No. 634,836. Patented Oct. 10, 1899.

G. K. RICH.

MECHANICAL DRAWING OUTFIT.

(Application filed Mar. 25, 1899.)

(No Model.)

FIG. 4.

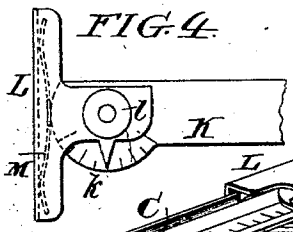


FIG. 1.

FIG. 5.

FIG. 2.

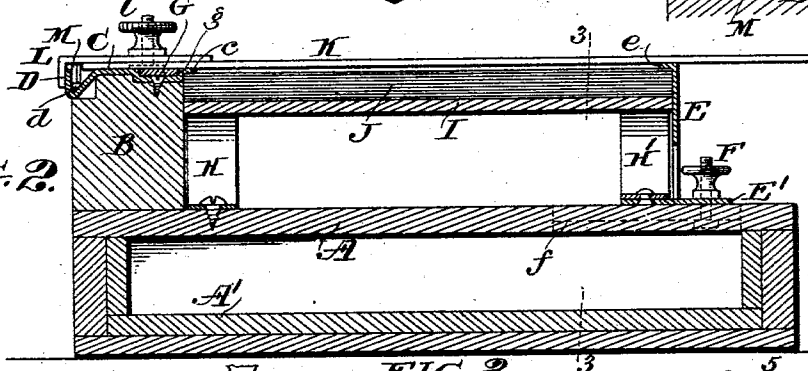
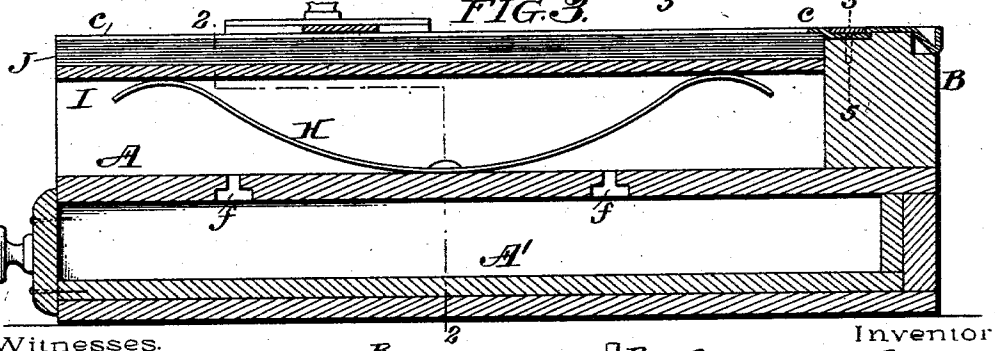


FIG. 3.



Witnesses.

Henry Drury

R. M. Kelly.

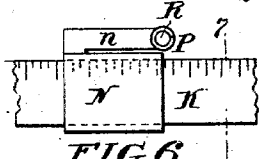


FIG. 6.

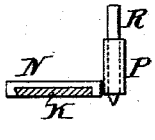


FIG. 7.

Inventor.

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UNITED STATES PATENT OFFICE.

GEORGE K. RICH, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND JOHN RICH, OF SAME PLACE.

MECHANICAL-DRAWING OUTFIT.

SPECIFICATION forming part of Letters Patent No. 634,836, dated October 10, 1899.

Application filed March 25, 1899. Serial No. 710,421. (No model.)

To all whom it may concern:

Be it known that I, GEORGE K. RICH, of the city and county of Philadelphia, State of Pennsylvania, have invented an Improvement in Mechanical-Drawing Outfits, of which the following is a specification.

My invention has reference to mechanical-drawing outfits; and it consists of certain improvements which are fully set forth in the following specification and shown in the accompanying drawings, which form a part thereof.

The object of my invention is to provide a suitable construction of drawing-board and T-square for making mechanical drawings or sketches of comparatively small size.

While my improvements are suitable for general purposes, including technical education at schools, it is more especially adapted for use around machine and other work shops, where it frequently happens that mechanics are required to lay out with comparative accuracy small pieces of work requiring patterns or simply machine-work. By my improved drawing-board the necessity for making rough sketches and inaccurate outlines due to free-hand drawing is obviated and a mechanic may with facility lay out the article he desires to make on accurate scale.

In carrying out my invention I provide a suitable structure of metal or other suitable material having guides for a T-square upon one or more of its edges. On one of the remaining sides of the frame I arrange a support and guide which is preferably adjustable laterally. A vertically-movable board sustained by springs is adapted to carry a pad of paper which fits into the drawing-board structure and is pressed upward, so that three of its edges are received against overhanging shoulders. The T-square is guided upon the edge of the drawing-board and supported just clear of the paper, so that there is no danger of soiling the paper by the movement of the T-square. Furthermore, I prefer that the T-square shall have its blade adjustable and pivoted to its guide by means of a degree-scale to obviate the necessity of employing triangles. I furthermore prefer to provide the frame, adjacent to the guides for the T-square, with scales, so that the distance between successive lines may be accurately located without employing an independent scale. I prefer that these scales shall be removable, so that either the metric system or the ordinary foot-scale may be employed, as desired.

My invention also embodies details, all of which will be better understood by reference to the accompanying drawings, in which—

Figure 1 is a perspective view showing my improved drawing-board and T-square. Fig. 2 is a transverse section of same on line 2 2 of Fig. 3. Fig. 3 is a longitudinal section of same on line 3 3 of Fig. 2. Fig. 4 is a plan view of the adjustable end of the T-square. Fig. 5 is a sectional elevation through a portion of the apparatus on line 5 5 of Fig. 3. Fig. 6 is a plan view of an adjustable pencil-support for the T-square, and Fig. 7 is a cross-section of same on line 7 7.

A is the main frame or base and, if desired, may be provided with a drawer A′, in which the drawing-pad, instruments, and T-square may be placed when not in use. Upon two sides of the frame A are upright wooden strips B B, and secured to these is the L-shaped frame C, which may be of sheet metal or other material, such as wood or gutta-percha. This frame is provided with an upright edge D upon its outer part, separated from the body of the sheet by a groove *d*. The width of the sheet-metal frame C is such that the inner edge *c* overhangs or projects inwardly beyond the wooden strips B.

E is an adjustable frame having a foot-piece E′, resting upon the base-frame A, and also having an inwardly-projecting upper shoulder *e*. This frame E is clamped to the base-frame A by clamping-screws F, adjustable in slots *f* in the said base-frame. By this means the adjustable frame E is adjustable to or from one of the sides of the drawing-board to suit wider or narrower drawing-pads.

I is a board supporting the drawing pad or paper J, and said board fits between the wooden strips B and the adjustable frame E and is free to be withdrawn from the remaining side of the board. This board I is pressed upward by suitable springs H H′, the former of which is secured to the base-frame A and the latter, if desired, secured to an inwardly-projecting portion of the frame E, so as to be adjustable with it. Any other means may be employed to hold the board I up to the

shoulders *c*. The pad J, while preferably of the kind sold for general use, may be replaced by one or more single sheets of paper. When narrow paper is required, the board I must be replaced by a narrower board, but ordinarily the adjustable feature of the frame E might be dispensed with.

The sheet-metal facing-strip C has a depressed portion or groove *g* formed therein adjacent to the overhanging shoulder *c* and preferably upon both of its edges, so as to be at right angles, as shown. In these grooves scales G are placed and may be retained in position by each being provided with a pin M, which passes through holes in the bottom of the groove, as indicated at *m* in Fig. 5. In this manner the scales may be removed and other scales substituted—for example, as in substituting the metric for the ordinary foot-measure or for substituting a scale having marked thereon proper proportions, such as to make the drawing equal a scale of an inch or an inch and a half or three inches to the foot, as may be desired. I do not confine myself to any special manner of attaching these scales and, if desired, the scales may be permanently secured in position or marked upon the sheet metal C. I prefer, however, to employ separate scales on account of cheapness of construction.

K is the T-square and is pivoted at *l* to a guide-head L, which has a downwardly-extending flange guided against the outer edge of the guide-edge D of the part C. A suitable spring M′ may be attached to the guide-head L and adapted to work against the inner face of the guide-edge D and be received in the groove or channel *d*. In this manner the T-square is caused to follow the guide-edge D and to retain its position by friction, while permitting easy movement. The T-square is adapted for use on two sides of the board, as is self-evident. The blade of the T-square at its connection with the head is provided with a degree-scale *k*, so that it may be set at an angle for oblique lining.

For purposes of drawing vertical lines in special work I provide the T-square with a transverse slide N, having a projecting spring portion *n*, furnished at its free end with a pencil-guide P for carrying the pencil R, as is clearly shown in Figs. 6 and 7. This slide N may be moved longitudinally over the T-square blade, and then by moving the blade downward on its guide D, at the same time pressing the pencil R upon the paper, an upright stroke may be made. I prefer under all conditions to have the T-square blade adjacent to its drawing-edge provided with a scale, as indicated in Fig. 6, which may be employed either for guiding the slide N to proper position or for enabling the pencil to be located when used in the hand at the proper position for transverse measurements.

While I prefer to have two edges of the drawing-board provided with guides for the T-square, it is evident that such guides may be confined to one side only, and vertical lines either to be formed by employing the slide N or using an ordinary triangle.

If desired, the strip C may be used separately by placing it upon the pad, the latter fitting to the downwardly-extending shoulders formed by the grooves *g*. In this case the board I and remaining parts, except strips C, may be dispensed with.

I prefer the construction shown, but do not limit myself to the minor details, as these may be modified without departing from the spirit of the invention.

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

1. In a drawing-board the combination of a framework open at its center and on one end and provided with laterally-projecting overhanging shoulders directed toward the center and having two of its outer edges made with straight guide-edges at right angles, the framework being such that a pad of paper may be pushed into position from one end, a vertically-movable clamping-board for clamping the paper against the under side of the overhanging shoulders, means to press the board upward toward the shoulders, and a T-square provided with a downwardly-extending guide portion adapted to the guide-edges of the frame and having a blade equal in length to the greatest width of the board and frame.

2. In a drawing-board, a frame having an open center and overhanging shoulders upon three of its sides and guiding-walls extending along the under side parallel to and near the overhanging shoulders on two of its sides and having the remaining side open or unobstructed on the end for the introduction of a pad of paper and also having the upper surface of at least one of its sides provided with a scale over which the T-square passes, in combination with a board for holding the paper and clamping it upward against the overhanging shoulders, and means to press the board upward.

3. A mechanical drawing-board comprising a base with suitable upright portions having overhanging edges or shoulders and one of said upright portions being provided with a straight or guiding edge for a T-square, in combination with an adjustable paper-supporting board adapted to press the paper upward against the overhanging shoulders or edges, springs to press the said board upward, a suitable T-square provided with a guide adapted to be guided along the straight-edge and having its blade formed with a scale and sustained by the upright portions, a scale carried by one of the upright portions over which the T-square moves, and an adjustable slide carrying a pencil-support adjustable upon the blade of the T-square.

4. A mechanical drawing-board comprising a base with suitable upright portions having overhanging edges or shoulders and one of

said upright portions being provided with a straight or guiding edge for a T-square and a longitudinal groove for a scale, in combination with an adjustable paper-supporting board adapted to press the paper upward against the overhanging shoulders or edges, springs to press the said board upward, a suitable T-square provided with a guide adapted to be guided along the straight-edge and sustained by the upright portions, and a scale-strip fitted down into the upper surface of one of the upright portions so as not to project above its upper surface.

5. In a drawing-board, the combination of a base having a sheet-metal strip upon two of its sides supported at a distance above the surface of the base and presenting flat upper surfaces and in which said sheet-metal structure has its outer edge formed with a longitudinal groove and an upright guide-edge and its inner edges projecting inwardly to form overhanging shoulders, an upright frame also provided with an inwardly-extending shoulder secured to the base-frame and arranged parallel to the aforesaid guide-strip at the other side of the base-frame, an adjustable board adapted to support one or more sheets of paper and press them upward against the three overhanging shoulders, and suitable springs for pressing the board upward.

6. In a drawing-board, the combination of a base having a sheet-metal strip upon two of its sides supported at a distance above the surface of the base and presenting flat upper surfaces and in which said sheet-metal structure has its outer edge formed with a longitudinal groove and an upright guide-edge and its inner edges projecting inwardly to form overhanging shoulders, an upright frame also provided with an inwardly-extending shoulder adjustably secured to the base-frame and arranged parallel to and adjustable with respect to the aforesaid guide-strip at the other side of the base-frame, an adjustable board adapted to support one or more sheets of paper and press them upward against the three overhanging shoulders, suitable springs for pressing the board upward, and a T-square adapted to extend entirely across the board and be supported by the adjustable frame and guided upon the straight-edge of the strip opposite.

7. In a drawing-board the combination of a base having a sheet-metal strip upon two of its sides supported at a distance above the surface of the base and presenting flat upper surfaces and in which said sheet-metal structure has its outer edge formed with a longitudinal groove and an upright guide-edge and its inner edges projecting inwardly at right angles to each other to form overhanging shoulders, an upright frame also provided with an inwardly-extending shoulder secured to the base-frame and arranged parallel to the aforesaid guide-strip at one side of the base-frame, an adjustable board adapted to support one or more sheets of paper and press it upward against the three overhanging shoulders, suitable springs for pressing the board upward, and scales carried upon the sheet-metal guide-strip adjacent to the overhanging shoulders so as to present two scales at right angles.

8. In a drawing-board an L-shaped frame having a longitudinal overhanging thin edge along the sides of its two inner edges and guides on the under side parallel to and slightly to one side of the overhanging edges and also having its two outer guide-edges arranged at right angles to each other, in combination with a T-square having a downwardly-extending guiding portion or head adapted to be guided upon said outer guide-edges, and means to clamp one or more sheets of paper against the under sides of the overhanging edges and hold them in position by the guides on the under part of the L-shaped frame.

9. In a drawing-board, a frame having an open center and overhanging shoulders upon three of its sides, and the remaining side open or unobstructed on the end, in combination with a board for holding the paper and clamping it upwardly against the overhanging shoulders, means to press the board upward, and a T-square adapted to be guided along at least two of the sides of said frame and supported thereby above the paper and board.

10. In a drawing appliance an L-shaped frame each leg of which has a longitudinal overhanging thin edge along the inner side and a guide on the under side parallel to and slightly to one side of the overhanging edge and its upper surface adjacent to the outer edge grooved to form an upwardly-directed free guide-edge for a T-square.

11. In a drawing-board, the combination of a sheet-metal strip C having the overhanging shoulder *c* the groove *d* and the upright guide D at its outer edge, with means for holding a sheet of paper clamped against the under side of the shoulder, and a T-square having a guide portion adapted to be guided against the outside of the guide D and provided with a spring operating in the groove *d* and adapted to hold the guide of the T-square against the upright guide D.

12. In a drawing-board, the combination of a sheet-metal strip C having the overhanging shoulder *c* the groove *d* and the upright guide D at its outer edge, with means for holding a sheet of paper clamped against the under side of the shoulder, and a T-square having a guide portion adapted to be guided against the outside of the guide D and provided with a spring operating in the groove *d* adapted to hold the guide of the T-square against the upright guide D and an adjustable blade hinged to the head or guiding portion thereof.

13. In a drawing-board the combination of a sheet-metal side strip having an overhanging shoulder *c* a longitudinal shallow groove *m* parallel thereto and a guiding-edge D for

guiding a T-square, in combination with a scale G set into the groove *m*, and a paper supporting and clamping board adapted to hold the paper against the under side of the overhanging shoulder *c*.

14. In a mechanical drawing-board a base provided with suitable upright guide portions on at least two of its sides and terminating at the top with overhanging shoulders or inner edges and having the upper surfaces extended outward to a considerable distance and provided with straight or guiding edges for a T-square, in combination with an adjustable paper-support adapted to press the paper upward against the overhanging shoulders or edges while being guided or held in place by the upright guide portions, spring devices to press the paper-support upward, an adjustable upright guide movable to or from one of the overhanging shoulders or edges for holding the paper and paper-support in position, and a suitable T-square provided with a guide adapted to be guided along the outer edge of the upper surfaces.

15. In a drawing-board the combination of an L-shaped frame having a longitudinal shoulder along the under sides of its inner edges and having its outer edges arranged at right angles and also having the said frame provided with longitudinal grooves upon its upper surface parallel to its guide-edges, removable scales fitting into the grooves so as to be flush with the upper surface of the frame, with a T-square movable over the scales and having a guiding portion or head adapted to be guided upon said outer guide-edges.

In testimony of which invention I have hereunto set my hand.

GEORGE K. RICH.

Witnesses:
R. M. HUNTER,
J. W. KENWORTHY.