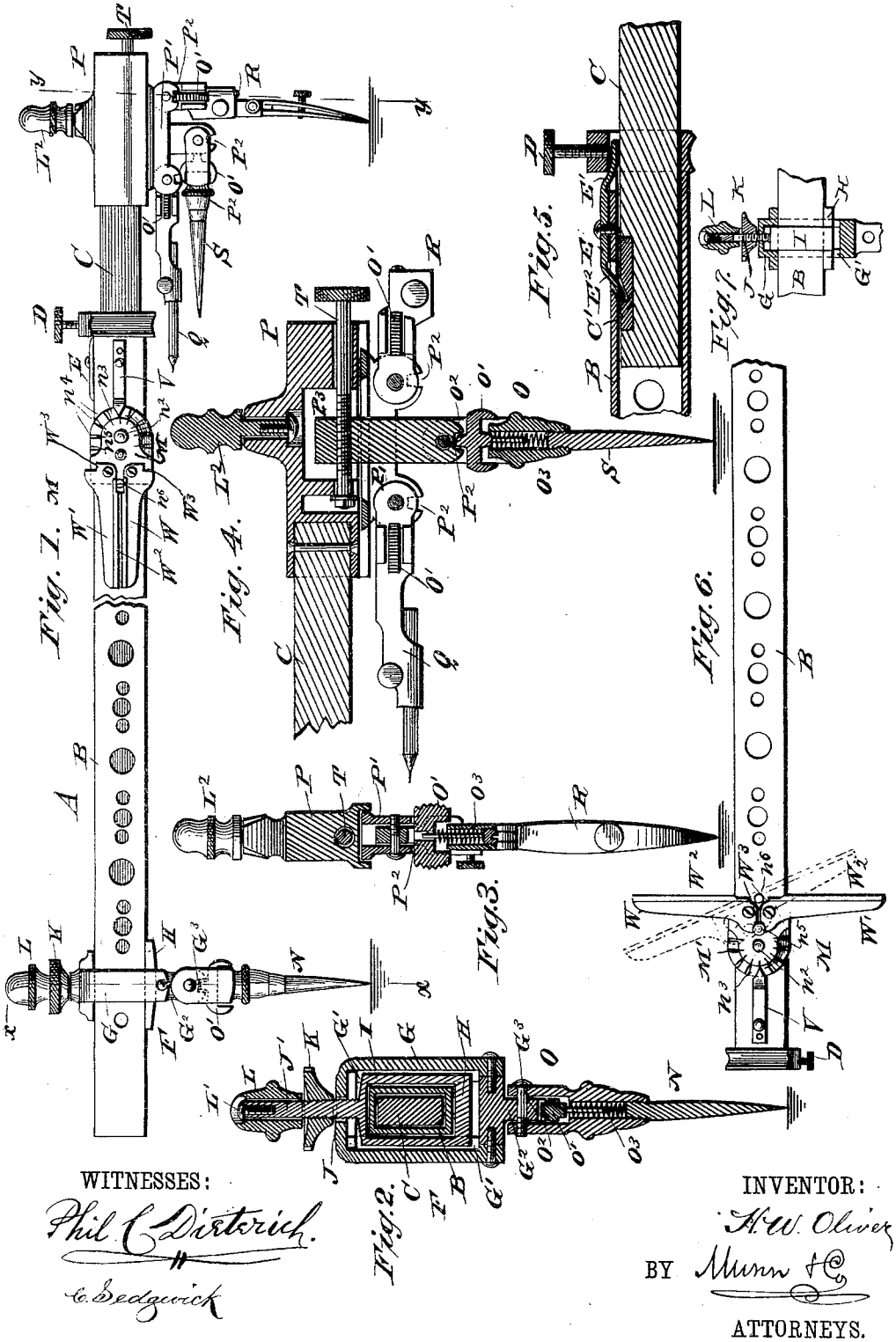
(No Model.)

H. W. OLIVER.

BEAM COMPASSES.

No. 415,466. Patented Nov. 19, 1889.



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BEAM-COMPASSES.

SPECIFICATION forming part of Letters Patent No. 415,466, dated November 19, 1889.

Application filed December 27, 1888. Serial No. 294,789. (No model.)

To all whom it may concern:

Be it known that I, HENRY W. OLIVER, of the city, county, and State of New York, have invented a new and Improved Drawing Implement, of which the following is a full, clear, and exact description.

My invention relates to beam-compasses; and its object is to provide a new and improved drawing implement combining various instruments, and which is always ready for immediate use and is susceptible of the most accurate and perfect adjustment.

The invention consists in the construction and arrangement of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my improvement as applied for drawing circles with the hook-pen. Fig. 2 is an enlarged cross-section of my improvement on the line *x x* of Fig. 1. Fig. 3 is a similar view of the same on the line *y y* of Fig. 1. Fig. 4 is an enlarged longitudinal mainly sectional elevation of one end of my improvement. Fig. 5 is an enlarged sectional elevation of part of the extension-beam. Fig. 6 is a plan view of my improvement applied as a T-square, and Fig. 7 is a longitudinal section of the leg partially broken away.

My improved drawing implement is provided with an extension-beam A, consisting of the shell B, in which is fitted to slide the rod C, adapted to be secured to said shell B at any desired point by a set-screw D, screwing into a projection on the inner end of the shell B, and screwing against one end E′ of the spring-plate E, fastened to the top of the shell B, and extending at its other end into a slot formed in the top of said shell B. The end E′ of the spring-plate E is pressed in contact with the top of the rod C by adjusting said set-screw D, thus preventing the rod from sliding in the shell B. The other end E^2 of the spring-plate E is bent downward and passes through the slot in the top of the shell B, and is adapted to engage a notch C′, formed in the rod C near its inner end, thus preventing the rod C from being pulled out of the shell B entirely, as the said bent end E^2 engages said notch C′, as illustrated in Fig. 5. The beam A, when in this position, is extended to its full length.

On the shell B is held adjustably a leg F, provided with the socket G, fitting on the shell B, with its sides and top, and carrying an adjustable foot or bottom piece H, secured on a U-shaped frame I, adapted to slide vertically in grooves G′, formed on the insides of the sides of the socket G, as shown in Fig. 2.

From the top of the U-shaped frame I extends upward and through the top of the socket G a bolt J, on which screws a nut K against the top of said socket G, so that the frame I, with its foot H, is raised or lowered, and said foot H is brought into or out of contact with the bottom of the shell B, thus securing the leg F to the shell B or unfastening it from the same, in order to slide it to any desired point on the said shell. The upper end J′ of the bolt J is reduced and not threaded, and on it is held to turn freely the knob or swivel L, which rests on top of the nut K, and is held in place by the head of a screw L′, secured to the bolt J.

On the bottom of the socket G is formed a downwardly-extending lug G^2, on which is pivoted the point N, held in a vertical position by the locking device O, consisting of the locking-bolt O′, held to slide in the upper part of the point N, and being provided on its top with a lug O^2, adapted to engage a corresponding notch G^3, formed on the lower end of the lug G′. A coiled spring O^3 is held in the point N and presses the bolt O′ upward, so that the lug O^2 engages the notch G^3, and thus holds the point N in a locked vertical position. The bolt O′ projects at two opposite sides of the point N, so that the operator can conveniently take hold of the bolt and press it downward whenever he desires to swing the point N out of its vertical position. This downward movement of the bolt O′ compresses the spring O^3 and disengages the lug O^2 from the notch G^3, so that the point N can now be turned on its pivot on the lug G^2 to a horizontal or inclined position or folded up against the beam A. When the operator swings the point N into a vertical position

again, the compressed spring O^3 forces the bolt O′ upward, so that the lug O^2 snaps into the notch G^3 again, thus locking the point N in a vertical position.

On the outer end of the rod C is rigidly secured a holder P, in which is held to slide longitudinally a carriage P′, on which are pivoted the pencil Q, the pen R, and the point S. Each of these three pivoted parts is provided with a locking device O, as above described, and serving to hold either the pen, pencil, or point in an inclined or vertical position, so that either of the three can be used when the others are swung out of the perpendicular line, as shown in Figs. 1 and 4. The lugs O^2 of each bolt O′ engage in this case the notches P^2, formed on the carriage P′. The longitudinal movement of the carriage P′ is accomplished by a screw T, turning in suitable bearings in the holder P, provided with a screw-thread, on which screws the lug P^3 of the carriage P′. The lug P^3 projects into a recess formed in the holder P, and when the screw T is turned the carriage P′ slides forward or backward on the holder P, whereby a very accurate adjustment of the pen, pencil, or point can be had.

On top of the holder P is held to turn freely the knob L^2, of the same shape as the knob L and serving the same purpose—that is, to enable the operator to take hold of the knobs L and L^2 with his fingers, and then swing the beam on the point S without twisting his fingers in doing so.

Near the inner end of the shell B and on one side of the same is arranged the head M, serving to adapt the shell B for use as a T-square or bevel. The head M is provided with a plate M′, pivoted at n^2 to said shell B, and having the semicircular end n^3, provided with the notches n^4, adapted to be engaged by the free pointed end of the spring V, secured to said shell B. On the other end of the plate M′ are pivoted the arms W and W′, each provided with a flanged edge W^2, and having an edge W^3, standing at right angles to the flange W^2, so that when the arms W and W′ are extended, as shown in Fig. 6, the edges W^3 meet, whereby one straight edge is formed by the two flanged edges W^2. Each edge W^3 is provided with a notch engaging the shank of a rivet n^5, secured to the plate M′. A similar rivet n^6 is placed in a straight line with the pivot n^2 of the plate M′ and the other rivet n^5, so that the movement of each arm W′ is limited to one quarter-turn.

When the arms W and W′ are extended, as shown in Fig. 6, so that the edges W^3 rest against the rivet n^6, the spring V engages the central notch in the plate M′, whereby the shell B and the head M form a T-square, and can be used as such. The arms W and W′ stand, in this case, at right angles to the shell B. The operator can turn the plate M′ so that the point of the spring V disengages the central notch, whereby the operator is enabled to turn the plate M′ until the flanged edges W^2 of the arms W and W′ stand at any desired angle to the shell B, so that the instrument can be used as a bevel for drawing inclined lines or for other purposes. The pointed end of the spring V engages, in this case, a corresponding notch on the semicircular end of the plate M′, and thus holds the head M in an inclined position to the beam A.

It will be seen that the leg F can be adjusted on the shell B for any desired point, and the rod C can be drawn out of the shell B to any desired length, and then fastened by the set-screw D, so that the operator is enabled to draw circles of any desired diameter by using either the pencil Q or the pen R; or the operator can measure certain lengths by using the points N and S. It is understood that two of the three (the pen, pencil, and point) are thrown out of a perpendicular position when the third one is in use. In order to throw either of the three out of a perpendicular line, it is necessary that the operator should press the bolt O′ downward and then swing the respective part to one side.

A very accurate adjustment can be made by turning the screw T so that the carriage P′ slides either inward or outward on the holder P.

When the operator desires to use part of my improvement as a T-square, he removes the leg F and the extension-rod C, after which he adjusts the head M, as above described, and shown in Fig. 6.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a drawing implement, the combination, with an extension-beam, of a leg carrying a pointer and held adjustably on said beam, a knob held to turn loosely on said leg, a holder carrying a pen, pencil, and other point and secured to said beam, and a second knob held to turn loosely on said holder, substantially as shown and described.

2. In a drawing implement, the combination, with a shell and a leg held adjustably on said shell, of a rod telescoping in said shell, a holder secured to the outer end of said rod, a carriage carrying a pen, pencil, and pointer and adapted to slide on said holder, and means for holding the said pen, pencil, and pointer up, so that any of them will be out of the way while the third is in use, substantially as shown and described.

3. In a drawing implement, the combination, with a shell and a leg held adjustably on said shell, of a rod telescoping in said shell, a screw for fastening said rod to said shell, a holder secured to the outer end of said rod, a carriage carrying the pen, pencil, and point and adapted to slide on said holder, and a screw for moving said carriage inward or outward on said holder, substantially as shown and described.

4. In a drawing implement, the combination, with a shell, of a spring-plate held near one end of said shell, a screw screwing in said

shell and against one end of said spring-plate, and a rod telescoping in said shell and adapted to be engaged by one end of said spring-plate, substantially as described, so that said rod can be held at any desired point by the set-screw, as set forth.

5. In a drawing implement, the combination, with a shell, of a spring-plate held near one end of said shell and extending to a slot in the said shell, and a rod telescoping in said shell and provided on its inner end with a notch adapted to be engaged by the inner end of said spring-plate, so as to prevent said rod from being drawn out of the shell, substantially as shown and described.

6. In a drawing implement, the combination, with a shell, of a socket fitting over said shell and carrying a point, a foot-piece adapted to engage the bottom edge of said shell and secured to a frame adapted to slide vertically in said socket, a screw-rod fastened to said frame and passing through the top plate of the socket, and a nut screwing on said screw-rod and against said socket, so as to press said foot-piece against the bottom edge of said shell, whereby the socket is fastened to the shell, substantially as shown and described.

7. In a drawing implement, the combination, with a shell, of a socket fitting over said shell and carrying a point, a foot-piece adapted to engage the bottom edge of said shell and secured to a frame adapted to slide vertically in said socket, a screw-rod fastened to said frame and passing through the top plate of the socket, a nut screwing on said screw-rod and against said socket, so as to press said foot-piece against the bottom edge of said shell, whereby the socket is fastened to the shell, and a knob turning loosely on the upper reduced end of said screw-rod, substantially as shown and described.

8. In a drawing implement, the combination, with a carrier adapted to be secured to a beam and provided with a downwardly-projecting lug having a notched end, of a point pivoted to the said lug, and a bolt carried by the point and engaging the notch of the lug, substantially as described.

9. In a drawing implement, the combination, with a socket adapted to be secured to a beam and provided with a lug projecting from its under side, said lug having a notch in its end, of a point pivoted to the lug and provided with a socket, a sliding bolt held in the socket, and a spring for pressing the bolt into engagement with the notch of the lug, substantially as herein shown and described.

10. In a drawing implement, the combination, with a holder secured to one end of the beam, of a carriage adapted to slide vertically on said holder, a pen, pencil, and point pivoted on said carriage, and a screw turning in said holder and engaging a threaded lug on the said carriage, substantially as shown and described.

11. In a drawing implement, the combination, with a carriage adapted to slide longitudinally, of a pen, pencil, and point pivoted on said carriage, and a locking mechanism for locking the said pen, pencil, and point in a vertical or horizontal position, substantially as shown and described.

HENRY W. OLIVER.

Witnesses:
EDGAR TATE,
EDW. M. CLARK.