

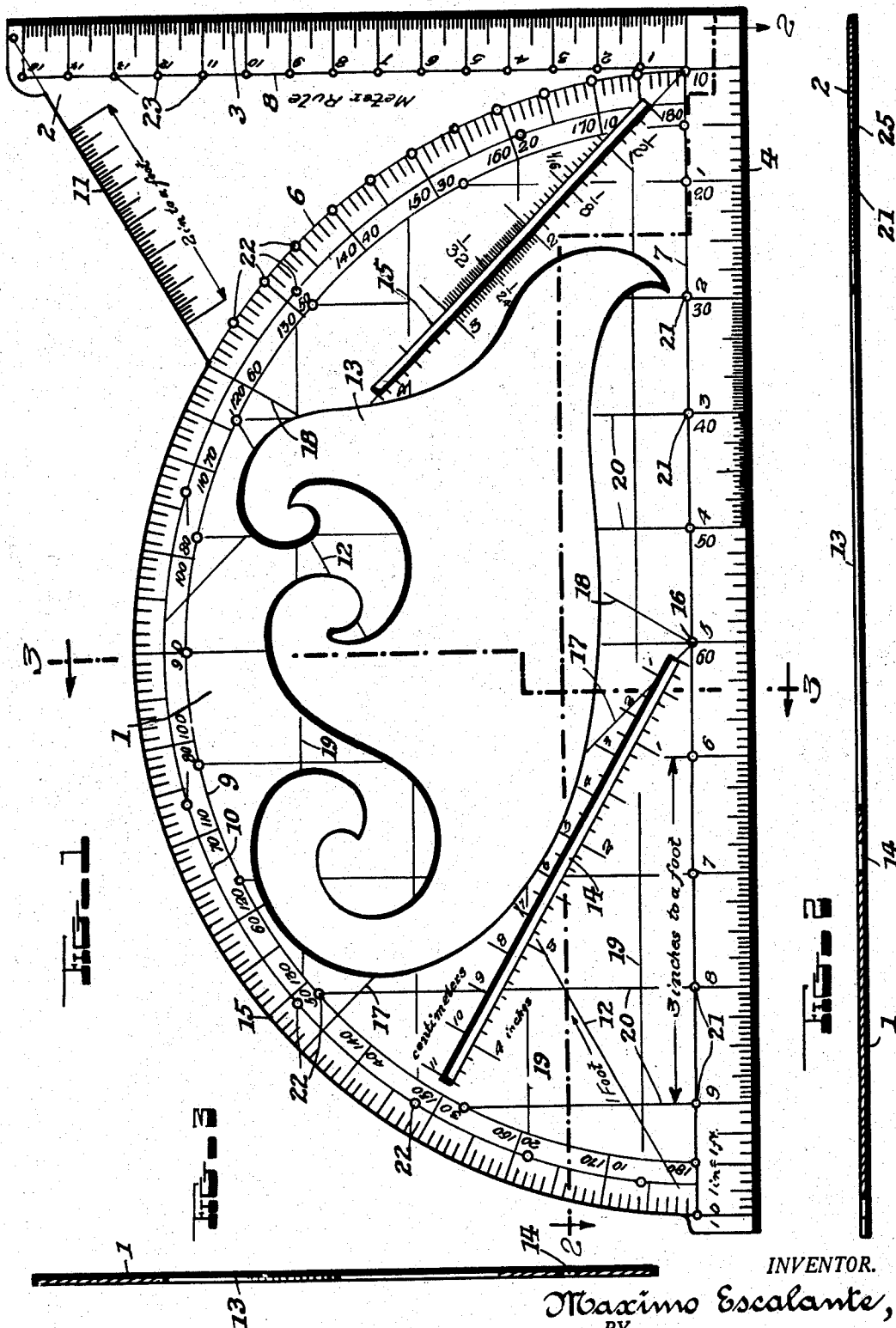
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COMBINATION DRAFTING INSTRUMENT

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COMBINATION DRAFTING INSTRUMENT

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1 Claim. (Cl. 33—104)

This invention relates to drafting instruments and more particularly to a combination triangle and protractor having associated therewith an irregular curve.

One object of the invention is to provide a drafting instrument which will combine in a single instrument a large number of instruments used by draftsmen, architects, engineers and others doing similar work, thereby eliminating a large number of instruments which not only take up an amount of space upon a drafting table or desk but are liable to be lost or misplaced when put away or even when in use.

Another object of the invention is to provide a combination drafting instrument which is very compact and while including in its construction a large number of instruments will be of such size that it can be conveniently handled when in use.

Another object of the invention is to so construct the device that it can not only be used for drawing lines at desired angles to each other but also for drawing circles of various diameters or irregular curves and in addition used as a scale when plotting maps or making drawings to scale.

Still another object of the invention resides in providing an instrument which is simple and durable in construction, inexpensive to manufacture and one which will be very efficient in use.

With these and numerous other objects in view, my invention consists in the novel features of construction, combination and arrangement of parts as will be hereinafter referred to and more particularly pointed out in the specification and claim.

In the accompanying drawing forming a part of this application:

Figure 1 is a face view of the instrument;

Figure 2 is a sectional view taken along the line 2—2 of Figure 1;

Figure 3 is a sectional view taken along the line 3—3 of Figure 1.

In describing this invention, I shall refer to the drawing in which similar reference characters designate corresponding parts throughout the several views. This drafting instrument consists of a flat sheet of thin material which may be wood, celluloid, metal such as steel or aluminum, or any other material found suitable but will preferably be transparent in order that a drawing upon which the instrument is placed when in use will be visible.

This sheet is shaped as shown in Figure 1 and

has a main section 1 constituting the major portion of a quadrant and an auxiliary section or end portion 2 forming a portion of a triangle and having a straight cut edge 3 constituting the perpendicular edge of the triangle. This edge extends from the edge 4 at right angles thereto and it will be noted that the edge 4 constitutes the base of both the quadrant and the triangle. The arcuate upper edge 5 of the quadrant is extended across the end portion 2 as shown at 6 to complete a quadrant having an arc of 180° and ends of this arc are connected by a line 7 extending parallel to the straight edge 4. A line 8 corresponding to the line 7 extends parallel to the edge 3 and an arcuate line 9 parallels the edge 5 of the quadrant. There has also been provided a line 10 between the line 9 and arcuate edge of the quadrant. The diagonally cut edge 11 together with the line 12 forms the hypotenuse of the triangle. Therefore, the sheet is so formed so that it combines a quadrant of 180° and a right angle triangle, a portion of each being disposed in overlying relation to the other.

In order that the instrument may be used as a rule for drawing horizontal and vertical lines of determined lengths, the upper face of the sheet along the edges 3 and 4 is provided with scale markings which are meter and inch markings respectively and the diagonal edge 11 is also provided with inch markings.

The space between the inch markings is subdivided into fractions of an inch and a number of different fractions have been provided so that the instrument can be used by an architect or engineer when making drawings to scale. There have also been provided legends adjacent the scales to facilitate use of the instrument when an inch or multiple thereof is to represent a foot or other unit of length upon a drawing. The arcuate edge portion of the protractor is divided into degrees and at every ten degrees are provided numerals indicating degrees when read from either end of the arc.

Within the confines of the protractor the sheet is cut out to form an irregular curve as shown at 13 and adjacent opposite ends of the irregular curve are formed slots 14 and 15. Scale markings which may be centimeters or inches and fractions thereof are provided along edges of the slots and it should be noted that the slot 14 extends from the line 7 at an angle of 30° while slot 15 extends from this line at an angle of 45° . Therefore, lines at these angles can be easily drawn by passing a pencil point through the slots. By using the marked arcuate edge of the

protractor as a scale and marking the paper, the instrument can be turned about a pin or other pointed implement passed through the opening 16 formed at the center of the line 7 until the slot 14 is in the proper position and a line at any desired angle drawn. For convenience, there have been provided lines 17 and 18 which lead from the center opening 16 at angles of 45° and 60° to the base line 7 of the quadrant. In addition to the diagonally extending lines there have been provided lines 19 and 20 extending longitudinally and transversely of the sheet. The lines 19 extend parallel to each other as also do the lines 20. It should be noted that the lines 19 have their ends intersecting degree marks upon the scale adjacent the arcuate edge of the protractor while the lines 20 lead upwardly from inch marks along the base line to degree marks on the protractor and cross the lines at right angles thereto. Therefore these crossed lines may be used to lay off lines of latitude and longitude when making a map. Perforations 21 are formed at the inch marks of the base line and similar perforations 22 and 23 are formed along the degree scale of the protractor and the meter scale. By this arrangement the point of a pencil can be passed through selected perforations to mark a sheet of paper upon which the drafting instrument rests and by passing a pointed instrument through the opening 16 to serve as a pivot and a pencil point through a selected one of the openings 21 a circle of a desired diameter can be made.

I have, therefore, provided a drafting instrument which will take the place of a large number of instruments used by draftsmen, architects and engineers when making a drawing. I have further provided an instrument not only combining in its construction a number of instruments but have so constructed the device that the protractor and triangle will be of a large size and each extends the full length of the sheet of material in overlapping relation to the other. There has also been provided an irregular curve and diagonals which can be conveniently used and linear scales divided into fractions for use when making a drawing to scale.

From the foregoing description of the con-

struction of my improved instrument, the application of the same to use will be readily understood. It will be seen that I have provided a simple, inexpensive and efficient means for carrying out the objects of the invention.

While I have particularly described the elements best adapted to perform the functions set forth, it is obvious that various changes in form, proportion and in the minor details of construction may be resorted to, without departing from the spirit of the invention or sacrificing any of the principles thereof.

Having thus described the invention, what is claimed is:

In a combination drafting instrument, a body of sheet material having a straight lower edge and a straight end edge rising from one end of the lower edge at right angles thereto and together therewith forming the base line and perpendicular line of a right-angle triangle, a line being provided upon said body adjacent the lower edge thereof in spaced parallel relation thereto and extending substantially the full length of the body and constituting the lower straight portion of a protractor, openings being formed through the body in spaced relation to each other longitudinally of the lower straight portion of the protractor with one opening located at the center thereof, the arcuate portion of the protractor being of 180° in length with its ends intersecting the lower straight portion and for a major portion of its extent constituting an arcuate upper edge for the body starting at the opposite end of the body from the straight end edge thereof, the remainder of the arcuate portion of the protractor being in the form of a line provided upon the body and extending from the upper edge thereof to the adjacent end of the lower straight portion, and the remainder of the upper edge of the body being straight and extending diagonally between the arcuate edge thereof and the upper end of the straight end edge of the body along a line constituting a continuation of a line extending across the body to the other end of the lower straight portion and constituting the hypotenuse of the triangle.

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