Jan. 10, 1928.

1,655,638

J. L. WEST

DRAFTING DEVICE

Filed July 19, 1926

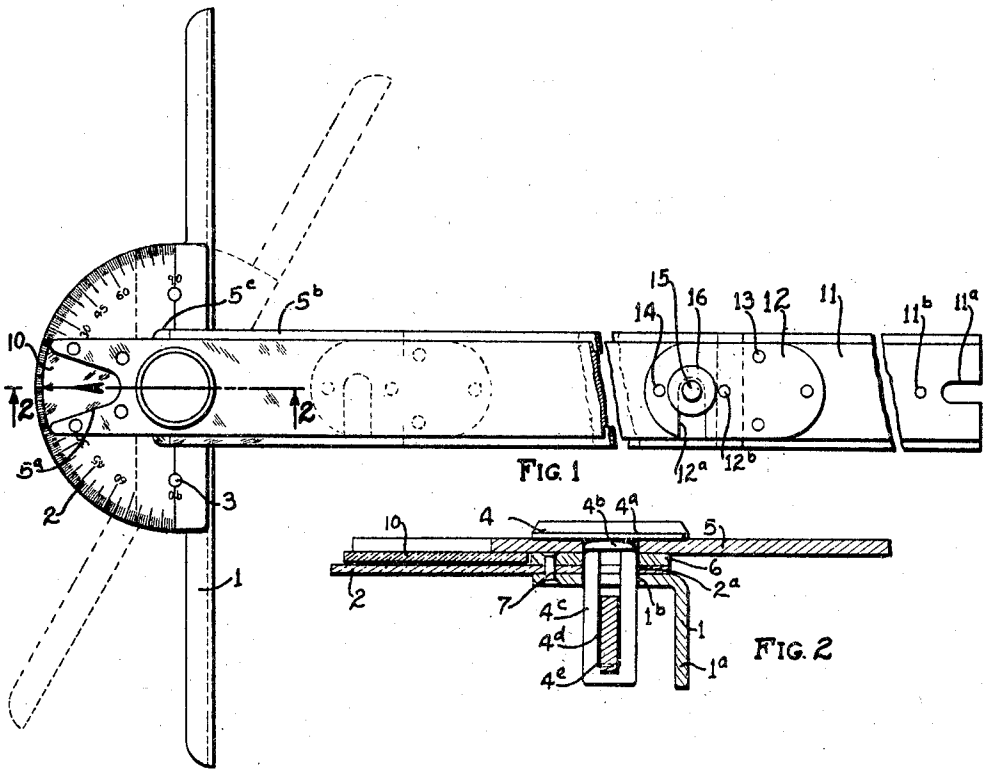


FIG. 1

FIG. 2

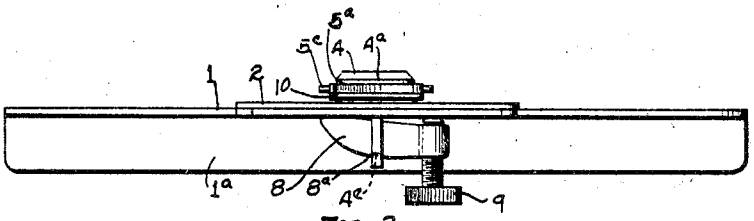


FIG. 3

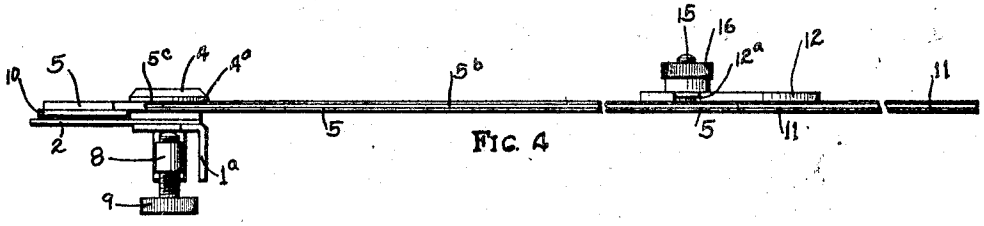


FIG. 4

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UNITED STATES PATENT OFFICE.

JESSE L. WEST, OF SAN DIEGO, CALIFORNIA.

DRAFTING DEVICE.

Application filed July 19, 1926. Serial No. 123,401.

My invention relates to drafting devices, more particularly to such devices commonly known as T squares.

The objects of my invention are: first, to provide a device of this class in which the head normally placed against the left hand edge of a drawing board may be easily and quickly adjusted to any angle desired relative to the straight edge or blade thereof and rigidly secured relative to the straight edge or blade with a minimum of effort; second, to provide a device of this class having a protractor on the head around the pivotal connection thereof with the straight edge member whereby said straight edge member may be easily shifted to any desired angle relative to the head, said protractor being positioned outside of or to the left of the bearing edge of the head so that the same will not interfere in any way with the drafting operations; third, to provide a drafting device of this class in which the protractor portion of the head and an extended portion of the straight edge member provide a convenient grip or handle for manipulating the device on a drawing board; fourth, to provide novel means in connection with the pivot bolt or axis of the pivotal connection between the head and the straight edge member for rigidly securing the same together in certain shifted positions, the clamp or lock means being positioned underneath the head and out of the way and adjacent the pivotal axis, permitting the outer portion of the head to be made of relatively light construction; fifth, to provide a device of this class having a straight edge member which may be readily extended or secured in compact or short length, as desired; sixth, to provide as a whole a novelly constructed drafting device, and seventh, to provide a device of this class which is simple and economical of construction proportionate to its functions, durable, accurate and which will not readily deteriorate or get out of order.

With these and other objects in view, as will appear hereinafter, my invention consists of certain novel features of construction, combination and arrangement of parts and portions, as will be hereinafter described in detail and particularly set forth in the appended claims, reference being had to the accompanying drawings and to the characters of reference thereon, which form a part of this application, in which:

Figure 1 is a top view of my drafting device, showing the arm, blade or straight-edge member or members thereof fragmentarily and in section, the extension member being shown by dotted lines in its folded position relative to the main straight-edge member or blade, the head of the device being also shown by dotted lines in a shifted position relative to the straight-edge member or blade; Fig. 2 is an enlarged fragmentary sectional view thereof, taken through 2—2 of Fig. 1, showing certain parts and portions in elevation to facilitate the illustration; Fig. 3 is an end view thereof, taken from the head end of the device, and Fig. 4 is a fragmentary side elevational view thereof.

Like characters of reference refer to similar parts throughout the several views of the drawings.

The head member 1 is of angular cross-section and is preferably made of heavy gage sheet metal formed into such section. The outer side of the flange 1^a of the head member 1 serves as the bearing edge or surface adapted to engage with one edge of a drawing board or the like.

The portion intermediate the ends of the other flange of the head member 1 is wide and the portions extending therefrom towards the ends of the head member are relatively narrow, as shown best in Figs. 1 and 4. To the wide portion intermediate the ends of the upper flange is secured a protractor 2 by means of rivets or other suitable means 3. This protractor is positioned at the upper side of the head member and extends to the left of the bearing surface of the head member and does not interfere with the drawing operation for which the device may be used.

At the central portion of the protractor 2 is provided an elongated opening 2^a, which extends transversely of the longitudinal extent of the head member 1. In the wide portion at the upper side of the head member 1 is also provided an elongated opening 1^b, which registers with the opening 2^a. Through said openings 2^a and 1^b extends the flattened portion 4^c of the shank 4^b of the pivot member 4. Between the large head 4^a of the pivot member and the protractor 2 is positioned the one end of the straight-edge member or blade 5, which is provided with a circular opening which is spaced a slight distance from said end and through which the round portion of the shank 4^b, directly

below the head 4^a of the pivot member, extends. Between the under side of the straight-edge member 5 and the upper side of the protractor 2 and around the shank of the pivot member is positioned a washer 6, which spaces said members apart. Said washer is preferably secured to the protractor and head member 1 by means of a plurality of rivets 7.

The flat portion 4^c of the shank of the pivot member is provided through its flat sides with a longitudinal slot 4^d, which extends to near the lower end of said flat portion and is provided at the lower end of the slot with a knife or bearing edge 4^e, as shown best in Figs. 2 and 3. Through the slot 4^d is positioned the loose clamping lever 8, which is of flat construction and provided at its lower edge and intermediate its ends with a transverse, V-shaped groove 8^a, which is adapted to receive the knife edge 4^e of the pivot member and position the clamping member 8 relative thereto and to the head member. The one end of the lever 8 engages the under side of the wide portion of the head member underneath the protractor. At the opposite end of the lever 8 is provided a thumbscrew 9, which is also adapted to engage the under side of the wide portion of the head member for forcing the shank of the pivot member downwardly and clamping the straight-edge member 5 relative to the head member.

The short end of the straight-edge member extending normally over the graduations of the protractor is bifurcated, as indicated by 5^a, to permit the graduations and degrees of the protractor to be seen therethrough. Over the opening made by the bifurcated portion and preferably at the under side of the straight-edge member is secured, in any suitable manner, a hair-line member 10, which is provided at its median line and preferably at its under side with a hair-line or arrow for designating the angularity of the straight-edge member relative to the head member.

At the opposite edges of the straight-edge member 5, which is preferably made of metal, are provided strips of transparent material 5^b, such as celluloid, the ends of said strips 5^b at the head end of the straight-edge member being protected by lugs 5^c of metal extending outwardly from the main portions of the straight-edge member or blade, as shown in Fig. 1.

The straight-edge member 5 is preferably made short for convenience in handling and packing, but may be extended by the extension straight-edge member 11, which is constructed the same and of the same cross-section as the member 5 and is adapted to abut against the free end thereof. To the upper side of the member 11 at the end adapted to be abutted against the end of the member 5 is secured a connecting member or plate 12 by means of rivets 13. Said plate, when in position to extend the straight-edge, rests with its opposite end at the upper side of the member 5. The portion of the plate 12 extending beyond the extension member 11 is provided with a transverse slot 12^a through which is adapted to extend a screw member 15 secured near the end of and extending upwardly from the member 5. On the screw member 15 is a thumbnut 16, which is adapted to secure the plate 12 against the straight-edge member 5. At the opposite sides of the slot 12^a of the plate 12 and preferably at the median line of said plate are provided holes 12^b, which are adapted to receive pins or lugs 14 positioned at the opposite sides of the screw member 15 and also on the median line of the straight-edge member 5 for fixedly positioning the extension member 11 relative to the member 5.

At the opposite end of the extension member 11 is provided a longitudinal slot 11^a at the median line thereof, which is adapted to receive the screw member 15. In line with the slot 11^a is a hole 11^b adapted to receive the stud or pin 14 positioned between the screw member 15 and the head end of the straight-edge member 5. In order to reduce the length of the straight-edge of the T square after the same is extended, the thumbnut 16 is unscrewed slightly, the member 11 lifted upwardly so that the plate 12 clears the pins 14 and the same is then shifted forwardly. The member 11 is then placed with the slotted portion 11^a around the screw member 15 and with the one pin 14 in the hole 11^b, as shown by dotted lines in Fig. 1.

Though I have shown and described a particular construction, combination and arrangement of parts, I do not wish to be limited to this particular construction, combination and arrangement, but desire to include in the scope of my invention the construction, combination and arrangement substantially as set forth in the appended claims.

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

1. In a drafting device of the class described, a head member having a bearing surface at one side and a protractor at its upper side and extending outwardly only from said bearing surface, a straight-edge member pivotally mounted on and at the upper side of said head member with its one end extending from its pivotal axis toward and beyond said bearing surface and the other end extending over said protractor and provided with a hair-line adapted to register with the graduations on said protractor, a pivot member extending from the upper side of said straight-edge member through said head member at the central portion of the protractor, a clamp lever extending through the end of the pivot member extending below said head member

and pivoted intermediate its ends at the lower end of said pivot member with its one end engaging the under side of said head member, and a screw in the opposite end of said clamp lever adapted to engage the under side of said head member.

2. In a drafting device of the class described, a head member, a straight-edge member positioned with its one end at the upper side of said head member, a pivot member extending through said straight-edge member and said head member, a clamping lever extending through said pivot member and bearing intermediate its ends near the one end of said pivot member, and an adjusting screw extending through the one free end of said clamping lever for forcing said straight-edge member against said head member.

3. In a drafting device of the class described, a head member, a straight-edge member positioned with its one end at the upper side of said head member, a pivot member provided with a head and a shank, said shank extending through said straight-edge member and said head member and flattened at the end of its shank, said flattened portion being provided with a longitudinal slot, a clamping member extending through said slot and pivotally mounted intermediate its ends at the outer end of said slot, and an adjusting screw extending through the one free end of said clamping lever for forcing said straight-edge member against said head member.

4. In a drafting device of the class described, a head member, a straight-edge member positioned with its one end over said head member, a pivot member provided with a head and a flattened shank, said shank extending through a circular hole in said straight-edge member and an elongated hole in said head member whereby said pivot member is retained against rotation relative to said head member, the flattened portion of said pivot member being provided with a longitudinal slot through its flat side and with a knife edge bearing portion at the outer end of said slot, a clamping lever extending through said slot and pivoted intermediate its ends on said knife edge bearing portion, the one end of said clamping lever bearing against the under side of said head member, and a thumbscrew extending through the opposite end of said clamping member and engaging the under side of said head member for forcing said head member and said straight-edge members together.

5. In a drafting device of the class described, a head member, a straight-edge member positioned with its one end over said head member, a pivot member provided with a head and a flattened shank, said shank extending through a circular hole in said straight-edge member and an elongated hole in said head member whereby said pivot member is retained against rotation relative to said head member, the flattened portion of said pivot member being provided with a longitudinal slot through its flat side and with a knife edge bearing portion at the outer end of said slot, a clamping lever extending through said slot and pivoted intermediate its ends on said knife edge bearing portion, the one end of said clamping lever bearing against the under side of said head member, and a thumbscrew extending through the opposite end of said clamping member and engaging the under side of said head member for forcing said head member and said straight-edge members together, said head member being provided at its upper side and around its pivotal axis with a protractor and said straight-edge member being provided at its one end beyond its pivotal axis with a hair-line adapted to register with the graduations on said protractor.

6. In a drafting device of the class described, a head member of angular cross-section, the one flange of said member serving as a bearing surface for engaging the straight side of a drawing board, the other flange of said head member being provided at its opposite side with a protractor, a straight-edge member pivotally mounted near its one end on and at the upper side of said head member, a pivot member extending through said straight-edge member and said head member at the central portion of the protractor, and clamp lever means extending through the end of the pivot member extending through said head member.

7. In a drafting device of the class described, a head member of angular cross-section, the one flange of said member serving as a bearing surface for engaging the straight side of a drawing board, the other flange of said head member being provided at its opposite side with a protractor, a straight-edge member positioned with its one end over the upper side of said head member and the protractor thereon, a pivot member extending through said straight-edge member and said head member at the central portion of the protractor, and clamp lever means extending through the end of the pivot member extending through said head member, the one end of said straight-edge member extending beyond its pivot portion being provided with a transparent portion and a hair-line, said hair-line being adapted to register with the graduations on said protractor.

In testimony whereof, I have hereunto set my hand at San Diego, California, this 2nd day of July, 1926.

JESSE L. WEST.