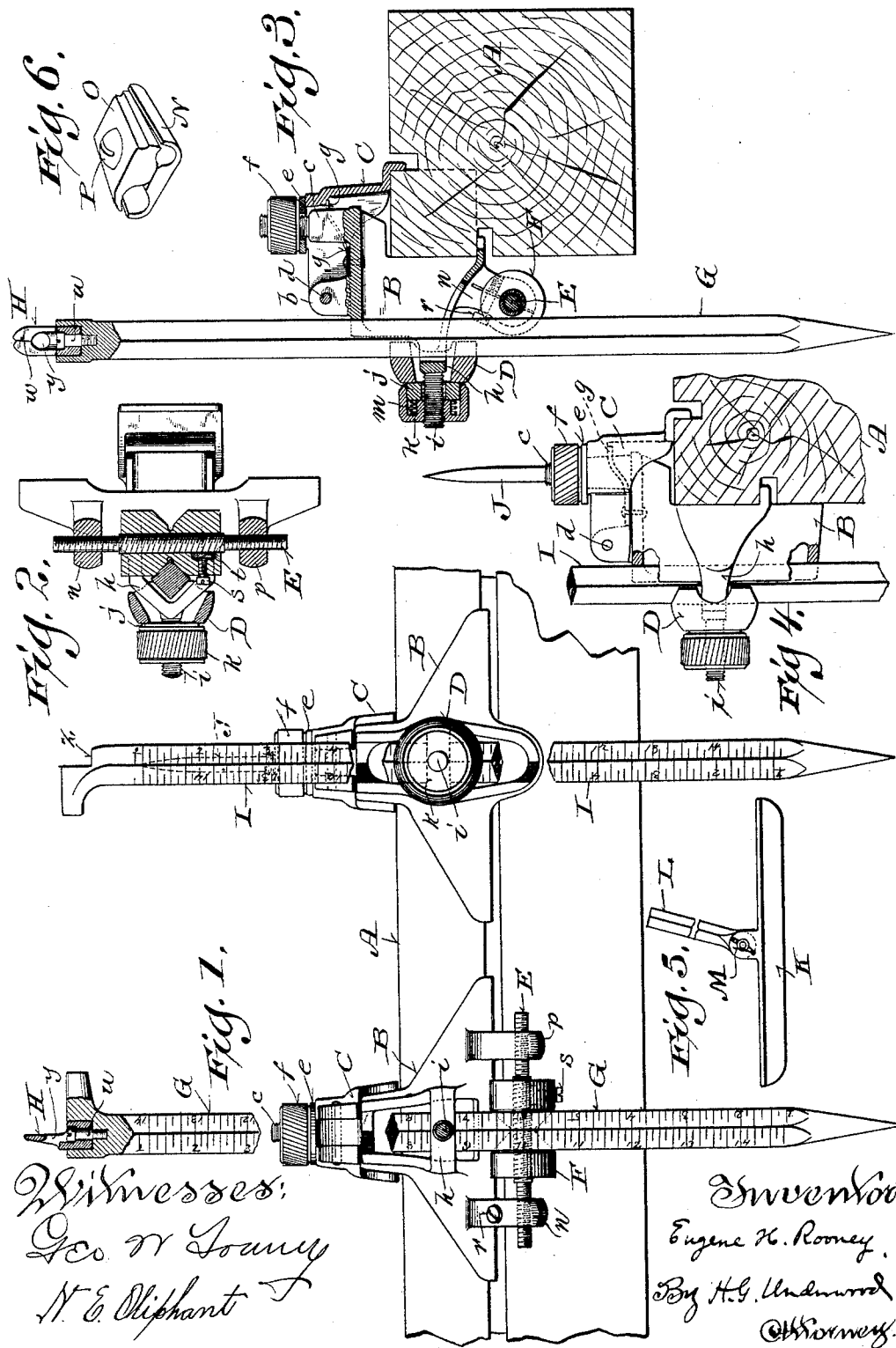


(No Model.)

E. H. ROONEY.
DRAFTING TOOL.

No. 586,626.

Patented July 20, 1897.



Witnesses:
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UNITED STATES PATENT OFFICE.

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DRAFTING-TOOL.

SPECIFICATION forming part of Letters Patent No. 586,626, dated July 20, 1897.

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To all whom it may concern:

Be it known that I, EUGENE H. ROONEY, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Drafting-Tools; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has for its object to provide for a simple, economical, and accurate drafting-tool having the nature of a beam-compass, but capable of organization for a variety of uses in large work; and it consists in certain peculiarities of construction and combination of parts hereinafter described with reference to the accompanying drawings and subsequently claimed.

In the drawings, Figure 1 represents a front elevation of assembled parts embodied in my invention, some of these parts being shown broken and in section; Fig. 2, a plan view, partly in horizontal section, illustrating an inversion of a trammel-head that appears in the preceding figure and is provided with an adjustable rest for a leg shown in connection therewith, this leg being made to have the function of a scribe, caliper, or edge-center; Fig. 3, a vertical transverse section showing said trammel-head and leg in connection with a beam, the aforesaid leg appearing for the most part in elevation; Fig. 4, an elevation of another trammel-head and leg, shown in the first figure, the beam to which this latter head is connected being illustrated in cross-section; Fig. 5, a side elevation illustrating a pivotal adjustable surface-gage that may be substituted for one of the above-mentioned legs, and Fig. 6 a perspective view of a pencil-clamp attachable on a fixed point of one of the trammel-heads.

Referring by letter to the drawings, A represents a beam to which the trammel-heads, hereinafter more particularly described, are attached, and as one of the particular features of my invention said trammel-heads are organized to grip on four sides of a square independent of the depth or width of the beam, whereby I not only provide for the best possible and accurate union of said heads and beam, but am also enabled to have the latter of various dimensions in matter of depth,

width, or both, according to the rigidity necessary for the work in hand.

I have shown a beam of considerable depth and width, having each of two right-angle faces provided with a kerf, and by means of these kerfs I obtain sufficient of four sides of a standard square (partially shown by dotted lines in Fig. 3) upon which to grip the trammel-heads. Hence it will be seen that the beam may have the dimensions of the standard square or that its depth, width, or both may be as great as is necessary to obtain a sufficient amount of rigidity for the work in hand. It also follows that the beam may be square or otherwise in cross-section, provided it presents diagonally opposite right-angle corners and sufficient of four sides of the standard square to permit rigid grip of the trammel-heads, said standard square being of any suitable dimensions, dependent on the proportions of said trammel-heads.

Each trammel-head comprises two pivotally-united sections B C, and each of these sections is formed with a right-angle jaw that grips a corner and two sides of the aforesaid standard square, the corner gripped by one jaw being diagonally opposite that gripped by the other. I show each head-section B provided with a lug *b* and a screw-threaded stem *c*, straddled by a bifurcated portion of the other head-section C, the connecting-pivot *d* being run through this bifurcated portion of the latter head-section and the lug on the former head-section. A washer *e* is arranged on the screw-threaded stem *c* against the bifurcated portion of head-section C, and a thumb-nut *f*, run on said stem, clamps the entire head in its adjusted position on the beam A, the tightening of the nut causing a pressure of the jaws in a straight line diagonally of said beam.

By means of a spring *g*, arranged intermediate of the head-sections B C to contract under pressure of the nut *f*, I provide for an automatic lift of the latter head-section when said pressure of the nut is slackened, thereby making it easy to put the head upon the beam and to adjust it thereon.

The section B of each trammel-head is provided with an angular seat for a leg that is polygonal in cross-section, and constituting part of said head-section is a triangular bail

h, having a screw-threaded stem *i* extending therefrom. A gib *D* engages the bail *h* to grip the polygonal leg, and a washer *j* on the stem *i* against the gib is opposed by a thumb-nut *k*, that is tightened to clamp said leg in its seat. Owing to its polygonal contour each of the legs constituting part of the herein-described tool has at least two parallel knife-edge bearings, one in the trammel-head and the other in the clamping-gib, whereby an absolute right angle to the beam may be had.

As shown in Fig. 3, the thumb-nut *k* is preferably recessed to form a chamber for a spiral spring *m*, expansible against the washer *j*, and the latter pressing on the gib *D* the polygonal leg is held in frictional contact with its seat when said nut is loosened. Consequently it requires some exertion on the part of the operator to vertically adjust said leg, this being a desirable feature of my invention.

One of the trammel-heads has its section *B* provided with a depending clamp *n* and an ear *p*, parallel to the clamp, the ear being tapped to suit a fine thread on a screw *E*, that engages it and said clamp. The screw *r*, that controls the clamp, is tightened to prevent rotation of the screw, and a coarse thread on this screw is engaged by a cylindrical traveler *F*, having an annular groove that conforms in contour with the leg pertaining to the trammel-head, from which said screw is suspended. A set-screw *s* and bearing-block *t* in the cylindrical traveler operate to lock the latter against rotation on the screw.

By rotation of the screw or the traveler thereon I provide for a fine adjustment of the leg in engagement with the traveler-groove after an approximate adjustment has been had by movement of the trammel-head on the beam, and as it is necessary to said adjustment that provision be made for lateral movement of the leg-gripping gib and for pivotal movement of the leg I make the leg-seat on said trammel-head quite shallow and the stem opening in the said gib elongated in the direction of the beam, as will be apparent by reference to Figs. 1, 2, and 3.

Each of the two legs herein shown is tapered to a sharp central point at one end for the purpose of scribing, and the other end of each leg is offset to form a blunt caliper-point. I also scale the legs in opposite directions for the purpose of determining their proper adjustment, either as scribes, calipers, or a combination of both. The flat caliper end of one leg *G* has a vertical socket for a gage attachment *H*, held pivotally in place by means of a screw *u*, run through a cylindrical shank portion thereof into said leg, and the working face of this gage attachment is on the same vertical line as the scribe-point of the aforesaid leg. The working face of the gage *H* is also provided with a center-mark *w*, that indicates the center of leg *G*, and a sight-notch *x* and sight-opening *y* in said gage are for the purpose of comparing said mark with

a point on the edge of the object on which a circle is to be scribed.

When the gage *H* is to be used, the leg *G* is put in position reverse to that shown in the drawings, and the working face of said gage being held against an edge of the work the scribing is done with the sharp point of the other leg *I*, there being free rotation of the former leg on the cylindrical shank of the aforesaid gage when the scribing operation takes place.

The caliper end of leg *I* is provided with a right-angle notch *z*, the vertical face of which is on the same vertical line as the scribe-point of said leg. Hence it follows that if after determining a dimension by set of the scribe-points one of the legs be reversed the vertical face of said angle-notch will take the place formerly occupied by a scribe-point and serve as a gage-stop in conjunction with the other scribe-point, the distance between the latter and aforesaid vertical face of the angle-notch being exactly the same as the dimension first obtained by setting both scribe-points, this being one of the especial advantages of my invention. It also follows that a pencil may be substituted for the leg *G* and used in connection with the notched end of leg *I*, whereby I organize the tool as an adjustable surface-gage.

The screw-threaded stem *c* of the trammel-head described in connection with the leg *I* is shown provided with a scribe-point extension *J*, and in Fig. 5 I show a gage *K* in preferably pivotal connection with a shank *L*, so as to be set at various angles, a set-screw *M* being employed to maintain the adjustment.

The gage-shank has the same contour and dimensions in cross-section as the legs *G* *I*, and hence the gage may be substituted for either leg for use in connection with the other leg or the point *J* above specified to scribe or gage parallel lines.

A pencil-clamp (shown in Fig. 6) may be used on the point *J*, and this pencil-clamp comprises a clip *N*, differentially grooved upon its inner side, and a gib *O*, joined to the clip by a set-screw *P*, the gib being of such contour that it may be arranged on said clip to bind either a lead or slate pencil in place, there being a difference of diameter in said pencils of standard make.

The trammel-heads and their attachments used in connection with a suitable beam constitute a tool of great convenience to pattern-makers, machinists, and others, inasmuch as said tool may be organized for so many varieties of work, and as one of the especially important advantages of my invention I call attention to the matter of positive centers resulting from the construction of said trammel-heads and the legs that seat therein.

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

1. A trammel-head comprising two pivotally-connected sections, each of which has a

right-angle jaw diagonally opposite the jaw of the other, a screw-threaded stem extending from one section through the other, a nut operative on the stem to clamp said jaws on a beam, and one of the sections provided with a tool-clamp.

2. A trammel-beam having at least two right-angle faces each provided with a longitudinal kerf so arranged that with said right-angle faces the beam presents diagonal corners and sufficient of four sides of a standard square, independent of its remaining dimensions or contour, upon which to grip right-angle jaws of a tool-supporting clamp.

3. A trammel-leg having one end in the form of a scribing-point and the other end provided with a pivotal gage the working face of which is in line with the scribing-point.

4. A trammel-leg having one end in the form of a scribing-point, the other end in the form of a caliper-point, and a pivotal gage at the latter end of the leg having its working face in line with the scribing-point.

5. A trammel-head comprising two pivotally-connected sections, each of which has a right-angle jaw diagonally opposite the jaw of the other, a screw-threaded stem extending from one section through the other, a nut operative on the stem to clamp said jaws on a beam, a tool-clamp carried by one of the sections, and a scribe-point extended from the other of said sections.

6. A trammel-head comprising two pivotally-connected sections, each of which has a right-angle jaw diagonally opposite the jaw of the other, a screw-threaded stem extending from one section through the other, a spring intermediate of said sections, a nut operative on the stem to clamp said jaws on a beam, and a tool-clamp carried by one of the afore-said sections of the head.

7. A trammel-head comprising two pivotally-connected sections, each of which has a right-angle jaw diagonally opposite the jaw of the other, a screw-threaded stem extending

from one section through the other, a nut operative on the stem to clamp said jaws on a beam, an angular leg fitting a seat in one of said head-sections, a bail extending from the same section and terminated in a screw-threaded stem, a leg-gripping gib loose on the bail-stem, and a gib-clamping nut adjustable on the latter stem.

8. A trammel-head comprising two pivotally-connected sections, each of which has a right-angle jaw diagonally opposite the jaw of the other, a screw-threaded stem extending from one section through the other, a nut operative on the stem to clamp said jaws on a beam, an angular leg fitting a seat in one of said head-sections, a bail extending from the same section and terminated in a screw-threaded stem, a leg-gripping gib loose on the bail-stem, a washer opposing the outer face of the gib, a spiral spring in touch with the washer, and a chambered nut run on the latter stem against the spring and washer.

9. A trammel-head provided with a leg-clamp, a screw having a fine-thread connection with the head parallel to a beam upon which the same may be adjustably secured, and a leg-traveler adjustable on a coarse-threaded portion of the screw.

10. A trammel-head provided with a leg-clamp, a screw having a fine-thread connection with the head parallel to a beam upon which the same may be adjustably secured, a leg-traveler adjustable on a coarse-threaded portion of the screw, and suitable means for independently locking the screw and leg-traveler in adjusted position.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

EUGENE H. ROONEY.

Witnesses:

GEO. W. YOUNG,
N. E. OLIPHANT.