No. 647,677. Patented Apr. 17, 1900.

H. A. LEIGHTON.

DRAWING BOARD APPARATUS.

(Application filed Aug. 25, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

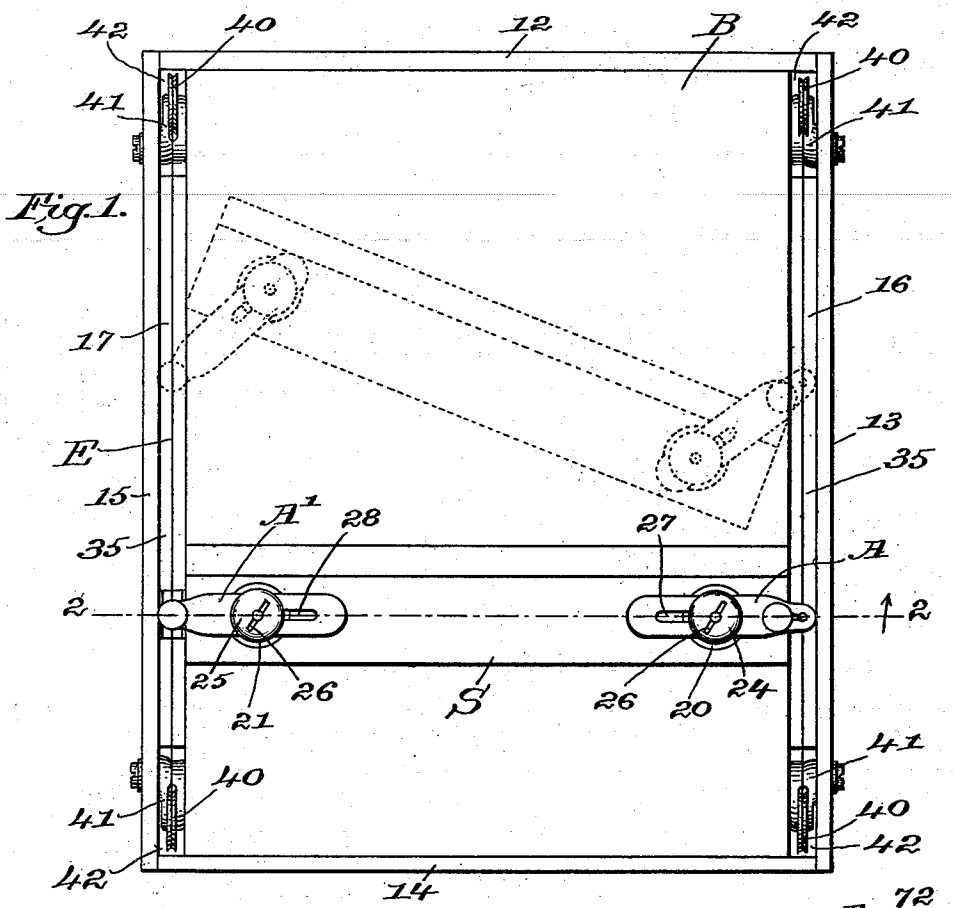
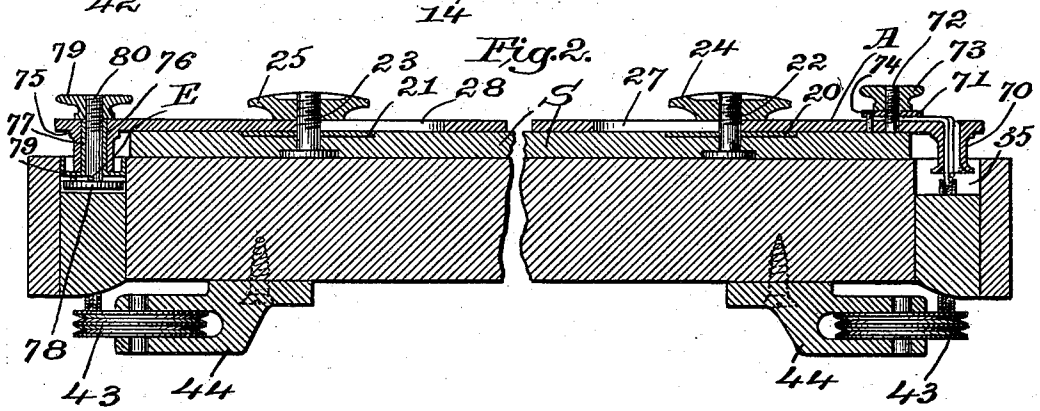


Fig. 2.



Witnesses.
Thomas J. Drummond.
Edward H. Allen.

Inventor:
Henry A. Leighton,
by Mosby & Gregory. Atty's.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 647,677. Patented Apr. 17, 1900.

H. A. LEIGHTON.

DRAWING BOARD APPARATUS.

(Application filed Aug. 25, 1899.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 3.

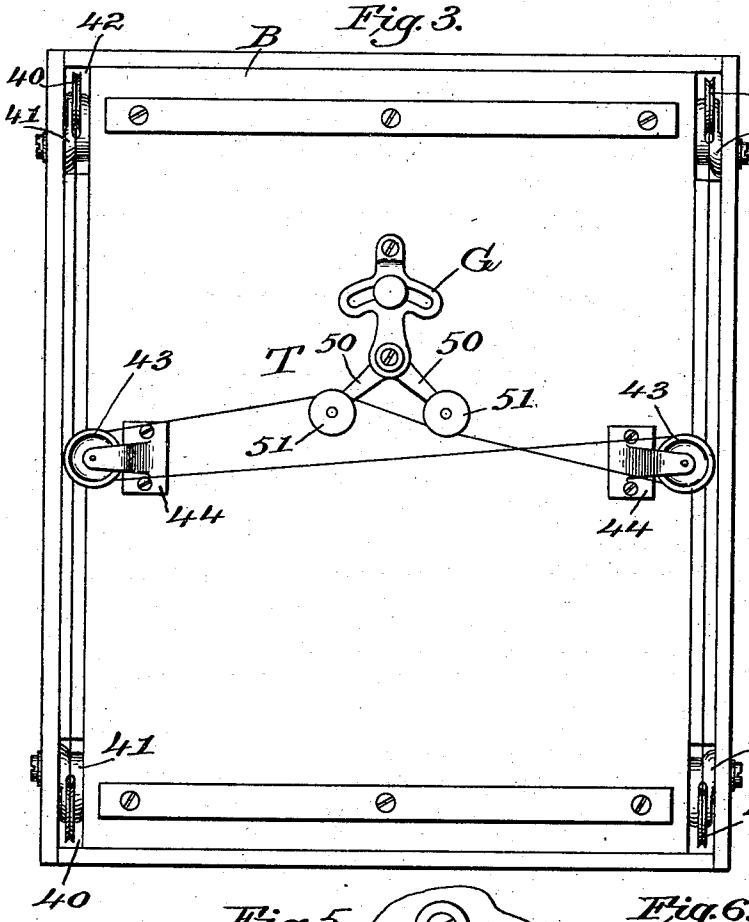


Fig. 4.

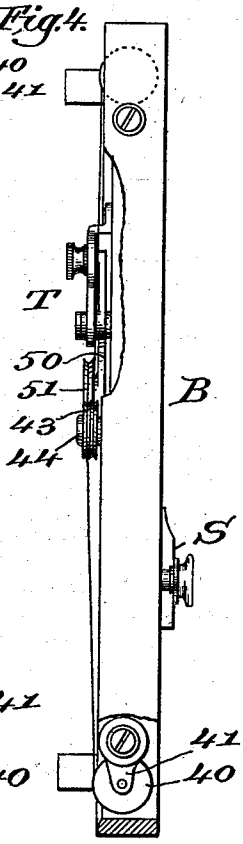


Fig. 5.

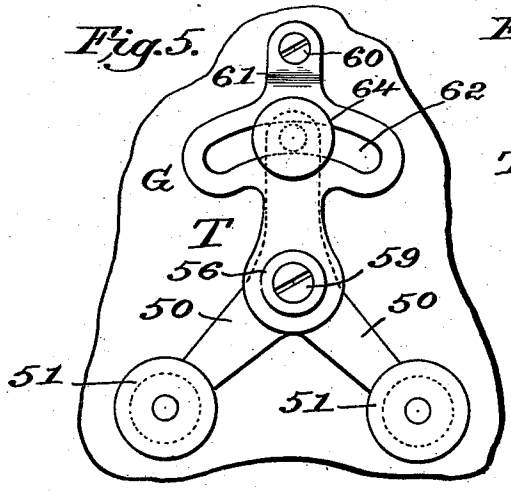
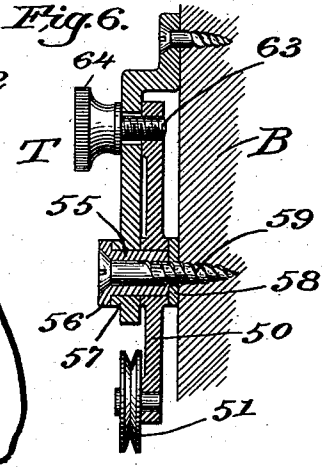


Fig. 6.



Witnesses.
Thomas J. Drummond.
Edward F. Allen.

Inventor:
Henry A. Leighton,
by Dewey Gregory & Atty's.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HENRY A. LEIGHTON, OF WATERTOWN, MASSACHUSETTS.

DRAWING-BOARD APPARATUS.

SPECIFICATION forming part of Letters Patent No. 647,677, dated April 17, 1900.

Application filed August 25, 1899. Serial No. 728,429. (No model.)

To all whom it may concern:

Be it known that I, HENRY A. LEIGHTON, a citizen of the United States, and a resident of Watertown, county of Middlesex, State of Massachusetts, have invented an Improvement in Drawing-Board Apparatus, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention relates to drawing-boards; and the object of this invention is to provide an improved device of this kind including in its organization certain peculiar features hereinafter more particularly described and claimed.

In the drawings, Figure 1 is a face view of a drawing-board, showing the same as including my invention in a convenient embodiment thereof. Fig. 2 is a cross central elevation, the section being taken in the line 2 2, Fig. 1, and looking in the direction of the arrow and being upon an enlarged scale. Fig. 3 is a rear view of the board. Fig. 4 is an edge view of the same, the parts broken away. Fig. 5 is a rear view, upon an enlarged scale, of a tension-regulator; and Fig. 6 is a longitudinal central sectional elevation of said tension-regulator.

The drawing-board includes in its construction a board proper or support B, generally made of wood, and to the plain face of which a sheet of paper or other article may be tacked, and the strips 12, 13, 14, and 15 are secured around the same, the strips 13 and 15, disposed along the sides of said board, being separated from the same by spacing strips or blocks 16 and 17.

The straight-edge, which may be of any suitable character, is movable along the board from the top to the bottom thereof and may be maintained in a horizontal position or angularly relatively thereto, as may be desired by the user, by the mechanism hereinafter more particularly described.

The straight-edge represented is denoted by S and is made of a suitable width and extends entirely across the face of the board and has the usual upper beveled edge.

The straight-edge is connected to the angularly and independently adjustable arms A and A', which are connected in the present case by an endless band, hereinafter described, which serves to maintain them in fixed relation relatively to each other, and, though it is not essential, I connect both arms to the straight-edge by means which permit the angular adjustment of said straight-edge from either end.

The straight-edge, which fits flatwise against the face of the board or against a sheet of paper thereon, has near its opposite ends the disks 20 and 21, which are preferably countersunk in the upper face thereof and constitute means upon which the angularly-adjustable arms A and A', respectively, may turn. These disks are bored substantially centrally to receive the shanks of the clamping-screws 22 and 23, the heads of the screws being countersunk in the under side of the straight-edge, all as clearly shown in Fig. 2. The upper threaded ends of the screws are adapted to receive the clamping-nuts 24 and 25, by rotating which to the right the arms A and A' may be clamped in a desired adjusted position, and the nuts are shown as having slots 26 to receive a spanner or other suitable tool by which to facilitate the turning of the same, and their edges are milled, so that they may be more readily turned by hand. The shanks of the screws 22 and 23, which, it is understood, project from the straight-edge S and also through the disks 20 and 21 therein, extend upward through to the elongated slots 27 and 28, disposed longitudinally in the arms A and A'. An endless band, as E, is secured in the present case to the outer ends of the two arms, and it travels for a part of its length in the spaces or grooves 35, located at opposite sides of the board.

In Fig. 1 the straight-edge S is shown as being clamped in a horizontal position in full lines, and as its outer ends are connected to the endless band E it will be understood that the straight-edge can be moved freely up and down the board without changing its position.

When it is desired to shift the straight-edge to an angular position, the clamping-nuts 24 and 25 will be loosened, so that either end of the straight-edge may be raised or lowered, and when said straight-edge is in the proper angular position the clamping-nuts will be tightened to securely hold the same. When the nuts are thus tightened, it will be evident

that the straight-edge can be moved up and down the sheet without affecting the adjustment, which is important in making section-lines, all of which must be at the same pitch.

The endless band E, to which I have referred and which ordinarily consists of thin wire, passes around a series of guide-rolls, as 40, having grooved peripheries and located at the corners of the board, and these rollers are supported by brackets, as 41, secured in slots or openings 42, through which said band passes. Said band also lies in the peripheral grooves of the duplex guide-rollers 43, the brackets or bearings 44 of which are secured to the back of the board B, near the opposite edges thereof, and in alinement substantially with the respective rollers 40, disposed upon the upper and lower ends of the board.

In connection with the endless band I prefer to employ a tension-regulating device of proper kind which serves to take up any slack that may be in the band.

The tension device represented is denoted by T, and in the form thereof represented it consists of a lever mounted for swinging movement upon the back of the board in adjacence to the band E where the latter crosses the back of said board, as shown clearly in Fig. 3.

The tension device T is bifurcated below its axis of oscillation, and the branches or arms 50 thereof have rollers 51 to receive the transverse portion of the endless band E.

The pivot proper of the tension device T is in the nature of a bushing 55, passing through the same and having a flange 56 at its outer end adapted to bear against the boss 57 on the segment G. The bushing passes through the lower end of said segment and its inner end bears against the washer or wear-plate 58. The bushing 55, which constitutes the pivot for the part T, is held in place by the screw 59, threaded into the back side of the board and the head of which is countersunk in the bushing. It will be evident that when the lower portion of the lever part T is swung to what is shown as the left in Fig. 3 any looseness that may be in the wire band B will be taken up, so that the latter can be almost kept taut. The lever T is disposed between the segment G and the board, and its lower end is held in place by the pivot of said lever, while the screw 60 passes through the L-shaped offset 61 upon the upper side of the segment and enters the board. The segmental portion proper of the segment G has the arc-shaped slot 62, through which the screw 63 passes and which is in threaded engagement with the upper end of the take-up lever T, and by loosening the screw through its head 64, which normally bears against the outer face of the segment G, the take-up lever can be moved back and forth to regulate the tension of the wire band E, and the said lever can be held in an adjusted position by turning the head of the screw against the segment. When the screw is loosened, its head constitutes a convenient handle for manipulating the take-up lever.

It will be remembered that the endless band E is clamped to the outer ends of the two angularly-adjusted arms A and A'. On reference to Fig. 2 it will be seen that the arm A is provided with a downwardly-extending tubular or bored projection or stud 70, the bore of which alines with an opening in said arm. This projection is disposed in the right-hand groove or guideway 35 of the board, and the ends of the bands are passed through this bore and also through the opening in the arm and along the upper face of said arm and between the washer 71 on the stud 72 and the arm. The clamping-nut is denoted by 73, and it is employed to force the washer 71 firmly against the ends of the wire, thereby to hold the same securely against the said arm. The arm is provided with a pin 74, extending into a suitable opening in the washer 71, thereby to hold said washer against turning upon the operation of the clamping-nut 73. The left-hand arm A' has also a tubular downwardly-extending projection 75, the bore of which alines with the opening in the said arm and which is adapted to receive the tubular projection 76 upon the traveler 77, consisting of a plate having upturned side walls or flanges in bearing engagement with the side walls of the left-hand groove or guideway 35. Said groove is adapted to receive the shoe or disk 78, connected by the pin 79 with the follower, so that said disk cannot turn when the endless band is clamped. The endless band E is held between the adjacent faces of the follower and the disk and is clamped firmly in such position by turning the nut 79', which nut is in threaded engagement with the stud 80, extending upward from the disk 78 and through the tubular portion 76 of the follower.

The described construction permits the ready adjustment of the two arms A and A' independently of each other or simultaneously with facility and rapidity without moving the wire laterally, as in this case it would be stretched, and also upon the adjustment of either or both of the arms no kinks or bends can be formed therein. It will also be evident that when the parts are assembled as shown in the several figures no kinks are present in the wire, as is the case in certain common types of this class of device, and these knots and kinks in the wire, as will be obvious, materially interfere with the proper operation of the appliance.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a drawing-board, a board, a straight-edge supported against the board for sliding movement, and provided with screws extending perpendicularly therefrom, two arms slotted to receive said screws, nuts carried by the screws and serving to bind the arms against the straight-edge, and an endless band

upon the board adjustably connected to said arms.

2. In a drawing-board, an arm having an opening and provided with a bored projection, the bore of which is in alinement with said opening and the bore of the opening being adapted to receive a band, and a clamping device for said band carried by the arm.

3. In a drawing-board, an arm having an opening and provided with a bored projection, the bore of which alines with such opening and the bore in the opening being adapted to receive a band, a threaded stud upon the arm, a washer on the stud, a nut also upon the stud and a projection carried by the arm and extending into an opening in said washer.

4. In a drawing-board, an arm having an opening and provided with a bored projection, the bore of which alines with the opening in said arm, a follower having a tubular projection extending into said bore, and a disk having a screw-threaded stem projecting through said tubular projection and provided with a nut engaging the stem.

5. In a drawing-board, an arm having an opening and provided with a bored projection, the bore of which alines with the opening in said arm, a follower-plate having upturned side walls or flanges, and also having a tubular projection extending into said bore, a disk provided with a threaded stem extending through the tubular projection, a nut engaging said threaded stem, and a pin upon the disk located to engage the follower.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY A. LEIGHTON.

Witnesses:
HEATH SUTHERLAND,
FREDERICK L. EMERY.