

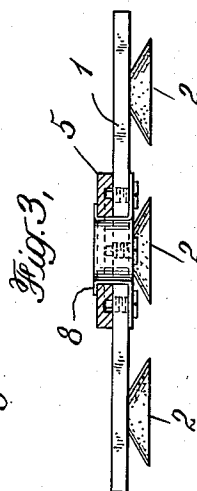
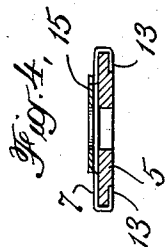
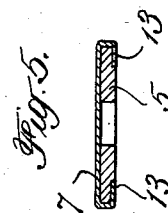
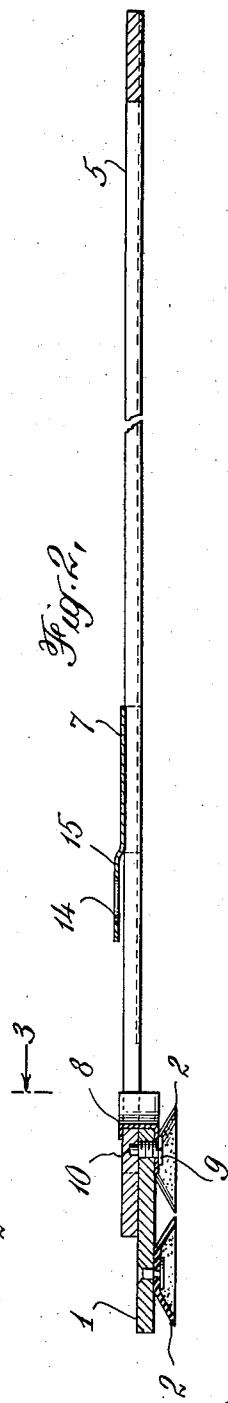
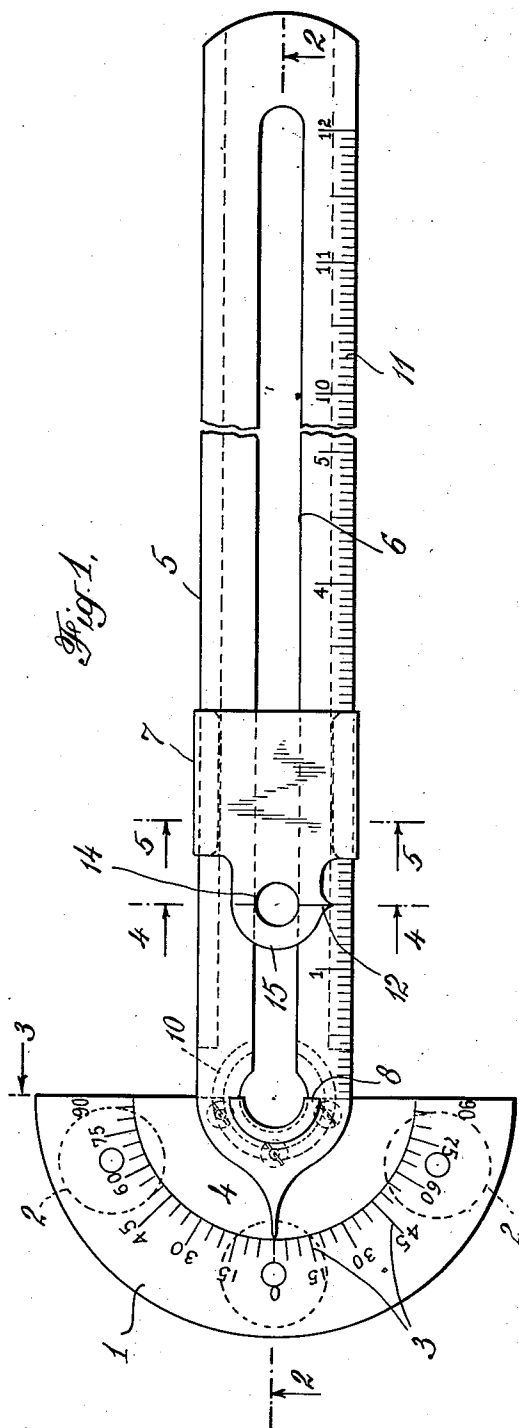
Jan. 8, 1952

G. T. DOUGLAS

2,581,839

DRAWING INSTRUMENT

Filed Feb. 7, 1946



INVENTOR
GEORGE T. DOUGLAS
BY
Pennie, Edmonds, Morton & Barrows
ATTORNEYS

UNITED STATES PATENT OFFICE

2,581,839

DRAWING INSTRUMENT

George Taylor Douglas, Washington, D. C.

Application February 7, 1946, Serial No. 646,137

2 Claims. (Cl. 33—26)

1

This invention relates to drawing instruments and primarily to compasses designed for drawing on blackboards or other vertical surfaces. It is frequently necessary, in instructing a group of people in mathematics, physics and other subjects, to make blackboard illustrations involving circles, and although various instruments for facilitating the drawing of circles on vertical surfaces have been proposed, there is not to my knowledge an instrument of this kind on the market, and it is the universal custom to use makeshift expedients such as string and a piece of chalk.

While blackboard drawings are usually merely illustrative and are not required to be exact in their measurements, it is desirable that they be neatly and quickly drawn with approximate accuracy, and the object of this invention is to provide an instrument of simple construction which may be cheaply made, with which circles and circular arcs of varying dimensions may be quickly and accurately drawn on the blackboard with ordinary chalk.

Another object of this invention is to provide an apparatus of this kind wherein the center of the circle may be marked without removing the instrument from the board, and radial lines may also be accurately drawn at measured angles to each other.

A further object of the invention is to provide an instrument which may also be used as a protractor to facilitate the drawing of angles of different amplitude so that with the instrument of this application and a simple ruler practically all the drawing necessary for instructing classes in plane geometry and like subjects may be rapidly, neatly and accurately drawn.

In the drawings I have illustrated a preferred embodiment of my invention, and in the said drawings:

Fig. 1 is a plan view of the instrument;

Fig. 2 is a longitudinal sectional view on line 2—2 of Fig. 1; and

Figs. 3, 4 and 5 are cross sections on the correspondingly numbered lines of Fig. 1.

Referring to the drawings, 1 indicates a base member which may be made of plastic, wood or metal, and is preferably of semicircular configuration, as shown. Attached to the bottom of the base piece 1 are three suction cups 2 of rubber or other similar material arranged so that when the base piece 1 is pressed against the blackboard the suction cups will adhere to the surface of the blackboard and firmly hold the base 1 in fixed position.

2

The upper surface of the base 1 is provided with a protractor scale 3 as shown, and co-operating with the scale is the pointed end 4 of a flat bar or ruler 5 which is pivoted to the base portion at the middle point of its straight side in such manner that the axis of rotation of the ruler 5 corresponds with the center of the protractor scale 3.

The ruler 5 may be made of wood, metal or plastic, as desired, and is slotted along the middle as indicated at 6 to provide a path of movement for the chalk which is carried by the chalk-carrying guide 7 which will be later described. The slot 6 is enlarged at the end adjacent the point 4 and its enlarged portion fits against a semicircular collar 8 fastened to the edge of the protractor at the center of its flat side, as indicated in Fig. 2. This semicircular collar 8 has upper and lower flanges separated by a distance equal to the combined thickness of the base part 1 and the ruler 5, and is held in place by screws 9 which pass through holes in the end flange of the collar 8 and project into a circular groove 10, indicated in dotted lines in Fig. 1. The combined action of the screws 9 and the upper flange of the collar 8 hold the ruler 5 firmly in place, but permit its complete rotation about the center of the semicircular collar 8 which, as stated, is coincident with the center of the protractor scale 3.

The ruler 5 is provided with a scale 11 along one edge and co-operating with the scale 11 is an index point 12 of the chalk-carrier 7. The chalk-carrier 7 consists of a metal stamping of the shape shown, the side edges of the stamping being bent around the margin of the ruler which may be undercut along its edges, as indicated at 13 in Figs. 4 and 5.

The chalk is held in a hole 14 in a projecting end portion 15 which is bent away from the face of the ruler, as shown in Fig. 2, a sufficient distance to clear the semicircular collar 8 so that the hole 14 may be adjusted into registry with the center of rotation of the ruler 5.

The operation of the apparatus will be obvious from the foregoing description. The base piece 1 is pressed against the blackboard at any desired position and the center of the circle can then be readily marked. The chalk-carrier 7 is then adjusted to bring the pointer 12 to a point on the scale corresponding with the radius of the circle to be drawn. The chalk is then placed in the hole 14. A complete circle or an arc of any desired magnitude may be drawn. If radii are to be drawn the chalk guide 7 is set to bring the

3

center of the hole 14 in line with the center of rotation of the ruler, and while holding the ruler against rotation the chalk guide can be moved radially outward to the desired extent. By means of the protractor scale the angular distance between radii may be measured with all the accuracy required for blackboard demonstrations.

While I have illustrated and described a preferred embodiment of my invention, it is to be understood that the invention is not limited to the precise construction illustrated, but that the same may be variously modified within the scope of the appended claims.

I claim:

1. In an instrument of the class described, a base member, means for detachably attaching the base member to a surface, a guide bar pivoted to said base member for rotation through an arc of 360 degrees, the pivotal connection between said base member and the guide bar including an arcuate member having an opening at one side, the guide bar having a slot extending longitudinally thereof and outwardly from the axis of said arcuate member, the inner end portion of said guide bar having an arcuate groove in the underside thereof concentric with said arcuate member, means extending upwardly from said base member into said arcuate groove, and a chalk-holder movable along the guide bar and having means for maintaining a piece of chalk in the slot in the guide bar as the chalk guide is moved along said guide bar and as the

4

guide bar is moved about the axis of its pivotal connection to the base member.

2. In a blackboard compass a base member, suction cups on one side of the base member for supporting the compass against a vertical surface, said base member having an arcuate scale thereon, a hollow bearing coincident with the center of said arcuate scale, a ruler pivoted on said bearing, said ruler having a slot extending radially outward from said bearing, said bearing being of larger diameter than the width of said slot, a guide slidably mounted on said ruler and having an extension adapted to overlie the center of said bearing when in its innermost position, and an opening in said extension in a position to overlie said bearing.

GEORGE TAYLOR DOUGLAS.

REFERENCES CITED

20 The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
25 972,936	Smith	Oct. 18, 1910
1,307,076	Bernard	June 17, 1919
2,104,515	Golden	Jan. 4, 1938
2,116,625	Grant	May 10, 1938
2,195,557	Billiker et al.	Apr. 2, 1940

FOREIGN PATENTS

Number	Country	Date
318,353	Italy	July 11, 1934
565,218	Great Britain	Nov. 1, 1944