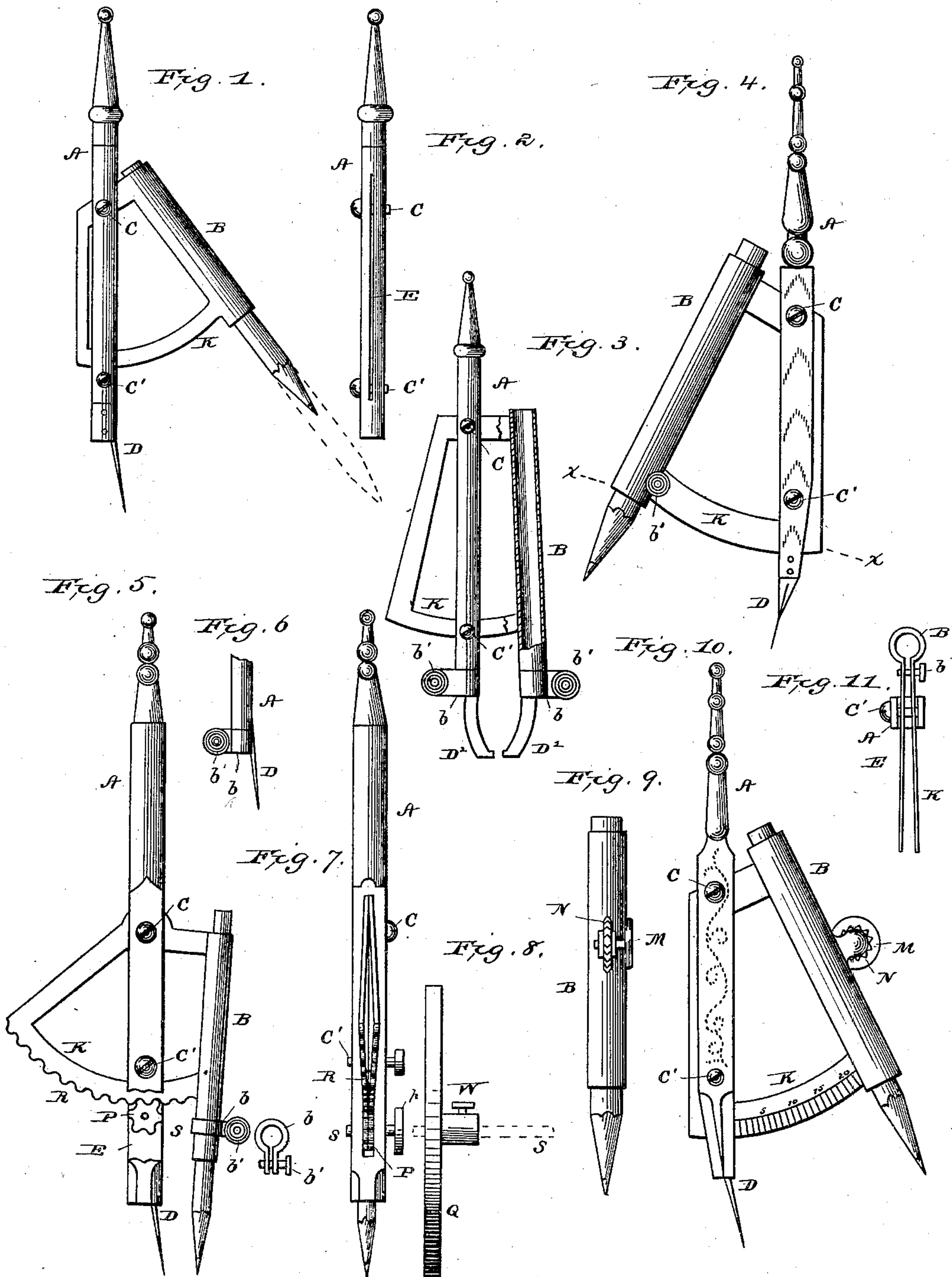


(Model.)

M. TOULMIN.
DIVIDERS.

No. 257,413.

Patented May 2, 1882.



Witnesses,
Edwin L. Yerrell,
Chas. J. Davis,

Inventor,
Morton Toulmin
By H. Aubrey Toulmin
his attorney.

UNITED STATES PATENT OFFICE.

MORTON TOULMIN, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR
OF ONE-HALF TO JOHN SHERMAN, OF SAME PLACE.

DIVIDERS.

SPECIFICATION forming part of Letters Patent No. 257,413, dated May 2, 1882.

Application filed March 20, 1882. (Model.)

To all whom it may concern:

Be it known that I, MORTON TOULMIN, a citizen of the United States of America, residing at Washington, in the county of Washington and District of Columbia, have invented certain new and useful Improvements in Compasses; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

The object of this invention is to furnish an instrument for drawing circles and curved figures with great accuracy and at a very low price.

It consists of a handle, of wood or other suitable material, having a longitudinal slit of the proper length, into which a piece of sheet metal is inserted and pivoted in such manner as to turn easily upon its axis. One portion of this sheet metal is bent over a mandrel and formed into a tube of suitable size and shape to hold an ordinary cedar lead-pencil, drawing-pen, crayon, piece of chalk or charcoal, or such object as it may be desired to insert therein. The handle is provided with a steel or needle point, which may be attached thereto in any convenient manner. I attain these objects by the mechanism illustrated in the accompanying drawings.

Figure 1 is a side elevation, showing one method of attaching the needle-point. Fig. 2 is a rear elevation of the handle, showing the longitudinal slit. Fig. 3 is a side elevation. In this view the needle and pencil points have been removed and caliper-points have been attached instead. Fig. 4 is another side elevation, showing another modification in the manner of attaching the needle and pencil points. Fig. 5 is an elevation with a portion of the handle broken away to show a pinion. Fig. 6 shows part of the handle with its needle-point attached in the same manner as the caliper-points in Fig. 3. Fig. 7 is a rear elevation of the instrument as modified and shown in Fig. 5. Fig. 8 shows a wheel, Q, and the shaft s of Figs. 5 and 7 in dotted lines. Fig. 9 is an ele-

vation of the tube B, showing a pencil inserted therein, and mechanism for nice adjustment thereof by moving the pencil in or out of the tube. Fig. 10 is an elevation showing a scale of equal parts on the arc K of the pencil-holder, as well as the mechanism for adjusting the pencil. Fig. 11 is a bottom view of the pencil-holder B, arc K, and section of handle, taken on the line *xx* of Fig. 4.

A is the handle of the instrument.

B is the tube or pencil-holder.

C is the center or pivot upon which the pencil-holder turns.

C' is a binding-screw to draw the sides of the slit E toward each other and contract the opening, and thereby retard the free movement of the arc K, and is intended to take up any wear in this part of the instrument.

D is the needle-point, which I attach in various ways. In Fig. 1 it is shown attached to a short tube, which is riveted to the bottom of the handle A. In Fig. 4 it is attached to a piece of sheet metal inserted in slit E and then riveted. In Fig. 6 the needle is attached to a short split metal tube having lugs and a binding-screw. This arrangement enables the needle-point to be adjusted, taken off altogether, or reversed on the handle, with the point upward, so as to enable the instrument to be carried in the pocket.

b is the tube, D the needle-point, and b' the binding-screw. When the needle is omitted, as shown in Fig. 5, the tube b may be placed around the pencil-holder B, and then by tightening on the screw b' the pencil or other point placed in B will be held with additional firmness. This arrangement also permits the attachment of two needle-points or of caliper-points for inside or outside measurements, as the binding-screw C' will retain the arc K in any position in which it may be placed. The arrangement of the arc K in Fig. 5, cut into teeth R, so as to engage with the pinion P, forms a simple and efficient micrometer movement to the pen or pencil holder B. At the same time it permits the free movement of the holder B the entire scope of the instrument without impediment, and has this great advantage over a screw for that purpose. In Figs. 5 and 10 the needle-points are shown as simply driven

into holes drilled at the proper angle in the handle A. The object of inserting the needle-points at an angle is to enable the pencil or pen points to be held in nearly a vertical position while describing very minute circles, as this cannot be done accurately in any other manner. The object of forming the pencil-holder B of a single piece of sheet metal bent over into a tube, and then inserting the flat portion in the slit E and securing it therein with a pivot, C, is that the metal in springing apart bears against the walls of the slit E and forms an exceedingly firm joint, and at the same time a very cheap one, and enabling better work to be done than with very costly instruments. In Fig. 1 is shown the pencil-holder B in the form in which I usually make it, as the spring of the metal is quite sufficient to hold the pencil without any other fastening. In all these figures I show the pencil-holder in the form of a frame. This is to tighten the instrument, as it works equally as well when the sheet of metal is not cut out. The wheel attachment Q is intended to give the shaft s and pulley P a rotary motion, which will vary in speed according as the distance is greater between the wheel Q and the handle A, and the binding-screw W is placed on the wheel in order that it may be clamped to the shaft s at such point as it is desired to put it. With this arrangement, first bringing the pencil-points near each other, then holding the instrument in a vertical position and revolving it slowly, the pencil-point will be carried outwardly and the pencil will describe a spiral figure.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In a drawing-instrument, the handle provided with a needle or other metal point and having a longitudinal slit or slits, in combination with a pivot and binding-screw, substantially as described, and for the purposes set forth.

2. In a drawing-instrument, the holder B, cut out of sheet metal, and having its lower edges cut into the form of an arc, K, and provided with teeth R, in combination with pinion P and thumb-nut p, substantially as shown and described, and for the purposes set forth.

3. In a drawing-instrument, a center, measuring, or caliper point consisting of a band or tube adapted to fit over the leg of the instru-

ment, a binding-screw for retaining it in position, and a point, substantially as shown and described, and for the purposes set forth.

4. In a drawing-instrument, the mechanism attached to the pencil-holder B, so arranged as to force the pencil in or out of the holder for nice adjustment, substantially as described, and for the purposes set forth.

5. In a drawing-instrument, the handle forming one leg thereof, provided with a point divergent to its axis, and a longitudinal slit or slits, substantially as described.

6. In a drawing-instrument, one leg thereof adapted to hold a pencil or other scribing device, struck up from metal or other suitable material, consisting of a tube and a two-part wing the leaves whereof are adapted to spring apart, for the purpose set forth.

7. In a drawing-instrument, the combination of a needle-leg, having a longitudinal slot therein, with a pencil-leg constructed of sheet metal, adapted to hold a pencil or other scribing device, and provided with an elastic wing, substantially as shown and described.

8. In a drawing-instrument, the combination of a needle-leg with a pencil-leg constructed of sheet metal and adapted to hold a pencil or other scribing device, and provided with a wing adapted to be pivoted to and guided by the opposite leg, for the purposes set forth.

9. In a drawing-instrument, the combination of a needle-leg having a longitudinal slot, a shaft journaled thereto carrying a pinion or equivalent, and a wheel adjustable thereon, with a pencil-leg constructed of sheet metal, adapted to hold a pencil or other scribing device and provided with an elastic toothed wing.

10. In a drawing-instrument, the combination of a needle-leg provided with a shaft journaled thereto carrying a pinion or its equivalent, and a wheel adjustable thereon, with a leg adapted to hold a pencil or other scribing device, having a toothed wing, substantially as described and set forth.

In testimony whereof I affix my signature in presence of two witnesses.

MORTON TOULMIN.

Witnesses:

J. B. TOULMIN,
A. H. TOULMIN.