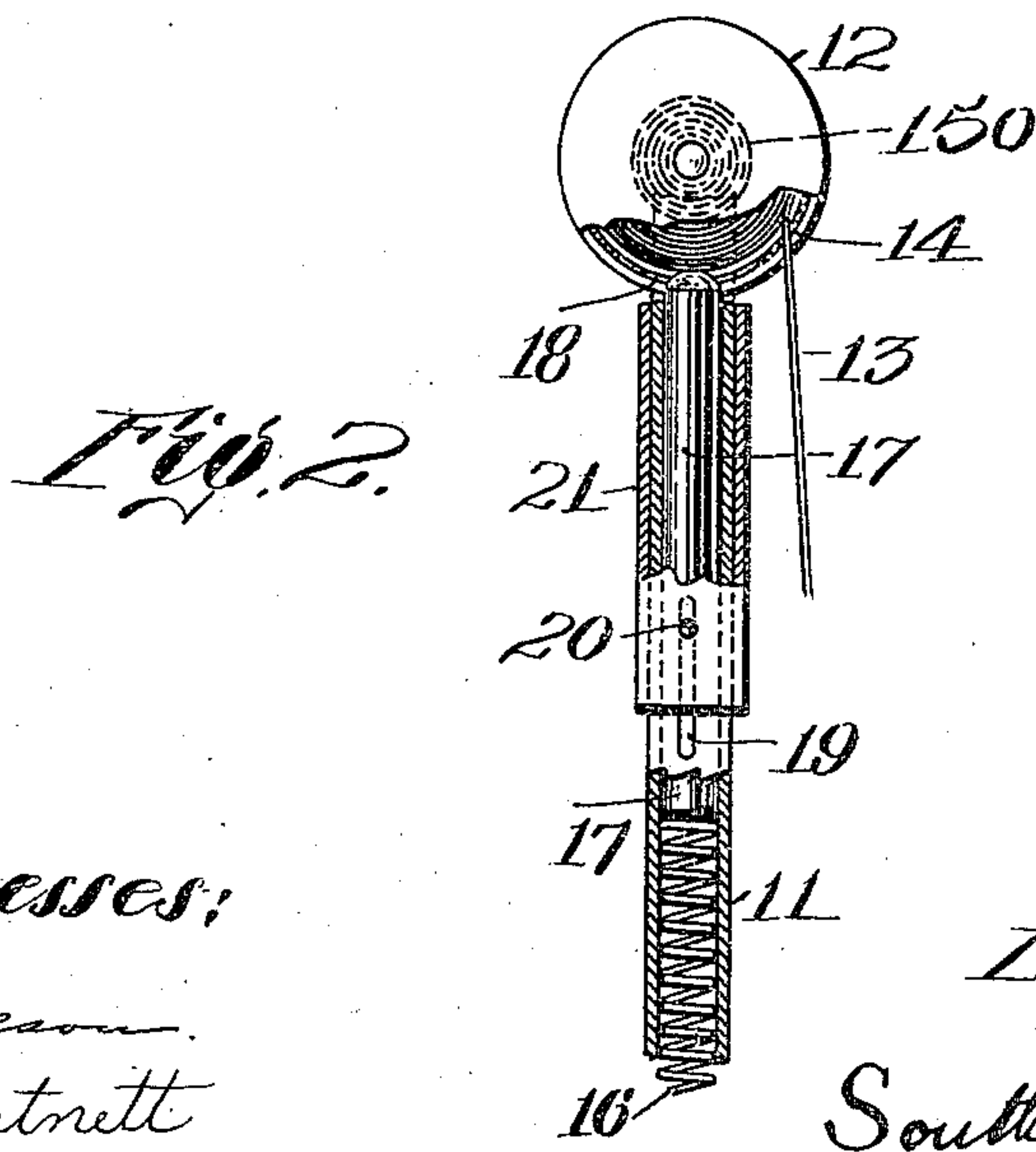
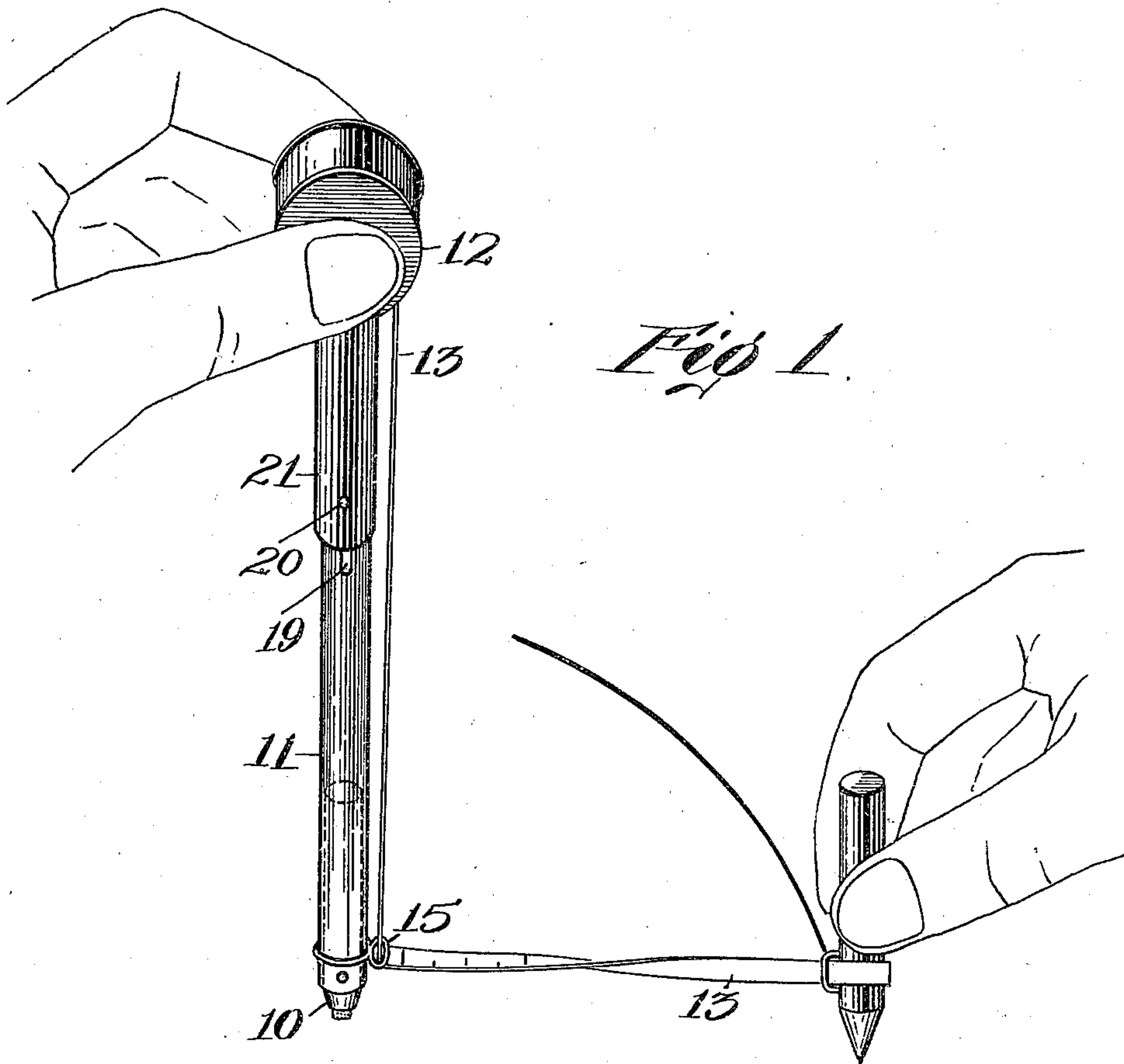


E. A. RICHARDSON.
EDUCATIONAL IMPLEMENT.
APPLICATION FILED JULY 12, 1909.

966,473.

Patented Aug. 9, 1910.



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UNITED STATES PATENT OFFICE.

EDWIN A. RICHARDSON, OF WORCESTER, MASSACHUSETTS.

EDUCATIONAL IMPLEMENT.

966,473.

Specification of Letters Patent.

Patented Aug. 9, 1910.

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To all whom it may concern:

Be it known that I, EDWIN A. RICHARDSON, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Educational Implement, of which the following is a specification.

This invention relates to an implement particularly adapted for use in schools for the purpose of drawing arcs, and for measuring.

The principal objects of the invention are to provide a simple and convenient implement for the above described and analogous purposes, which shall be of such form that it can be manufactured and sold at a low price and can be carried about readily in the pocket without taking up much room.

Further objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is a perspective view of a preferred embodiment of the invention showing how it is used in drawing a circle; Fig. 2 is a longitudinal central sectional view thereof.

The implement is shown as comprising a center 10 which constitutes the bottom of a center rod 11. In the present instance the center rod is shown hollow and the center 10 comprises a wooden member inserted in the lower end and having a rubber tip. At the top of the center rod is fixedly secured a tape holder 12 having a flexible tape 13 wound therein which extends down through an opening 14 in the lower side of the tape holder and along the center rod so as to pass through a guide loop 15 mounted in fixed position near the bottom of the center rod. This loop is shown as formed of wire soldered or brazed to the metallic center rod. The tape holder is provided with a spring 150 of any ordinary form connected at its end with the end of the tape for normally retracting the tape and winding it up in the tape holder.

Mounted within the center rod is a spring 16 which presses upwardly against a slide 17 freely movable in the upper end of the center rod and projecting through the upper end and through a hole 18 in the bottom of the tape holder so as to engage the tape and prevent its being drawn back or drawn out, thus holding the tape firmly in position. The center rod is provided with a longitudinal slot 19 through which passes a pin 20 secured

to the slide and also secured to a finger piece 21 shown in the form of a cylinder slidably mounted on the outside of the center rod. Preferably the pin passes entirely through the center rod, two slots being provided for receiving it. By means of a finger piece connected with the slide the latter can be manipulated readily so as to draw it from contact with the tape so that the tape can be pulled out by hand or drawn in by the spring and adjusted. The slide is shown as provided with a rubber tip for engaging the tape.

The manner of using the device both for measuring and drawing circles will be obvious. Ordinarily the distance from the center horizontally to the outside of the loop constitutes an error, but this can be corrected by making the proper alteration or mark at the end of the tape. Then the tape is drawn out so that the radius of the circle or the distance to be measured registers on the loop and a crayon or the like is held at the end of the tape at the mark corresponding to zero corrected for the error at the loop. The circle or arc is drawn with the crayon, using the center 10 as the geometrical center.

While I have illustrated and described a preferred embodiment of the invention I am aware that many modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore, I do not wish to be limited to all the details of construction shown and described, but

What I do claim is:—

1. As an article of manufacture, a device for measuring and drawing arcs comprising a center, a tape holder mounted at the top thereof, a tape connected with the tape holder and extending longitudinally down along said center, and means near the bottom of the center for receiving and guiding the tape, said tape projecting from said means outwardly from the bottom of said center.

2. As an article of manufacture, a device for measuring and drawing arcs comprising a center rod having a loop thereon near the bottom, a holder fixed on said rod, a flexible member wound up in said holder adapted to be passed through said loop with its free end projecting therefrom, and means on the rod for preventing the flexible member from unwinding from the holder.

3. In a device of the character described
the combination of a center rod having a
guide near the bottom thereof, a tape holder
fixed to the top of said rod, a tape thereon,
5 said tape holder having an opening through
which the tape is adapted to extend down
along the rod to the guide, a slide on the rod
adapted to hold the tape in the tape holder,
a spring in the rod for normally pressing
10 said slide into position for holding the tape,
and a finger piece on the outside of the rod
connected with said slide for operating it.

4. In a device of the character described,
the combination of a center rod hollow at
15 the upper end and having a center at the

lower end, a slide movably mounted in the
upper end of the rod, a tape holder fixed to
the upper end of the rod and having an
opening through the bottom thereof through
which the slide is adapted to project into 20
contact with the tape, a tape in the tape
holder, and means on the rod for operating
said slide.

In testimony whereof I have hereunto set
my hand, in the presence of two subscribing 25
witnesses.

EDWIN A. RICHARDSON.

Witnesses:

A. E. FAY,

C. FORREST WESSON.