting-edge at e^3, so that said cutting-edge can be used as a scribe in connection with one end of the part A′ and a gage be produced, as shown in Fig. 3.

As the parts holding the pivot-bolt c can be slid along the grooves A^2 nearly the whole length of the parts A A′, a convenient proportional dividers is thus produced, as shown in Fig. 4, and when the pivot has been pushed to one end of the grooves A^2 either an ordinary dividers, or what is termed a "pencil-dividers," is produced, as shown in Fig. 5, as the spur d is provided with a pencil-holder, d^5, at one end, in which a pencil, d^6, is placed.

When the spurs d d^2 are retracted within their sockets, as shown in Figs. 1 and 6, the tool can be used as a bevel, as shown by dotted part A in connection with the part A′. The tool can also be used as a try-square, as shown in Fig. 6. For this purpose there is rigidly mounted upon the bolt c, directly under the nut c^2, an index-finger, c^3, to indicate upon the graduated face of the adjacent washer, b, when the parts A A′ are at right angles to each other, or to indicate at what angle the bevel is set. To prevent the stationary spurs a^4 from becoming injured or damaging the pocket of the owner, there is extending endwise from the tongue b of the pivot-washer b^2

a blunt shield, b^4, adapted to extend as far and beyond the sharp end of the spurs a^4. To permit said shield to extend as stated, the ends of the part A are slotted longitudinally at a^5, adjacent to the stationary spur thereof.

Having now fully described our invention, we claim—

1. A multiple tool consisting of the two graduated parts A A′, slotted longitudinally, provided with stationary spurs at one end and at the other end with sliding spurs, and a pivot-bolt adjustably uniting these parts, substantially as and for the purpose described.

2. In a multiple tool, the combination of two graduated parts, A A′, slotted longitudinally, a pivot-bolt adjustably uniting them, sliding spurs having transverse grooves therein, and pivoted fingers engaging with said grooves and adapted to stand at right angle with the face of said parts A A′, substantially as and for the purpose described.

3. In a multiple tool, the combination of two graduated parts, A A′, slotted longitudinally, a pivot-bolt adjustably uniting them, a graduated washer and index upon said bolt, sliding spurs in the ends, and pivoted fingers to retain said spurs, substantially as and for the purpose described.

4. In a multiple tool, the combination of two graduated parts, A A′, slotted longitudinally, a pivot-bolt adjustably uniting them, and upon said bolt washers provided with tongues, a shield projecting from one of said tongues, and stationary spurs upon the ends of said parts A A′, substantially as and for the purpose described.

In testimony whereof we affix our signatures in presence of witnesses.

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JAMES G. SMITH.

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