Dec. 29, 1959 O. KLABUNDE 2,918,726

DRAFTING BOARD

Filed Nov. 1, 1955 3 Sheets-Sheet 1

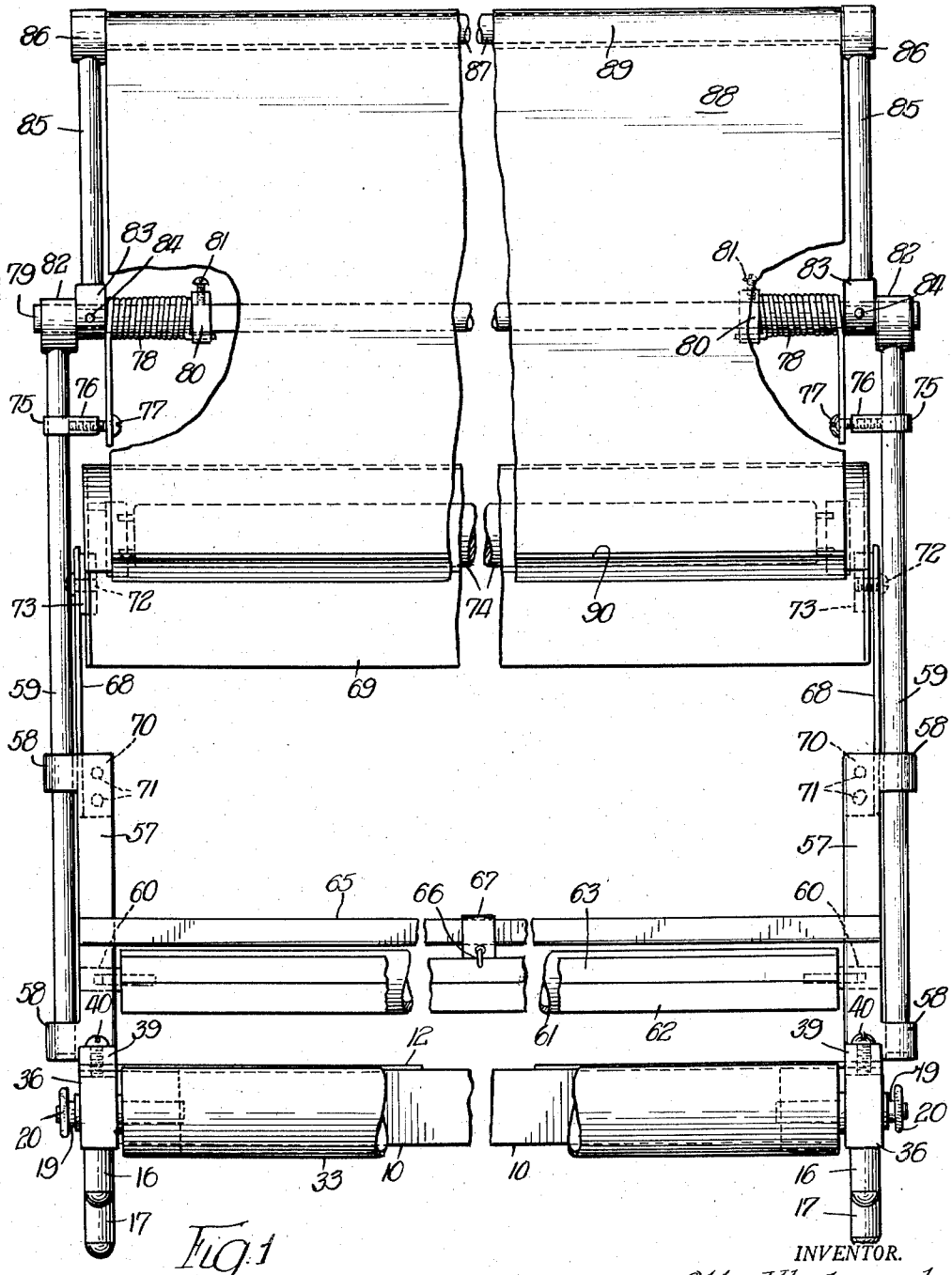


Fig. 1

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Fig. 2

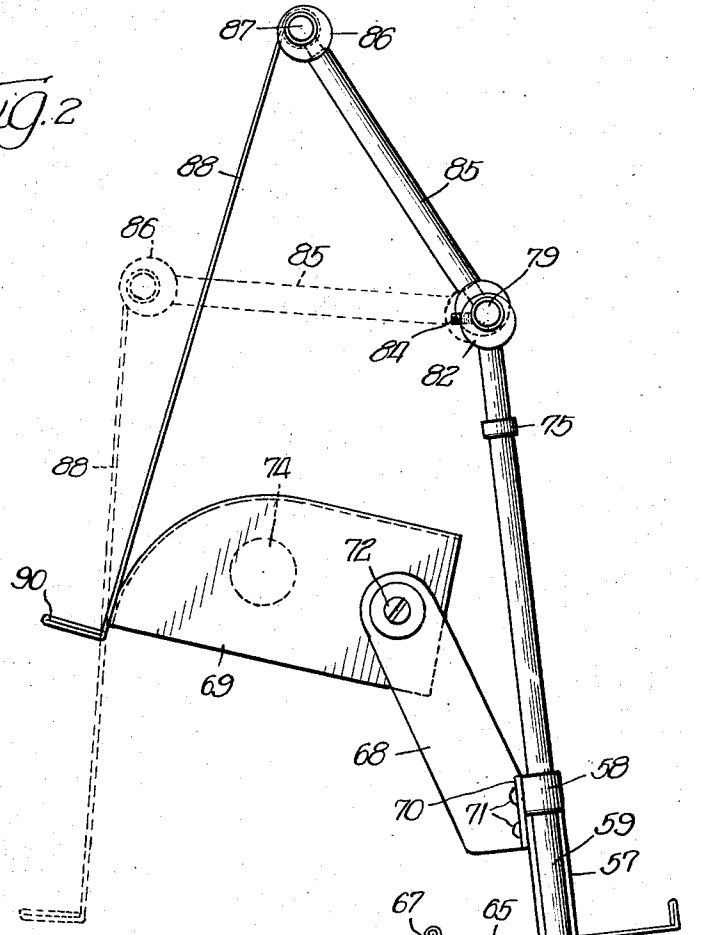


Fig. 3

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Fig. 4

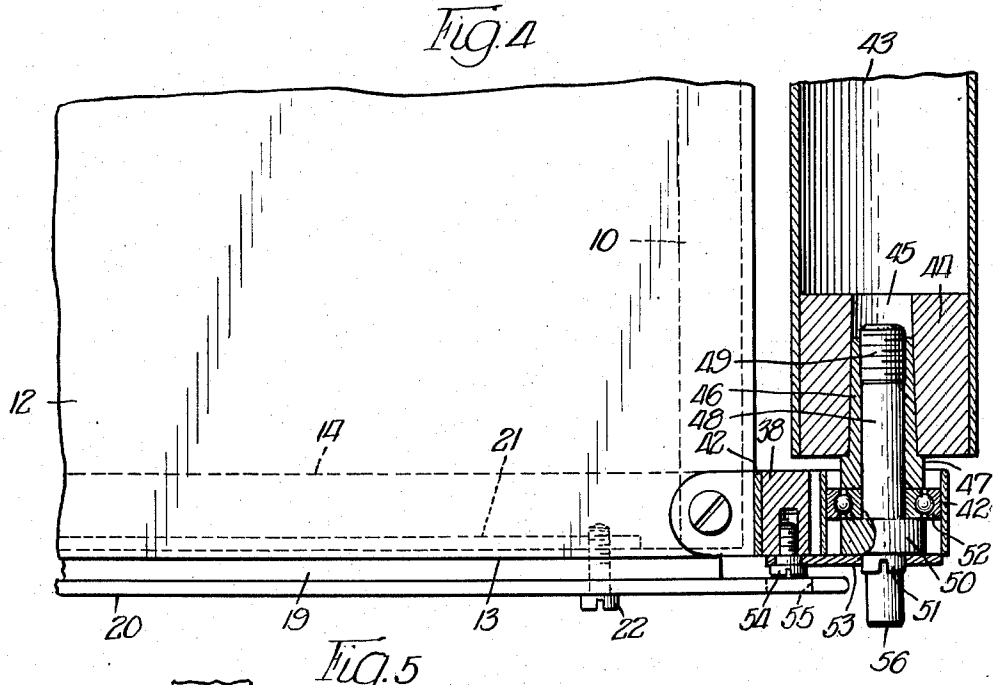


Fig. 5

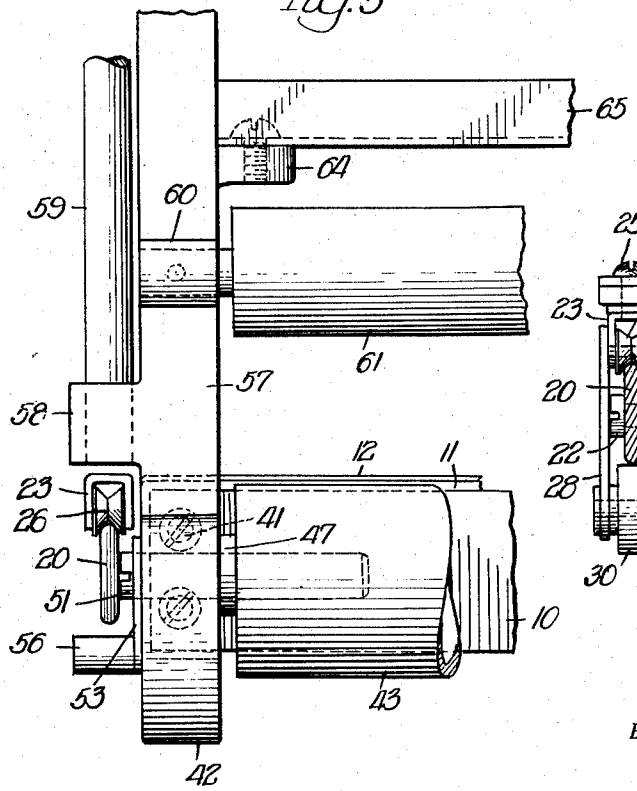
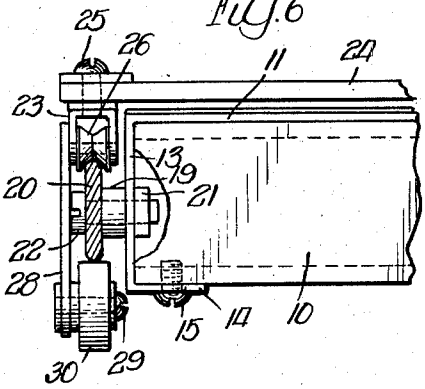


Fig. 6



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United States Patent Office 2,918,726
Patented Dec. 29, 1959

2,918,726

DRAFTING BOARD

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Application November 1, 1955, Serial No. 544,240

2 Claims. (Cl. 33—80)

The present invention relates to a drafting apparatus including a drafting board.

One of the principal objects of the present invention is to improve the construction of a drafting board.

Another object of the present invention is the provision of a suitable ruler supporting mechanism in connection with a drafting board.

A still further object of the present invention of tensioning guiding means for a ruler whereby the ruler may be shifted along the board and tensioningly held thereupon in its tensioned adjusted relation therewith.

A further object of the present invention is the provision of a yielding tensioning means for holding an endless sheet of paper positioned around the board in a stretched relation with the board.

A still further object of the present invention is the provision in an association with a drafting board of an adjustable copy supporting member.

With the above general objects in view and others that will appear as the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawings and pointed out in the appended claims.

In the drawings forming a part of this application and in which like designating characters refer to corresponding parts throughout the several views;

Fig. 1 is a front elevational view of the present device;

Fig. 2 is a side elevational view thereof;

Fig. 3 is a fragmentary view, partly in elevation and partly in section, of tensioning ruler supporting and guiding mechanism;

Fig. 4 is a fragmentary top plan view of the board, with a cross section through the rear tensioning roller with bearing connection thereof with the board, the section having been made along line 4—4 of Fig. 2;

Fig. 5 is a fragmentary rear elevational view of the board, rear tensioning roller, bearing connection thereof with the board, and the lower end of one of the posts for supporting a copy supporting member; and

Fig. 6 is a fragmentary front elevational view of the board, partly in section, taken on line 6—6 of Fig. 2.

Referring in detail to the present drawings there is shown therein a drafting board which includes a plurality of U-shaped frame members 10, positioned in a transverse relation with the board and extending from the two sides thereof. Supported upon the top edges of said U-shaped frame members 10 is a metallic sheet top 11, made of malleable metal such as aluminum. Said metallic sheet top 11 in turn supports fiber sheet top 12. The lateral side edges of sheet top 11 are bent to form vertical skirts for defining sides 13, which are in a contactual relation with the ends of said frame members 10. The front and rear edges of the board are devoid of the skirts which define sides 13 of the board. Adjacent the front and the rear edges of the board the central vertical portions of the outermost U-shaped frame members 10 are made

to face outwardly, for thereby defining the front and the rear sides of the board, as is clearly seen in Figs. 2 and 6.

The lower edges of said skirts which define lateral sides 13 of the board are bent on a horizontal plane towards each other to define lips 14 which are affixed by means of screws 15 to the intermediate frame member 10. Front legs 16 and rear legs 17 are provided at their upper ends with screw portions 18 to engage the front and rear frame members 10 to hold said lips 14 in a clamped relation. Rear legs 17 are taller than the front legs 16 to maintain the board in a forwardly tilted position, as is seen in Fig. 2.

Spaced from each side 13 by means of spacing strip 19 (Fig. 6) is an oblong, flat, comparatively narrow, and vertically positioned slat which defines rail 20, having an upper and lower edge. Positioned on the inner face of each of said sides 13 is an oblong strip 21. A plurality of screws 22 are passed through said rails 20, said spacers 19 and said sides 13 to engage strips 21, the latter contacting with the inner faces of said sides 13, as is seen in Fig. 6. By virtue of this arrangement said sides 13, spacers 19 and rails 20 are maintained in a clamped relation between the heads of screws 22 and strips 21, for maintaining said rails 20 in an outwardly spaced relation with sides 13.

Coacting with each rail 20 is an inverted substantially U-shaped, channelled member 23, to the pair of which the ends of ruler 24 are affixed by means of screws 25. Said screws 25 engage the horizontal top portions of said channelled members 23, as is seen in Fig. 6. Said ruler 24 remains in a spaced relation with the fiber top 12, to prevent contact of the ruler with the drawing paper.

Pivoted within the lower ends of side leaves of said channeled members 23 is a plurality of grooved wheels 26, within the grooves of which the upper edges of said rails 20 fit. Thus, with relation to said wheels 26, said channelled members 23 function as brackets therefor.

Rigidly affixed to shaft 27 is arm 28 disposed outwardly of rail 20 and spaced from the heads of screws 22 for providing clearance for said arm 28 as the same shifts along rail 20 in a longitudinal relation. Said shaft is journalled within the vertical leaves of said channelled member or bracket 23, for a free rotary movement therewithin.

Affixed to the lower end of said arm 28 is shaft or screw 29, disposed below rail 20 in a transverse relation, for supporting thereon an anti-friction wheel 30.

Looped by one of its ends for rigid engagement with shaft 27 is leaf spring 31, the opposite free end of which contacts with and bears against pin 32 passed through the leaves of said channelled member 23. By virtue of this arrangement leaf spring 31 being under tension exerts a strong pressure upon shaft 27 for urging the latter to rotate to a counterclockwise direction as viewed in Figs. 2 and 3, thereby urging wheel 30 in contact with the lower edge of rail 20. By virtue of this arrangement wheels 26 and wheel 30, with rail 20 interposed therebetween, ride upon the edges of said rail 20 when said channelled member 23 is shifted in a longitudinal direction relative to rail 20, for thereby shifting ruler 24 to or away from the draftsman.

Since the front ends of both rails 20 remain unobstructed, channelled members 23 with arms 28 and wheels 30, together with ruler 24, may be completely removed from the board when said channelled members 23 have been shifted towards the front end of the board and said channelled members 23 and wheel 30 have cleared said rails 20.

Along the front or near edge of the board front roller 33 is supportable upon shaft 34, extending from each end of said roller 33. Bearing 35 is supported by each

end of said shaft 34 and is engaged by bracket 36. Each bracket 36 is affixed to the front U-shaped frame member 10 by means of screws 37.

The front edges of the metallic top 11 and fiber top 12 are forwardly extended to overhang partly the periphery of said roller 33 and the adjacent portions of said brackets 36, as is seen in Fig. 2.

Affixed to the rearmost frame member 10 adjacent each of its ends is an L-shaped supporting member 38. The horizontal lug portion 39 thereof is disposed above the upper end of said frame member 10 and engages the same by means of screw 40, with portions of said tops 11 and 12 interposed between said frame member 10 and said lug portion 39 in a clamped relation.

The vertical portion of each L-shaped supporting member 38 is rigidly affixed by means of screws 41 to said rearmost frame member 10. Interposed between said vertical portion of L-shaped supporting member 38 and the vertical portion of said rearmost frame member 10, in a clamped relation, is one end of leaf spring 42.

Rearwardly of the board rear roller 43 is supported in a spaced relation therewith. At each of its ends said roller 43 is provided with plug 44 inserted within said roller 43 and maintained therewithin in a frictional relation. Said plug 44 is provided with a concentric bore 45 for frictional reception therewithin of tubular member 46. The outer end of said tubular member 46 is diametrically enlarged to define boss 47, which by its inner end contacts with and bears against the adjacent outer end of said plug 44, as is seen in Fig. 4.

Receivable within said tubular member 46 is shaft 48, the inner end of which is threaded, as at 49 to threadedly engage the threaded inner periphery of said tubular member 46, adjacent the inner end thereof.

Integrally formed with said shaft 48, at the outer end thereof is an enlarged head 50, from which screw head 51 outwardly projects, in a concentric relation.

Ball-bearing 52 is positioned upon said shaft 48 and is interposed between said boss 47 and head 50 and maintained therebetween in a clamped relation.

The opposite free end of said spring 42 is coiled around said bearing 52 for supporting said shaft 48 and roller 43 in a tensioned and yielding relation with the rear edge of the board.

Coacting with said shaft 48 is a hook-like latching plate 53, which by one of its ends is pivotally affixed to the vertical portion of said L-shaped supporting member 38, by means of screw 54. Rail 20 is apertured oppositely of screw 54, as at 55 to permit access by a screw driver or the like in order to affix said screw 54 to the vertical portion of said L-shaped supporting member 38, as is seen in Fig. 4. The opposite, free end of said latching plate 53 is upturned to engage screw head 51. Knob 56 affixed to said latch plate 53 defines means for manual shifting of said latch plate 53 to or away from said screw head 51 to selectively engage the same therewith or disengage therefrom.

A sheet of paper is placed around the board and around rollers 33 and 43, while said latter roller is manually depressed towards the rear edge of the board, against the tension of spring 42, and while said latch plate 53 engages said screw head 51. When the ends of a paper sheet have been connected by cement or other suitable means, thereupon latch plate 53 is shifted in a downward direction, by manually pressing upon knobs 56 for disengaging said latch plate 53 from screw heads 51. This operation will cause springs 42 to spring to their operative position in the direction away from the rear end of the board for urging the shifting of shafts 48 with roller 43 in the same direction, for the purpose of stretching an endless paper sheet, supported by the board and said rollers 33 and 43, and maintaining the same in a taut condition upon the board. The function of roller 43 and its appurtenances, including spring 42 and latch plate 53 is similar to that disclosed in the applicant's Patent 2,632,975.

If preferred, an endless plastic sheet could be laid over the board and said rollers 33 and 43 to form a base for any size of drawing paper.

Extending in an upward direction from the vertical portions of said L-shaped supporting members 38 are standards 57, from the lateral outer faces of which a pair of brackets 58 project, for supporting therewithin posts 59 which extend in an upward direction.

Extending from the rear faces of said standards 57 are brackets 60 for supporting therewithin shade roller 61, around which shade 62 is wound. The free edge of said shade 62 encloses strengthening rod or strip 63. Said shade 62 may be pulled and extended from roller 61 for the purpose of covering thereby the top of the board.

Projecting inwardly from the inner lateral faces of said standards 57 are brackets 64 for supporting thereon tray 65 which is disposed between the pair of said standards 57, upon which tray drafting instruments may be kept and supported.

Affixed to strip 63, substantially at its center, is hook 66, engaging clip 67, the latter engaging the rim of said tray 65 for the purpose of supporting the free end of shade 62 when the latter is not in an extended position, as is seen in Fig. 2.

A pair of supporting plates 68 is provided, for pivotally supporting therebetween hood 69. Each of said plates 68, adjacent its lower end, is provided with a laterally extending flange 70, which contact the front faces of said standards 57, and are rigidly affixed thereto by means of screws 71.

Affixed by means of screws 72 are round bearings 73 extending from the inner faces of said plates 68, adjacent the upper ends of the latter. Said bearings 73 enter round openings provided at the end walls of hood 69, in a frictional relation, defining pivots upon which said hood 69 is supported, and upon which the same may be angularly adjusted with relation to the drafting board, in order that the light may be cast upon the board at desired angle. Lighting elements 74 are supported within said hood 69 in a longitudinal relation, the bottom of said hood 69 being open to permit light from said lighting element 74 to be directed to the drafting board.

Supportable upon said posts 59, adjacent their upper ends are collars 75, each having extension 76 directed towards the center of the device, each of said extensions 76 supports screw 77 driven therethrough to engage posts 59. Each of said screws 77 engages the downwardly depending end of coil spring 78 which is positioned upon shaft 79 in an encompassing relation. The opposite end of each spring 78 is anchored within collar 80. Passing through each collar 80 is screw 81 to engage said shaft 79. On loosening screw 81 collar 80 may be rotatably turned upon shaft 79 in order to regulate the degree of tension of coil spring 78.

The ends of shaft 79 are supported within bearings 82 rigidly supported by the upper end of said posts 59.

Interposed between each bearing 82 and the adjacent end of each coil spring 78 is collar bearing 83 mounted upon said shaft 79 and rigidly anchored thereto by pin 84. Affixed to each collar bearing 83 is arm 85, the opposite end of which carries bearing 86. The two bearings 86 support shaft 87 in a pivotal relation. Said shaft 87 supports in a pivotal relation the upper end of copy-supporting panel or reference board 88, the latter being provided at its upper end with loop 89 engaging said shaft 87. At the lower edge said panel 88 is provided with a forwardly directed ledge 90 for supporting copy sheets from which copy work is to be made upon the drafting board.

From the hereinabove description it will be seen that shaft 79 is loosely positioned within bearings 82, while

arms 85 are keyed thereto through bearings 83 and pins 84. When said panel 88 is shifted into a downward direction, arm 85 will shift angularly towards a horizontal plane, as indicated by dotted lines in Fig. 2. Rocking motion of said shaft 79 is against the tensioning action of springs 78 urging said shaft 79 into a clockwise direction as viewed in Fig. 2. The tension of said springs 78 counterbalances the weight of arms 85, shaft 87 and panel 88 in order that the latter may be maintained in any adjusted position above the drafting board and with relation to posts 59, as is indicated in dotted lines in Fig. 2.

While there are described herein preferred embodiments of the present invention, it is nevertheless to be understood that minor changes may be made therein without departing from the spirit and scope of the invention as claimed.

What I claim as new is:

1. A drafting board comprising a board member, a guiding rail supported along the side of said board member, said guiding rail including a pair of opposed edges, a ruler in a superimposed relation with the top of said board member, a supporting member in a co-planar relation with said guiding rail, said ruler being rigidly affixed to said supporting member, a plurality of anti-friction wheels carried by said supporting member for engaging one edge of said guiding rail, a shaft journalled in said supporting member, an arm rigidly affixed by one of its ends to said shaft, a pin mounted upon said supporting member, a leaf spring, one end of said leaf spring being rigidly affixed to said shaft, the opposite end of said spring bearing against said pin, and an anti-friction roller carried by the opposite end of said arm, said anti-friction roller engaging the opposite edge of said guiding rail, said leaf spring tending to urge the rotation of said shaft for imparting angular shifting movement to said arm for shifting said anti-friction roller into a strong contactual relation with the said opposite edge of said guiding rail, said anti-friction wheels and said anti-friction roller yieldingly clamping said guiding rail therebetween due to the action of said leaf spring, said anti-friction wheels and said anti-friction roller permitting shifting of said supporting member along said guiding rail for shifting said ruler along the top of said board member.

2. A drafting board comprising a board member, an oblong, flat, comparatively narrow, vertically positioned slat supported along and in a spaced relation with the side

of said board member, said slat defining a guiding rail having an upper and a lower edge, a ruler in a superimposed relation with the top of said board member, an inverted U-shaped bracket disposed above the upper edge of said guiding rail, said ruler being rigidly affixed to said bracket, a plurality of anti-friction wheels supported within said bracket, said anti-friction wheels being in a contactual engagement with the upper edge of said guiding rail, a shaft journalled within the sides of said bracket for a rotary shifting movement therewithin, an arm rigidly affixed by its upper end to one end of said shaft, said arm extending downwardly from said shaft with the lower end thereof extending past the lower edge of said guiding rail, a pin mounted within said bracket, a leaf spring, one end of said leaf spring being rigidly affixed to said shaft, the opposite end of said spring contacting with and bearing against said pin, and an anti-friction roller carried by the lower end of said arm, said anti-friction roller engaging the lower edge of said guiding rail, said leaf spring tending to urge said shaft to a rotary shifting movement for imparting angular shifting movement to said arm for shifting said anti-friction roller to a strong contactual relation with the said lower edge of said guiding rail, said anti-friction wheels and said anti-friction roller yieldingly clamping said guiding rail therebetween due to the action of said leaf spring, said anti-friction wheels and said anti-friction roller permitting shifting of said bracket along said guiding rail for shifting said ruler along the top of said board member.

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