

(Model.)

H. P. SMITH.
BLACKBOARD COMPASSES.

No. 473,244.

Patented Apr. 19, 1892.

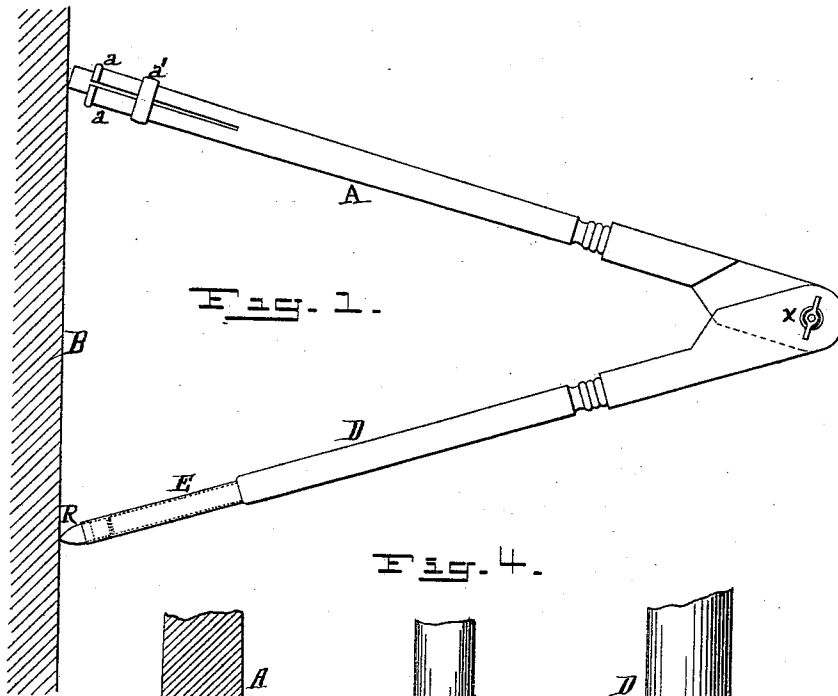
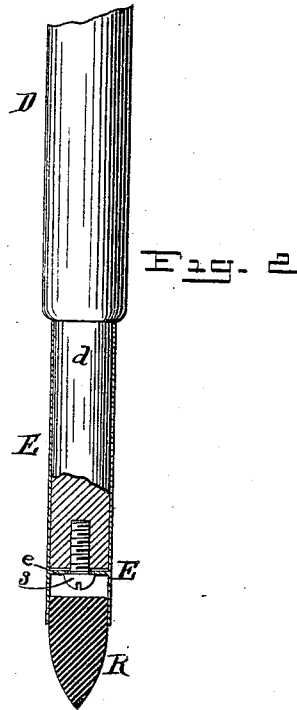
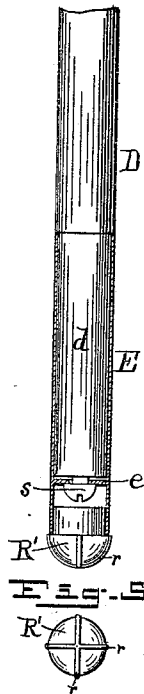
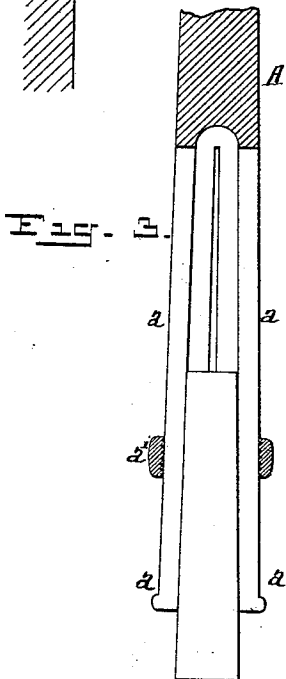


Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

HEMAN P. SMITH, OF BROOKLYN, NEW YORK, ASSIGNOR TO BENJAMIN H. TOQUET, OF WESTPORT, CONNECTICUT.

BLACKBOARD-COMPASSES.

SPECIFICATION forming part of Letters Patent No. 473,244, dated April 19, 1892.

Application filed December 2, 1891. Serial No. 413,774. (Model.)

To all whom it may concern:

Be it known that I, HEMAN P. SMITH, a citizen of the United States, and a resident of Brooklyn, Kings county, New York, have invented an Improvement in Drafting-Compasses, of which the following is a specification.

My invention consists of an improved pair of drafting-compasses more particularly adapted for use in connection with blackboards in schools and elsewhere.

In the accompanying drawings, Figure 1 is a side view of my improved compasses, shown as being used upon a blackboard B or other drawing-surface. Fig. 2 is a sectional view, drawn to a larger scale, of my improved swiveling or centering end for the supporting-leg of the compasses. Fig. 3 is a sectional view of the crayon-holding jaws of the other leg of the compasses. Fig. 4 is a side view, partly in section, of a modification; and Fig. 5 is an end view of the centering point or tip.

When my invention is applied to the manufacture of blackboard-compasses, the two legs A and D may conveniently be made of wood or other suitable light material and pivoted together by any suitable means at *x*. The leg A has at its outer end the crayon-holding jaws *a a* of any suitable construction, or it may be made in any suitable way to carry the desired marking means. I have shown tapering spring-jaws *a a*, made by cutting cross-slots with a central longitudinal hole in the wood of the compass-leg, as shown. To compress the jaws upon the crayon, a ring *a'*, threaded on its inner face, may be used, as shown in Fig. 3. I do not, however, restrict myself to any special construction of this part of the drafting-compasses, as it forms no special feature of my present invention.

My invention has special reference to the construction of the other leg D of the compasses, the object being to construct the compasses so

that they may be used without making holes in the board and yet without being liable to slip thereon. For this purpose I fit freely to the reduced outer end *d* of the leg D a tube or socket E, which can turn on the leg, or the latter can turn in the socket. To keep the two together, a headed screw *s* may be passed through the diaphragm *e* of the tube into the end of the leg. A point or tip R of rubber or equivalent material is fitted into the outer end of this tube E, and this forms the center point to bear upon the board B, Fig. 1, and about which the compasses are turned to draw circles and curves of various kinds. The equivalent material which may be used in place of rubber for the tip is any material—such as gutta percha, leather, vulcanized fiber, &c.—which will retain the position of the compass-leg on the blackboard without scratching or making indentations. This tip may be made of different shapes; but I prefer that shown in Fig. 2 or that shown in Figs. 4 and 5. In the latter case the tip is made more round than in the one shown in Fig. 2, and is provided with raised cross-ribs *r* to increase the lateral rigidity and steadiness of the tip.

Although I have described my invention more particularly as applied to blackboard-compasses, it may be used on drafting-compasses for other purposes.

I claim as my invention—

A pair of drafting-compasses having on one leg a tube in which the leg may turn and which carries a rubber or equivalent centering-point, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HEMAN P. SMITH.

Witnesses:

JOHN REVELL,
HUBERT HOWSON.