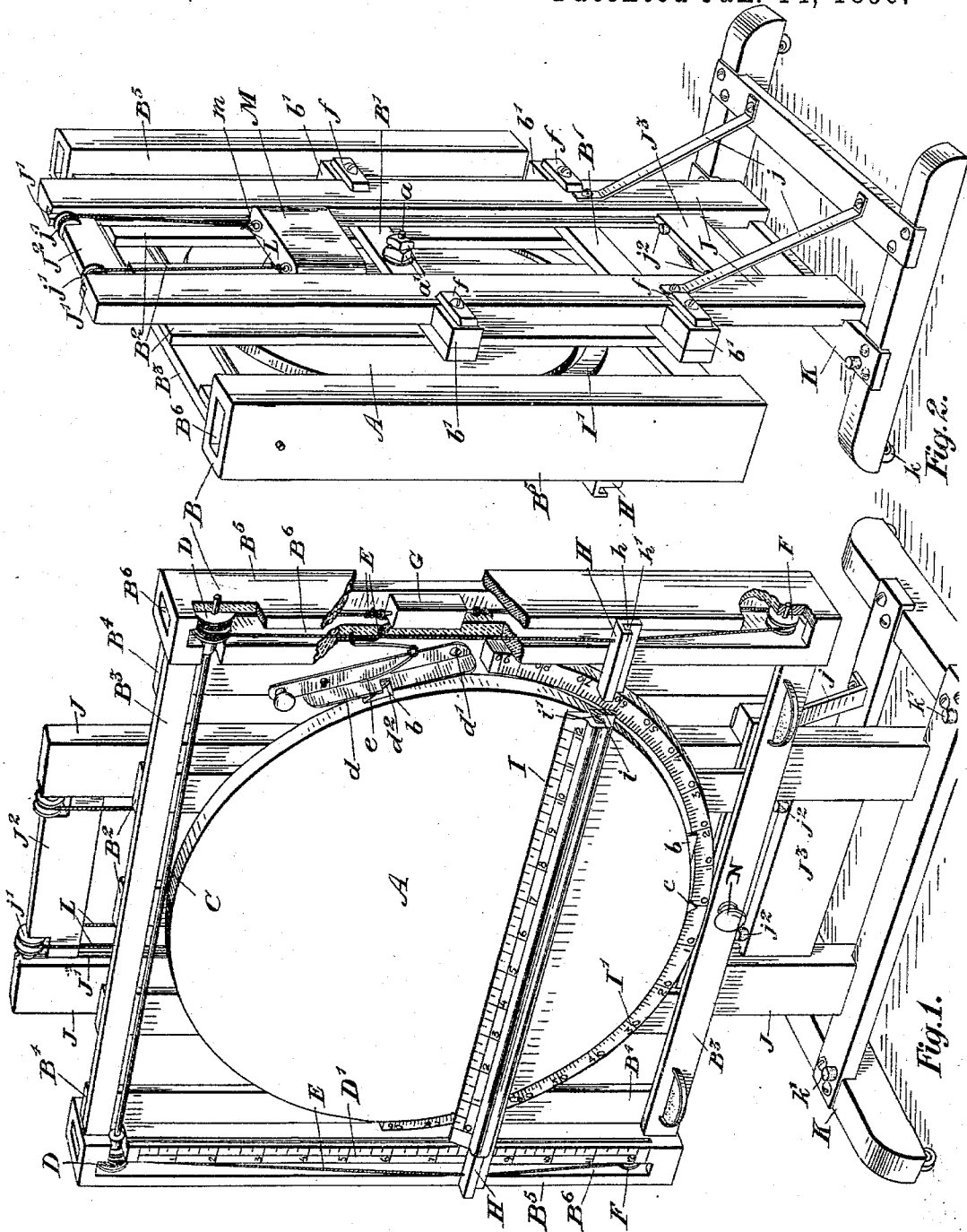


(No Model.)

S. J. LAUGHLIN & J. HOUGH.
BLACKBOARD.

No. 552,914.

Patented Jan. 14, 1896.



Witnesses.

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BLACKBOARD.

SPECIFICATION forming part of Letters Patent No. 552,914, dated January 14, 1896.

Application filed March 25, 1895. Serial No. 543,176. (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 Blackboards, of which the following is a specification.

Our invention relates to improvements in blackboards more particularly adapted for geometrical, architectural and mechanical drawing and for the teaching of music, arithmetic and other like subjects, and the object of the invention is to provide a simply adjustable and rotatable board to be used in connection with a rule and protractor on which various geometrical figures may be expeditiously drawn; and it consists essentially of a circular blackboard pivotally supported in a suitable frame on which is also secured a protractor, hollow side posts being provided for the pulleys over which pass the cords connected to the rule, the frame being counterbalanced by a suitable weight running in guideways and connected by cords to the board, as hereinafter more particularly explained.

Figure 1 is a front perspective view of our blackboard. Fig. 2 is a view from the rear.

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

A is the circular blackboard, which is provided with a central bolt *a*, which extends rearwardly through the cross-bar *B'*, in which it is secured by the nuts *a'*. The end of the bolt *a* is secured in a suitable socket in the back of the board A. The cross-bar *B'* is secured to the central vertical bars *B²* of the frame B.

B³ are the top and bottom cross-bars of the frame.

B⁴ *B⁴* are vertical side bars, and *B⁵* hollow vertical posts provided with open fronts *B⁶*.

C is a cross-spindle extending through the hollow posts *B⁵* and having secured on it within the hollow posts *B⁵* the pulleys D, which are located near the top of the posts.

E are cords which are wound around the pulleys a couple of times and have their ends fastened to them. The cords E extend down-

wardly and are fastened to each end of the rule, so that the rule H is perfectly horizontal, and then pass down around the pulleys F, thence upwardly to a weight G, to which the ends are secured. The continuation E of each cord extends from the weight G upwardly and passes a couple of times around the pulley and has the end of the cord fastened to it.

The circular blackboard A is provided with pointed brackets *b* at ninety degrees apart, and a pointer *c*.

d is a catch provided with a suitable knob and pivoted at *d'* on the side bar *B⁴*.

e is a compression-spring extending between the post *B⁵* and the angled catch *d*.

d² is a notch made in one side of the angled catch and designed to form a stop for the pointed brackets *b*.

D' is a scale made on the left-hand post *B⁵*, as indicated.

The rule H is reverse L-shaped in cross-section and has an under groove *h* and tongue *h'*.

I is a scale-rule L-shaped and having a groove *i'* in the base of the L and a tongue *i* extending upwardly from the base. The tongue *i* of the scale-rule I fits within the groove *h* in the rule H, and the groove *i'* of the scale-rule I receives the tongue *h'* of the rule H. In this way the scale-rule I is held securely in position without any danger of falling, though it can be moved freely from side to side.

I' is a protractor divided into a scale of ninety degrees from the center to each end.

J are the two vertical standards, which are secured at the bottom to a base-frame K, having suitable caster-rollers *k*. The standards J are braced to the base by the rods *j*.

J' are side grooves made on the inside of the standards.

B' is a cross-bar secured to the bottom of the vertical bars *B²*.

b' are blocks the thickness of the standards A, and *f* are turn-buttons pivoted on the blocks *b'* and extending partially across the standards J, so as to bind the frame B to the standards J and yet permit of the free vertical movement of such frame.

J² and J³ are the top and bottom cross-bars connecting the standards J. In the ends of the upper cross-bar we journal pulleys j'.

L are cords which pass over the pulleys j' and are secured at one end to the cross-bar B' and at the other end to the weight M, which is provided with tongues m, fitting within the grooves J' of the standards J. The weight M is of iron or other heavy metal and serves to counterbalance the weight of the frame B, which is preferably made of wood.

It will be seen from the construction adopted that the blackboard may be raised or lowered at will to the position desired by the user and yet will be always perfectly balanced and so remain in the position in which it is placed.

The frame B, constructed as described, serves to provide a support for the blackboard and for various devices controlling its rotation and means for using it advantageously.

The cross-bar J³ is provided at the top with soft-rubber cushion-plugs j². The front cross-bar of the frame K is also provided with cushion-plugs k'. The cushion-plugs j² serve to prevent noise when the weight M comes down and the cushion-plugs k' when the frame comes down.

N is a knob, which serves to provide for the raising or lowering of the blackboard.

Although in this specification we describe the cords as of silk, it will of course be understood that they may be made of any other suitable material, such as wire, and that in lieu of being in cord form they may be bands.

What we claim as our invention is—

1. The combination with the black board, A, rotatably supported in an open frame having hollow end posts, of a rule connected at each end to cords in the open front of the posts, pulleys journaled in the rod extending across the top of the frame through the posts, the cords being wound a couple of times around the pulleys and the opposite ends of the cords being provided with weights as and for the purpose specified.

2. The combination with the black board, A, rotatably supported in an open frame having hollow end posts, of a rule connected at each end to cords in the open front of the posts, pulleys journaled on the rod extending across the top of the frame through the posts, the cords being wound a couple of times around the pulleys and the opposite ends of the cords being provided with weights and the continuation of the cords passing from the ends of the rule around the pulleys journaled in the lower ends of the posts and

extending up to the weights to which they are connected as and for the purpose specified.

3. The combination with a vertical black board, A, of a rule reverse L-shaped in cross section and having a groove h, and tongue, h', and a scale rule supported on top of the same and having the lower portion L-shaped in cross section and forming a groove, i', and tongue, i, arranged to fit the tongue, h', and groove, h, of the rule, H, as and for the purpose specified.

4. The combination with the black board, A, rotatably supported in an open frame, B, which is provided at its lower end with a knob, of a cross bar secured to the back of the frame, standards supported on a suitable base, cords connected at one end to the cross bar and passing over pulleys secured in the top cross bar of the standards and having the other ends connected to a suitable weight as and for the purpose specified.

5. The combination with the black board, A, rotatably supported in an open frame by a central bolt extending through a cross bar, a bottom cross bar secured to the frame, of blocks, b', secured to the ends of the cross bars and turn buttons pivoted on the blocks and extending partially across the rear of the standards and means for holding the frame in any desired position to which it may be raised or lowered as and for the purpose specified.

6. The combination with the black board, A, rotatably supported in an open frame, of the cords, L, passing from the back of the frame up over pulleys on the top of the standards, the weight, M, secured to the opposite ends of the cords and moving in vertical grooves, J', made in the standards, J, and means for holding the frame laterally rigid to the standard and yet permit of its free vertical movement as and for the purpose specified.

7. The combination with the black board, A, rotatably supported in a suitable frame and counter balanced by cords passing from the back of the frame up over pulleys journaled on the top of standards and having weights secured to them, of the cushion plugs, j², and, k', arranged as and for the purpose specified.

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Witnesses:

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