H. H. NEVANAS.

COURSE INDICATOR.

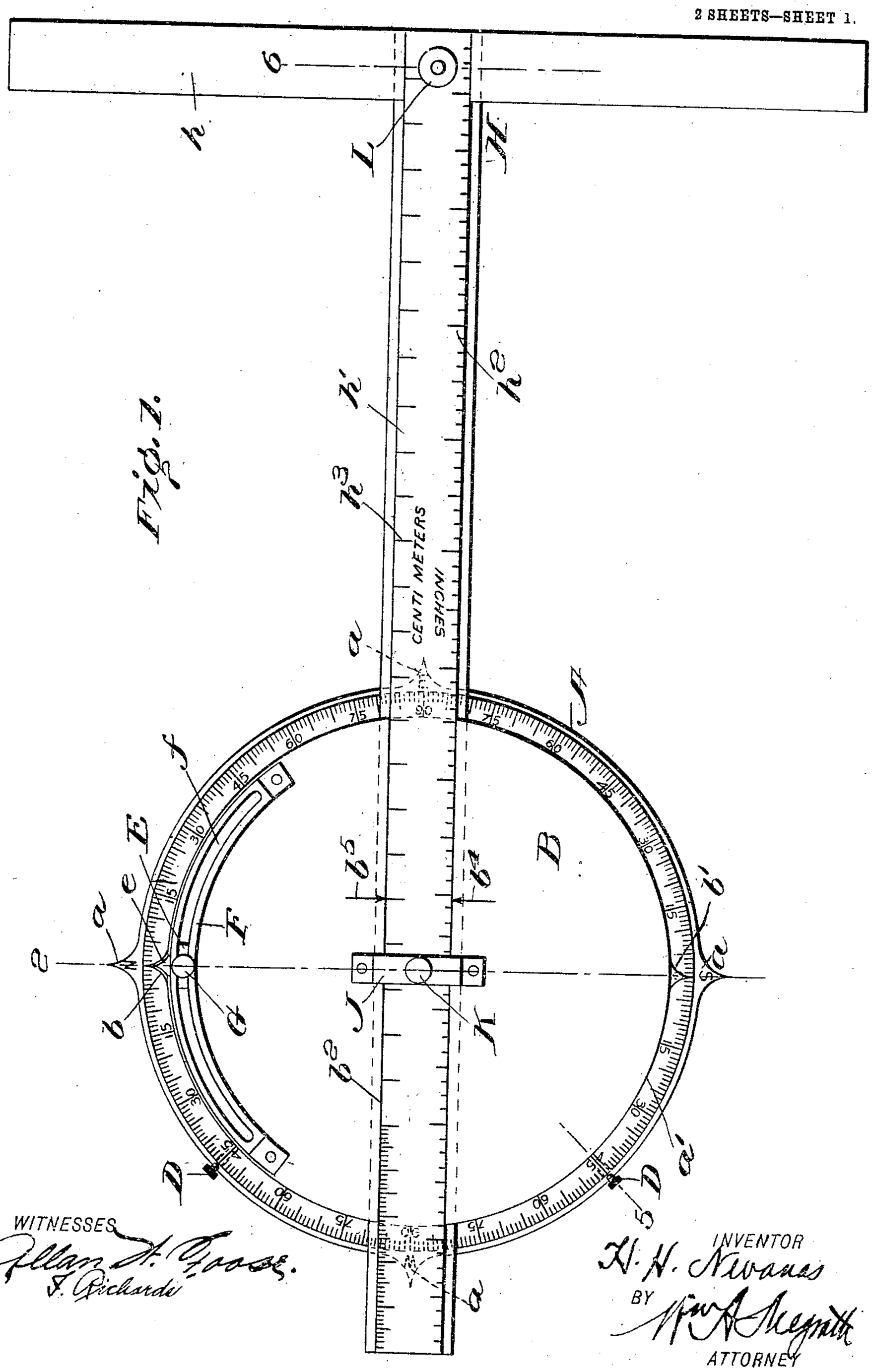
APPLICATION FILED OCT. 29, 1907.

955,347.

Patented Apr. 19, 1910.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

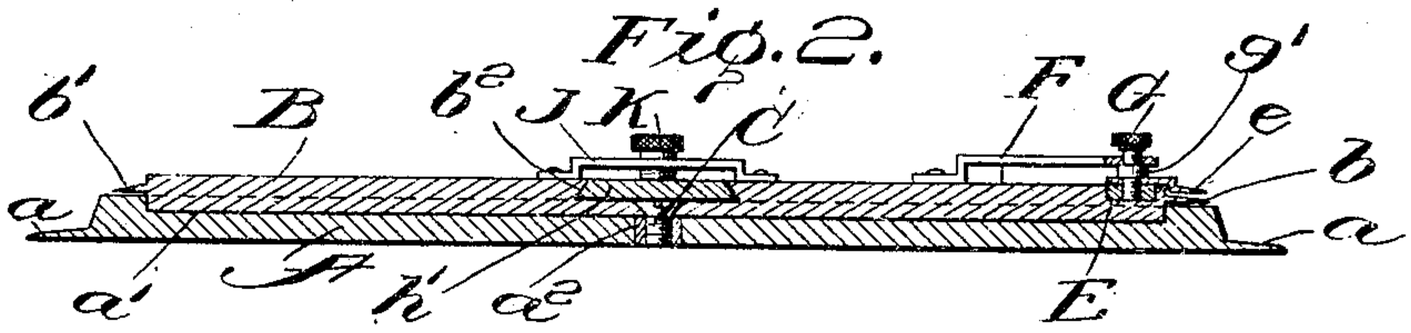


Fig. 5.

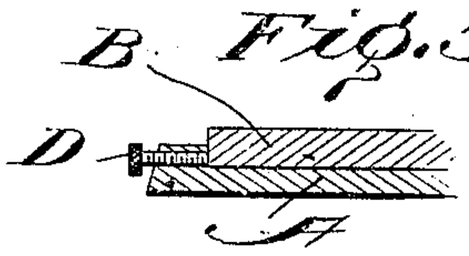


Fig. 6.

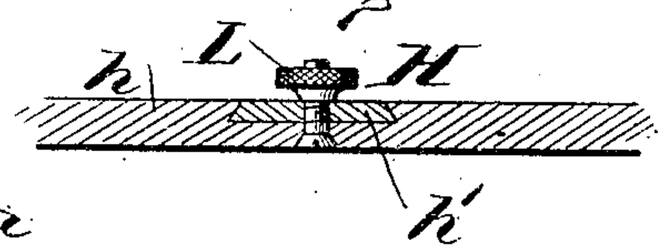


Fig. 3.

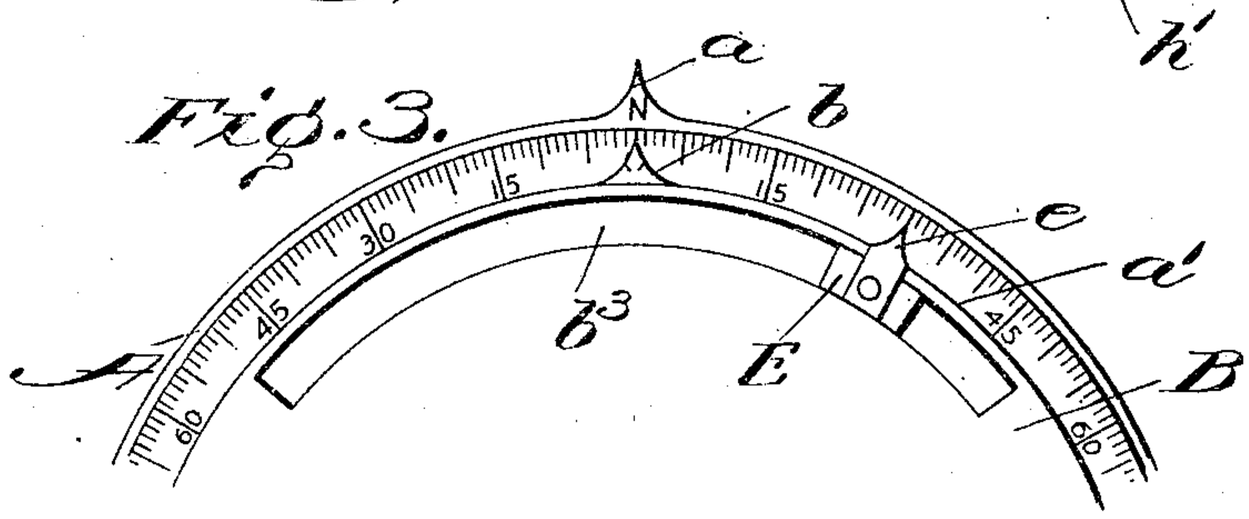
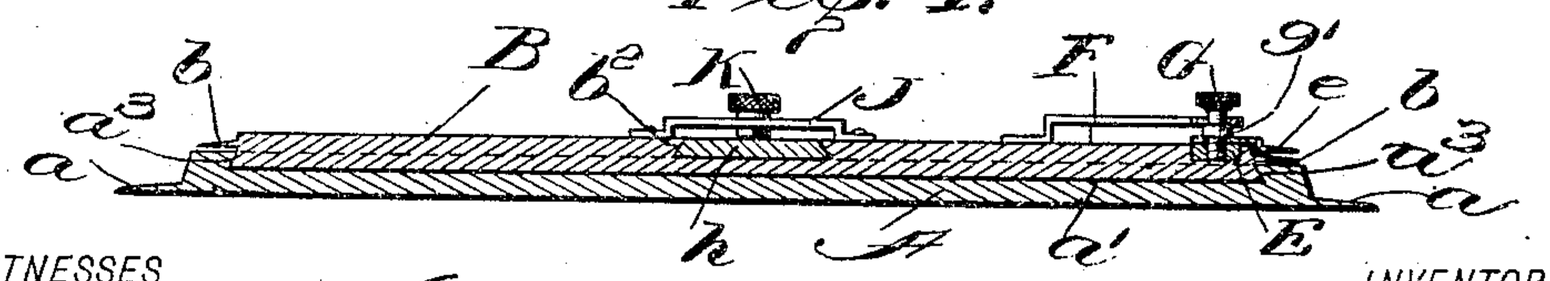


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

HAROLD H. NEVANAS, OF LIVERPOOL, ENGLAND.

COURSE-INDICATOR.

955,347. Specification of Letters Patent. Patented Apr. 19, 1910.

Application filed October 29, 1907. Serial No. 399,707.

To all whom it may concern:

Be it known that I, HAROLD H. NEVANAS, a subject of the King of Great Britain, and a resident of Liverpool, England, have invented certain new and useful Improvements in Course-Indicators, of which the following is a specification.

This invention relates to an apparatus for finding the course bearing between any two places upon a chart, map or the like. It is apparent, however, that it may be used for other purposes.

One of the objects of the invention is to provide means for quickly and readily ascertaining the course of a ship.

Another object is to produce such a device with few parts and at small cost, which will be efficient and accurate in operation.

Other objects will appear from the hereinafter description.

The invention consists of the novel features hereinafter set forth and claimed and which are shown in the accompanying drawings forming a part of this specification.

Referring to the drawings in which the same reference character indicates the same part in the several views, Figure 1 is a plan view of my device. Fig. 2 is a section thereof on line 2 of Fig. 1. Fig. 3 is a top plan view of a portion of the two disks with the guide and keeper for one of the pointers removed. Fig. 4 is a cross section similar to Fig. 2, showing a modified construction. Fig. 5 is a detail taken on line 5 of Fig. 1. Fig. 6 is a detail taken on line 6 of Fig. 1.

The part marked A on the drawing represents a disk having four pointers, a, at an equal distance apart, indicating the four cardinal points of the compass and marked N. S. E. and W. The upper surface of this disk is graduated into degrees and marked zero at north and south, and extending around 90° in both directions, east and west, as clearly indicated in Fig. 1 of the drawing. This disk is recessed at a' to receive the inner disk B. This disk has two pointers b, b', diametrically opposite each other, one to be used in connection with the north pointer of the outer disk, and the other with the south pointer thereof.

The disk B is provided with an undercut groove b^2. The center of the disk A is provided with an internally screw-threaded bushing a^2 which receives a counter-sunk screw C extending through the center of the disk B, the upper surface of this screw being flush with the upper surface of the groove b^2. This screw C acts as a pivot on which the inner disk B is turned relative to the disk A. Extending through the periphery of the disk A are two set screws D. Either of these set screws may be turned so that the inner end thereof will bear against the periphery of the disk B and prevent the said disk from being turned relative to the disk A.

In the upper surface of the disk B, near the periphery thereof, and on that side adjacent to the pointer b is a groove b^3. Movable in this groove is the block E having the pointer e connected thereto or formed integral therewith. Extending over this groove is a guide or keeper F having a slot f therein. Through this slot extends the shank of the set screw G. This set screw extends into the block E. The shank of the screw under the keeper F is provided with a collar g'. This collar prevents the screw from being moved out of the keeper when rotated, but permits free rotation thereof.

H is what may be termed a T-square consisting of the head h and the blade h'. The edges of the blade are beveled and the blade fits and is adapted to slide in the undercut groove b^2 of the disk B.

J is a strap or keeper secured to the upper face of the disk B and straddles the groove b^2. Carried by this keeper is a set screw K, the inner end of which bears upon the upper surface of the blade h' of the T-square and holds the same in any adjusted position on the disk B. The head and blade of the T-square are joined together by a set screw L which may be used as a knob or hand-piece to slide the blade of the T-square transversely of the disk B. The under surface of the head of the T-square is flush with the under surface of the disk B so that when the device is placed upon a chart or map it will lie level thereon. The upper surface of the blade of the T-square is graduated, one side h^2 representing inches, and the other side h^3 representing centimeters.

On the upper surface of the disk B are the lines or pointers b^4, b^5, which point to the inch and centimeter scale respectively, on the blade of the T-square.

In Fig. 4 of the drawing I have shown a modification of a simpler construction of securing two disks together, permitting the inner disk B to be rotated relative to the outer disk A. In this construction the re-

cess in the upper surface of the disk A is undercut, as shown at a^3, and the lower part of the periphery of the disk B is flanged or beveled to fit in said neck a^3. This arrangement securely holds the two disks together but permits the disk B to be freely rotated when the inner end of either one of the set screws D is not bearing against the periphery thereof.

The device is used as follows: Suppose a ship is sailing from one point to another, which is indicated on the chart by a straight line. The disk A is placed on the chart with the north and south pointers on a "meridian," or the east and west pointers on a "parallel," or they may be placed on a margin, whichever is most convenient. The blade of the T-square is moved in the groove of the upper disk, as required, and the head of the T-square is swung around until the straight edge thereof corresponds with the course line on the chart. This movement of the head of the T-square will rotate the disk B relative to the disk A, assuming of course, that the set screw D is not in engagement with the periphery of this disk. When the head of the T-square is in this position, the pointer b on said disk will indicate on the scale on the upper surface of the disk A, the course.

When it is desired to work directly from the compass with the magnetic bearing, the block E carrying the pointer e is used as follows: Assuming that the pointer b on the upper disk is directly over and registering with the north pointer a of the lower disk, the block E is moved until the pointer e thereof is over the graduation corresponding to the number of points of variation applied or to be applied (west for right and east when left). The block E is then clamped by the set screw G so that it cannot move in the slot. Then when the head of the T-square is laid on the course the pointer e will indicate the magnetic course and the pointer b the true course. It is to be understood that this disk instead of being graduated in degrees may be graduated in points.

I provide the blade of the T-square with scales so that graduated parallel lines may be drawn. In other words, a straight line may be drawn by the head h of the T-square, and then by moving the blade a certain distance, either inches or centimeters, indicated by the arrows b^4 or b^5, another line parallel to the first and at a predetermined distance therefrom may be drawn. This may be repeated for a series of parallel lines an equal distance apart.

I do not intend to limit myself to the exact construction of the device herein shown and described, as it is evident that certain variations and changes may be made therein without departing from the spirit of my invention. I desire it also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention, which, as a matter of language, might be said to fall therebetween.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a device of the class described, a disk having graduations at the periphery thereof, another disk mounted concentrically on and movable relatively to the first disk, a pointer carried by the second disk and coöperating with the said graduations, and a member movable transversely of the said disks, one end of said member having another member secured at right angles thereto.

2. In a device of the class described, a disk having the upper surface thereof graduated, said disk being recessed, another disk fitted in said recess and adapted to rotate relatively to the first disk, said second disk having a pointer on the periphery thereof, and a T-square having the blade thereof connected to and movable across the face of the second disk.

3. In a device of the class described, a disk having a scale on the upper surface thereof, said disk being recessed on its upper surface, a second disk fitted in the recess of the first disk, said second disk having pointers to coöperate with the scale on the first disk, a pivot connecting the two disks, a groove in the upper surface of the second disk, and a T-square having the blade thereof movable in said groove.

4. In a device of the class described, a disk having a scale on the upper surface thereof, said disk being recessed on its upper surface, a second disk fitted in the recess of the first disk, said second disk having a pointer to coöperate with the scale on the first disk, a pivot connecting the two disks, means for preventing the inner disk from rotating, a groove in the upper surface of the second disk, and a T-square having the blade thereof movable in said groove.

5. In a device of the class described, a disk having pointers on the periphery thereof and a scale on the upper surface thereof, said disk being recessed on its upper surface, a second disk fitted in the recess of the first disk, said second disk having pointers to cooperate with the scale on the first disk, a pivot connecting the two disks, a groove in the upper surface of the second disk, a T-square having the blade thereof movable in said groove, and means for clamping the blade in a fixed position in the groove.

6. In a device of the class described, a disk having pointers on the periphery thereof and a scale on the upper surface thereof,

said disk being recessed on its upper surface, a second disk fitted in the recess of the first disk, said second disk having pointers to coöperate with the scale on the first disk, a pivot connecting the two disks, a groove in the upper surface of the second disk, a T-square having the blade thereof movable in said groove, a strap secured to the upper face of the second disk and straddling the groove therein, and a set screw in said strap adapted to bear on the said blade and hold it in fixed position in the second disk.

7. In a device of the class described, a disk having a scale on the upper surface thereof, said disk being recessed, a second disk fitted in said recess and adapted to be rotated relative to the first disk, a T-square having the blade thereof connected to the second disk, and a movable pointer connected to the second disk.

8. In a device of the class described, a disk having a scale on the upper surface thereof, a second disk secured over the first disk and adapted to be moved in relation thereto, a T-square having the blade thereof connected to the second disk, and a movable pointer also connected to the second disk.

9. In a device of the class described, a disk having pointers on the periphery thereof, a scale on the upper surface thereof, a second disk secured to the first disk and adapted to rotate in relation thereto, pointers on the second disk, the said second disk being grooved, a T-square having the blade thereof movable in said groove, another groove on the upper surface of the second disk, a block having a pointer thereon movable in said groove, a strap or keeper having a slot therein secured over the groove, and a set screw with the shank thereof extending through the groove and into the block.

10. In a device of the class described, a disk having pointers on the periphery thereof and a scale on the upper surface thereof near the periphery, said disk being recessed inside of said scale, the second disk fitting in said recess, a pivot extending through the two disks and on which the second disk rotates in relation to the first disk, means for clamping the second disk and preventing its rotation, the said second disk having a groove in the upper surface thereof, a T-square having a blade, said blade being fitted in and movable in said groove, a clamp for holding the blade in a fixed position, a block having a pointer movable in said groove, a strap having a slot therein secured to the upper surface of said second disk and directly over said groove, a screw passing through said slot and into the block, and means on the shank of the screw underneath the strap, as and for the purpose set forth.

11. In a device of the class described, a disk having a scale thereon, a second disk pivoted over the first disk and movable in relation thereto, a T-square having a blade, the said blade being graduated and movable transversely of the disk, and said disk having a pointer coöperating with said scale, as and for the purpose set forth.

In witness whereof I have hereunto set my hand at the city, county and State of New York, this 25th day of September, 1907.

HAROLD H. NEVANAS.

In presence of—

JOHN J. RANAGAN,

WM. A. MEGRATH.