July 2, 1935. J. H. REICHART 2,006,408

DRAFTING BOARD DEVICE

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FIG. 1

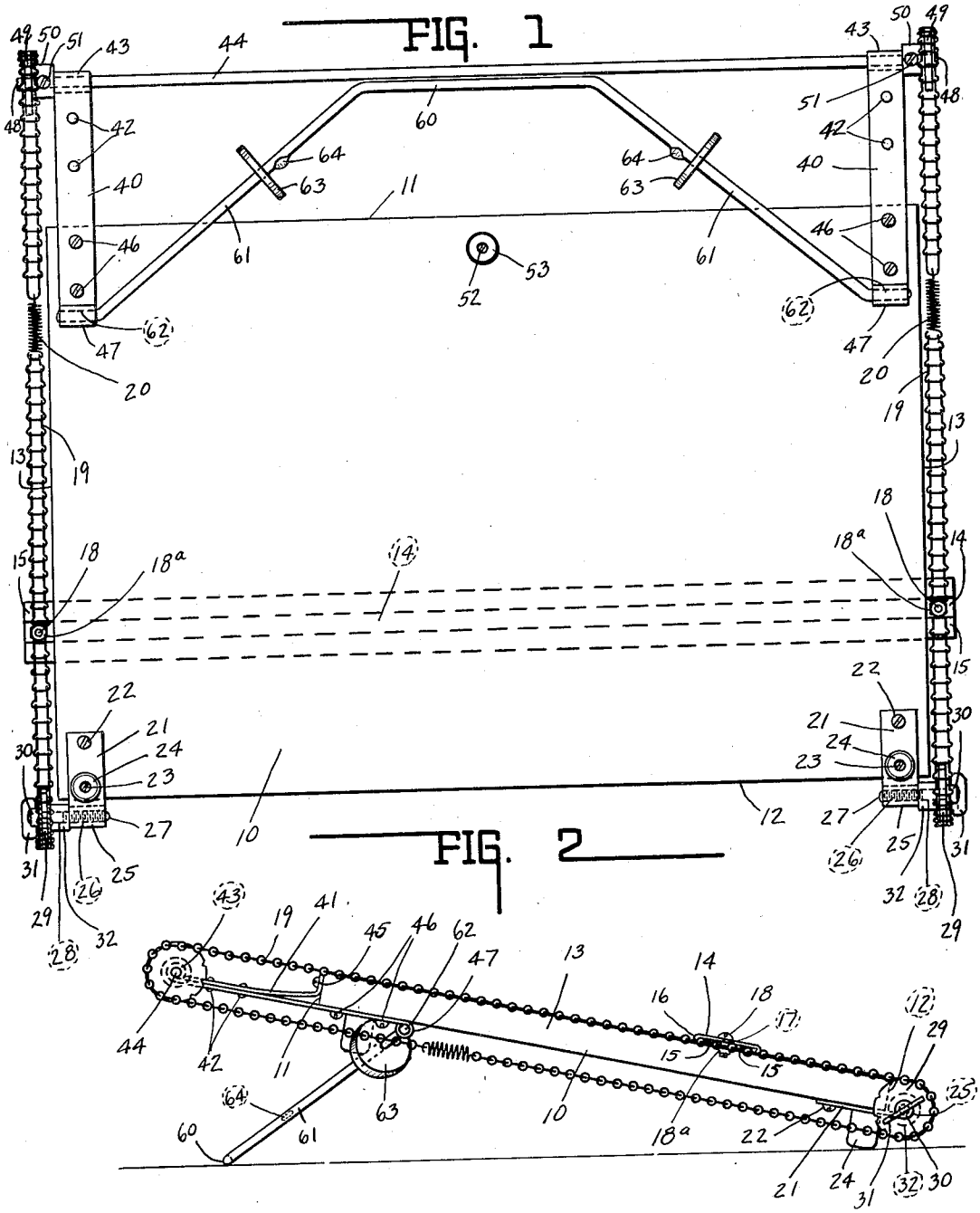

FIG. 2

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DRAFTING BOARD DEVICE

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13 Claims. (Cl. 33—80)

This invention relates to improvements in drafting appliances, particularly drawing boards provided with a straight edge operatively associated therewith and movable into parallel positions on the board.

The invention is particularly directed to an improvement upon a drafting appliance of the aforesaid character and said improvement consists in associating the means for insuring parallel movement of the straight edge with a structure adapted to serve as a handle when in one position and to serve as a support when the board is to be supported in a tilted position.

One feature of the invention consists in providing the handle and support means with means for locking the support means in the desired adjusted position to insure the desired tilted position of the board, which means in addition to the aforesaid, is automatically releasable and returnable to an operative position.

Another feature of the invention consists in the particular formation of the straight edge whereby the running or smearing of the ink will not occur.

Another feature of the invention consists in providing the means associated with the straight edge which insures its parallel movement with means permitting the straight edge to be elevated from the surface of the board in its movement to pass over a surface that has been previously inked and which is not dry or over an obstacle such as other drawing instruments, for example, protractors, triangles and irregular curves, the position of which is to be maintained.

Another feature of the invention consists in the combination foot rest support and the parallel movement mechanism support for the straight edge as a unitary fixture.

The full nature of the invention will be understood from the accompanying drawing and the following description and claims:—

In the drawing, Fig. 1 is a rear view of a drawing board provided with a straight edge and with the invention applied thereto.

Fig. 2 is a side elevation of a drawing board with the invention applied thereto and with the parts of the invention arranged in a position supporting the drawing board in tilted relation.

In the drawing 10 indicates a drawing board having the top edge 11, the bottom edge 12 and two ends 13. Extending across the board, and herein projecting at each end slightly beyond the same, is a straight edge 14 formed from a single strip of metal, the edges of which are turned inwardly as at 15 to form a curved edge 16. The inturned portions 15 do not abut each other. The overhanging portion of the straight edge is apertured as at 17 and mounted therein is a screw bolt 18 which, by means of a nut 18a, is adapted to anchor the projecting end of the straight edge to the adjacent upper run of an endless construction, herein shown in the form of a link chain 19, the ends of which are connected by a closely coiled tension spring 20.

Adjacent each corner of the board is mounted a sprocket wheel. The provision of the coil tension spring permits the straight edge to be moved transversely towards and away from the board surface and thus permits the insertion of drafting instruments, such as triangles, perpendiculars, irregular curves and the like, therebeneath or conversely the straight edge may be elevated from the surface of the board and repositioned in a position parallel to its original position and thus pass over a drafting instrument of the aforesaid character that might be upon the board and thus avoid disturbing or moving said instrument.

It is also to be noted in Fig. 2 that the linear edge portion 16 of the straight edge is in effect a curved arrangement (in cross-section) and thus blurring or carrying of ink by the straight edge is prevented.

At each of the lower corners upon the under side of the board is mounted a strap 21 which is secured as by the screws 22 and 23, the latter being longer than screws 22 and being associated with a rubber cushion or foot 24 and thus the foot is simultaneously secured to the board with the bracket or strap 21.

The end of the strap 21 is curled as at 25 and is clampingly curled around and tapped to receive the threaded portion 26 of a bolt 27 having the cylindrical portion 28 that mounts a sprocket wheel 29. The head of the bolt is enlarged as at 30 and projecting therefrom is the wing portion 31. The sprocket 29 has the hub portion 32 which bears against one side edge of the strap 21. By reason of the side clamping action of the hub 32 and the clamping and threading action of portion 25, the wing portion of the bolt, when engaged and rotated, causes a clamping of the sprocket in the desired position. The chain is then prevented from running movement.

The opposite corner of the lower edge is similarly provided with a reversely positioned construction. When both of the sprockets 29 are clamped, the straight edge cannot be moved appreciably across the board for positioning in any other parallel position, but the straight edge can be elevated from the surface of the board and

this is permitted by reason of the inclusion of the tension springs in the chains.

At each of the upper corners of the board there is provided a strap construction **40** which may be doubled upon itself or formed of two pieces as at **41** and these portions are riveted together as at **42**. The end of the strap construction terminates in a loop **43** forming a support and a bearing for a shaft **44**. The shaft extends parallel to the top edge **11** of the board and projects beyond the bearing portions **43** of the two spaced strap constructions **40**. One end of the strap construction is secured to the top edge of the board as at **45** and the other end is secured to the back of the board as at **46**. The free end of the strap upon the back of the board is arranged in loop formation as at **47** for a purpose hereinafter set forth.

The projecting end **48** of the shaft **44** mounts a sprocket **49** similar to sprocket **29** and having a hub portion **50**, and the same is secured to the shaft by a set screw **51**. The shaft, therefore, rotates whenever the sprockets rotate and by reason of the shaft connection to both sprockets, the chain will advance in either direction at a uniform rate, thereby insuring parallel movement of the straight edge. If desired, one of the sprockets may be riveted to the shaft and the other rigidly secured to the shaft in angularly adjusted position by a set screw arrangement. This permits initial positioning of the straight edge so that this will be parallel to the top edge of the board. Of course, during all parallel movement of the straight edge, the bolts **27** are loosened and when the straight edge has been properly positioned, the wings are engaged and the bolts are tightened to clamp the sprockets against any further movement.

Since strap constructions **40** project beyond the board, the straight edge may be positioned beyond the board to permit the attachment of the work sheet to the board without straight edge disconnection.

There is provided on the back of the board a suitable number of additional foot rests or rubber cushions, similar to those shown at **24**, and herein a single cushion is medianly positioned near the top edge of the board and supported upon the back by the screw **52** which secures the cushion foot **53** thereto. In other words, a triangular cushioning support arrangement is provided, and this is the minimum number of cushions that can be employed and these cushions are of a depth or height sufficient when the board is laid upon a flat surface, to provide clearance between said flat surface and all depending parts of the board and the apparatus associated therewith.

There is provided a combination handle and stand. It is substantially U-shaped, having an elongated midportion **60** and two diverging arms **61**, each terminating in a portion **62** that is parallel to the portion **60** and is seated in the loop portion **47** of the strap **40**. It will be obvious—see Fig. 1—that the handle portion **60** will sustain all the load when the board is to be carried and that the shaft cooperates with the midportion or hand grip portion and serves to insure a relatively rigid handle arrangement.

Slidably supported on each of the diverging portions or arms **61**, is a metal disc **63** and preferably each diverging arm **61** is enlarged laterally as at **64** to prevent the disc from sliding beyond a predetermined position on the diverging arm. The handle portion when tilted away from the plane of the board is adapted, by reason of the midportion **60**, to bear upon a plane support and the two rubber feet **24** serve to support the board at its lower end, while the combination handle and support serves to support the upper end of the board in elevated relation so that the board is tilted in position as shown in Fig. 2. The degree of tilting is determinable by the position that the discs assume on the diverging arms and the discs are of such a diameter and such a thickness that the more pressure there is applied to the surface of the board, the greater will be the locking engagement of frictional lock between the board and the discs, and this in turn assuring the certainty of the locking of the combination handle and support in the desired position.

All that is required when it is desired to release the locking discs, is to tilt the combination handle and support and shake it slightly until the discs slide along the diverging arms and clear the top edge of the board.

The invention claimed is:—

1. In combination with a drafting board and a straight edge extending substantially across the same, of means supporting said straight edge remote from the upper edge of the board including a shaft substantially parallel to the board edge, and a U-shaped member pivotally supported upon the back of the board and having an elongated midportion positionable adjacent the shaft for simultaneous hand gripping for carrying purposes and tiltable therefrom for supporting the board in tilted relation.

2. In combination with a drafting board and a straight edge extending substantially across the same, of means supporting said straight edge remote from the upper edge of the board including a shaft substantially parallel to the board edge, a U-shaped member pivotally supported upon the back of the board and having an elongated midportion positionable adjacent the shaft for simultaneous hand gripping for carrying purposes and tiltable therefrom for supporting the board in tilted relation, and a bracket at each side edge of the board supporting said shaft and one end of the U-shaped member.

3. In combination with a drafting board and a straight edge extending substantially across the same, of means supporting said straight edge remote from the upper edge of the board including a shaft substantially parallel to the board edge, and a U-shaped member pivotally supported upon the back of the board and having an elongated midportion positionable adjacent the shaft for simultaneous hand gripping for carrying purposes and tiltable therefrom for supporting the board in tilted relation, the midportion of said U-shaped member being substantially straight for the purpose described.

4. In combination with a drafting board and a straight edge extending substantially across the same, of means supporting said straight edge remote from the upper edge of the board including a shaft substantially parallel to the board edge, a U-shaped member pivotally supported upon the back of the board and having an elongated midportion positionable adjacent the shaft for simultaneous hand gripping for carrying purposes and tiltable therefrom for supporting the board in tilted relation, and means associated with the U-shaped member for sustaining the U-shaped member in tilted relation relative to the board.

5. In combination with a drafting board and

a straight edge extending substantially across the same, of means supporting said straight edge remote from the upper edge of the board including a shaft substantially parallel to the board edge, a U-shaped member pivotally supported upon the back of the board and having an elongated midportion positionable adjacent the shaft for simultaneous hand gripping for carrying purposes and tiltable therefrom for supporting the board in tilted relation, and a pair of discs each slidably supported upon an arm of the U-shaped member and arranged for cooperation with the back of the board for sustaining the U-shaped member in tilted relation thereto.

6. In combination with a drafting board and a straight edge extending substantially across the same, of means supporting said straight edge remote from the upper edge of the board including a shaft substantially parallel to the board edge, a U-shaped member pivotally supported upon the back of the board and having an elongated midportion positionable adjacent the shaft for simultaneous hand gripping for carrying purposes and tiltable therefrom for supporting the board in tilted relation, and a pair of discs each slidably supported upon an arm of the U-shaped member and arranged for cooperation with the back of the board for sustaining the U-shaped member in tilted relation thereto, each midportion having a lateral enlargement constituting a stop for limiting sliding movement of the discs.

7. In combination with a drafting board and a straight edge extending substantially across the same, of means supporting said straight edge remote from the upper edge of the board including a shaft substantially parallel to the board edge, a U-shaped member pivotally supported upon the back of the board and having an elongated midportion positionable adjacent the shaft for simultaneous hand gripping for carrying purposes and tiltable therefrom for supporting the board in tilted relation, a pair of discs each slidably supported upon an arm of the U-shaped member and arranged for cooperation with the back of the board for sustaining the U-shaped member in tilted relation thereto, and at least three cushion means disposed upon the back of the board and of sufficient depth to support the board upon a plane surface without any of the mechanism carried by the back of the board engaging the supporting plane surface.

8. In combination with a drafting board and a straight edge extending substantially across the same, of a pair of endless means connected to opposite ends of the straight edge, means supporting said endless means remote from the board including a shaft substantially parallel to the board edge, a U-shaped member pivotally supported upon the back of the board and having an elongated midportion for positioning adjacent the shaft for carrying purposes and tiltable therefrom for supporting the board in tilted relation, said supporting means for said endless means including sprockets associated with said endless means adjacent one edge of the board, other sprocket means supported adjacent the other edge of the board and operatively associated with the endless means, bracket means supporting said last mentioned sprocket means, and means clampingly associating said bracket means and sprocket means for predetermined fixed positioning of said straight edge.

9. In combination with a drafting board and a straight edge extending substantially across the same, of a pair of endless means connected to opposite ends of the straight edge, means supporting said endless means remote from the board including a shaft substantially parallel to the board edge, a U-shaped member pivotally supported upon the back of the board and having an elongated midportion for positioning adjacent the shaft for carrying purposes and tiltable therefrom for supporting the board in tilted relation, said supporting means for said endless means including sprockets associated with said endless means adjacent one edge of the board, other sprocket means supported adjacent the other edge of the board and operatively associated with the endless means, bracket means supporting said last mentioned sprocket means, and means clampingly associating said bracket means and sprocket means for predetermined fixed positioning of said straight edge, said bracket means including a strap supported by the back of the board and projecting beyond the edge thereof and terminating in a threaded loop, said last mentioned sprocket means including a hub and sprocket construction and said clamping means including a wing type screw bolt having a cylindrical portion for rotatably supporting the hub and sprocket, the sprocket hub laterally engaging the side of the bracket, said bolt having an enlarged portion engaging the face of the sprocket, and a threaded portion extending into the threaded loop portion of the bracket and threadedly mounted therein.

10. In a drafting board, the combination of a U-shaped member pivotally supported upon the back of the board and having an elongated midportion, and means slidably mounted upon each arm of the U-shaped member and operatively associated with the board for sustaining the U-shaped member in tilted relation relative to the board for supporting the latter in tilted position.

11. A device as defined by claim 10, characterized by the arms of the U-shaped member being inclined relative to the midportion and divergingly directed.

12. A device as defined by claim 10, characterized by the addition of stop means upon each of the arms adjacent the midportion for limiting the movement of the slidable members toward the midportion.

13. A device as defined by claim 10, characterized by the addition of stop means upon each of the arms adjacent the midportion for limiting the movement of the slidable members toward the midportion, and the arms of the U-shaped member being inclined relative to the midportion and divergingly directed.

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