

V. CONSTANTINESCU.
DRAFTING DEVICE FOR SHADING CIRCLES.
APPLICATION FILED MAY 12, 1911.

1,027,102.

Patented May 21, 1912.

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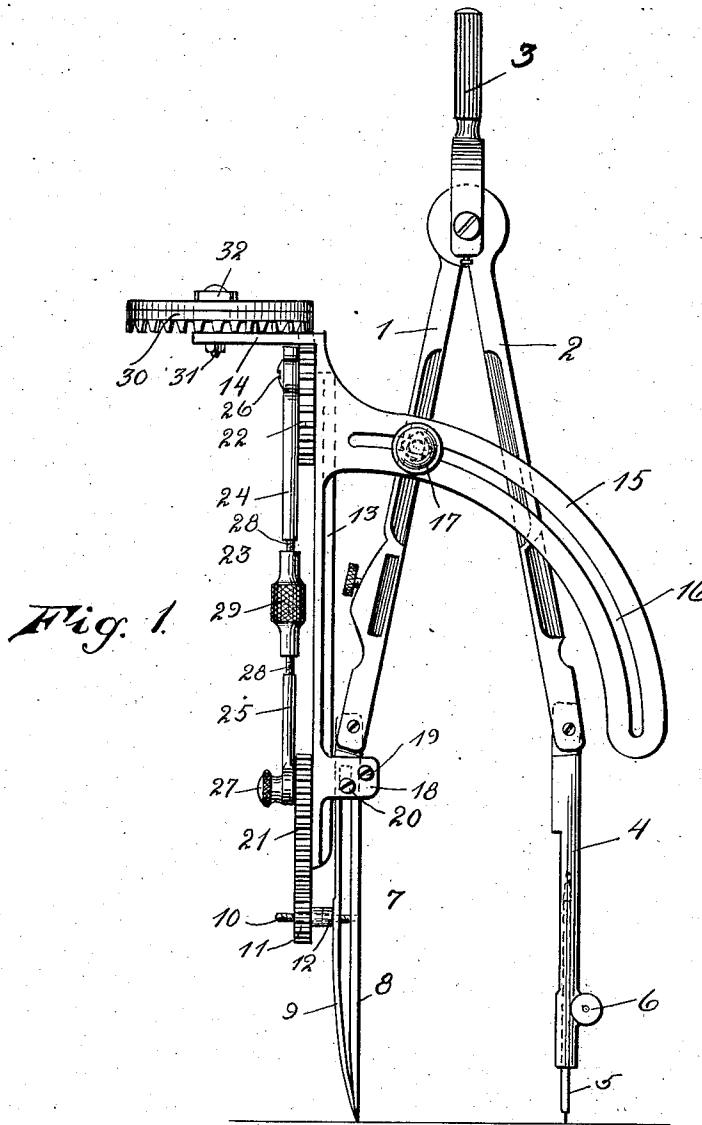


Fig. 1.

Witnesses

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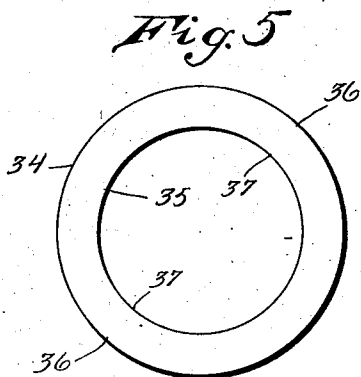
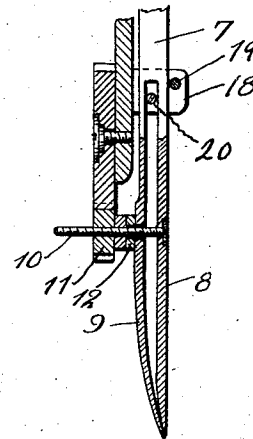
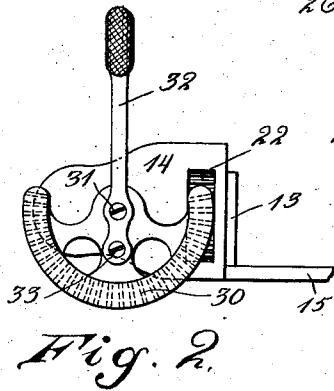
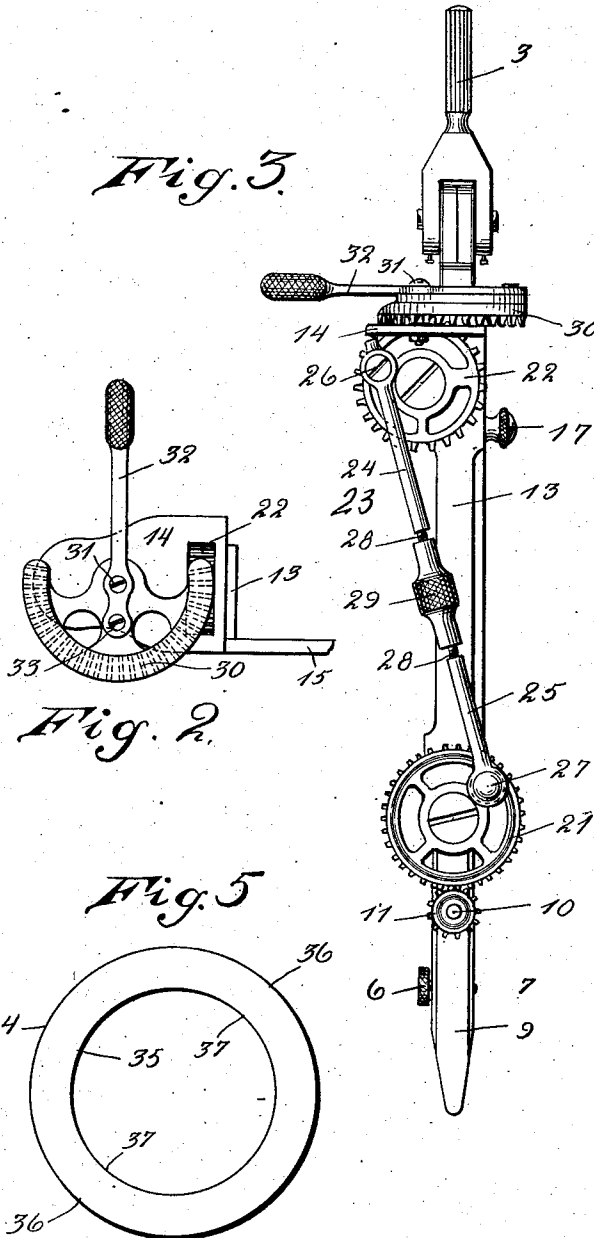
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Witnesses
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UNITED STATES PATENT OFFICE.

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DRAFTING DEVICE FOR SHADING CIRCLES.

1,027,102.

Specification of Letters Patent.

Patented May 21, 1912.

Application filed May 12, 1911. Serial No. 626,718.

To all whom it may concern:

Be it known that I, VASILE CONSTANTINESCU, a citizen of Canada, residing at Nelson, in the Province of British Columbia, Canada, have invented certain new and useful Improvements in Drafting Devices for Shading Circles, of which the following is a specification.

My invention relates to drafting instruments and has particular reference to a device to be attached to and cooperate with a compass.

An important object of this invention is to provide a device of the above character, whereby the shading of a circle upon one side thereof, may be effected without changing the central point of rotation of the compass.

A further object of my invention is to provide an attachment of the above character, which is a time saver, easy to operate, and accurate in operation.

A further object of this invention is to provide a device of the above character, which may be secured to almost any form of compass without any alterations thereto.

A further object of this invention is to provide an attachment to be used in connection with a drafting compass, which is so constructed that the thickness of the line of the circle may be readily changed to suit the occasion and which is adapted to shade one side of the circle in a proper and expeditious manner.

Other objects and advantages of this invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same, Figure 1 is a side view of my device, showing the same applied to a compass, Fig. 2 is a detail plan view of the operating lever and pinion associated therewith, Fig. 3 is an end view of the device, showing the same as applied to the compass, Fig. 4 is a detail sectional view taken through the pen carried by the compass, and, Fig. 5 is a plan view of circles employed to illustrate the operation of the device.

My device may be employed in connection with any well known or preferred type of compass and I have illustrated the same in connection with a compass comprising pivoted arms 1 and 2, to the upper end of

which is secured a handle 3. The arm 2 has pivotal connection at its lower end with a leg 4, which carries a pointed member or pin 5, attached thereto by means of a clamping screw 6. The pin 5 is inserted in the paper and forms the axis about which the compass revolves. The arm 1 has pivotal connection at its lower end with a drafting pen 7 of any well known or preferred type, such pen comprising a relatively stationary blade 8 and a blade 9 adapted to be moved toward and away from the first named blade to regulate the thickness of the line to be drawn, as is well known. As clearly illustrated in Fig. 4, a screw-threaded pin 10 is attached to the blade 8 and extends through an opening formed in the relatively movable blade 9. The pin 10 carries a pinion 11 having screw-threaded engagement therewith and a washer 12 is disposed between this pinion and the blade 9. It is obvious that upon proper rotation of the pinion 11, the blade 9 may be moved to change the thickness of the line to be drawn, depending of course upon the direction of rotation of such pinion.

My device comprises a supporting structure in the embodiment of an upright support or arm 13, which is attached to the compass in a manner to be described. The supporting structure includes a horizontal plate 14, carried by the upper end of the upright 13. The upright 13 is provided near its upper end with a laterally extending and downwardly curved arm 15, provided with an elongated slot 16 formed therethrough. A suitable clamping device 17 is adjustably mounted upon the arm 15, operating within the slot 16 and serving to rigidly clamp the arm 15 with the arm 1 of the compass. The upright 13 is provided near its lower end with spaced laterally extending ears 18, adapted to receive therebetween the upper end of the pen 7 and having openings formed therethrough for the reception of clamping screws 19 and 20. The clamping screw 19 is disposed upon the outer side of the blade 8 and the clamping screw 20 is disposed between the blades 8 and 9, as shown.

Rotatably mounted upon the lower portion of the upright 13 is a pinion 21, in constant engagement with the pinion 11, which is sufficiently thick to permit said pinions to remain in constant engagement when the latter travels longitudinally along the

pin 10. Rotatably mounted upon the upper portion of the upright 13 is a pinion 22, the rotation of which is imparted to the pinion 21 through the medium of an extensible pitman which is designated as a whole by the numeral 23. This pitman comprises shafts 24 and 25, having their outer ends pivotally connected with the pinions 22 and 21 by means of screws 26 and 27, respectively. It is to be understood that any suitable means may be employed for effecting a pivotal connection between the shafts and the pinions. The inner ends of the shafts 24 and 25 are reduced and screw-threaded, as shown at 28, for the reception of a turn-buckle 29, by the rotation of which said shafts 24 and 25 may be drawn toward or away from each other. The pinion 22 extends through an opening formed in the horizontal plate 14 to engage teeth carried by a segmental pinion 30, which is rotatably mounted upon the upper side of the plate 14, by means of a screw 31 or the like. A horizontal controlling lever 32 is provided, the same being disposed upon the pinion 30 and having an opening formed therethrough intermediate the ends thereof for the reception of the screw 31. A second screw 33 connects the inner end of the lever to the pinion, whereby the lever and pinion are made to move together and by holding said lever against movement the pinion 30 is also held against movement.

In Fig. 5 I have illustrated two circles 34 and 35 which are shaded upon opposite sides, as shown. The shaded portions of these circles commence at points designated by the numerals 36 and 37. In drawing the circle 34, the controlling lever 32 is moved to its requisite position so that the pitman 23 assumes the position as illustrated in Fig. 3. The pin 5 is placed in the center of the circle and the pen 7 placed at the lower point 36. The operator adjusts the turn-buckle 9 so that the required thickness of the unshaded portion of the circle is had. The operator holds the lever 32 to prevent the segmental pinion 30 from rotating upon its axis 31, while permitting the compass to be rotated counter-clock-wise so that the pen 7 will travel from the lower point 36 to the upper point 36. Owing to this operation the pinion 22 will be rotated counter-clock-wise and the pitman 23 moved first downwardly and after reaching the lowermost position it will move upwardly. The pinion 21 will thus first be partially rotated clock-wise and then counter-clock-wise. The pinion 21 thus serves to first rotate the pinion 11 counter-clock-wise and subsequently clock-wise, whereby the blade 9 is permitted first to move away from the blade 8 for gradually thickening the shaded portion of the circle until the thickest portion thereof is reached, when said pinion 11 will be rotated clock-wise to move the blade 9

toward the blade 8, whereby the thickness of the shaded portion of the circle will be gradually reduced. As soon as the pen 7 reaches the upper point 36, the operator releases the handle 32 and continues the rotation of the compass until the lower point 36 is reached, when the circle will have been completely drawn. By the time the pen 7 has reached the upper point 36, the upper end of the pitman 23 is disposed upon the opposite side of the pinion 22, while the lower end of said pitman remains upon the same side of the pinion 21, as shown in Fig. 3. The parts are now in their requisite position for drawing the circle 35. The pin 5 is placed in the center of the circle 35 and the pen 7 at the point 37. The operator holds the lever 32 to prevent the rotation of the pinion 30 on its axis 31, as above described. The compass is now turned clock-wise, so that the pen 7 travels from the lower point 37 to the upper point 37. This operation effects a clock-wise movement of the pinion 22, whereby the pitman 23 is first moved downwardly and then upwardly after reaching its lowermost position. It will thus be seen that the pinion 21 is first partially rotated clock-wise and then counter-clock-wise, whereby the pinion 11 is first partially rotated counter-clock-wise and then clock-wise. This movement of the pinion 11 will shade the circle 35 in a manner as above described.

I wish it understood that the form of my invention herewith shown and described is to be taken as a preferred example of my invention and that certain changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claim.

Having thus described my invention, I claim:—

The combination with a compass, comprising pivoted arms, a leg pivoted to one arm, a pen pivoted to the other arm and including a stationary blade and a movable spring blade adapted when released to move away from said stationary blade, of a screw-threaded pin attached to said stationary blade and extending through an opening in the movable blade, a pinion having an opening formed therethrough for receiving said screw-threaded pin, an upright provided at its upper end with a curved plate having a slot formed therethrough, a clamping bolt connected with one of the arms and disposed in said slot, spaced ears rigidly connected with the lower end of the upright and receiving therebetween the upper end of said pen, a plurality of clamping screws connecting said ears and disposed upon opposite sides of said stationary blade whereby said pen is rigidly connected with the upright and may be swung on its pivot by said up-

right, a pinion rotatably mounted upon the
lower end of the upright and engaging the
first named pinion, a third pinion rotatably
mounted upon the upper portion of said up-
5 right, a pitman connecting the second and
third named pinions, a horizontal plate
formed upon the upper end of the upright
and having an opening formed therethrough
to receive a portion of the third named pin-
10 ion, a horizontal pinion disposed upon the

upper face of the horizontal plate and en-
gaging the third pinion, and means to turn
said horizontal pinion.

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

VASILE CONSTANTINESCU.

Witnesses:

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WILLIAM N. PIPPY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
