Nov. 3, 1970 R. J. ANDERSON 3,537,183

DRAWING BOARD AND T-SQUARE

Filed Feb. 17, 1969

FIG. 1.

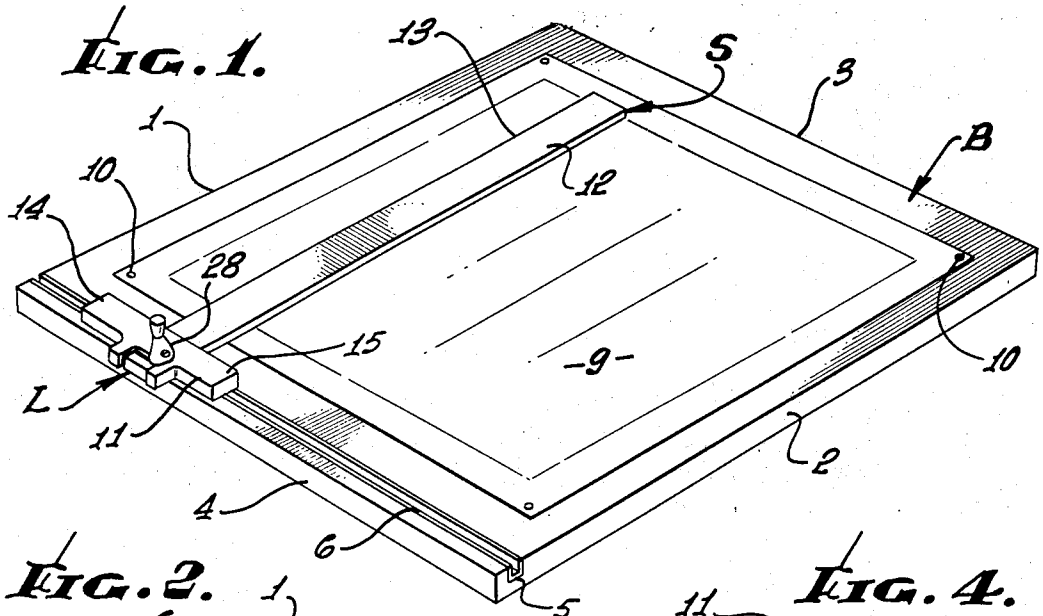


FIG. 2.

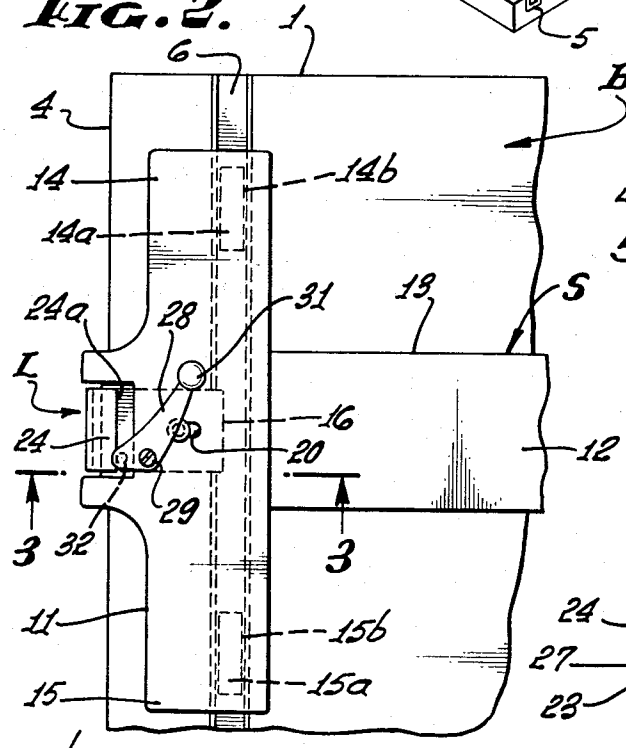


FIG. 4.

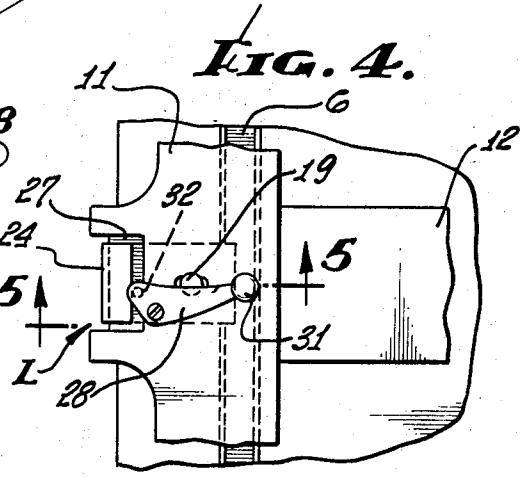


FIG. 5.

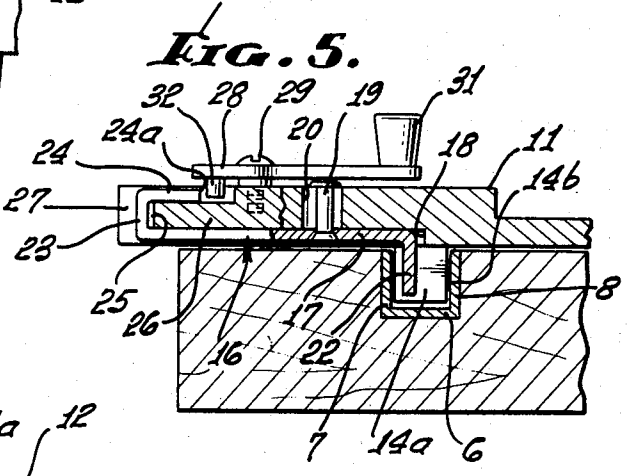
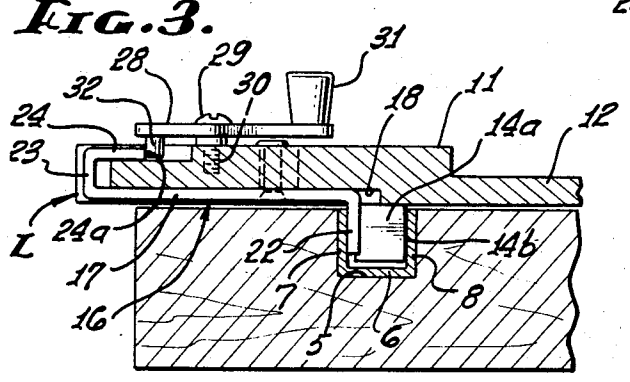


FIG. 3.



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DRAWING BOARD AND T-SQUARE

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ABSTRACT OF THE DISCLOSURE

A drawing board and T-square combination in which the drawing board has an upwardly facing channel extending along a side edge, the T-square having a head provided with lugs spaced laterally of the blade of the T-square and slidable in the channel for maintaining a right angular relation between the T-square blade and the channel. A locking device is carried by the T-square head, the locking device including a clamping plate having an end disposed in the channel in the board and a portion engaged by a pivoted cam, whereby the clamping plate is actuatable into engagement with one side of the channel to force the lugs on the T-square head into engagement with the other side of the channel.

Heretofore, drawing board and T-square combinations have been provided wherein the T-square head is adapted to be clamped or locked in a selected position of adjustment along an edge of the drawing board. Such prior combinations for the most have been relatively complex and, therefore, expensive to produce, on the one hand, or, on the other hand, the clamping devices have been such that the T-square may not be positively and immovably held in a selected position upon operation of the clamping means.

In order to overcome the deficiencies of the prior art drawing board and T-square combinations and to provide a structure which is simple in its operation, yet positive in its locking action, the present invention provides a T-square and drawing board combination in which the drawing board is provided along one edge with an elongated channel having opposing, parallel side walls between which lugs provided beneath the head of the T-square are snugly, yet freely, slidable, whereby to allow shifting of the T-square along the work surface of the drawing board, while holding the T-square blade in right angular relationship to the channel. The T-square head includes a clamp mechanism having a member engageable with one side wall of the channel and forcing the lugs carried by the T-square head into engagement with the other side wall of the channel, whereby the T-square head is positively and immovably held against angular movement by three-point engagement between the side walls of the channel on the board and the lugs and the clamping member on the T-square head.

In accomplishing the foregoing, the present invention provides a cam-operated locking mechanism involving a simple slidable plate having a first end flange engageable in the channel of the drawing board, and a second portion engageable by a pivoted cam member which locks the plate in position with the T-square immovably held in relation to the drawing board.

This invention possesses many other advantages, and has other purposes which may be made more clearly apparent from a consideration of a form in which it may be embodied. This form is shown in the drawings accompanying and forming part of the present specification. It will now be described in detail, for the purpose of illustrating the general principles of the invention; but it is to be understood that such detailed description is not to be taken in a limiting sense.

Referring to the drawings:

FIG. 1 is a view in perspective illustrating a drawing board and T-square made in accordance with the invention;

FIG. 2 is an enlarged top plan illustrating the T-square in locked condition with respect to the drawing board;

FIG. 3 is an enlarged fragmentary detail view in section, taken on the line 3—3 of FIG. 2;

FIG. 4 is a fragmentary top plan illustrating the T-square head in an unlocked condition; and

FIG. 5 is an enlarged fragmentary detail view in section, taken on the line 5—5 of FIG. 4.

As seen in the drawings, the invention contemplates a drawing board B, herein illustrated as a simple rectangular drawing board, but it will be understood that the board B may form part of a drafting table. For reference purposes, the board B will be seen to have an upper edge **1**, a lower edge **2**, a right-hand edge **3**, and a left-hand edge **4**. Extending longitudinally in parallel relation to the left-hand edge **4** of the board B is a channel **5**. In the illustrative embodiment, the board B is shown as being the usual wooden drawing board in which the channel **5** is formed, and seated in the channel **5** is a metallic channel-shaped liner **6** having a left-hand side wall **7** and a right-hand side wall **8** disposed in parallel relation to one another and effectively defining the side walls of the channel **5**. Preferably, the left-hand edge **4** of the drawing board B is a straight edge paralleling the channel-shaped member **6** so that, if desired, the usual T-square may be employed and engaged with the edge **4** for performing work on a work sheet **9**, which, as is customary, may be suitably secured to the work surface of the board B by thumbtacks **10**, or, otherwise, as by adhesive tape or the like.

In accordance with the present invention, a T-square S is provided, this T-square including a head **11** and a blade **12** extending at right angles with respect to the head **11** and having a straight work edge **13**. In the illustrative embodiment, the blade **12** and the head **11** are shown as being of unit construction, but it will be understood that, as is usual, the head may be attached to a separate blade. In any event, the head **11** has end portions **14** and **15** projecting laterally with respect to the blade **12**, and, adjacent the outer extremity of these portions **14** and **15**, they are respectively provided with downwardly extended lugs or projections **14***a* and **15***a*, each of which is shown as being in the form of a rectangular block depending from the T-square head and snugly but slidably engaged between the side walls **7** and **8** of the channel-shaped member **6**. These lugs **14***a* and **15***a* serve to maintain the proper right angular relation between the channel-shaped member **6** and the blade **12** of the T-square S, as the T-square assembly is moved upwardly and downwardly with respect to the work sheet **9** on the drawing board B.

However, when it is desired that substantial drawing work be done on the work sheet **9** using implements such as triangles in conjunction with the work edge **13** of the T-square blade **12**, it is desirable that the blade **12** be immovably held with respect to the drawing board B, to free both hands of a person for use. Thus, clamping or locking means L are provided for effectively clamping the T-square head **11** in fixed relation to the drawing board B, whereby the blade **12** is held in the desired fixed relation to the work sheet **9**. This locking or clamping means L includes a clamp plate **16** having a horizontally extended body portion **17** slidably disposed in a groove **18** formed in and beneath the mid-section of the T-square head **11**. A suitable fastener **19** is employed to secure the body portion **17** of the clamp plate **16** in the groove **18**, this fastener extending upwardly through the plate **16** and through an elongated slot **20** in the T-square head **11**, the fastener **19** having a head **21** of a greater dimension than

the width of the slot **20**. This slot **20** allows for a suitable range of reciprocation of the clamp plate **16** between a clamping position and a released position, as will be hereinafter described.

At the inner end of the body portion **17** of the clamp plate **16** is a downwardly extended clamping flange **22** which projects downwardly into the channel-shaped member **6**. At the outer end of the body portion **17** of the clamp plate **16** is an upwardly extending web **23** merging into an inwardly extended end flange **24**, the end flange **24** defining with the body section **17** a channel-shaped portion **25** which receives a reduced thickness section **26** of the T-square head **11**. Preferably, the end flange **22** of the clamp plate **16** is recessed within a depression **27** in the mid-section of the T-square head **11**.

In order to effect clamping movement of the clamp plate **16**, a lever or cam **28** is provided, the lever being pivotally connected to a pivot pin or shoulder bolt **29** which is threaded, as at **30**, into the T-square head **11**. The lever is provided with an operating handle **31** at one end, and, at the other end, the lever **28** has a downwardly extended cam pin **32** which extends downwardly into the recess **27** so as to be engageable with the inner edge **24***a* of the end flange **24** of the clamp plate **16**. As seen in FIG. 2, the lever handle **31** may be rotated in a counterclockwise direction so that the camming action of the lever pin **32** sliding along the edge **24***a* of the end flange **24** of the clamp plate **16** will force the clamp plate **16** to the left, thereby forcing the inner end flange **22** of the clamp plate **16** into frictional engagement with the outer side wall **7** of the channel-shaped member **6**, resulting in the inner side walls **14***b* and **15***b* of the lugs **14***a* and **15***a* being forced oppositely into engagement with the inner side wall **8** of the channel-shaped member **6**. Preferably, as seen in FIG. 2, the cam pin **32** moves to a position at which its axis is on a plane normal to the cam surface **24***a* and intersecting the axis of the pivot pin **29**, whereby the plate **16** is locked in a clamping position by the lever **28**.

Since the lugs **14***a* and **15***a* are laterally spaced with respect to the T-square blade **12**, and since the clamp plate **16**, and more particularly its flange **22**, is centrally located with respect to the T-square head **11**, the clamping action is such that the T-square head **11** will be immovably and positively held against movement with respect to the drawing board B. While spaced apart lugs have been illustrated and are preferred, it will be understood that the essential feature of the locking means of the invention is the opposite application of clamping forces between a clamping member, such as the member **16** carried by the T-square head **11**, and another member, such as the members **14***a* and **15***a*, against the opposing side walls **7** and **8** of the channel-shaped member **6**.

In the use of the drawing board and T-square as described above, it will be understood that in normal usage the clamping or locking means L may be released so that the T-square S is easily slidable along the upper surface of the board B, to position the blade **12**, and more particularly the work edge **13** thereof, in a desired and selected position with respect to the work sheet **9**. Under these circumstances, the lever **28** will be in the condition illustrated in FIGS. 4 and 5 in which the inner end flange **22** of the clamp plate **16** is spaced from the side wall **7** of the channel-shaped member **6**, the lugs **14***a* and **15***a* being free to slide along the channel-shaped member **6**. When substantial work is to be done with implements, such as triangles or protractors, at any selected location of the T-square S, or where the use of both hands is necessary or desirable, the T-square S may be locked in the selected position by simply rotating the lever **28** to the position shown in FIGS. 2 and 3, at which the end flange **22** of the clamp member **16** engages the side wall **7** of the channel-shaped member **6**, and the faces **14***b* and **15***b* of the lugs **14***a* and **15***a* are forced against the side wall **8** of the channel-shaped member **6**.

I claim:

1. A drawing board and T-square combination comprising: a drawing board having an elongated channel at one edge thereof, said channel having opposed parallel side walls, and a T-square slidably disposable upon said board and including a head and a blade projecting from said head in overlying relation to said board, said head having guide means slidable in said channel for maintaining said blade in right angular relation to said channel, lock means cooperative with said guide means for releasably clamping said head in a fixed position with respect to said channel, said lock means including a clamp plate having a flange at one end disposed in said channel, another flange on the other end of said clamp plate forming a groove, said head having a portion slidably received in said groove, and operating means carried by said head and acting on said another flange for sliding said clamp plate to move said first-mentioned flange into engagement with a side wall of said channel and to force said guide means into engagement with the other side wall of said channel, said operating means including a lever pivotally mounted on said head and having a cam pin engageable with a surface of said another flange of said clamp plate for shifting said clamp plate responsive to pivotal movement of said lever, said cam pin and the axis of pivotal movement of said lever being in a plane at least normal to said surface when said lock means is operated to clamp said T-square to said channel.

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