No. 893,881. PATENTED JULY 21, 1908.

M. A. SMITH.

BEAM COMPASS.

APPLICATION FILED MAR. 26, 1907.

Fig. 3.

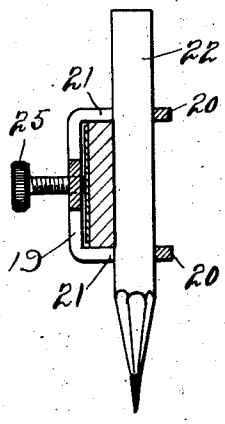


Fig. 1.

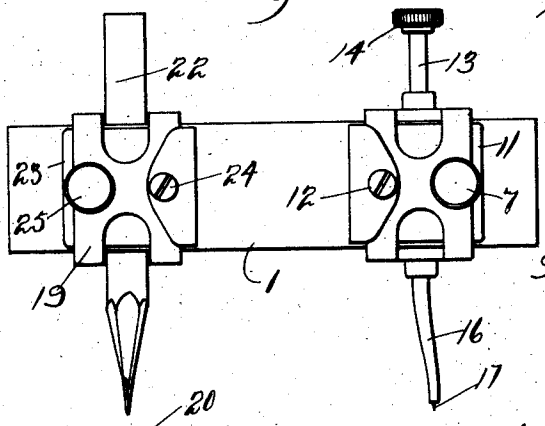
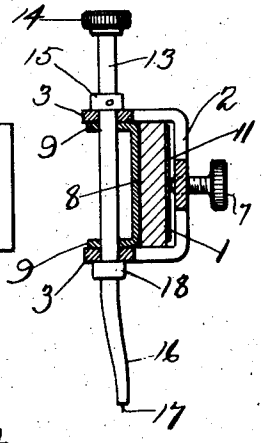


Fig. 2.



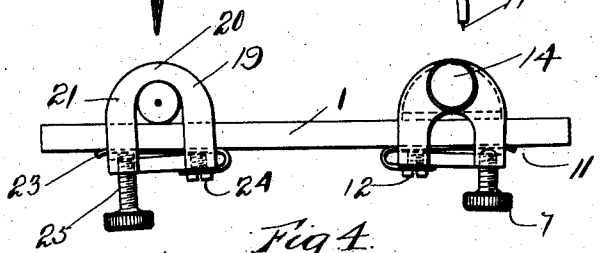


Fig. 4.



Fig. 6.

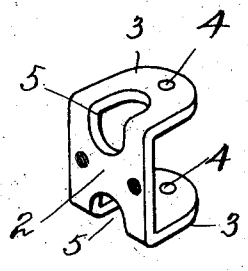


Fig. 5.

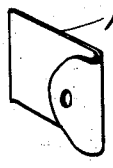


Fig. 7.

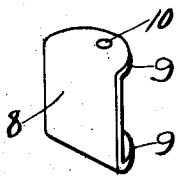


Fig. 8.

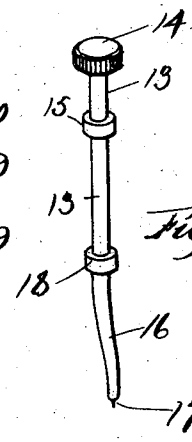


Fig. 9.

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UNITED STATES PATENT OFFICE.

MILTON A. SMITH, OF PROVIDENCE, RHODE ISLAND.

BEAM-COMPASS.

No. 893,881. Specification of Letters Patent. Patented July 21, 1908.

Application filed March 26, 1907. Serial No. 364,627.

To all whom it may concern:

Be it known that I, MILTON A. SMITH, a citizen of the United States, residing at the city of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Beam-Compasses, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to beam compasses, and has for its object to provide a compass of this character that is very simple and inexpensive in construction, effective in its operation and one that may be readily and accurately adjusted.

A further object of the invention is to provide the pivot spindle with an offset portion so that by rotating the same in its bearings a fine adjustment is obtained without the aid of a screw whereby the distance between the pivot and the pencil point may be quickly and easily varied.

Still a further object of the invention is to provide means whereby any ordinary pen or pencil may be readily inserted and securely held in one of the heads by a screw actuated clamp. The screw which binds the pencil also serving to bind the head to the beam.

With these objects in view, the invention consists of certain novel features of construction, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings: Figure 1— shows a short beam with both the pivot head and the marking head in position thereon, in elevation. Fig. 2— is an end view, partly in section, showing the pivot spindle offset at its pointed end. Fig. 3— is an end view partly in section showing the marking head with a pencil in position therein. Fig. 4— is a top view showing the two heads mounted on the short beam. Fig. 5— is a detail in perspective showing the yoke in which the pivot spindle is held. Fig. 6— is a binding screw which is threaded into said yoke. Fig. 7— is the gib against which the point of said binding screw rests. Fig. 8— is a perspective view of the inner backing plate through the ears in which the pivot spindle also passes. Fig. 9— represents the pivot spindle in detail showing the offset pivot point.

Referring to the drawings at 1 is the beam which may be of any desired length, the same being preferably constructed in a rectangular form. The pivot head, which is adapted to be moved longitudinally on said beam, is constructed of a yoke portion 2 adapted to engage the front of the beam, the ears 3—3 extending forward at right angles to said back over the edge of the beam, said ears being pierced at 4—4 for the reception of the spindle. A portion of this yoke is cut away at 5—5 to reduce its weight and a small hole is threaded at 6 for the reception of the set screw 7. Fitted in between the ears 3—3 of this yoke is the bearing plate 8, which plate is adapted to engage and rest against the back face of the beam, said plate having ears 9—9 pierced at 10—10 to register with the holes 4—4 in the yoke. The thin gib 11 is attached to the body of the yoke by means of the screw 12, the same being adapted to project underneath the yoke and receive the thrust from the point of the set screw 7.

The pivot spindle 13 is a slender shaft having a knurled head 14 at one end, and a bearing collar 15 fixed thereon a short distance below said head. The lower end of this spindle is slightly offset at 16 and is provided on its end with a sharp or needle-like point 17. The spindle is adapted to be passed through the holes 4—4 in the yoke and 10—10 in the bearing plate, after which a collar 18 is fastened to the spindle beneath the ear in the yoke securely holding all the parts together. By setting up on the set-screw 7 it will be seen that as the point of the screw engages the gib 11, pressing the same against the back of the beam, that the spindle is gripped and bound in its bearings by the backing plate acting in one direction, while the yoke plate acts in the opposite direction thereon, the whole head at the same time being firmly held in position against longitudinal movement of the beam.

The marker head, as illustrated in Fig. 3, is secured to the beam in a manner similar to that of the pivot head, the same being provided with a yoke 19 having rearwardly extending ears 20—20 which ears are cut away at 21—21 sufficiently to receive an ordinary pen or pencil 22 therein. A thin gib 23 is secured to the back of this yoke by a screw or rivet 24, the gib projects beneath the yoke and is adapted to receive the thrust of the point of the binding screw 25, which is threaded through said yoke. To attach a pencil or pen to the beam it is only necessary to place this yoke 19 on the beam, pass the

pen or pencil through the recess in the ears and then set up on the set screw 25 whereby both the pencil and the yoke are firmly bound in position to the beam.

The essential features of my improved beam compass are, first, the simplicity and durability of the construction; second, that the pivot point may be so readily and accurately adjusted in such a simple manner without the use of screws; thirdly, that the head and the spindle may both be set up rigidly by the action of one binding screw, and by my construction of a marking head any ordinary pen or pencil may be used therein, thereby obviating the necessity of carrying special holders for the pen and the pencil. The same construction is shown in the pivot head as in the marking head, whereby all the parts are firmly bound together, and also bound to the beam by the setting up of but one binding screw in each.

By my improved construction all the parts may be struck up from sheet metal making it possible to produce beam compass heads of a practical construction at the minimum expense.

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

1. A beam compass comprising a beam, a marker mounted thereon, a yoke mounted on said beam, a bearing plate embraced by said yoke, said yoke and bearing plate being provided with coincident openings, a pivot point passed through said openings, and means tending to draw said openings out of alinement.

2. A beam compass comprising a beam, a marker mounted thereon, a yoke mounted on said beam and provided with openings, a bearing plate provided with ears having openings coincident with the openings in said yoke, a pivot point passed through said openings, and means tending to draw said openings out of alinement.

3. A beam compass comprising a beam, a marker mounted thereon, a yoke provided with ears straddling said beam, a bearing plate also provided with ears interposed between the ears of said yoke, the ears of said yoke and bearing plate being provided with coincident openings, and means tending to draw said openings out of alinement.

4. A beam compass comprising a beam, a marker mounted thereon, a yoke mounted on said beam, a bearing plate, said yoke and bearing plate being provided with coincident openings, a pivot point passed through said openings, and a binding screw exerting a pressure on the face of said beam tending to draw said openings out of alinement.

5. A beam compass comprising a beam, a marker mounted thereon, a yoke mounted on said beam, a bearing plate, said yoke and bearing plate being provided with coincident openings, a pivot point passed through said openings, a binding screw exerting a pressure tending to draw said openings out of alinement, and a gib interposed between said binding screw and the face of said beam.

6. A beam compass comprising a beam, a marker mounted thereon, a yoke mounted on said beam, a bearing plate, said yoke and bearing plate being provided with coincident openings, a pivot point passed through said openings, a binding screw exerting a pressure tending to draw said openings out of alinement, a gib interposed between said set screw and the face of said beam and having a lip turned back over the face of the yoke, and a set screw uniting said gib and said yoke.

7. A beam compass comprising a beam, a marker mounted thereon, a yoke mounted on said beam, a bearing plate, embraced by said yoke, said yoke and bearing plate being provided with coincident openings, a pivot member passed through said openings and having an offset pivot point, and means tending to draw said openings out of alinement.

8. A beam compass comprising a beam, a pivot point mounted thereon, a yoke mounted on said beam and having ears extended beyond the vertical plane of the rear face of said beam, said ears being perforated to receive a marker, and means for drawing the yoke forward to clamp the marker against the rear face of said beam.

9. A beam compass comprising a beam, a pivot point mounted thereon, a yoke formed of a plate having its ends bent to form arms adapted to embrace said beam, the corners formed by the bent portions being cut out to form elongated openings to loosely receive a marker, a binding screw for drawing said yoke forward to clamp the marker against the rear face of said beam, and a gib interposed between said binding screw and the front face of said beam.

10. A beam compass comprising a beam, a pivot point mounted thereon, a yoke mounted on said beam and provided with openings to receive a marker, a binding screw for drawing said yoke forward to clamp the marker against the rear face of said beam, a gib interposed between said binding screw and the front face of said beam, said gib having a lip turned back over the face of said yoke, and a binding screw uniting said lip and said yoke.

11. A beam compass including a beam and two heads adjustably mounted thereon, each head comprising a yoke and a body portion adapted to engage the front of the beam, said body having rearwardly extending ears, the ears in one head being provided with apertures for the reception of the marker, the ears in the other head being provided with apertures for the reception of a pivot point, a binding screw in the marker head whereby

the same is set against the beam to hold the head to the beam and the marker to the head in one operation, a binding screw in the pivot head whereby the same is set against the beam to hold the same in position thereon and at the same time bind the pivot in the head, said pivot pin being offset whereby the rotation of the same will vary the distance between its point and that of the marker.

12. In a beam compass, a head comprising a yoke having a body portion with ears extending substantially at right angles thereto, said ears being provided with apertures for receiving a pivot pin, a binding plate engaging the back of the beam and also provided with apertures through which said pivot passes, a single binding screw adapted to retain the head in position on the beam and also bind the pivot in the yoke both in one operation, the point of said pivot being offset, and means on the upper end of said pivot by which the same may be rotated.

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

MILTON A. SMITH.

Witnesses:

HOWARD E. BARLOW,

E. I. OGDEN.