Sept. 25, 1923. 1,469,192

L. SHEPARD

DRAWING INSTRUMENT

Filed June 17, 1921

Fig. 1.

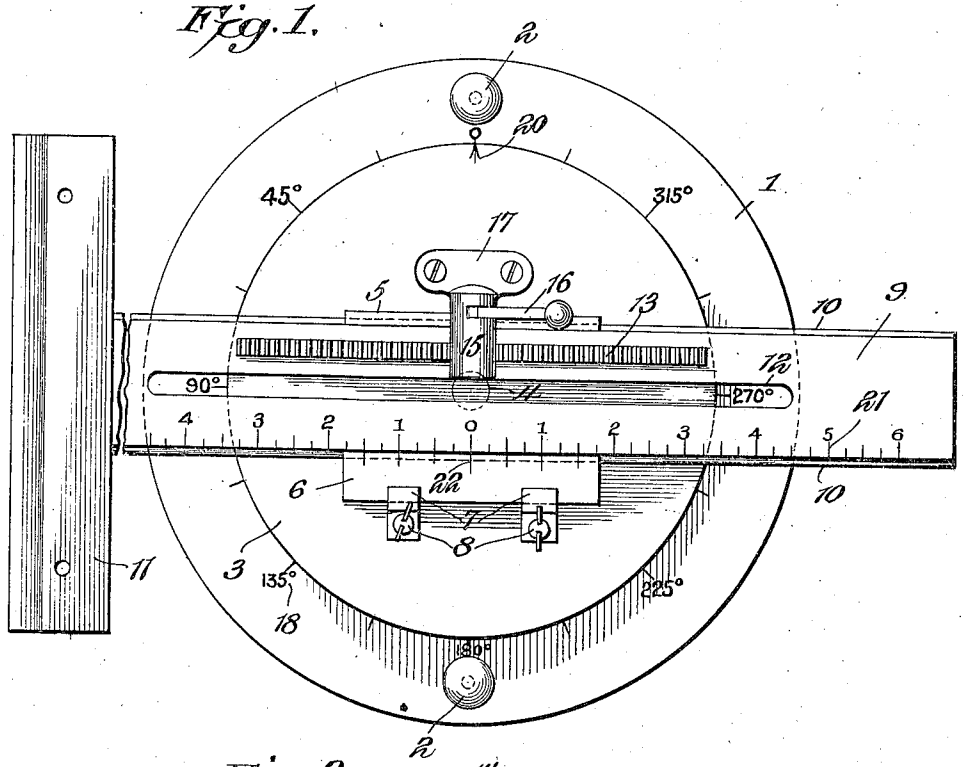


Fig. 2.

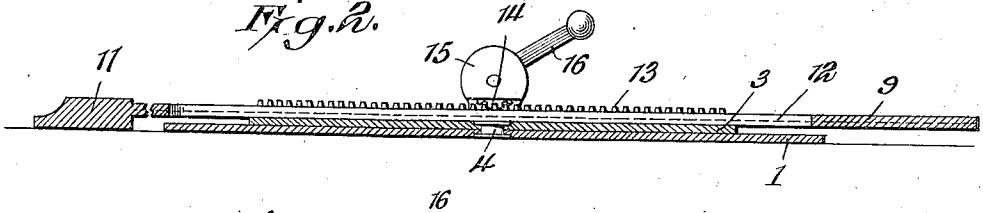


Fig. 3.

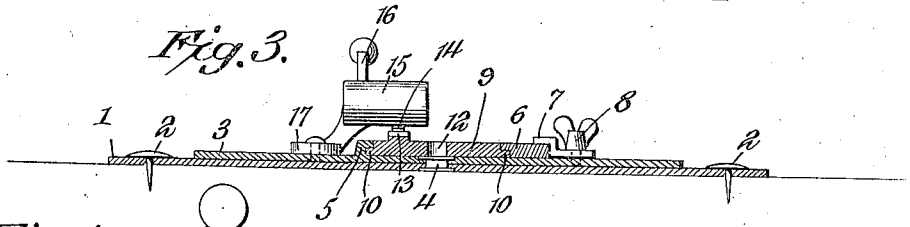
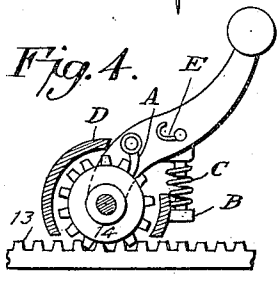


Fig. 4.



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UNITED STATES PATENT OFFICE.

LYMAN SHEPARD, OF NORFOLK, VIRGINIA, ASSIGNOR OF ONE-HALF TO GEORGE L. SHINN, OF NEW EGYPT, NEW JERSEY.

DRAWING INSTRUMENT.

Application filed June 17, 1921. Serial No. 478,387.

To all whom it may concern:

Be it known that I, LYMAN SHEPARD, a citizen of the United States, residing at Norfolk, in the county of Norfolk and State of Virginia, have invented new and useful Improvements in Drawing Instruments, of which the following is a specification.

My present invention pertains to drawing instruments and it contemplates the provision of a combination protractor, square scale and section line spacer, through the medium of which a draftsman or architect may readily and easily produce section lining and angles with but a slight amount of effort on his part.

The invention also contemplates the provision of means whereby angles or curves such as are present in use may be substituted for the T-square herewith shown and when such instruments are substituted the hatching or section lining may be drawn in uniform manner.

The invention in all of its details will be fully understood from the following description and claims when the same are read in connection with the drawings accompanying and forming part of this specification in which:

Figure 1 is a top plan view of my novel drawing instrument and showing a T-square properly positioned thereon.

Figure 2 is a longitudinal sectional view of Figure 1.

Figure 3 is a transverse section of Figure 1 and showing the working mechanism of my device.

Figure 4 is a view partly in side elevation and partly in longitudinal section showing the spacer key 16 and its appurtenances for moving the drawing instrument with respect to the drawing paper.

Similar numerals of reference designate corresponding parts in all the views of the drawings.

My novel device comprises a circular disk 1 that is secured in a removable manner to a drawing board above the paper or the like, by means of the thumb tacks 2 having the scale of degrees marked thereon and as will be readily seen by reference to Figure 1: A smaller circular disk 3 is positioned on the disk 1. The disk 3 is secured to the disk 1 by means of the member 4 in the center thereof whereby the disk 3 may be rotated independently with respect to the disk 1. At this point, I would distinctly have it understood that I do not wish to be confined to any particular shape of disks as the same may be square in the discretion of those using the device and the degree markings do not have to agree with those shown on the drawings.

Permanently secured with respect to the disk 3 is a guide-way member 5 having a longitudinal groove therein and on the opposite side, with respect to said member are adjustable clamps 7 each having a groove on its inner face similar to the groove of the member 5. It will be noted that I provide the wing-nuts 8 for the purpose of adjusting clamps 7 with respect to the disk 3.

Adapted to be set under the clamp is an auxiliary scale 6 graduated as shown by 22 and said scale remains stationary with respect to the clamps 7 and disk 3 at all times.

Adapted to be engaged by the member 5 and rest under auxiliary scale 6 is the body member 9 of a T-square that is graduated on one of its faces as indicated and illustrated by 21 and the said body member 9 is provided with the groove 10 whereby casual displacement of the T-square from the member 5 and auxiliary scale 6 is precluded. The construction of the body member 9 as set forth, is such however, as to permit lateral movement with respect to member 5 and scale 6. Manifestly, the member 9 is provided with the head 11 and for obvious reasons the member 9 has a sight opening 12 in its longitudinal center in order to enable the draftsman to properly position the device as a whole on the paper or linen and the said sight opening 12 may be covered with a transparent material when the occasion demands.

Arranged parallel to the sight opening and at one side of the body member 9 of the T-square is a rack 13 and secured to the disk 3 by means of a bracket 17 is a casing 15 that houses the teeth of a spacer-key 16 having the teeth 14 that mesh with and move the body member from right to left on the disk 3. In order to operate the teeth 14 so as to actuate the rack 13 I provide a key 16. This spacer key 16 is provided with the integral teeth arranged on its lower end and as before stated these teeth 14 mesh with the teeth of the rack 13 and by moving the key to the right or downwardly the teeth 14 force the T-square to the left and by moving the

key to the left the teeth force the T-square to the right. The instrument spacing device comprising a dog A, pivoted to key 16 at the point indicated and said key is adapted to engage successfully the teeth 14. The key is spring-backed and the spring C is secured to the spacer at E and abuts at its lower end against stop B. The key travels in a slot formed in casing D that limits upward movement of the key. Depression of key 16 moves dog A that rotates teeth 14 and said teeth impart motion to rack 13 on the drawing instrument. After the key is released it will return to its normal position through action of spring C.

In the practical use of the device, the same is positioned on a drawing board by means of the thumb tacks 2 and the T-square or other properly constructed angle, curve or drawing instrument is forced under the member 5 and auxiliary scale 6, it being understood that the auxiliary scale had previously been positioned under the clamps 7. The key 16 is held perpendicular so as to prevent the teeth 14 from engaging the rack 13 until the body member 9 of the T-square arrives at the position where zero of the scale on the body member registers with zero on the auxiliary scale. When it is desired to produce section lining on the drawing the key 16 is moved downwardly which downward movement will cause the T-square to travel from left to right. The draftsman will thus be enabled to draw section lines by bearing his straight line pen against the head 11 of the T-square. If it is desired to use the device as a protractor and produce angular lines either singularly or in plurality it is simply necessary to swing the instrument on the axis 4 at any angle with respect to the disk 1. Manifestly the T-square may be positioned at any angle on the disk 3 and at the various degrees indicated.

It will be gathered from the foregoing that my novel device has any number of possibilities for the purpose of producing various angles and curves as used in the drawing art. It will also be seen that at any time the distance between the section lines may be increased or decreased and in view of the auxiliary scale construction which is adapted to be moved by a simple manipulation of the screws 8, the draftsman may quickly and easily produce various lines.

I have endeavored to point out the practical advantages and construction of my device but I would distinctly have it understood that I do not care to limit myself to the arrangement of parts as such changes in the graduation of the scale of both the auxiliary member 6 and the member 9 may be made as fairly fall within the scope of the appended claims.

The device is simple in construction and operation and hence a novice may with a very small amount of experience become proficient in the operation thereof and because of its simplicity and small number of parts its initial cost of production and its subsequent maintenance cost will be immaterial.

The device moreover is adapted for use as a parallel rule.

Having described my invention, what I claim and desire to secure by Letters-Patent is:—

1. In a drawing instrument the combination of a disk having a scale on its outer edge, means for securing the disk in removable manner to a drawing board or the like, a second disk superimposed on the first named disk and adapted to be rotated independently with respect to the first named disk, clamps adjustably secured on the second named disk, an auxiliary scale engaged by said clamps, a bracket permanently secured to the second named disk opposite the scale, a housing, a pinion in said housing, a key for moving the pinion, a member having a groove and arranged beneath the housing on the second named disk and a T-square having a central sight opening and graduations on one face thereof and a rack bar arranged on the T-square adjacent the sight opening, the teeth of which rack bar are adapted to be engaged by the pinion, and longitudinal flanges formed on the T-square and adapted to slide under the member beneath the casing and the auxiliary scale to prevent casual displacement of the T-square from the last named disk.

2. In a device for the purpose set forth, the combination of a plate, a second plate superimposed thereon and movable with respect thereto, a pinion secured on the second named plate, an auxiliary scale adapted to be retained on the second named plate, a guide-way formed on the second named plate, an instrument adapted to be retained on the second named plate by the guide-way and scale and a rack adapted to cooperate with the pinion and means for moving the pinion.

3. In a device for the purpose set forth, the combination of a stationary member, a rotatable member, secured to the stationary member, a member arranged on the superimposed member, teeth arranged in said member and an instrument having a rack provided thereon for engaging the teeth of the member.

4. In a drawing instrument, the combination of a disk, a second disk arranged thereon and adapted to rotate on the first named disk, keepers secured to the second disk, a bracket secured to the said second disk, a casing formed in the bracket, a pinion arranged in the casing and a key for actuating the pinion, an auxiliary scale arranged under one of the keepers and having a channel

formed in one face thereof, a drawing instrument having a rack engaged by the pinion, graduations formed on the instrument, a sight opening provided in the instrument, transparent material arranged over the sight opening and channels formed in the edge of the drawing instrument.

5. In a device for the purpose set forth, the combination of a body member, a plate movable on and secured to the body member, clamps adjustably arranged on the plate, a scale adapted to be retained on the plate by the clamps and having a channel in one edge thereof, a member secured to the plate and having a channel in one edge thereof, a member comprising a casing secured to the plate, a pinion arranged in the member, a key for actuating the pinion and a member having channels in its outer edge and adapted to be movably retained on the plate and a rack formed on the member and adapted to engage the teeth of the pinion, substantially as and for the purpose set forth.

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

LYMAN SHEPARD.

Witnesses:
MINNIE SMERSKY,
A. H. FOREMAN.