(No Model.)

S. J. LAUGHLIN & J. HOUGH.

DRAWING TABLE.

No. 575,842. Patented Jan. 26, 1897.

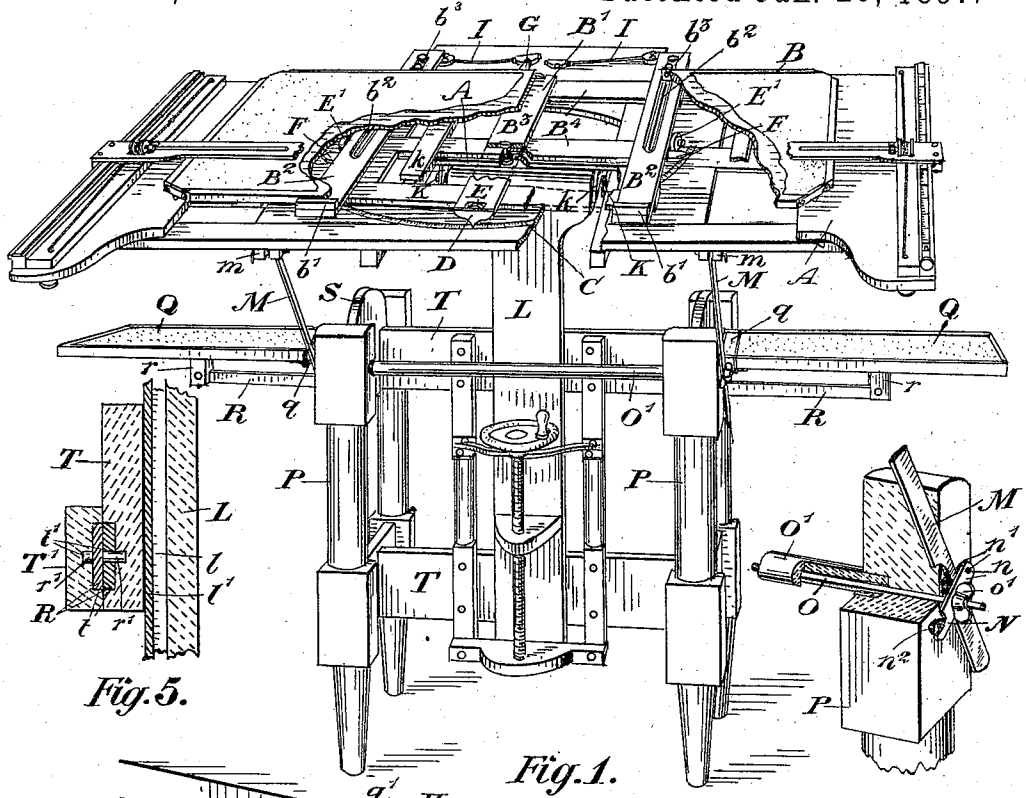

Fig. 1.

Fig. 5.

Fig. 4.

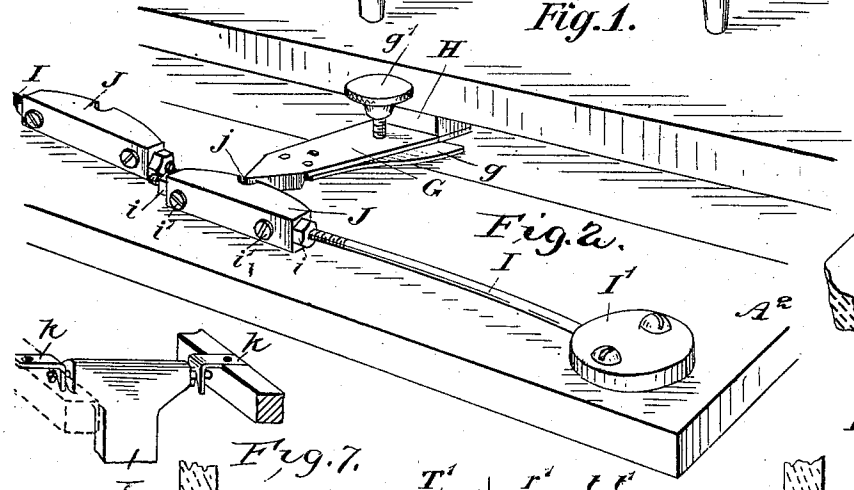

Fig. 2.

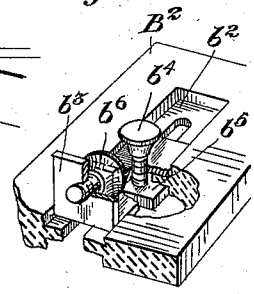

Fig. 6.

Fig. 7.

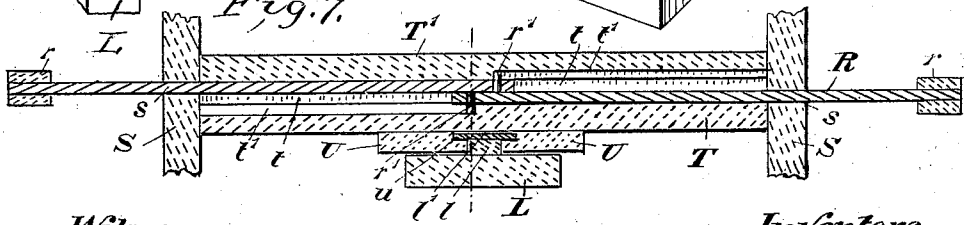

Fig. 3.

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UNITED STATES PATENT OFFICE.

SAMUEL JOHN LAUGHLIN AND JAMES HOUGH, OF GUELPH, CANADA.

DRAWING-TABLE.

SPECIFICATION forming part of Letters Patent No. 575,842, dated January 26, 1897.

Application filed August 28, 1895. Serial No. 560,755. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL JOHN LAUGHLIN, mechanic, and JAMES HOUGH, printer, of the city of Guelph, in the county of Wellington, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Drawing-Tables, of which the following is a specification.

Our invention relates to improvements in drawing-tables which are the subject-matter of previous applications and patents granted to us; and the objects of the invention are, first, to design a simple means of constructing the table, so that a rectangular board may be used conveniently with a protractor; secondly, to improve the construction of the frame, so as to provide for the change of slant of the top of the table, and, thirdly, to provide a simple means for holding the instruments required for the draftsman's use; and it consists, essentially, in the various details of construction, as hereinafter described in detail and pointed out in the drawings.

We make no reference or explanation in this specification of the movable ruler or straight-edge or of the movable side scale, as these have already been covered by a former patent.

Figure 1 is a perspective view of a drawing-table complete embodying our improvements. Fig. 2 is an enlarged detail showing means whereby the rectangular drawing-board may be held longitudinally parallel with the front of the table or at right angles thereto. Fig. 3 is a sectional plan showing the means of supporting the standard and providing for the arrangement of the supporting-rods for the trays for holding the instruments. Fig. 4 is a perspective sectional detail showing the manner of holding the supporting-braces in position at the bottom end. Fig. 5 is a section through portion of the standard, longitudinal connecting-rail, and supporting-bars for the trays for holding the instruments. Fig. 6 is a detail of the slot and bracket for holding the drawing-board. Fig. 7 is a detail view.

In the drawings like letters indicate corresponding parts in each figure.

A is the top frame of the table, and B is the rectangular drawing-board, which is supported on the frame B′, comprised of the cross-bars B^2 and B^3 and the connecting-bars B^4. The front ends of the cross-bars B^2 have blocks b' fastened to them, and the rear ends of such bars are provided with slots b^2, in which fit the angle-brackets b^3. b^4 is a thumb-screw, which extends through the base of the bracket b^3 and the inner slot into the square nut b^5 in the wider slot beneath. By loosening this thumb-screw b^4 the bracket may be moved longitudinally within the slot b^2. Thumb-screws b^6 are also provided, which extend through the brackets b^3. The rectangular board B is held on the frame B′ between the blocks b' and the thumb-screws b^6 in the brackets b^3. It will thus be seen that by means of the slots and the brackets arranged and held as described drawing-boards of different sizes may be provided and securely held in position.

The frame B is pivoted centrally upon the top frame A.

D is a pointer secured in the front end of the bar B^3 and extending downwardly to the protractor C.

E are rollers secured in recesses at each end of the bar B^3, and E′ are rollers secured at each end of the central connecting-bar B^4. Upon these rollers the frame B′, and consequently the board B, rotates.

F and G are catches, the catches F being secured at each end of the central connecting-bar B^4 and the catch G being secured at the rear end of the central cross-bar B^3. The catch G is provided with a flat spring g and a thumb-screw g', which extends through the pointer to abut the spring g and is used for the purpose of holding the drawing-board firm when the pointer D is set to any angle upon the protractor C.

I are spring-rods secured at the outer ends in the plates I′, secured to the rearward extension A^2 of the top frame A of the table. The spring-rods I have their inner ends threaded and pass through the blocks J, provided with the notches j, with one of which the end of the catch G is designed to engage, so as to hold the long edge of the drawing-board parallel with the front and back of the table. The block J is arc-shaped at the inner edge. i are nuts screwed onto the spring-rod I and abutting the ends of the block J.

These nuts serve to prevent the block J from moving longitudinally on the spring-rod I and provide for a great nicety in adjustment of the block, so as to bring the pointer D directly over the zero-mark on the protractor when the catch G is locked in notch *j* or when the catch F is locked in said notch to bring the pointer D directly over the ninety-degree mark on the protractor. *i'* are set-screws extending through the rear of the block to the rod and designed to hold such block from turning on the rod, thus serving to present the notch *j* always opposite the catch G. There are two spring-rods I, with their blocks J, and two catches F, secured to opposite ends of the bar B^4. The catch at the right of Fig. 1 is designed to engage with the notch *j* in the block J at the right-hand side to bring the board B at right angles to the front edge of the table when turned in this direction, and the opposite pointer F is so set relatively that when the board is turned around in the opposite direction and such pointer comes opposite the notch *j* of the block J at the end of the spring-rod I at the left-hand side the board will be held at right angles to the front and rear edges of the table.

The standard L has a T-shaped head, through the end of which is passed a rod K. *k* are jaws fastened to the cross-bars of the table and fitting over the projecting ends of the rod K. This arrangement permits of the table being swung to any desired slant and also of its being readily lifted on or off.

The top of the table is hinged and supported centrally upon the rod K, extending through the top of the standard L.

M are supporting-arms pivotally secured between the blocks *m*, secured underneath the top of the table and having their lower ends extending within a plate N, one end of which is provided with a pin *n*, fitting within a corresponding hole *h'* in the leg of the table.

O is a cross-rod which extends from outside to outside through the front legs P of the table, and O' is a sleeve extending from inside to inside of the legs P, through which sleeve the rod O extends. The rod O, at its outer ends, also extends through the plate N and is threaded and provided with a head upon one end and with a thumb-nut *o'* at the other.

n^2 are screws set into the legs and forming stops for the lower end of the plate N. The supporting-arms M extend between the pin *n* and the rod O. By unscrewing the thumb-nut *o'* the arms may be raised or lowered, so as to cant the front of the table to the slant desired, whereupon the thumb-nut may be screwed against the plates and clamp such plates against the supporting-arms M and securely hold the table at the desired slant.

Q are holding-trays for the instruments, which are hinged at the inner end on the cross-pieces *q*, secured to the cross-bars S between the legs at each end of the frame of the table.

R are supporting-bars which have secured at their outer ends the supporting-blocks *r*, which extend up to the bottom of the trays Q, so as to hold them flush when the bars are thrown out, as shown in Fig. 1. The bars R extend through slots *s* in the cross-bars S into grooves *t* in the connecting-rail T and supplemental rail T' and are provided at their inner ends with laterally-extending pins *r'*, which extend into short grooves *t'* in the rails T T', and thus serve to limit their outward movement. By throwing the bars R inwardly so that the blocks *r* come underneath the cross-pieces *q* the trays Q may be thrown down close to the legs.

The standard L is provided at the back with a strip *l* and a strip *l'*, of greater width, secured to the strip *l*. These strips fit within a T-shaped groove *u*, made in the blocks U, which are attached to both the top and bottom longitudinal rails T.

The form of supporting the standard above described is very secure and easily raised and lowered. We do not, however, describe the manner of raising and lowering the standard to adjust the height of the top of the table, as it has been the subject-matter of a former patent.

What we claim as our invention is—

1. In a drawing-table the combination with the top and a rectangular board rotatably supported thereon, of a protractor secured in position in the top of the table and extending forwardly of the front edge of the board and a pointer on the front side of the board extending downwardly into proximity with the protractor as and for the purpose specified.

2. The combination with the top frame and a rectangular board rotatably supported thereon, of rollers E and E' secured beneath the drawing-board, the catches F and G secured to the frame and the spring-wire rods I each provided with an end block J having a central notch *j* all arranged as and for the purpose specified.

3. The combination with the drawing-board and catches, of the spring-rods I each provided with an end block J with notch *j* and nut *i* on the threaded end of the rod abutting the block as and for the purpose specified.

4. The combination with the drawing-board and catches, of the spring-rods I each provided with an end block J with notch *j* and set-screw *i'* extending through the block J to the rod as and for the purpose specified.

5. In combination, the rotatable frame B', the stationary stops on one side thereof, the stops upon the other side seated in grooves in the frame and adjustable thereon toward and from the stationary stops and the clamping means carried by the adjustable stops, substantially as described.

6. In combination, the frame having a slotted cross-bar B^2, the stationary block secured at one end thereof, the shiftable angle-plate, the horizontal portion of said plate fitting within a recess in said cross-bar, a binding-screw extending through said horizontal portion of said plate and through said slot and carrying a nut b^5 for clamping said angle-plate against movement, and a set-screw arranged at right angles to said binding-screw extending through and being adjustable in the vertical portion of said plate, substantially as described.

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