

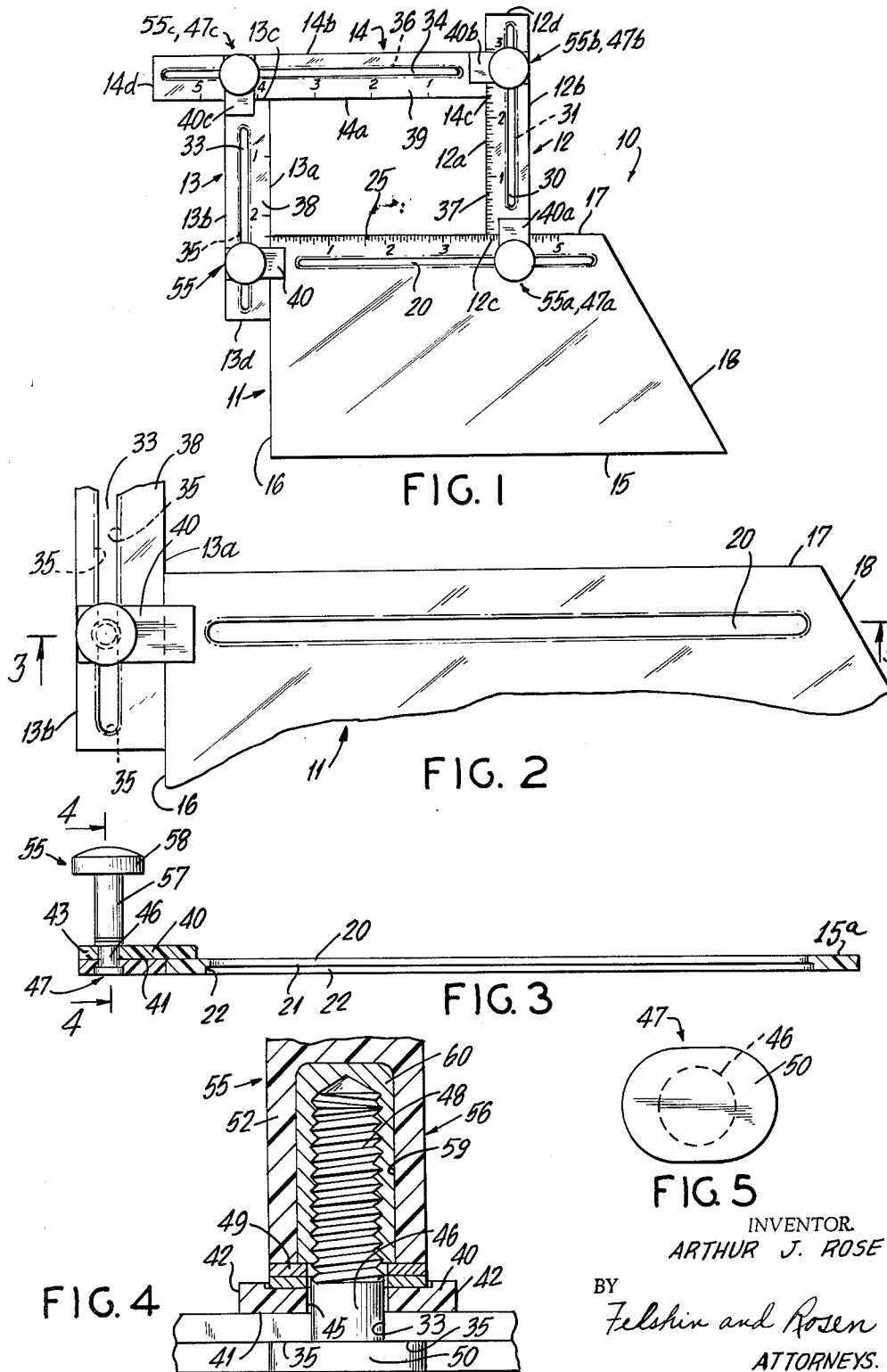
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TEMPLATES OR DRAWING GUIDES OR INSTRUMENTS

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3,224,100 TEMPLATES OR DRAWING GUIDES OR INSTRUMENTS

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10 Claims. (Cl. 33-95)

This invention relates to templates or drawing guides or instruments or the like devices.

An object of this invention is to provide a device of the character described which may be laid flat on a surface to be drawn upon, and in which the undersurfaces at all guide edges are directly on said surface so that there is no space or gap between said undersurfaces and said surface, and said device furthermore comprising guide parts having edge to edge sliding contact without gaps therebetween, so that all guide edges, at angles to one another, are flat on said surface, whereby to allow for accurate and neat drawing of lines, angles or rectangles. If desired, the guide edges may be undercut for ink drawing.

Another object of this invention is to provide an improved device of the character described comprising a base piece having a straight edge parallel to a drawing guide edge thereof, to allow the device to be slid along a T-square, in all settings of said device.

Yet a further object of this invention is to provide a device of the character described which may be set for drawing rectangular openings from zero to maximum size, and which is provided with tightening means such as screws for fixing the guide parts to one another, the construction being such that the tightening or loosening of the parts may be affected without turning of the screws, and said screws having heads which do not project below the undersurfaces of said guide parts whereby said guide parts may be laid flat on a board or flat surface.

Still another object of this invention is to provide a drawing instrument of the character described having scale measurement which are visible and easily readable, to indicate the length of the rectangle to be drawn, in all settings of said instrument; said instrument furthermore comprising a top cross-guide piece which may act as a guide for rectangular frames to be drawn in side by side relation, and in which the side guides pieces may act as guides for vertical alignment.

Yet another object of this invention is to provide an improved strong and durable drawing instrument of the character described which shall be relatively inexpensive to manufacture, easy to pre-set and manipulate when set, which shall permit drawing of smooth straight accurate lines, with which parallel horizontal or vertical lines for lettering or rectangles, may be drawn, which shall comprise straight rigid parts, each easily clamped in right angle relation to adjacent parts, and which shall yet be practical and efficient to a high degree in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangements of parts, which will be exemplified in the construction hereinafter described, and of which the scope of invention will be indicated in the following claims.

In the accompanying drawings in which is shown an illustrative embodiment of this invention,

FIG. 1 is a top plan view of a template or drawing guide or instrument embodying the invention;

FIG. 2 is an enlarged partial top plan view of the structure of FIG. 1, and with parts removed;

FIG. 3 is a cross-sectional view taken on line 3-3 of FIG. 2;

FIG. 4 is an enlarged cross-sectional view taken on line 4-4 of FIG. 3; and

FIG. 5 is a bottom plan view of one of the clamping screws, shown in FIG. 4.

Referring now in detail to the drawing, 10 designates a template or drawing instrument embodying the invention.

Said device 10 comprises generally a flat base member 11, a flat right vertical guide member or piece 12, a left flat vertical guide member or piece 13 and a flat top cross-guide member or piece 14. Said base 11 and members 12, 13 and 14 are all preferably made of synthetic plastics, such as acrylic, Plexiglass, Lucite, polystyrene or of any other suitable rigid material. These members 11-14 may be transparent if desired and may also be made of wood or metal. They are coplanar and of equal thickness, the same as the usual triangles used for drafting purposes. Members 12 and 13 are of the same width and of the same length. Member 14 is as long as the upper edge of base 11.

Said base 11 has a bottom edge 15, a left side edge 16 at right angles to edge 15, a top edge 17 parallel to edge 15, and it may have a right side edge 18 at an angle to edge 15, 17, preferably at 60° to edge 15.

Said base is formed with a longitudinal slot 20 with curved ends parallel to edge 17 and closer to said edge than to edge 15. Slot 20 terminates short of edges 16, 18. Base 11 is formed at its underside with a recessed or countersunk portion all around said slot 20, forming parallel undershoulders 21 on opposite sides and at the rounded ends of said slot and vertical edges 22 extending down from the outer extremities of said undershoulders.

The upper surface 15a of said base, at edge 17 is formed with a scale 25, preferably in inches, starting from the corner formed by edges 16, 17 and terminating short of the corner formed by edges 17, 18 by substantially the width of member 12.

Members 12, 13 and 14 have parallel longitudinal side edges 12a, 12b; 13a, 13b and 14a, 14b respectively; and edges 12c, 12d; 13c, 13d; 14c, 14d respectively, all perpendicular to said parallel longitudinal edges. All said members 11, 12, 13 and 14 are in the same plane and may all be on a flat plane surface. End edge 12c of member 12 slidably contacts upper edge 17. Longitudinal inner edge 12a of member 12 slidably contacts end edge 14c of member 14. Lower longitudinal edge 14a of member 14 slidably contacts end edge 13c of member 13. Inner longitudinal edge 13a of member 13 slidably contacts side edge 16 of the base 11.

Member 12 has a longitudinal slot 30 adjacent edge 12b terminating short of the ends thereof, and said member is formed at its underside with a countersunk undershoulder 31 similar to undershoulder 21 of slot 20. Pieces 13 and 14 are formed with longitudinal slots 33, 34 respectively, and are also formed with undershoulders 35, 36 respectively, similar to undershoulder 31 of piece 12.

Pieces 12, 13 and 14 are formed at their inner edges with scales 37, 38, 39 respectively. Scale 37 starts at the junction of edges 12a and 12c. Scale 38 starts at junction of edges 13a and 13c. Scale 39 starts at junction of edge 14a and 14c. The scales 25, 37, 38, 39 are all marked on the top surfaces of members 11, 12, 13, 14 and may be subdivided into sixteenths of an inch if desired.

Means is provided to clamp members 12 and 13 to the base 11 and to cross-member 14 in various adjusted positions. To this end, there is attached to base 11, just below scale 25 an extension or lug 40 extending beyond edge 16 thereof. Lug 40 may be moulded with base 11 as one piece or it may be adhered or connected thereto in any suitable manner. Said lug 40 has an undersurface 41 which is in the plane of the top surface of piece 13. Lug 40 has parallel side edges 42 and an end edge 43.

End edge 43 may be in alignment with longitudinal edge 13b. Said lug 40 is formed with a through opening 45 located above slot 33. Extending through said slot 33 and opening 45 is the shank 46 of a screw 47. The upper end 48 of the shank projects above lug 40 and is externally screw threaded. On the lug and surrounding the screw shank are washers 49.

At the lower end of shank 46 is a flat elongated head 50 slidably and non-rotatably received in the lower wider part of slot 33, and in contact with the undershoulders 35.

There is further provided a knob or thumb clamp 55 for engaging the screw 47 to clamp the lug 40 to the member 13 in slidably adjusted position. Knob or clamp 55 comprises a member 56 which may be made of plastic and has a shank part 57 with a finger engaging head 58 at its upper end. Shank 57 has a socket 59 in which is fixed an internally screw threaded metal nut member 60 which may be screwed to the screw shank 48. Thus, by loosening the thumb clamp 55, member 13 may be slidably moved relative to base 11. Then the clamp 55 may be tightened in any adjusted position. It will be noted that the head 50 of the screw 47 is wholly within the wide part of the slot 33 and does not project below the undersurface of member 13.

Member 12 is provided with a lug 40a extending beyond edge 12c, similar to lug 40 and overlapping the top surface of base 11 and traversing slot 20. Said lug 40a may be clamped to base 11 by means of thumb clamp 55a screwed to a screw 48a similar to thumb clamp 55 and screw 48, respectively. The lug 40a projects down beyond the lower end edge 12c of said piece 12. Screw 47a passes through a slot 20.

Extending from and beyond end 14c of member 14 is a lug 40b overlapping the top surface of piece 12 and it may be clamped to said piece by a thumb clamp 55b and screw 47b. Lug 40b, clamp 55b and screw 47b are also similar to lug 40, clamp 55 and screw 47 and operate the same way. Screw 47b passes through slot 30.

A lug 40c fixed to piece 13 extends beyond the upper end edge 13c thereof, and overlaps the upper surface of piece 14 and crosses its slot 34. A thumb clamp 55c and screw 47c serve to clamp the lug to said piece 14. The screw 47c passes through slot 34. Lug 40c, thumb clamp 55c and screw 47c are similar to lug 40, thumb clamp 55 and screw 47 and operate similarly.

To use the device 10, loosen one set of diagonal knobs, for example 55 and 55b. Then move the top cross piece 14 and left side piece 13, which are still clamped together, up or down relative to the base 11 and right side piece, which are still clamped together. This movement permits obtaining the desired vertical height of a rectangle to be drawn.

Then tighten knobs 55, 55b and loosen knobs 55a, 55c and move the top cross piece 14 and the right side piece 12, which are now clamped together, to the right or left relative to the base 11 and left side piece 13, which are now clamped together. This movement gives the desired horizontal dimension or width of the opening or rectangle to be drawn. Then tighten knobs or clamps 55, 55c.

With a writing instrument a rectangle can be drawn against the inside edges of base 11, and pieces 12, 13, 14.

It will be noted that all said pieces, as well as the base, lay flat on the flat surface to be drawn on, with the drawing edges against such surface. The length of the sides of the rectangle can be measured or ascertained by the scales 25, 37, 38, 39. Edges of parts 11-14 may be undercut.

This instrument may be used by draftsmen. It may be used for drawing management and organization charts, for drawing rectangles in infinite variations of sizes up to maximum size. It could be used as a jig or masking device. It is easy to manipulate for adjustment and use. The lower edge of the base can be moved against a T-

square. The screws 47, 47a, 47b, 47c do not turn and do not have to be rotated and do not project below the undersurfaces of members 11-14. This allows easy clamping and unclamping of the instrument.

The drawing edges are good guides for writing instruments and all the pieces are smooth, straight and rigid.

The top cross-piece when adjustably extended beyond piece 13 can be used as a guide when drawing rectangles or frames in side by side relation. Similarly, rigid side piece 12 can be used as a guide when drawing rectangular lines one below another when it is adjustably extended above cross-piece 14.

It will be noted that the top cross guide piece 14 may be elongated to the left and right side piece 12 may be increased in length at its upper end. Such elongation would be useful for horizontal and vertical alignment.

Also, parallel lines may easily be drawn for lettering or other purposes, using inside edges 17, 14a, or vertical lines using edges 12a, 13a.

The base 11 may carry advertisement and could be formed with geometric openings for use by a draftsman, if desired.

The height of the base is such that when the instrument is set for zero height and edge 14a contacts edges 17, edge 13d will not project below edge 15, so that the device may be slid along a guide such as a T-square in all settings of said device.

It will thus be seen that there is provided an apparatus in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings, is to be interpreted as illustrative and not in a limiting sense.

I claim:

1. In a drafting instrument, the combination comprising a relatively thin flat base member, said base member comprising an upper edge, a bottom edge and an end edge, a slot formed in said base member in spaced parallel relation to said upper edge, a first relatively thin member having a longitudinal edge and an end edge, a slot formed in said first member in spaced parallel relation to the longitudinal edge thereof, the length of said longitudinal edge of said first member being not greater than the length of said end edge of said base member and being in sliding engagement therewith, a second relatively thin member having a longitudinal edge and an end edge and a slot formed therein in spaced parallel relation to the longitudinal edge thereof, said end edge of said second member being in sliding engagement with said upper edge of said base member, means slidably interconnecting the slot of said second member with the end edge of said first member, said members being of substantially equal thickness and having flat parallel upper and lower surfaces, said slot in each of said members having its axis parallel to said surfaces and extending from said upper to said lower surface, and means to releasably clamp said members in various adjusted positions one relative to the other and to maintain said members in sliding engagement.

2. The combination of claim 1, each of said members having a scale at the longitudinal straight edge thereof, starting at said end edge thereof.

3. The combination of claim 1, said first member having a second straight longitudinal edge parallel to the first longitudinal edge thereof.

4. The combination of claim 1, said clamping means being located wholly above the flat undersurfaces of said members, without projecting therebelow.

5. In combination, a base member, and first, second, and third elongated members, all of said members having a longitudinal drawing edge and a straight end, the

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ends of said base, first, second, and third members having sliding contact with the longitudinal edges of said first, second, third and base members, respectively, to maintain the angles between said members, and to form a four sided frame, means to clamp said ends of said base, first, second and third members to said longitudinal edges of said first, second, third and base members, respectively, in various longitudinally adjusted positions of said ends relative to the longitudinal edges they contact, said members having flat, coplanar top and bottom surfaces, and said clamp means being disposed above said top surfaces, the length of the end of said base member being substantially equal to the length of the longitudinal edge of said first member.

6. A drafting instrument comprising a flat base member having an upper edge, a lower edge and an end edge meeting said upper and lower edges, a first longitudinal member lying in the plane of the base member and having upper and lower ends and a longitudinal edge slidably contacting said end edge, means to retain said first longitudinal member in sliding engagement with said end edge of said base member and to clamp said first longitudinal member to said base member in various adjusted positions one relative to the other between uppermost and lowermost positions of said first longitudinal member, the lower end of said first longitudinal member in all adjusted positions thereof being disposed above the lower edge of said base member, a second longitudinal member lying in the plane of said base member and first longitudinal member and having an end edge slidably contacting the upper edge of said base member, means to retain the end edge of the second longitudinal member in sliding contact with said upper edge of said base member and to clamp said second longitudinal member to said base member in various adjusted positions one relative to the other, and means movable with said second longitudinal member and providing sliding contact with the upper end of said first longitudinal member, and means to retain said last mentioned means in such sliding contact and to clamp the same in various adjusted positions, said base member and longitudinal members having flat, coplanar undersurfaces.

7. The combination of claim 6, said upper and lower edges of said base member being parallel, and said end edge of said base member being perpendicular to said upper and lower edges.

8. The combination of claim 7, said second longitudinal member being disposed at right angles to the upper edge of said base.

9. The combination of claim 7, said base member having a second end edge meeting said upper and lower edges, said second end edge defining an acute angle with said lower edge.

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10. A drafting instrument comprising a flat base member having an upper edge, a lower edge and an end edge meeting said upper and lower edges, a first longitudinal member lying in the plane of the base member and having upper and lower ends and a longitudinal edge slidably contacting said end edge, means to retain said first longitudinal member in sliding engagement with said end edge of said base member and to clamp said first longitudinal member to said base member in various adjusted positions one relative to the other between uppermost and lowermost positions of said first longitudinal member, the lower end of said first longitudinal member in all adjusted positions thereof being disposed above the lower edge of said base member, a second longitudinal member lying in the plane of said base member and first longitudinal member and having an end edge slidably contacting the upper edge of said base member, means to retain the end edge of the second longitudinal member in sliding contact with said upper edge of said base member and to clamp said second longitudinal member to said base member in various adjusted positions one relative to the other, said second longitudinal member having a longitudinal edge, a third longitudinal member lying in the plane of said base member and first and second longitudinal members and having an end edge and a longitudinal edge, said second longitudinal member having a longitudinal edge, means to retain said end edge of said third longitudinal member in sliding contact with said longitudinal edge of said second longitudinal member and to clamp said second longitudinal member to said third longitudinal member in various adjusted positions one relative to the other, and means to retain said upper edge of said first longitudinal member in sliding contact with said longitudinal edge of said third longitudinal member and to clamp said third longitudinal member to said first longitudinal member in various adjusted positions one relative to the other.

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