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F. S. SCHADE

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COMBINATION DRAWING BOARD AND DRAWING TOOL

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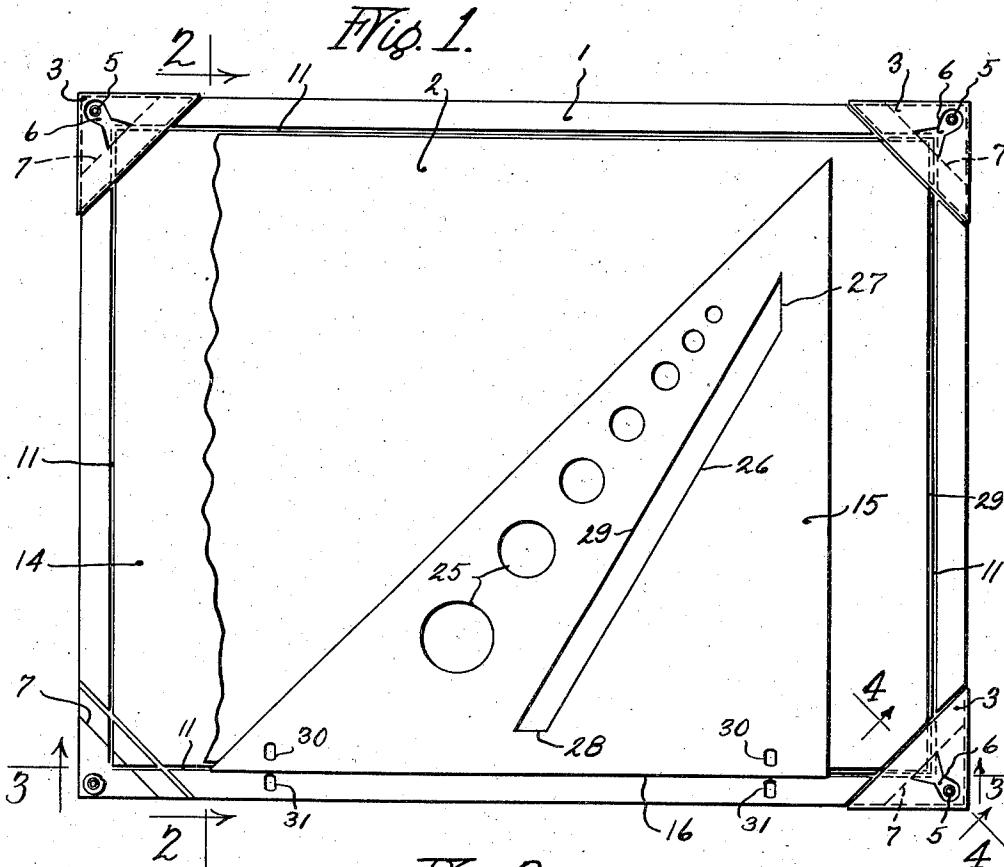


Fig. 2.

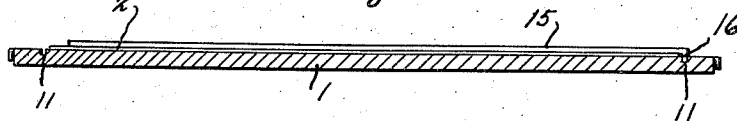


Fig. 3.

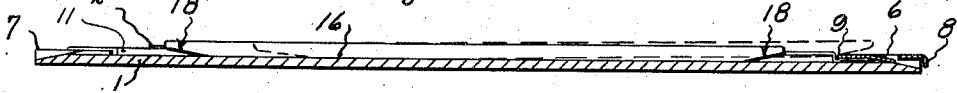


Fig. 5.

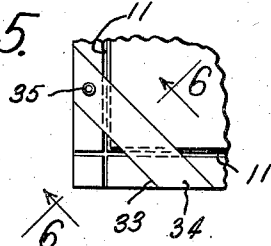


Fig. 6.

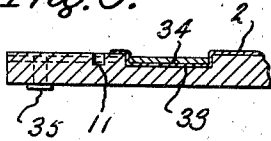
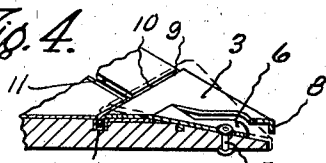


Fig. 4.



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COMBINATION DRAWING BOARD AND DRAWING TOOL

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3 Claims. (Cl. 33—76)

This invention relates to an improved drawing board and an improved drawing instrument such as a triangle to use with the board. One idea in making the invention is to provide drawing tools to be carried in a brief case and in the pocket or on the rings of a loose leaf book. In this use the area, the weight, and the thickness of the drawing tools are important considerations.

One feature of my invention is in the means by which such a drawing board can be made thinner than prior art constructions and still provide a new and useful way to guide a tool such as a triangle over the surface of the board without the use of a T-square. Other features will appear by comparison of the detailed disclosure herein with prior drawing tools which are well known, and the particulars of the invention will be pointed out in the claims.

In the drawings,—

Fig. 1 is a top plan view of a drawing board and triangle combination constructed according to my invention, but with certain parts broken away to better show the construction;

Fig. 2 is a transverse sectional elevation of the drawing board taken on line 2—2 of Fig. 1;

Fig. 3 is a sectional elevation taken on line 3—3 of Fig. 1;

Fig. 4 is an enlarged sectional view of the paper-securing means taken on line 4—4 of Fig. 1 and showing the parts in perspective;

Fig. 5 is a fragmentary view of a modified form of paper-securing means; and

Fig. 6 is a sectional view on line 6—6 of the construction shown in Fig. 5.

From the drawing it will be clear that the working surface 14 of the improved drawing board 1 is defined by the grooves 11. These extend downwardly from the working surface. They are best arranged as a rectangular set of intersecting shallow grooves, one for each side of the board. This arrangement is made so that the board can be very thin, there being no projections anywhere on the board shown above the drawing plane.

The improved drawing instrument to use with the board is shown as a triangle 15. It is made with a narrow fin 16 or its equivalent, as a line of pins extending vertically along one edge of the triangle and just enough out of its plane to engage any one of grooves 11 for guiding purposes, as in Fig. 2. The triangle 15 can thus be guided in a groove 11 of board 14 as it would be guided generally by a T-square. But when guided by a groove as herein shown, there is less work for the draftsman in making sure that the triangle does not move away from the guiding means. While the provision of fin 16 on an edge of the triangle 15 increases its thickness on that edge, this increase is compensated by carrying the fin 16 in a groove 11 within the necessary thickness

of the drawing board, or in some cases by overlapping fin 16 with one of the side edges of the drawing board.

Combining a drawing board and triangle for use together in this fashion results in less necessary thickness than any prior art combination of drawing tools with which equivalent work can be done. This feature is important where, as intended, the combination is for carrying the tools about as in a loose leaf book or brief case. In this use the thickness of the combination need not be more than that of a sufficiently stiff and dense sheet of fiber board to maintain a plane for drawing, plus the thickness of an ordinary triangle. To carry the combination on the rings of a loose leaf book I provide openings 30 in the triangle margin to register with openings 31 in the drawing board margin. With these holes in registration both tools will hang together when fin 16 overlaps the edge of the drawing board instead of lying in a groove 11.

To hold drawing paper on the board ordinary thumb tacks can be used of course. But there is some advantage in holding the paper by means built into the drawing board at the corners. The idea of doing this in a drawing board per se is not new. But in the combination of the improved drawing board and drawing instrument, I have disclosed novel means for maintaining the guiding function without interference when the triangle is moved across the corner portions of the paper where paper holding means are located.

One kind of holding means consists of a triangular-shaped corner piece of springy metal 3, see Figs. 1 and 4. As shown it is fastened by rivet 5 near the outer end of a depressed flap 6 shaped like a keyhole and with its inner end integral with piece 3. The corner of the board 14 is partially cut away, see Fig. 4. Flap 6 is held flat by rivet 5 against the beveled corner. The construction is such that piece 3 normally tends to lie with its top surface in the drawing plane of the board. From this plane it can be tipped upwardly at the inner portion by pressing downwardly at the outer portion, against the spring action of flap 6. The pivot line will be about at line 7 where the bevel at the corner begins the inner integral end of flap 6 forming a hinge section, indicated in Fig. 1. A release of pressure will permit piece 3 to return to normal. The corner portion is cut down enough to receive piece 3 with its top level with or slightly below the working surface of the board. There is an integral flange 8 at the sides and one 9 at the inner edge of piece 3. Flange 9 is received in a recess groove 10 shown in Fig. 4. With a similar construction at the four corners of the board, it will be clear that the corners of a drawing sheet can be readily slipped under the holding spring metal piece 3 and the flange 9 will carry the paper corner

down into groove 10 to tension and hold the paper at the corner. When triangle fin 16 moves far enough in groove 11, a cam end surface 18 on fin 16, see Fig. 3, will engage metal piece 3 at the corner of flange 9. The triangle rides over the paper fastening means with a very slight bend in the material of the triangle while fin 16 is still in guiding contact with groove 11 at portions removed from the corner obstruction. I provide a cam surface 18 at each end of fin 16 so the triangle will ride over opposite corners at the ends of each groove 11 and increase the facility of the tool on a board of small area. In some uses of the invention there is an advantage in having fin 16 with cam ends extended beyond both faces of the triangle, above and below, instead of beyond only one face, or downwardly, as the drawing shows. The advantage is to enable one to turn the triangle over and still have a fin guiding means 16 to fit groove 11, or to use one fin extension to fit the guide groove and the other fin extension to serve as a straight edge guide for another tool sliding on top of the triangle. But I have shown only one fin extension below the triangle for guiding purposes because this contributes to my plan of getting a thin combination to carry about. I mention the double fin as a disclosure of my conception and so as to enable one to get drawing tool utility when the desire to get extreme thinness is not so important as it is to get the added utility of the second fin in the combination of the board and triangle. Of course what I call the second fin will be a duplication or mere upward extension of the fin 16 shown, so that no matter on which face the triangle contacts the board there will be a fin 16 to engage the groove. The article as disclosed in the drawings is one for use where simplicity combined with utility is a prime consideration. So only one fin 16 is shown, although two may in some instances be wanted by the user of the new article.

The triangle I have shown is a forty-five degree one. It is provided with a slot cut at sixty degrees, see Fig. 1, defined by lines 26, 27, 28, and 29. If the drawing paper 2 is in place and the triangle is moved well to the right, the narrow sixty-degree slot edges 26 and 29 will slide back and forth across the right-hand edge 29' of the paper 2 without tending to catch. If line 26 of the slot opening were parallel with the paper edge 29', it would tend to catch at such edge. This feature of the triangle is disclosed herein because it is a help in using a triangle with a small sheet of paper in the portable small drawing board such as disclosed.

Another and simpler way of holding the paper at the corners of the board is shown in Figs. 5 and 6. Here a flat piece of spring metal 34 is riveted at 35 to form a flat spring finger. The latter normally rests in groove 33, one at each corner, extending diagonally across grooves 11 at each corner and of course intersecting such grooves. The paper can be inserted under each spring 34 when the latter is tipped up and then snapped down as indicated to the position of Fig. 6.

Other ways of course are available to hold the paper on the board. Those described have the preferred characteristic of having the top surface of the paper holding means at or below the drawing paper in normal use. This contributes

to the feature of getting a less bulky construction.

In triangles 15 I have shown cut-out circles 25 of different diameter merely to indicate that all sorts of drawing tool features and conveniences can be built into the tool, such as a triangle which is to be guided over the board in the fashion described.

The openings 30 in triangle 15 and the openings 31 in the board 14 along the lower margin are shown to indicate that both parts of the combined tool are conveniently carried as loose sheets in a loose leaf book. These openings 30 and 31 are spaced as openings in loose leaf sheets are to be engaged by the rings of a loose leaf binder.

I have disclosed the features and details of my invention which can be made of very small bulk and thin, of remarkably good appearance, and for very convenient drawing tool use, all to the end that one can carry the tools with almost the same convenience as the paper on which to draw.

The preferred form of the drawing board is that shown in Fig. 1. The board appears as a flat surface; the corners are covered with the triangular pieces 3 as if they were mere corner reinforcements of metal although they actually serve as paper holding structure. The narrow grooves 11 extending along the rectangular margin appear as a decorative line, although they actually serve as a better means of guiding the triangle than a T-square would.

What I claim is:

1. The combination of a drawing board and a triangle having a fin extending beyond the plane of the triangle and adjacent one of its edges, said drawing board having a grooved recess to receive and guide both sides of said fin, clips mounted at the corners of said board to hold drawing paper, said clips having their top surfaces substantially at the level of the drawing board, said fin having cam means to contact said clips and slide past without obstruction.

2. The structure of claim 1 having said clips with their top surfaces substantially at the level of the drawing board and shaped to provide triangular corner pieces substantially flush with the upper surface of the board.

3. A drawing board consisting of a flat thin rectangular sheet made of stiff enough material to maintain a drawing plane on said thin sheet, each corner portion of said sheet having a stepped down portion and a beveled portion, and at each corner a triangular cap with its top substantially level with the drawing plane, fastening means for said cap to hold it in covering relation to said stepped down and beveled portions, a hinge section adjacent said fastening means about which the cap may pivot, and spring means to normally hold said cap level and in place and movable to take and release corner portions of drawing paper, a guiding groove inside each edge of said sheet extending to each corner and passing under the edge of said triangular cap adapted to hold and guide a drawing instrument from any side of the board, the edge of said triangular cap forming a reaction surface for a cam on the instrument to lift said instrument out of the groove at the corner of the board.

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