No. 809,887. PATENTED JAN. 9, 1906.

C. AMENDT.

SELF CENTERING DIVIDERS.

APPLICATION FILED JULY 21, 1905.

Fig. 1.

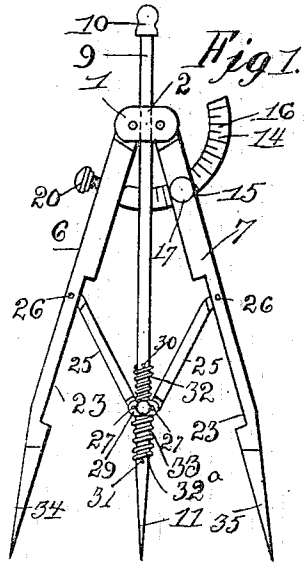


Fig. 2.

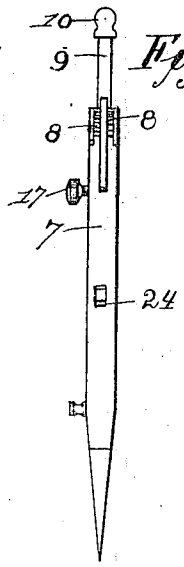


Fig. 3.

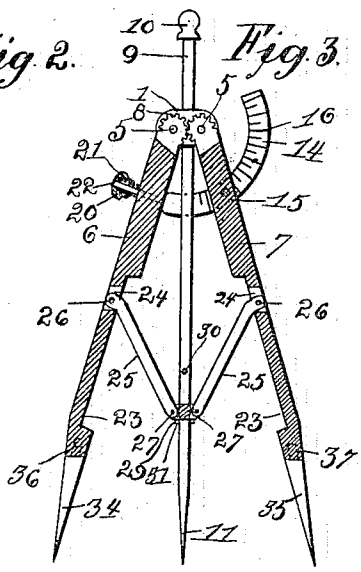


Fig. 4.

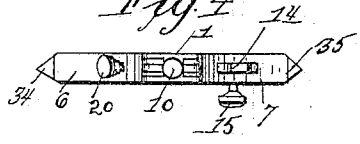


Fig. 5.

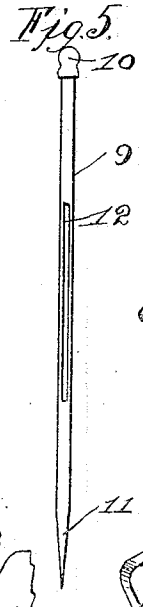


Fig. 6.

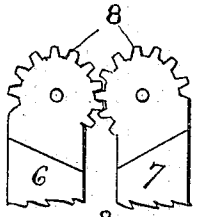


Fig. 7.

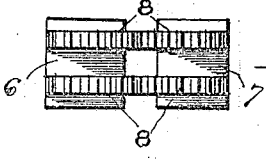


Fig. 8.

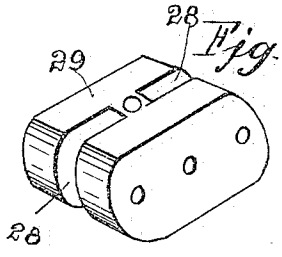


Fig. 9.

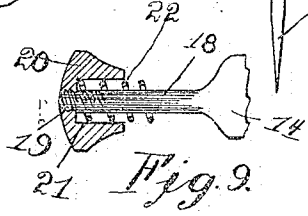
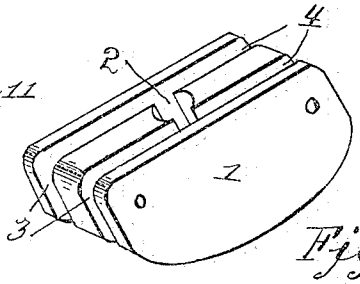


Fig. 10.



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UNITED STATES PATENT OFFICE.

CHRISTIAN AMENDT, OF LATROBE, PENNSYLVANIA.

SELF-CENTERING DIVIDERS.

No. 809,887. Specification of Letters Patent. Patented Jan. 9, 1906.

Application filed July 21, 1905. Serial No. 270,653.

To all whom it may concern:

Be it known that I, CHRISTIAN AMENDT, a citizen of the United States of America, residing at Latrobe, in the county of Westmoreland and State of Pennsylvania, have invented certain new and useful Improvements in Self-Centering Dividers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in instruments of precision; and the invention has for its object to provide a novel form of instrument which can be readily used as a compass, dividers, or as calipers.

To this end I have devised an instrument which can be readily used as a centering device for ascertaining the center of a diameter or given space. In this connection I have devised novel means for adjusting my improved instrument and have employed a construction which will insure perfect accuracy in its determinations.

With the above and other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts to be hereinafter more fully described, illustrated, and then claimed.

The essential features of the present invention are necessarily susceptible to structural changes without departing from the spirit and scope of the invention; but the preferred embodiments of the invention are illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my improved instrument. Fig. 2 is an edge view of the same. Fig. 3 is a vertical sectional view of the instrument. Fig. 4 is a top plan view. Fig. 5 is an elevation of the centering-pin used in connection with the instrument. Fig. 6 is an elevation of the upper ends of the legs of the instrument. Fig. 7 is a plan view of the same. Fig. 8 is a perspective view of a sleeve used in connection with the instrument. Fig. 9 is an enlarged detail sectional view of a portion of the adjustment mechanism of the instrument, and Fig. 10 is an underneath perspective view of the head of the instrument.

Like numerals of reference designate corresponding parts throughout the several views of the drawings.

To put my invention into practice, I construct my improved instrument of a head 1, which is provided with a central vertically-disposed opening 2. The ends of the head are cut away to provide slots 3 3 and 4 4, and transversely of these slots are mounted pins 5 5, upon which are pivotally mounted the upper ends of the legs 6 and 7. By referring to Figs. 6 and 7 of the drawings it will be observed that the upper ends of the legs are formed with segment-shaped gears 8 8, adapted to mesh with one another, each leg being provided with two gears that operate in the slots 3 and 4 in each end of the head 1.

In the vertically-disposed opening 2 of the head I mount a centering pin or rod 9, the upper end of which is provided with a suitable knob or handle 10, while the lower end thereof is pointed or tapers, as at 11. The pin or rod 9 is provided with a slot 12, and passing through said slot is a segment-shaped bar 14, carried by the leg 6. This bar also passes through a slot 15 formed in the leg 7, and the bar may be suitably graduated, as at 16. To lock the legs 6 and 7 in any desired position to which they may be adjusted, I have provided the leg 7 with a thumb-screw 17, which is adapted to engage the segment-shaped bar 14 within the slot 15 of the leg 7. In order to obtain a minute adjustment of the legs after the thumb-screw 17 has been set, I have contracted the one end of the segment-shaped bar 14, as at 18, this end of the bar being adapted to extend through the leg 6 of the instrument. The extreme end of the contracted portion of the bar is provided with screw-threads, as at 19, and upon this end of the bar I adjustably mount a button or knob 20, having a recess 21 formed therein. A spring 22 surrounds the contracted portion 18 of the bar and seats within the recess 21, while its opposite end bears against the edge of the leg 6. By rotating the button or knob 20 a minute adjustment of the legs 6 and 7 can be obtained after the thumb-screw 17 has been set.

The inner or confronting sides of the legs 6 and 7 are recessed, as at 23, and near the top of each recess the legs 6 and 7 are provided with slots 24 24, in which are pivotally mounted arms 25 25 by pins 26 26. The lower ends of the arms are pivotally mounted by pins 27 27 in slots 28 28, which are formed in the ends of the sleeve 29. This sleeve is slidably mounted upon the pin or rod 9 of the instrument and is preferably retained upon the rod 9 between the pins 30 and 31 by the coiled springs 32 32^a. Should it be desired

to adjust the sleeve 29 upon the pin or rod 9, a set-screw 33 is provided, which operates in the sleeve 29 to engage the pin or rod 9 and holding the sleeve in its adjusted position.

The legs 6 and 7 are provided with detachable points 34 and 35, these points being provided with screw-threaded shanks 36 37, which are adapted to engage in screw-threaded recesses formed in the ends of the legs 6 and 7. These points can be readily removed when they have become dull or injured, and a conventional form of lead point may be used in lieu of one of the points 34 or 35 when the instrument is to be used as a compass.

In operation when it is desired to adjust the legs 6 and 7 the thumb-screw 17 is loosened, and by moving one of the legs 6 its opposing leg 7 will be simultaneously moved through the medium of the segment-shaped gears 8 8 of said legs. By tightening the thumb-screw 17 the legs can be positioned and may be minutely adjusted by rotating the button or knob 20. In this operation it will be observed that the rod or pin 9 at all times equally divides the distance between the points 23 and 35 of the legs 6 and 7, and determines the center of a circle described by the points of the instrument, especially when the instrument is used as a compass or as a pair of calipers for determining the diameter of the bore of a tube or pipe.

When the instrument is to be used as dividers, the set-screw 33 is loosened and the rod or pin 9 moved upwardly, compressing the spring 32, at which time the set-screw 33 is tightened, which will hold the lower end of the pin or rod 9 out of alinement with the points 34 35 of the instrument. This also is true when it is desired to use the instrument as a compass for describing a circle, and should it be desired to describe a circle within a circle the pin or rod 9 can be released in order that the point of the pin or rod can describe a circle having a smaller radius than the circle described by one of the legs 6 or 7.

It will be noted that various changes in the form, proportion, and minor details of construction may be made without departing from the spirit of the invention or sacrificing any of the advantages thereof.

What I claim, and desire to secure by Letters Patent, is—

1. An instrument of the class described consisting of a head having a vertically-disposed opening formed therein, a pin slidably mounted in said opening, legs pivotally connected to said head, the upper ends of said legs having substantially segment-shaped gears adapted to mesh with one another, a segment-shaped bar having a contracted screw-threaded end passing through one of said legs, a knob screwing on said end and formed with a recess, a spring seating in said recess and surrounding said contracted end, said bar extending through the other of said legs, arms pivotally connected to said legs, a sleeve slidably mounted upon said pin and connected to said arms, springs mounted on said pin above and below said sleeve means to lock said segment-shaped bar in engagement with one of said legs, and means to lock said sleeve in engagement with said pin, substantially as described.

2. An instrument of the class described consisting of a head having a vertically-disposed opening formed therein, a pin slidably mounted in said opening, legs pivotally connected to said head, the upper ends of said legs having substantially segment-shaped gears meshing with one another, a segment-shaped bar connected to one of said legs and extending through the other of said legs, arms pivotally connected to said legs, means carried by said pin to limit the movement of the sleeve thereon a sleeve slidably mounted on said pin and connected to said arms, and means to lock said sleeve in engagement with said pin.

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

CHRISTIAN AMENDT.

Witnesses:

HUBERT AMENDT,

NICKLAS BAYER.