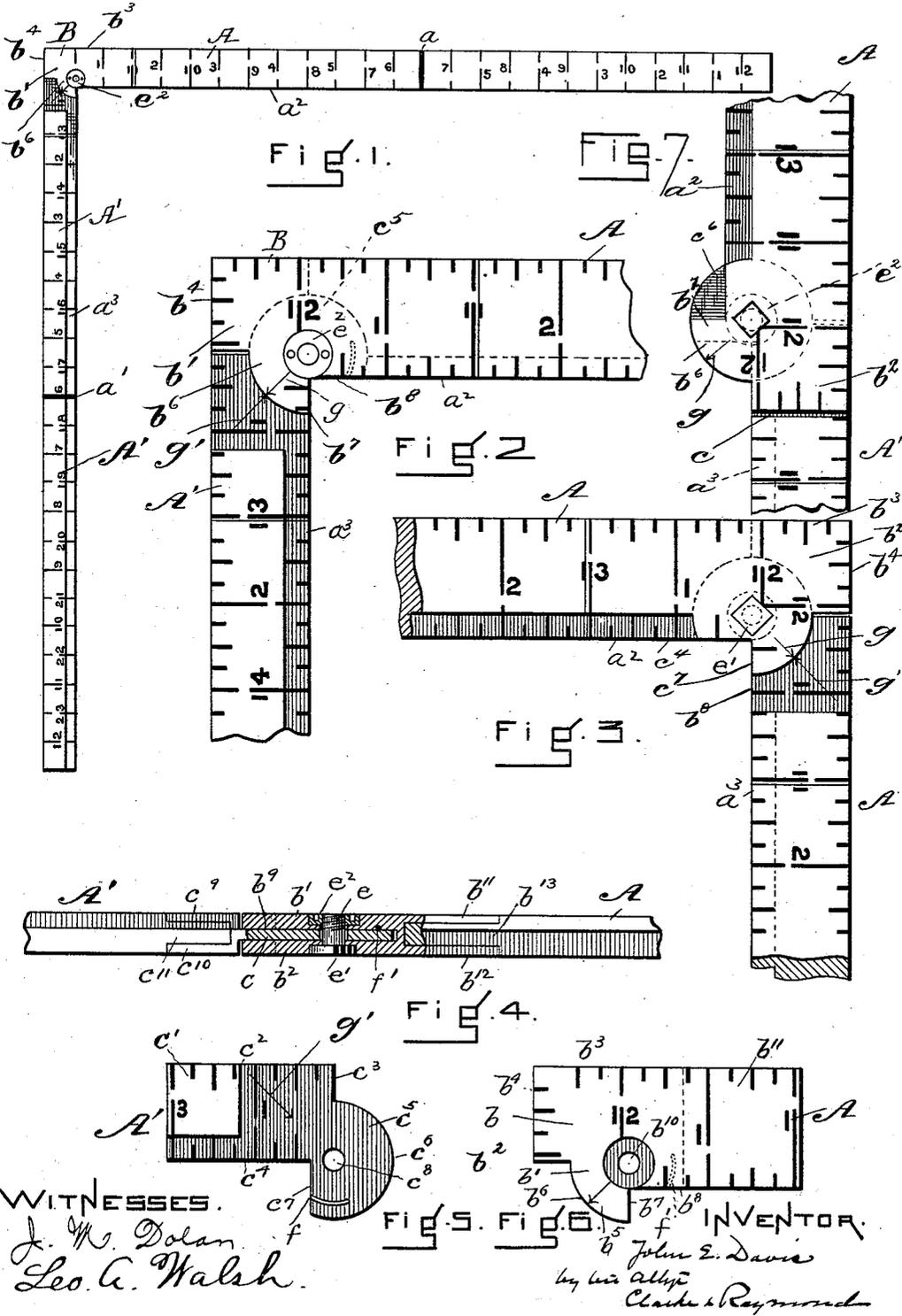


(No Model.)

J. E. DAVIS.  
FOLDING RULER.

No. 594,607.

Patented Nov. 30, 1897.



WITNESSES.  
J. W. Dolan.  
Leo. A. Walsh.

FIG. 5. FIG. 6. INVENTOR.  
John E. Davis  
by his atty.  
Clark & Raymond

# UNITED STATES PATENT OFFICE.

JOHN E. DAVIS, OF CONWAY, NEW HAMPSHIRE, ASSIGNOR OF ONE-HALF  
TO EDWARD D. HOLMES, OF NEWTON, MASSACHUSETTS.

## FOLDING RULER.

SPECIFICATION forming part of Letters Patent No. 594,607, dated November 30, 1897.

Application filed August 15, 1896. Serial No. 602,869. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN E. DAVIS, a citizen of the United States, residing at Conway, in the county of Carroll and State of New Hampshire, have invented a new and useful Improvement in Rules, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention principally relates to the construction of the hinge connecting the two main sections or arms of a folding rule, whereby square corners or angles, both inside and outside, are obtained and the rule is adapted to be used as a square. Heretofore these rules, so far as I have been aware, have had their principal hinge so constructed as to project into the angle at the meeting-point of the two arms when brought to a right angle and also to leave a space or recess at the outer corner when in such position, and consequently when bent to such an angle the arms did not form a complete square either upon the outer edges or upon the inner edges. I am enabled to provide the rule with a complete square by changing the construction of the hinges and also by changing the widths of the two main arms, my construction requiring that one of the arms be slightly wider than the other.

I will now describe the invention in connection with the drawings, wherein—

Figure 1 is a view of my folding rule opened to form a square. Fig. 2 is a detail view of the corner of the same enlarged. Fig. 3 is a view of the opposite part of the same part of the rule as that shown in Fig. 2. Fig. 4 is a view in horizontal section of the hinge and parts of the arms when the rule is wide open. Fig. 5 is a view in plan of one section or member of the hinge, and Fig. 6 is a view in plan of the other section or member. Fig. 7 is a plan view showing portions of the two members in alinement with each other to form a straight-edge.

The rule has the arms A A', which may or may not be pivoted at a a', respectively. The arm A is slightly wider than the arm A' and has a lip a<sup>2</sup>, which projects upon the rabbeted edge a<sup>3</sup> of the arm A'. The two arms are con-

nected by the hinge B, the part b of which is shaped as represented in Figs. 4 and 6—that is, it has the sections b' b<sup>2</sup> shaped in plan as represented in Fig. 6 to provide extensions having the straight edges b<sup>3</sup> b<sup>4</sup>, the ear b<sup>5</sup> having the curved outer edge b<sup>6</sup> and the straight edge b<sup>7</sup>, which is at a right angle to the edge b<sup>8</sup>. It will be seen that the said extensions b' b<sup>2</sup> embrace the reduced portion or tongue c of the member A' and when the members A A' are in alinement complete the continuity of the straight-edge, as shown in Fig. 7. Again, when the members A A' are at right angles to each other (see Fig. 3) the said extensions b' b<sup>2</sup> fill out the outer angle of the try-square. The sections b' b<sup>2</sup> have between them a space b<sup>9</sup>, which receives the tongue or part c of the hinge-section c'. The part b also has the pivot-hole b<sup>10</sup>, which extends through both sections b' b<sup>2</sup> and which is countersunk or enlarged at each end. The part b of the hinge also has the portions b<sup>11</sup> b<sup>12</sup>, forming a recess b<sup>13</sup>, into which the end of the arm A extends, the arm being recessed at its end to fit the said recess b<sup>13</sup> and to bring the sections b<sup>11</sup> b<sup>12</sup> flush with its two surfaces and the edges b<sup>3</sup> b<sup>8</sup> in line with its longitudinal edges. The hinge-section c' has the straight edges c<sup>2</sup> c<sup>3</sup> c<sup>4</sup> and the ear c<sup>5</sup>, which has the curved edge c<sup>6</sup> and the straight edge c<sup>7</sup>, which, with the edge c<sup>4</sup>, forms a right angle. The rule also has the pivot-hole c<sup>8</sup>. The part c of the hinge-section extends between the two parts b' b<sup>2</sup> of the hinge-section b and is united thereto by the pivot e. (See Fig. 4.) The hinge-section c' also has the parts c<sup>9</sup> c<sup>10</sup>, which form a recess c<sup>11</sup> and provide means by which it is fastened or secured to the end of the arm A', said end being fashioned to enter said recess c<sup>11</sup> and having its outer surfaces and edges in line with the outer surfaces of the said parts c<sup>9</sup> c<sup>10</sup> and with the edges c<sup>2</sup> c<sup>4</sup> thereof.

It will be seen that with a hinge of this construction when the arms A A' are brought to a right angle the edge b<sup>4</sup> of the hinge-section b will be in line with the outer edge of the arm A' and that said edge and the edge b<sup>3</sup> form a right angle which is continuous to the apex. It will also be seen that the edges b<sup>7</sup> c<sup>7</sup> of the ears b<sup>5</sup> c<sup>5</sup> are then at right angles with each other and that the edges b<sup>8</sup> c<sup>4</sup> come together

and form a complete right angle to the apex or point on the inner side of the rule, thus enabling the members to be placed at right angles to each other very readily by securing a coincidence of the edges aforesaid. The pivot  $e$  has a head  $e'$ , which is contained in one of the countersinks of the hole  $b^{10}$ , and the other countersink holds a nut  $e^2$ , which screws upon the threaded end of the pivot within the other countersink, and that this structure brings the attaching devices flush or within the faces of the arm or member  $A$ . It is preferable that the two parts of the hinge should be united with some stress to prevent a too easy turning of one upon the other, as it is desirable that the two arms when brought to a right-angular relation should maintain that relation and not be easily moved from it. This may be done by causing the two parts  $b' b^2$  to bind upon the tongue  $c$  of the section  $c'$  with some stress by tightening the pivot-screw by turning it in its nut, in which case it may have a slot across either end for the reception of a screw-driver, or the nut may be turned by any suitable means, or the nut may be so secured to one hinge member and the screw-pivot to the other that the act of turning the arms of the rule to a right angle will cause the screw to turn in the nut sufficiently to slightly close the two hinge-sections together and thereby hold the screw with some stress in their right-angular relation.

There may be upon the outer face of the rule lines  $g g'$  upon the hinge-sections  $b c'$ , which will indicate when brought together that the arms occupy a true right-angular relation to each other.

The rule may be made entirely of metal, if desired, and it may bear any arrangement or form of graduating marks.

By the above construction it will be seen that I provide a rule which when its two members  $A A'$  are in longitudinal alinement will form a straight-edge (see Fig. 7) and when said members are placed at right angles to each other will form a square. In order to lock the members  $A A'$  so that they will form a perfect right angle, I provide the curved rib or extension for one of the members, which enters a corresponding recess  $f'$  in the other member.

It will be understood that the hinge is so constructed as to not only provide for a continuous edge forming a complete right angle

at the corners when one part is at a right angle to the other, but that the parts may also be opened from their right-angular relation to a straight line.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. A combined straight-edge and try-square comprising the two members  $A, A'$ , adapted to be thrown into longitudinal alinement relative to each other to form a straight-edge, the ears  $b^5, c^5$ , secured to said members  $A, A'$ , said ears being provided with edges  $b^7, c^7$  which are at right angles to the edges  $b^8, c^4$  of the members  $A, A'$ , said edges  $b^7, c^7$ , serving to indicate the proper angular position of said members  $A, A'$  with respect to each other to form a try-square, and a pivot-pin  $e$  passing through said ears.

2. A combined straight-edge and try-square comprising the member  $A$  having the ears  $b^5$ , said ears having the straight edge  $b^7$ ; extensions  $b', b^2$ , formed on said member  $A$ ; and the member  $A'$  having the tongue  $c$  provided with an ear portion  $c^5$  which is pivoted between extensions  $b', b^2$  and is provided with a straight edge  $c^7$  at right angles to the body portion of the member, said straight edge  $c^7$  when brought into alinement with said straight edge  $b^7$  indicating the right-angle position of the members  $A, A'$ , a pivot-pin  $e$  passing through ears  $b^5$  and  $c^5$ , and a stop  $f$  on the face of ear  $c^5$  which engages a recess  $f'$  on one of the extensions of member  $A$ .

3. A combined straight-edge and try-square comprising the two members  $A, A'$ , both of which are rabbeted on one edge so as to close together, ears  $b^5, c^5$ , having cut-away portions to form right-angle straight edges  $b^7, c^7$ , a pivot-pin  $e$  passing through said ears, the pivotal end of member  $A'$  being reduced some distance from the hinge-joint to allow free movement of the extensions  $b', b^2$  formed on member  $A$ , said extensions  $b, b'$  not only completing the continuity of the straight-edge when the members  $A, A'$  are in alinement, but also completing the outer angle of the try-square when the members are at right angles to each other.

JOHN E. DAVIS.

Witnesses:

F. F. RAYMOND, 2d,  
J. M. DOLAN.