

(No Model.)

H. CONLEE.

INSTRUMENT FOR OBTAINING LENGTHS AND BEVELS OF RAFTERS.

No. 348,723.

Patented Sept. 7, 1886.

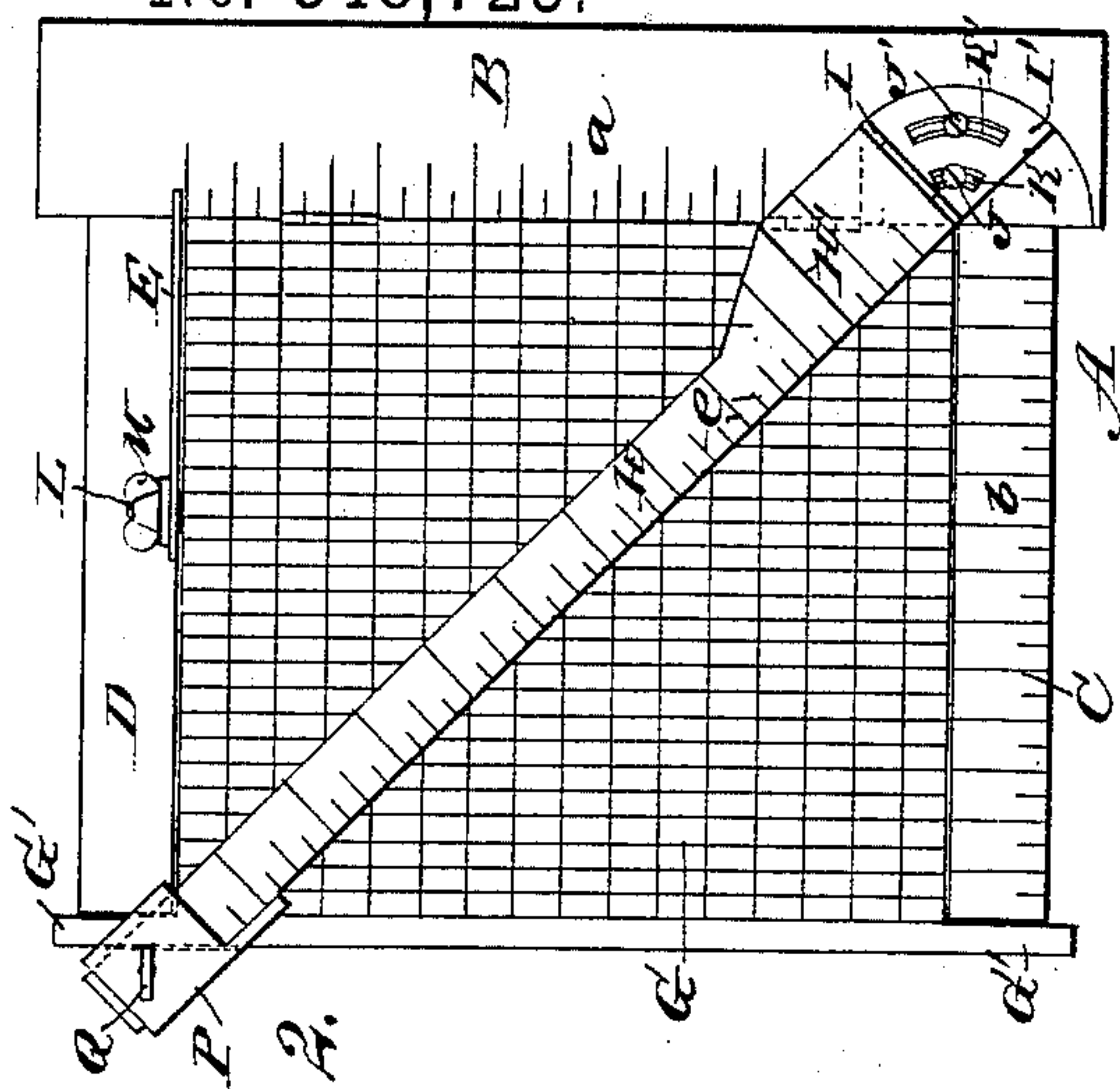


Fig. 2.

Fig. 3.

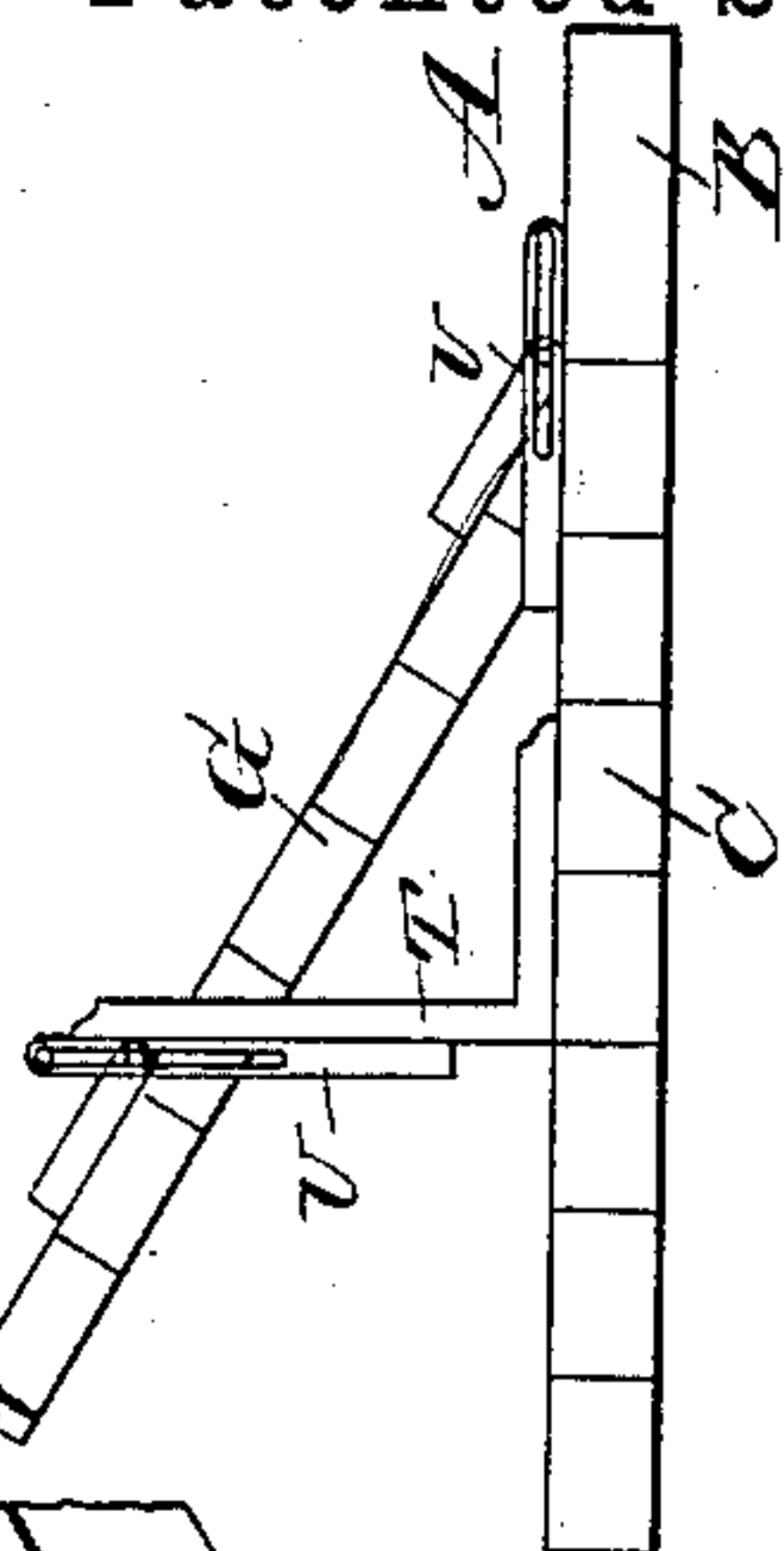


Fig. 4.

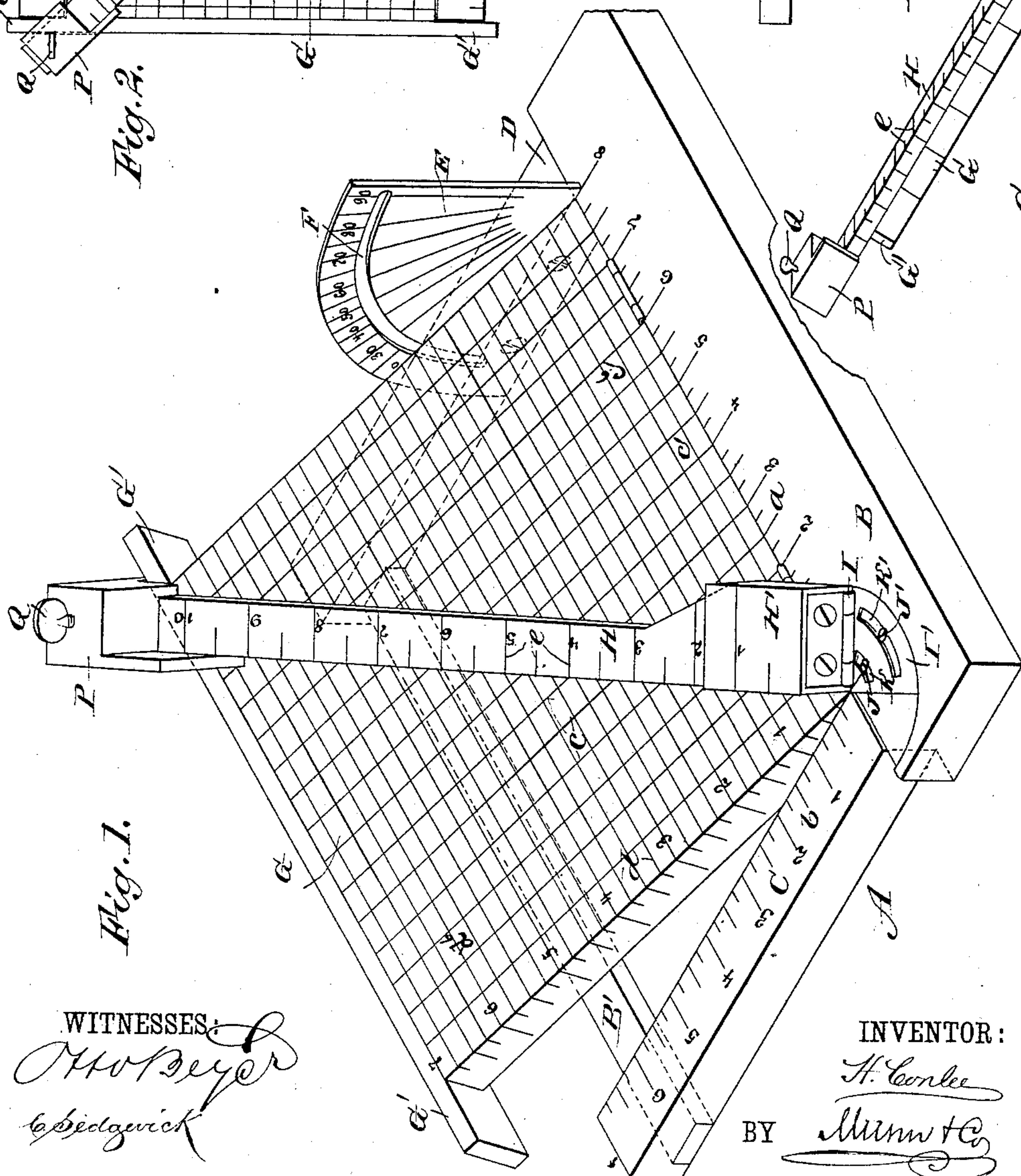
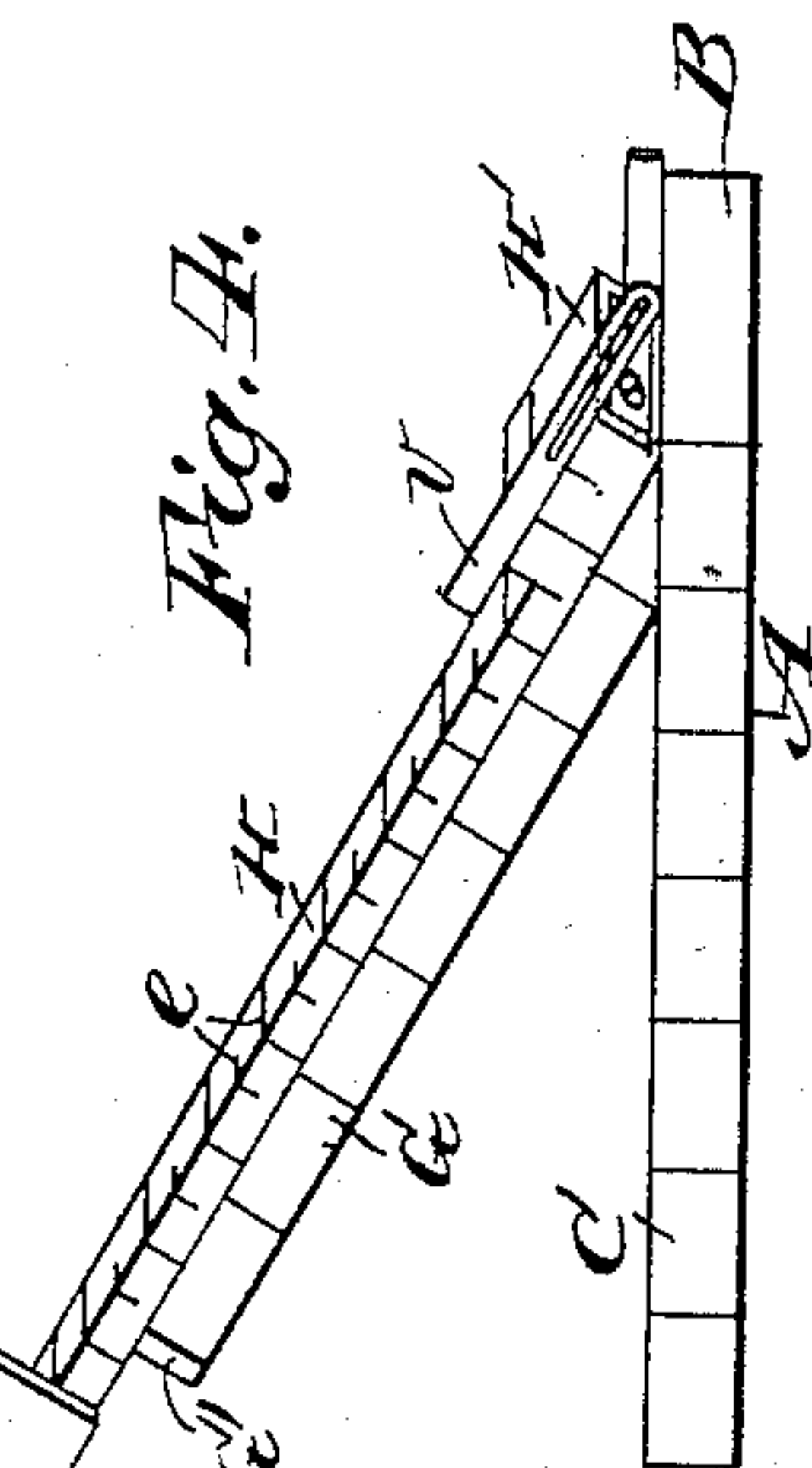


Fig. 1.

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HARRISON CONLEE, OF PETERSBURG, ILLINOIS.

INSTRUMENT FOR OBTAINING LENGTHS AND BEVELS OF RAFTERS.

SPECIFICATION forming part of Letters Patent No. 348,723, dated September 7, 1886.

Application filed May 4, 1886. Serial No. 201,058. (No model.)

*To all whom it may concern:*

Be it known that I, HARRISON CONLEE, of Petersburg, in the county of Menard and State of Illinois, have invented a new and Improved Measuring-Instrument, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved measuring-instrument for obtaining the accurate length and bevels of rafters for any inclination of the roof and for other purposes without arithmetical calculation.

The invention consists of a frame having one graduated edge and provided with a protractor at right angles with the frame, of a graduated board hinged to the frame, and of a hinged graduated straight-edge provided with a sliding block.

The invention also consists of various parts and details and combinations of the same, as hereinafter more fully described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of my improvement. Fig. 2 is a plan view of the same when closed. Figs. 3 and 4 are side elevations of the same in positions for obtaining angles by the help of a square and angle gage.

The rectangular frame A is provided with the side arm, B, having on its inner edge the graduation *a*, and with arm or bar C at right angles with the arm B and also having on its inner edge a graduation, *b*. The zero-point of the graduation *a* and *b* is at the junction of the arms B and C, and the graduations represent feet and subdivisions thereof. The frame A is also provided with the arm D, parallel with the arm C, and on its inner face is fastened the protractor E, having the circular recess F and its center at the junction of the upper inner edges of the arms B and D.

Between the arms C and D is placed and hinged to the arm B the board G, which, when closed, is flush with the upper edges of the frame A, and is provided with the parallel lines *c*, corresponding to the graduation *a*, and with parallel lines *d*, corresponding to the

graduation *b*. A straight-edge, H, is attached to the arm B by a hinge, I, and has a graduation, *e*, of feet and subdivisions on one edge, which commences at the junction of the arms B and C, which junction is also the zero-point for the graduations *e*. The plate I' of the hinge I is attached to the arm B by two screws, J and J', which pass through circular grooves K and K', respectively, which have their common center at the zero-point of the graduations *a*, *b*, and *e*. The outer end of the board G is provided with the two projecting arms G' G', and rests, when closed, on the cross-piece B' of the main frame A. A bolt, L, projects from the board G on the edge nearest the arm D, and passes through the circular recess F on the protractor E, and can hold the board G at any desired angle on the protractor E by a thumb-nut, M, screwing on the outer end of the bolt L. It will be seen that the board G can be swung to any desired angle which is indicated on the protractor and held in that position by screwing up the thumb-nut M against the protractor E. The straight-edge will always swing with the board G and can be swung to any diagonal position on the board G by loosening the screws and turning the hinge-plate on the same, the zero-point of the graduations *a* and *b* being the center. When the board G is closed, a miter position or an angle of forty-five degrees is easily obtained by placing the straight-edge H so that the graduated edge will intersect at the junction of lines *d* and *c* of equal value—that is, where lines *d*<sup>6</sup> and *c*<sup>6</sup>, for example, intersect.

The instrument is used for obtaining the length of common rafters—for instance, for a building which is eight feet wide, by placing a square on the graduation *b* at four feet, which is the distance from the center of the building to the outside, and adjusting the board G to the desired pitch of the roof on the protractor E. Now, where the square touches one of the lines *d* on the board G, the distance from there to zero indicates the length of the common rafter, and by following the respective line *d* across the board G to the straight-edge H, which is set—say at forty-five degrees—then the intersection of the lines *d* at the graduation *e* of the straight-edge H gives the length on the graduation *e* of the hip-rafter. By follow-



ing the line *c*, which intersects the line *d* and the graduation *e* down to the graduation *a*, then the latter indicates the length of the jack-rafter.

5 The bevel for the edge of jack-rafters is obtained by placing the handle of a common bevel-gage in line with one of the lines *c* and extending the movable blade of the bevel-gage up on the graduated edge of the straight-  
10 edge H. The angle thus obtained on the bevel-gage is the bevel for the edge of the jack-rafter.

The upper cut of common rafters is made, as shown in Fig. 3, with the aid of the square T and the bevel-gage U, and the foot-bevel of  
15 the rafter is obtained by applying the bevel-gage U on the foot-board G and the frame A, as shown to the left in the same figure.

To obtain the foot-bevel of a hip-rafter the bevel-gage is placed on the frame A and the  
20 foot H' of the straight-edge H, as illustrated in Fig. 4.

To obtain the bevel across the face of the stuff for splay or hopper work, it is necessary to raise the board G to the required pitch, and  
25 then place the straight-edge H on the board G. By then placing the handle of a bevel-gage U on the upper edge of the board G and the blade of the bevel-gage on the graduated edge of the straight-edge H, then the desired bevel  
30 is obtained.

To obtain the miter across edge of stuff for splay or hopper work, place the handle of a bevel-gage U on the upper edge of the board G and the blade of gage U against left hand  
35 of the block P, attached to the straight-edge H by a set-screw, Q. The bevel thus indicated by the bevel-gage U is the desired bevel for the edge of board or plank.

Having thus fully described my invention, I claim as new and desire to secure by Letters 40 Patent—

1. In a measuring-instrument, the combination of a frame, A, having the graduations *a* and *b*, with the hinged board G, having lines *c* and *d*, and the protractor E, on which the  
45 board G can be held at any desired angle, substantially as shown and described.

2. In a measuring-instrument, the combination of a frame, A, having the graduations *a* and *b*, with the hinged board G, having the  
50 lines *c* and *d*, the protractor E, on which the board G can be held at any desired angle, and the hinged straight-edge H, having the graduation *e*, substantially as shown and described.

3. In a measuring-instrument, the combination of the frame A, having the graduations *a* and *b*, and the hinged board G, having the  
55 lines *c* and *d*, with the straight-edge H, having the graduation *e*, the hinge I, having the concentric grooves K and K', and the screws  
60 or bolts J and J', substantially as shown and described.

4. In a measuring-instrument, the combination of the frame A, having the graduations *a* and *b*, and the hinged board G, having the  
65 lines *c* and *d*, with the straight-edge H, having the graduations *e*, the hinge I, having the concentric grooves K and K', the screws or bolts J and J', and the adjustable miter-block P, substantially as shown and described.

HARRISON CONLEE.

Witnesses:

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