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S. H. WEINBERG, JR
T-SQUARE AND DRAWING BOARD

2,549,403

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Fig. 1

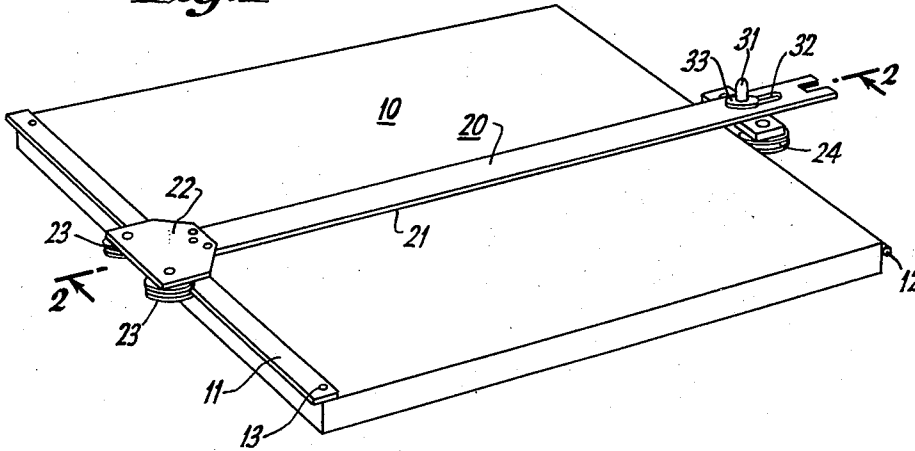


Fig. 2

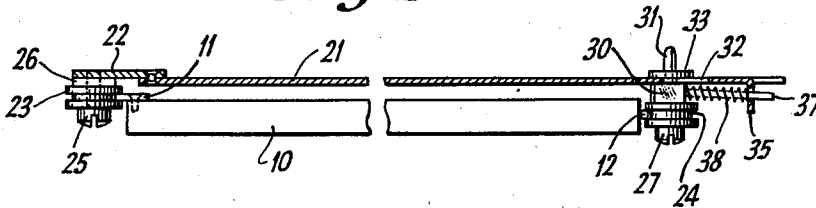


Fig. 3

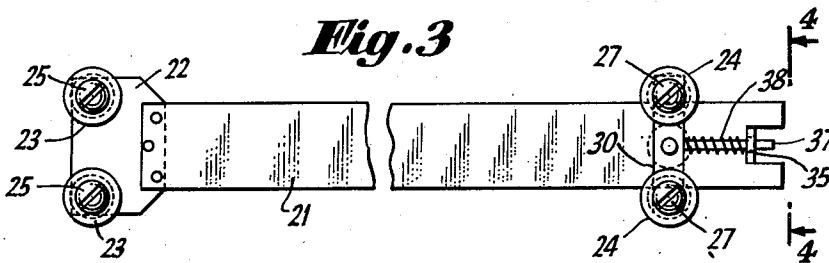


Fig. 4

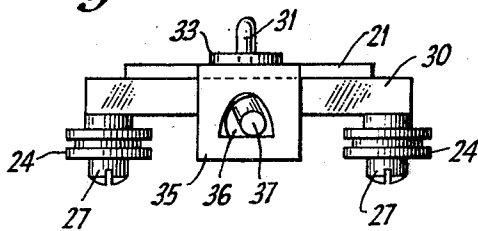
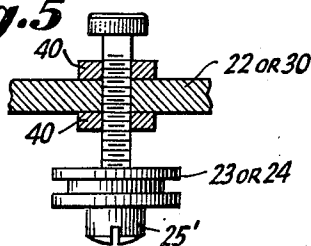


Fig. 5



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T-SQUARE AND DRAWING BOARD

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4 Claims. (Cl. 33—80)

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This invention relates to an improved drafting board and T-square construction, and has for one of its objects the provision of an inexpensive, easily manufactured and simplified T-square which is self-aligning and maintains a constant angle with respect to one of the lateral edges of the drawing board for all positions on the board, regardless of irregularities in the opposed lateral edge.

Another object of the invention is to provide a rugged and light-weight T-square construction which enables substantially frictionless movement over a drawing board and whose height above the board is adjustable.

A feature of the invention lies in the use of a carriage on the under side of the T-square and located opposite the T-head, which is provided with a pair of anti-friction rollers of the ball bearing type rigidly mounted in a cross-member permitting a pivotal or swivel-like movement with respect to the straight edge portion of the T-square.

Other objects and features of the invention will become readily apparent from a reading of the following description which is accompanied by a drawing, wherein:

Fig. 1 is a perspective view of the combination T-square and drawing board of the invention;

Fig. 2 is a cross-section of Fig. 1 along the line 2—2;

Fig. 3 is a bottom view of the T-square;

Fig. 4 is an end view of the T-square taken along the line 4—4 of Fig. 3; and

Fig. 5 is a modification of the carriage support of the T-square which enables adjustment of the height of the straight edge portion relative to the rollers or wheels.

In the drawing, wherein like parts are represented by like reference numerals throughout the various figures, there is shown a drawing board 10 and a T-square 20. The drawing board 10 is provided with a flat rail or track 11 in the form of a metal strip fastened to one lateral edge, and another rail or track 12, in the form of a rod positioned below the top surface of the board 10 and secured to the opposite lateral edge. The rails or tracks can be fastened to the drawing board in any suitable manner, as for example by means of screws 13 whose heads are shown countersunk in track 11.

The T-square 20 comprises a straight edge or ruler portion 21 which extends over the top of the drawing board, a head 22 at one end supporting on its under side a pair of grooved wheels 23, 23, and an adjustable and swivable carriage

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at the other end including another pair of grooved wheels 24, 24. These wheels are preferably similar in dimensions and of the ball bearing type so as to be substantially frictionless in movement.

The wheels 23, 23 are fastened to the T-head 22 by means of screws 25. A metallic washer 26 is positioned between the head 22 and each wheel 23, as shown.

The wheels 24, 24 are fastened to a cross bar 30 by means of screws 27. The cross bar 30, in turn, is secured at its center to a pin or bolt 31 which projects upward through a slot 32 in the straight edge portion 21. The pin 31 serves to support or suspend the cross-bar 30 and wheels 24, 24 from the straight edge. A metallic washer 33 or Walde clip prevents the pin or bolt 31 from falling through the slot 32 and is movable with the carriage as an integral unit. The end of the T-square opposite the head 22 is provided with a downward extension 35 having a hole or aperture 36 through which one end of a bolt or pin 37 extends. The opposite end of the pin 37 is fastened, as by riveting or by threaded engagement, to the center of the cross bar 30. A spring 38 surrounds the pin 37 and acts between the downward extension 35 and the cross bar 30 to exert pressure in such direction as to force the carriage comprising wheels 24, 24 and cross bar 30 against the rail or track 12. The cross bar 30 which supports the wheels 24, 24, is integrally united with the pin 37 so that any pivotal movement of the cross bar 30 will be transmitted as a pivotal movement to the pin 37. It should be noted that hole 36 is sufficiently large to permit a swiveling or pivoting movement of the pin 37.

In the operation of the invention, the T-square responds to the slightest touch of the fingers for movement over the drafting board. The ball bearing wheels 23 and 24 are frictionless and glide over the tracks 11 and 12. The angle between the straight edge of the T-square and the track 11 is maintained constant throughout the entire length of the track 11 regardless of irregularities in or the off-positioning of track 12 from a true parallel alignment relative to track 12. The maintenance of this constant angle between the straight edge and the track 11 is achieved by the swivel action of the cross bar 30 and wheels 24, 24 which elements automatically adjust or align themselves to the extent necessary to maintain the desired constant angle. The wheels 24, 24 are also adjustable in a direction along the length of the T-square, as limited by the dimensions of slot 32. Pressure against the pin 31 by the fingers of the user in a direction

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away from the T-head will compress the spring 38 and move the wheels 24 and cross bar 30 toward the downward extension 35, thus releasing the carriage from rail 12 and enabling the T-square to be lifted from the drawing board.

Fig. 5 shows an arrangement for enabling adjustment of the height of the straight edge portion of the T-square above the face or top surface of the drafting board. For this purpose, each of the grooved wheels 23 and 24 on both carriages is supplied with a fastening screw 25' which threadably engages its supporting member 22 or 30. The end of the rotatable screw 25' furthest removed from the wheel is provided with a knurled edge for finger adjustment. A pair of lock-nuts 40 on opposite sides of the supporting member 22 or 30 threadably engage the screw 25' for locking the screw in any desired adjustment. It should be understood that the two wheels on each carriage are always similarly positioned relative to the straight edge for all adjustments of the screw 25', although there may be slight differences in adjustments of the wheels of one carriage relative to the wheels of the other carriage. The raising of the T-square over its entire length permits it to ride free of the paper on the board, thus preventing possible smudging of pencil lines on the paper.

In one embodiment of the invention constructed and successfully used, the T-head 22, straight edge portion 21 and cross bar 30 were made of aluminum, resulting in an extremely light weight and rugged T-square which moved with a minimum of friction over the face of the drawing board.

It will be understood of course that various modifications may be made in the details of the invention without departing from the spirit and scope of the appended claims, and that the drawing is given by way of illustration and not by way of limitation. As an example, the shape and form of the tracks and the grooves in the wheels may be changed, and equivalent constructions may be used for the height adjusting mechanism of Fig. 5.

I claim:

1. In combination, a drawing board having metal tracks on oppositely disposed lateral edges, a T-square having a head supporting rollers for association with one of said tracks, and a straight edge portion supporting a carriage for association with the other of said tracks, said last carriage being on the under side of said straight edge and comprising a pair of spaced wheels and a cross member connected between and supporting said wheels, a pin fastened to the center of said cross member and projecting upward through a longitudinally running slot in said straight edge portion, a downward projection integral with said straight edge portion located near said carriage, another pin arranged at right angles to said first pin and extending along the longitudinal axis of the straight edge portion of said T-square, said other pin being fastened to the center of said cross member and projecting through a hole in said downward projection, said hole being appreciably larger than said last pin to enable free pivotal movement of said carriage in said hole, and a tension spring surrounding said last pin and acting between said downward projection and said cross member for exerting pressure against said carriage in a direction toward said drawing board.

2. In combination, a drawing board having metal tracks on oppositely disposed lateral edges, 75

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a T-square having a head supporting rollers for association with one of said tracks, and a straight edge portion supporting a carriage for association with the other of said tracks, said last carriage being on the under side of said straight edge and comprising a pair of spaced wheels and a cross member connected between and supporting said wheels, a pin fastened to the center of said cross member and projecting upward through a longitudinally running slot in said straight edge portion, a downward projection integral with said straight edge portion located near said carriage, another pin arranged at right angles to said first pin and extending along the longitudinal axis of the straight edge portion of said T-square, said other pin being fastened to the center of said cross member and projecting through a hole in said downward projection, said hole being appreciably larger than said last pin to enable free pivotal movement of said carriage in said hole, a tension spring surrounding said last pin and acting between said downward projection and said cross member for exerting pressure against said carriage in a direction toward said drawing board, and means for adjusting the spacing of the wheels of said carriages relative to said straight edge portion, whereby said portion can be raised above said drawing board.

3. A T-square supporting a carriage near the end thereof removed from the T-head and on the under side of the straight edge portion, said carriage comprising a pair of spaced wheels and a cross bar fastened to said wheels, also on the under side of the straight edge portion, a pin fastened to the center of said cross bar and projecting upward through a longitudinal slot in said straight edge portion, a downward projection integral with said straight edge portion farther removed from said T-head than said wheels, another pin arranged at right angles to said first pin and extending along the longitudinal axis of the straight edge portion of said T-square, said other pin being fastened to the center of said cross member and projecting through a hole in said downward projection, said hole being appreciably larger than said last pin to enable free pivotal movement of said carriage, and a tension spring surrounding said last pin and acting between said downward projection and said cross member for exerting pressure against said carriage in a direction toward said drawing board.

4. A carriage supported on a T-square and comprising a plurality of spaced wheels and a cross bar connected between and supporting said wheels, a pin fastened to the top of said cross bar at the center thereof and projecting upward through a longitudinal slot in said T-square, a washer holding said pin in position in said slot, whereby said carriage is supported by said pin, a downward projection integral with said T-square, another pin arranged at right angles to said first pin and extending along the longitudinal axis of the straight edge portion of said T-square, said other pin being fastened to the side of said cross bar at the center thereof and projecting through a hole in said downward projection, said hole being appreciably larger than said last pin to enable pivotal movement of said carriage, and a tension spring surrounding said last pin and acting between said downward projection and said cross member for exerting pressure against said carriage in a direction toward said drawing board.

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