

Patented Mar. 26, 1912.

Fig. 4.

78

7

Fig. 5 and Fig. 8 are longitudinal sections of the device. Fig. 5 shows the internal components including the piston rod 51, the piston 49, the piston ring 53, the piston seal 54, the piston seal ring 55, the piston seal ring 56, the piston seal ring 57, and the piston seal ring 58. Fig. 8 shows the internal components including the piston rod 51, the piston 49, the piston ring 53, the piston seal 54, the piston seal ring 55, the piston seal ring 56, the piston seal ring 57, and the piston seal ring 58.

Fig. 9.

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UNITED STATES PATENT OFFICE.

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COMBINED PENCIL AND COMPASSES.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, PERCY D. MORGAN, citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Combined Pencils and Compasses, of which the following is a specification.

My invention relates to a combined pencil and compass and the object of the invention is the provision of a very simple, durable and efficient device wherein is combined a pencil, a pencil protector or case having a rubber thereon and a pair of compasses, the compasses being provided with interchangeable steel points, a pencil point and a pen point, the arms of the compass being positively moved outward by means of an adjusting screw so that the compass may be used for very delicate work.

The invention is illustrated in the accompanying drawings wherein:

Figure 1 is an elevation of my combined pencil and compass, the compass being inclosed within the tubular protector portion of the pencil. Fig. 2 is an enlarged elevation showing the tubular protector removed and the compass legs expanded. Fig. 3 is an enlarged fragmentary side elevation of the means for expanding the compass legs, part of the base plate being in section. Fig. 4 is a section on the line 4—4 of Fig. 3. Fig. 5 is a perspective view of the traveler. Fig. 6 is a section on the line 6—6 of Fig. 3. Fig. 7 is a plan view of a modified form of my improved pencil and compass. Fig. 8 is a longitudinal sectional view of the means for holding a pencil lead and a prick point. Fig. 9 is a longitudinal sectional view of the means for holding a pen and a prick point.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

Referring to these figures, 2 designates a cylindrical body portion carrying a removable pencil 3 at one end, the middle of the body portion being provided with a raised bead forming a limiting stop. A tubular protector 5 is provided, into which either end of the body portion 2 may be inserted, this tubular protector 5 carrying at its end the rubber eraser 6.

The compasses are attached to the body portion 2 and consist of a base plate 7 which is attached to the interior of the body por-

tion and projects therefrom any suitable distance. This base plate 7 is relatively long and relatively narrow and is provided with a longitudinal slot 8 which extends from about the middle of the base plate nearly to the outer end thereof.

Pivotally mounted upon the base plate adjacent to the inner end of the slot are the compass arms 9 and 10. These consist of thin strips of metal adapted, as will be hereafter described, to carry the steel points, the pencil or the pen. The arms are pivotally attached to the base plate by means of a rivet 11 which passes through both arms. One of the arms, as for instance the arm 9, is deflected at 12 so that the arms may be in the same plane and may be supported upon the adjacent face of the base plate.

The outer end of the base plate is turned upward as at 13 to form one bearing for a screw shaft 14. The other end of this shaft is supported in a bearing 15 which is formed of an angular plate riveted to the base plate by a rivet 16. The outer end of this plate 15 is also provided with an upwardly turned portion 17 which is cut away on each side as at 18 as shown in the enlarged view of Fig. 4 for the attachment of a spring 19. This spring is wrapped around the portion 18 a number of times and the arms of the springs are then carried outward and engaged with the edges of the arms 9 and 10.

The inner extremity of the screw shaft 14 is provided with a knurled head 22, and in order to hold the screw shaft from any play and prevent any wobbling of the knurled head, I preferably attach to the base plate the angular bearing 23. This bearing 23 is preferably riveted to the plate and the rounded extremity of the shaft 14 bears against the inner face of this plate. This holds the shaft particularly steady. The base plate is cut away at 24 to accommodate the knurled head.

Mounted upon the screw threaded shaft 14 is the traveler 25 formed of a plate of metal 26 which is bent upward at 27, then extended longitudinally immediately above the screw threaded rod or shaft 14, then bent downward as at 28, the shaft 14 passing through the ends of the traveler and having screw threaded engagement therewith at two points. The downwardly extending end 28 is narrowed to form a lug 29 which extends down through the slot 8 in the base plate and holds the traveler in alinement with the

base plate, preventing any sidewise movement.

Pivotally connected to one side of the traveler is a link 30 which extends diagonally and is pivoted at 31 to the leg 9, while pivotally attached to the other side of the traveler is the link 32 which crosses the link 30 and is pivotally connected at 33 to the leg 10. It will thus be seen that as the screw threaded rod 14 is rotated by means of the knurled head 22, the traveler will be moved in one direction or the other along the rod, being guided by the slot 8, and therefore the links 30 and 32 will either act to draw the legs together or act to force the legs apart.

It will be seen that the construction before described provides for a very delicate adjustment of the compass legs and also provides for a very rigid connection between the legs and the base plate so that there will be no lost motion of the several parts. The links 30 and 32 will hold the legs in their proper relation and the traveler will hold the links from any movement unless the screw threaded shaft 14 be rotated. The legs may be spread to a considerable distance or else may be so contracted that they will be parallel with each other, in which position they are adapted to be inserted within the protector 5.

The ends of the legs are formed with cylindrical clips 33 which may extend from the ends of the legs nearly to the extremity of the base plate 7. It will be seen that the legs are cut away as at 34 so that they may be closed on each side of the base plate 7 and the flange 13 is also cut away on each side or slotted as at 35 to the same end, thus permitting the ends of the blades to be wider than they otherwise could be.

In Fig. 7 I show another form of my invention wherein one of the legs of the compass is formed by the base plate itself and the other leg of the compass is movable with relation to the base plate. In this form of the invention 36 designates the base plate which is longitudinally slotted as at 37 and which has pivoted to it the leg 38. Traveling upon the slotted base plate is the traveler 39 having pivotally attached thereto the link 41 which is pivoted to the leg 38 at 42. Passing through the traveler is the screw threaded shaft 43 which at its end carries the milled head 44, the screw threaded shaft being supported in a bearing 45 struck up from the body of the plate or strip 36 and in the bearing 47 carried at the inner end of this strip or base plate. It will be seen that this form of my invention acts precisely in the same manner as the previously described form. By rotating the screw shaft 43 the traveler 39 is caused to move along the base plate and this acting upon the link 41 spreads or draws in the leg 38. The leg 38 and the extremity of the

base plate or strip 37 are provided with cylindrical clips 48 which are the same as the clips 33 in the other form of my device and which are adapted to hold the point, pencil or pen holding devices which will be now described.

As a means for supporting either a sharp point or a pencil in one of the legs of the compass, I provide a cylindrical body 49 illustrated in Fig. 8, which body is tapered at one end at 50 and provided with an opening 51 in the tapered extremity. Intermediate the ends of the body portion 49 interior screw threads 52 are provided.

The combined holder comprises a cylindrical portion 53 into which a steel point 54 is inserted. Supported within the part 53 is a tubular shank 55 which is split at one end as at 56, the extremities of the split portion being inwardly turned as at 57. This bifurcated or split portion is adapted to engage and hold a pencil lead 58 which projects slightly beyond the ends of the split portion of the shank of the tubular member 53. The cylindrical body portion 53 is formed with projecting screw threads 59 which are adapted to engage the screw threads 52 in the case or body 49. After the lead is placed within the bifurcated end of the shank, the shank is inserted into the open end of the member 49, the tubular member 53 extending into the member 49 and the screw threads 52 thereof engaging the screw threads 59. As this member 53 is rotated it will be forced farther into the body 49 and the bifurcated or split portion 56 will be pressed against the lead by engagement with the tapered end 50 of the casing. There is thus provided a small cylindrical case having a sharp steel point at one end and a pointed lead projecting from the other end. This case 49 is adapted to be inserted in the clips 33 or 48, supported on the legs 9 and 10 or upon the leg 38 and the extremity of the clip 48 in Fig. 7. The member 49 is adapted to be inserted into the clips 33 or 48, the amount of this insertion being limited by a stop bead 60 formed upon the case or body portion 49. It will be seen that a lead may be applied to the bifurcated end of the shank at any time and the shank again inserted within the casing 49 with the lead projecting therefrom.

The steel point and pen holder as illustrated in Fig. 9 comprises a body portion 61 having therein a steel point 62. This body portion is formed with a stop bead 63 for the same purpose as the stop bead 60. The cylindrical body portion 61 contains within it a split tube 64 between which and the body portion a pen may be inserted. This pen and point holder is also adapted to be inserted in either one of the clips 33 or in either one of the clips 48. When it is desired to use the device as a pair of cali-

pers, for instance, it is only necessary to so insert the members 49 and 61 that the steel points 54 and 62 shall form the terminal ends of the compass legs. If it is desired to use a pencil with the steel point, then the body portion 49 is reversed so that the pencil point 58 will project. The member 61 may be likewise reversed to bring either the steel point 62 or the pen into position for use.

While I have shown the various parts on a relatively large scale in order to clearly illustrate the construction of my improved compasses, it will of course be understood that the parts are relatively small inasmuch as they are adapted to be folded so as to be inserted within the usual tubular pencil protector which is about a quarter of an inch in diameter.

I have found in practice that my device is entirely effective and that it is capable of very delicate work and that it is extremely convenient.

What I claim is:

1. A pair of compasses including a body, a base connected to and projecting from the body, a leg pivoted to the base, a traveler movable along the base, a link connecting the traveler with the leg, and a screw threaded shaft mounted on the base and connected to the traveler, said shaft being provided with a knurled head.

2. A pair of compasses including a body, an elongated slotted base connected to and projecting from the body, oppositely disposed legs pivoted to the base, a traveler movable along the base and having a lug projecting into the slot of the base, oppositely disposed crossed links pivotally connected to the traveler and to the legs, and a screw threaded shaft mounted in bearings upon the base and having a knurled head, said shaft engaging the traveler.

3. A pair of compasses including a body, a longitudinally slotted base plate connected to the body and projecting therefrom, oppositely disposed legs having a common pivotal attachment to the base plate, a traveler movable along the base, oppositely disposed

crossed links pivotally connected at their ends to the traveler and to the legs, a screw threaded shaft mounted in bearings projecting from the face of the base plate and having a knurled head, and an outer tubular case fitting the body into which case the legs are insertible.

4. A pair of compasses including a body, an elongated base plate connected to and projecting from the body, said base plate being longitudinally slotted, a traveler having a lug projecting into the slot and movable along the base plate, oppositely disposed legs pivoted at their inner ends to the base plate, crossed links pivotally connecting the traveler and the legs, a screw threaded shaft mounted in bearings upon the face of the base plate and having a screw threaded engagement with the traveler, said shaft having a knurled head, and a spring mounted upon the base plate, the two arms of the springs engaging the legs to resist movement thereof.

5. The combination with a compass leg having a tubular clip formed therewith, of a lead and point holder comprising a tubular body portion contracted at one end and provided with interior screw threads, a shank carrying at one end a point, the other end of the shank being bifurcated to engage a lead, said shank being provided intermediate its length with exterior screw threads engaging the interior screw threads on the body.

6. The combination with a compass leg having a cylindrical clip, of a point and pen holder comprising a cylindrical body portion, one end of the body portion having embedded therein a point, the other end of the body portion being tubular, and a split sleeve mounted within the tubular body portion to engage a pen.

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

PERCY D. MORGAN. [L. s.]

Witnesses:

O. P. POTTS,

C. B. LAFOLLETT.