Aug. 15, 1961 C. E. BOWEN 2,995,823

T-SQUARE HOLDER

Filed June 22, 1959 2 Sheets-Sheet 1

FIG. 1.

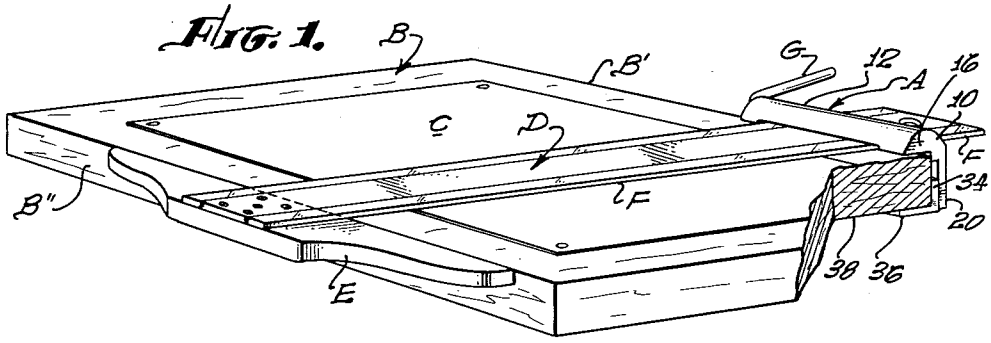


FIG. 2.

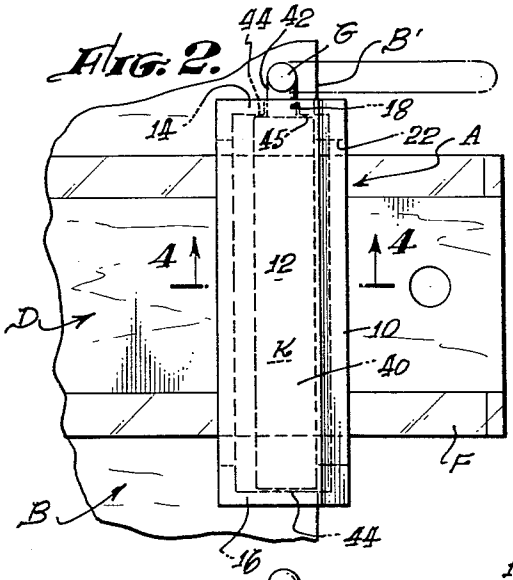
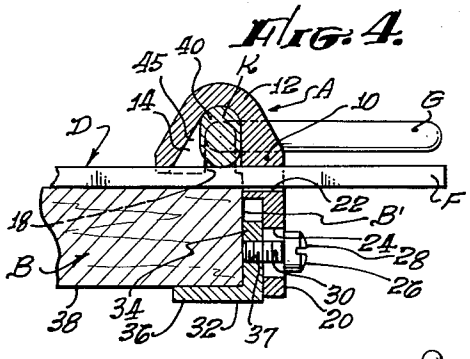


FIG. 4.



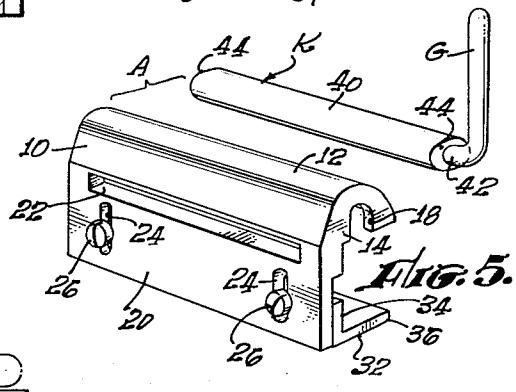
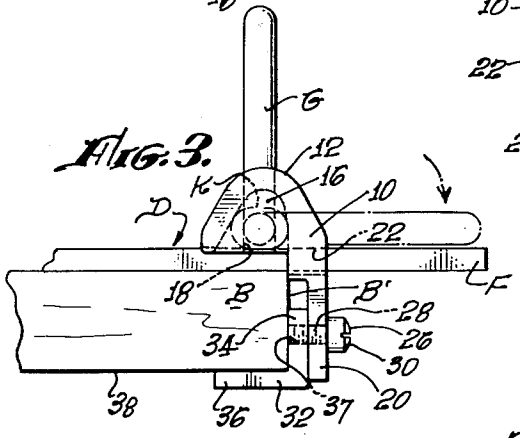


FIG. 5.

FIG. 3.



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FIG. 6.

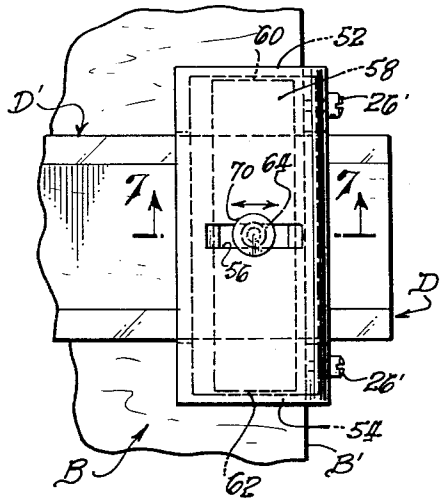


FIG. 7.

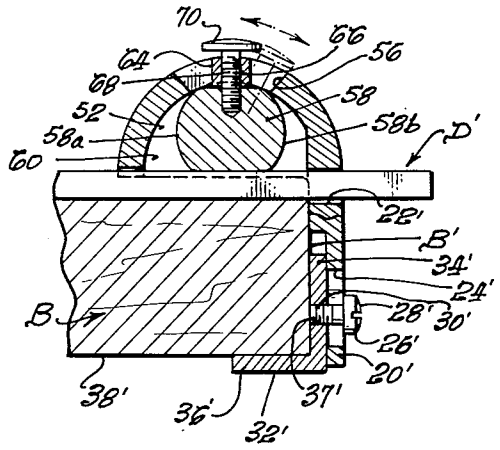


FIG. 8.

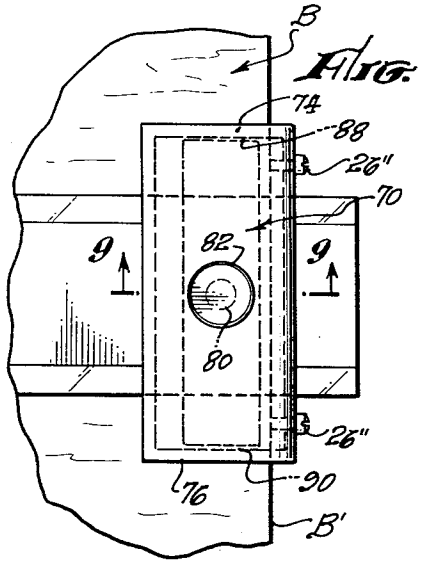
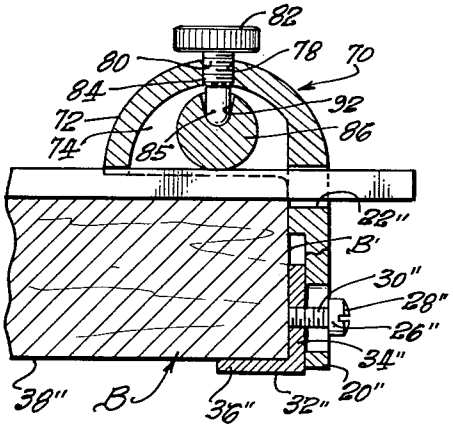


FIG. 9.



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T-SQUARE HOLDER

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3 Claims. (Cl. 33—80)

The present invention relates generally to the field of drafting accessories, and more particularly to a T-square holder by means of which a conventional T-square may be clamped in any desired position on a drafting board with complete assurance that the elongate rigid portion thereof projecting from the T-square head will at all times be in a truly normal position relative to that edge portion of the board slidably engaged by the head.

Although theoretically the elongate drawing edge portion of a T-square of the structure above mentioned would be normally disposed relative to the edge of the drafting board contacted by the head, in actual practice this is not always so. Frequently, and particularly if the T-square has an elongate straight edge defining member affixed to the head, relative movement between the head and this member occurs unless the T-square is unduly heavy. Also, occasionally during use the flat straight edge of the head is not in full abutting contact with an edge portion of the drafting board, and as a consequence the elongate portion of the T-square is inaccurately positioned relative to the drafting board whereby errors creep into the work on the board.

To eliminate the disadvantages of the T-square above described, drafting machines have been designed and marketed in the past wherein two rulers in normal juxtaposition to form an L are at all times maintained in parallel relationship to edge portions of the drafting board by a parallelogram linkage mechanism. However, while drafting machines of this type have been found quite satisfactory, they are expensive, heavy and cumbersome to use, and require the utmost care when removed from a drafting board and stored.

A major object of the present invention is to provide an inexpensive T-square holder that is of extremely simple mechanical structure and when removably mounted on a drafting board, will maintain a T-square in a true normal position relative to two edge portions of the drafting board between which the T-square extends, with the T-square and holder being adapted to be manually moved as an integral unit on the drafting board to any desired position thereon.

A further object of the present invention is to provide an improved T-square holder that is not only adapted to provide the operational advantages above mentioned, but one which may be used with T-squares having elongate portions of varying thickness as well as being useable on drafting boards that likewise may be of any thickness within a predetermined range.

Still another object of the invention is to supply a T-square holder which may be actuated to clamp the T-square in a desired position by a simple flick of the finger, and the T-square can be released from the clamped position by substantially the same operation but in a reverse direction.

These and other objects and advantages of a preferred and certain alternate forms of the present invention will become apparent from the following description thereof, and from the accompanying drawings in which:

FIGURE 1 is a conventional drafting board on which a T-square is slidably mounted and held in a clamped position thereon by the use of the preferred form of the invention;

FIGURE 2 is a top plan view of the preferred form of the invention showing a portion of a T-square extending therethrough;

FIGURE 3 is an end elevational view of the holder shown in FIGURE 2;

FIGURE 4 is a vertical cross-sectional view of the holder and T-square taken on line 4—4 of FIGURE 2;

FIGURE 5 is an exploded perspective view of the T-square holder shown in FIGURES 1—4 inclusive;

FIGURE 6 is a top plan view of first alternate form of the holder;

FIGURE 7 is a vertical cross-sectional view of the first alternate form of the holder taken on line 7—7 of FIGURE 6;

FIGURE 8 is a top plan view of a second alternate form of holder; and,

FIGURE 9 is a vertical cross-sectional view of the second alternate form of holder taken on line 9—9 of FIGURE 8.

The preferred form of the T-square holder A, as can best be seen in FIGURE 1, is mounted for slidable movement on one edge portion of a drafting board B to which a sheet of drawing paper C may be affixed by conventional means. A T-square D having a head E and an elongate rigid member F projecting therefrom rests on the drawing board with a straight edge portion of the head abutting against one edge portion of the board and the member F projecting through the holder A.

A handle G forms a part of the holder A, which handle when in the upwardly extending position shown in FIGURE 3, permits the T-square D and holder A to be shifted along the drafting board B to a desired position thereon. When the desired position is reached, handle G is pivoted downwardly to the substantially horizontal position shown in FIGURE 3, and as a result thereof the T-square is immovably clamped to the drawing board B. If the head E of the T-square D is in full abutment with an edge portion of the board B as such clamping action takes place, the rigid member F will be normally disposed relative to two parallel and laterally separated edge portions B′ and B″ of the drafting board B.

T-square holder A, as best seen in FIGURES 1 to 5 inclusive, includes a housing **10** defined by an inverted elongate concave shell **12** that is adapted to be disposed above an edge portion of board B. First and second parallel end pieces **14** and **16** respectively, preferably formed as integral portions of shell **12**, close the ends thereof. A slot **18** extends upwardly in first end piece **14** (FIGURE 5).

A rectangular flange **20** depends from the outer portion of shell **12**. An elongate longitudinally extending opening **22** is formed in flange **20** that is slightly longer than the width of the elongate member F of T-square D that projects therethrough. The height of opening **22** is slightly greater than the thickness of member F, as can best be seen in FIGURE 4. Two longitudinally separated, vertically extending slots **24** are formed in flange **20** below opening **22**, and are adapted to have screws **26** extend therethrough. Each screw **26** includes a head **28** and a threaded shank **30**. An elongate guide **32** of L-shaped transverse cross section is provided, comprising normally disposed first and second legs **34** and **36** respectively. Two tapped bores **37** are formed in leg **34** that are spaced longitudinally the same distance as slots **24**. Bores **37** are threadedly engaged by shanks **30** of screws **26**.

By vertically adjusting and then tightening the screws **26** in slots **24**, guide **32** can be rigidly maintained in a position relative to flange **20** where the interior face of second leg **36** snugly but slidably engages the lower surface **38** of the drawing board B.

An elongate pressure-applying member K that is actuated by the handle G is shown in FIGURE 5, and includes a rigid body **40** having a curved longitudinally extending exterior surface, but the transverse cross sec-

tion thereof is of non-circular configuration. A first end portion of the body **40** develops into a longitudinally projecting extension **42** that is pivotally disposed within the confines of slot **18**. The outer end of extension **42** develops into the upwardly projecting handle G. The second end surface **44** of body **40** is flat and positioned normally relative to the longitudinal axis of the body. The second end surface **44** of body **40** slidably and rotatably engages the interior surface of the second end piece **16**. At the junction thereof, extension **42** and body **40** define a generally annulus-shaped flat surface **45** that is in rotatable and slidable engagement with the interior surface of the first end piece **14**, as best seen in FIGURE 2.

The use of the preferred form of the invention is extremely simple. Screws **26** are loosened, and the guide **32** slidably moved on flange **20** to a position where the upper surface of second leg **36** snugly and slidably contacts the lower surface of drawing board B, when the elongate portion F of T-square D resting on drafting board B is projected through opening **22**, as shown in FIGURE 4. The head E of the T-square is placed in full sliding contact with the edge portion B′ of the board B.

Screws **26** are then tightened to hold guide **32** in the position described above. Handle G is pivoted to the upwardly extending position shown in FIGURE 3, whereby the T-square D and holder A may be slid longitudinally along the drawing board to the desired position. Thereafter handle G may be moved manually in either of two possible directions to pivot the pressure-applying body **40** relative to housing **10**. Due to the non-circular cross section of body **40**, such pivotal movement forces housing **10**, flange **20**, and guide **32** upwardly relative to drawing board portion B′, with the second leg **36** and body **40** pressure-engaging board B and T-square member F respectively with sufficient force to hold the T-square D in the desired position on board B.

When it is desired to move the T-square D on the board B, handle G is simply pivoted from the locking position shown in phantom line in FIGURE 3 to the upright position shown in solid line in the same figure. This movement of handle G permits housing **10** and second leg **36** to move downwardly sufficiently relative to drafting board B that no appreciable pressure is applied to T-square D or the under side of the drafting board whereby the T-square D and holder A can be slidably moved as an integral unit to a new position thereon. After placement of T-square D and holder A in the new position they may be re-locked in fixed position relative to the drafting board B by manually pivoting handle G into a substantially horizontal position as previously described.

A first alternate form of the invention is shown in FIGURES 6 and 7, which is utilized in the same manner as the preferred form and differs structurally therefrom only insofar as that portion thereof situated above the T-square D. Accordingly, the structural elements of the first alternate form of the invention below the T-square D are identified by the same numerals used in the description of the preferred form, but to which a prime has been added.

The first alternate form of the invention includes an inverted semi-cylindrical shell **50**, the ends of which are closed by two identical end pieces **52** and **54**. A transverse slot **56** is formed in the central upper portion of shell **50**, as can best be seen in FIGURE 6. An elongate pressure-exerting member **58** is removably disposed within the confines of shell **50**. Member **58** has two identical circular end surfaces **60** and **62** that are parallel and positioned adjacent the interior surfaces of end pieces **52** and **54** respectively, which are also in parallel relationship.

A boss **64** extends upwardly from member **58** through slot **56**. Boss **64** is slidably movable in slot **56** to permit axial pivotal movement of member **58** within shell **50**. A tapped bore **66** extends downwardly in boss **64** and is threadedly engaged by a screw **68** which has a head **70** of greater diameter than the width of slot **56**, and thereby prevents member **58** from slipping therefrom.

Member **58** is formed with two diametrically opposed, longitudinally extending, convex curved exterior cam surfaces **58***a* and **58***b* that slidably and rotatably engage the upper surface of T-square D and the interior surface of shell **50** when member **58** is pivoted. This pivotal movement of member **58** applies a downward force to T-square D and exerts an upwardly directed force on the lower surface of drafting board B through second leg **32′** to the extent that the T-square D is removably locked at a desired position on the board.

The second alternate form of the invention shown in FIGURES 8 and 9 is structurally the same as the preferred form below that thereof through which the T-square D extends. The elements comprising the lower structural portion of the second alternate form of the invention are accordingly identified by the same numerals used in designating corresponding parts of the preferred form but to which a double prime has been added.

In FIGURES 8 and 9 it will be seen that an inverted semi-cylindrical housing **70** is provided that is defined by a shell **72** which is closed by identical end pieces **74** and **76**. When this second alternate form of the invention is used housing **70** is located above the edge portion B′ of the drafting board B. The outer longitudinally extending edge portion of housing **70** is joined to, or formed as an integral part of flange **20′**. A central downwardly extending tapped bore **78** is formed in shell **72**. A screw **80** having a large knurled head **82**, threaded shank **84**, and downwardly extending unthreaded extension **85** is rotatably supported in bore **78**.

In FIGURES 8 and 9 it will be seen that an elongate pressure applying member **86** is provided that has a curved exterior longitudinal surface. Member **86** has two identical parallel end surfaces **88** and **90** that are positioned adjacent interior parallel surfaces of the end pieces **74** and **76** respectively. A centrally disposed recess **92** is formed in member **86** that is engaged by extension **85**. When screw **80** is rotated to cause extension **85** to move downwardly relative to housing **70**, a downwardly directed force is applied to T-square D by the member **86**, and an upwardly directed force is exerted against the lower surface of drafting board B by the leg **32″**. The forces so applied result in the T-square D being removably clamped to the drafting board B in the same manner as in the preferred and first alternate forms of the invention.

It will be obvious to those skilled in the art that various changes may be made in my invention without departing from the spirit and scope thereof, and therefore the invention is not limited by that which is shown in the drawings and described in the specification, but only as indicated in the appended claims.

I claim:

1. A camping device for holding a T-square having a head from which an elongate rigid member projects at a desired position on a drafting board having first and second laterally separated parallel edge portions, comprising: an inverted elongate concave shell; first and second parallel end pieces that close the ends of said shell, said first end piece having a slot extending upwardly therein; a flange that depends from the outer side portion of said shell, which flange has an opening formed therein that is slightly wider than the width of said elongate member to permit a part of said elongate member to extend therethrough and slightly deeper than the thickness of said elongate member; an elongate guide of L-shaped transvers cross section; means for adjustably supporting said guide from sad flange; an elongate pressure-applying member of generally elliptical transverse cross section that has first and second flat parallel end portions that

are disposable adjacent the interior surfaces of said first and second end pieces when said pressure-applying member is situated in said shell; said pressure applying member having an extension that projects through said slot in said first end piece and is rotatable relative thereto; and means rigidly connected to said extension and disposed exteriorly of said shell that is operable by the hand of a user when resting on said shell for pivoting said pressure-applying member in said shell to a position where said elongate member of said T-square and second board edge portion are frictionally gripped between said pressure-applying member and said guide to prevent movement of said T-square relative to said board until said hand-operated means is actuated to pivot said pressure-applying member to a position where said elongate member and second board edge portion are not frictionally gripped.

2. A clamping device as defined in claim 1 wherein said hand-operated means is an elongate handle that extends outwardly from said extension and normal thereto.

3. A clamping device for holding a T-square having a head from which an elongate rigid member projects at a desired position on a drafting board having first and second laterally separated parallel edge portions, comprising: an inverted elongate concave shell; first and second parallel end pieces that close the ends of said shell, a

flange that depends from the outer side portion of said shell, which flange has an opening formed therein that is slightly wider than the width of said elongate member and slightly deeper than the thickness of said elongate member to permit a part of said elongate member to extend therethrough an elongate guide of L-shaped transverse cross section; means for adjustably supporting said guide from said flange; an elongate pressure-applying member of generally elliptical transverse cross section that has first and second flat parallel end portions that are disposable adjacent the interior surfaces of said first and second end pieces when said pressure-applying member is situated in said shell; hand-operated means extending upwardly from said pressure-applying member through a transversely disposed slot formed in the upper portion of said shell for rotating said pressure applying member in said shell.

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 2,995,823 August 15, 1961

Casey E. Bowen

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 4, line 59, for "camping" read -- clamping --.

Signed and sealed this 19th day of December 1961.

(SEAL)
Attest:

ERNEST W. SWIDER
Attesting Officer

DAVID L. LADD
Commissioner of Patents

USCOMM-DC