L. J. SWETT.

JOINTED RULE.

APPLICATION FILED MAY 11, 1907.

972,134. **Patented Oct. 4, 1910.**

2 SHEETS—SHEET 1.

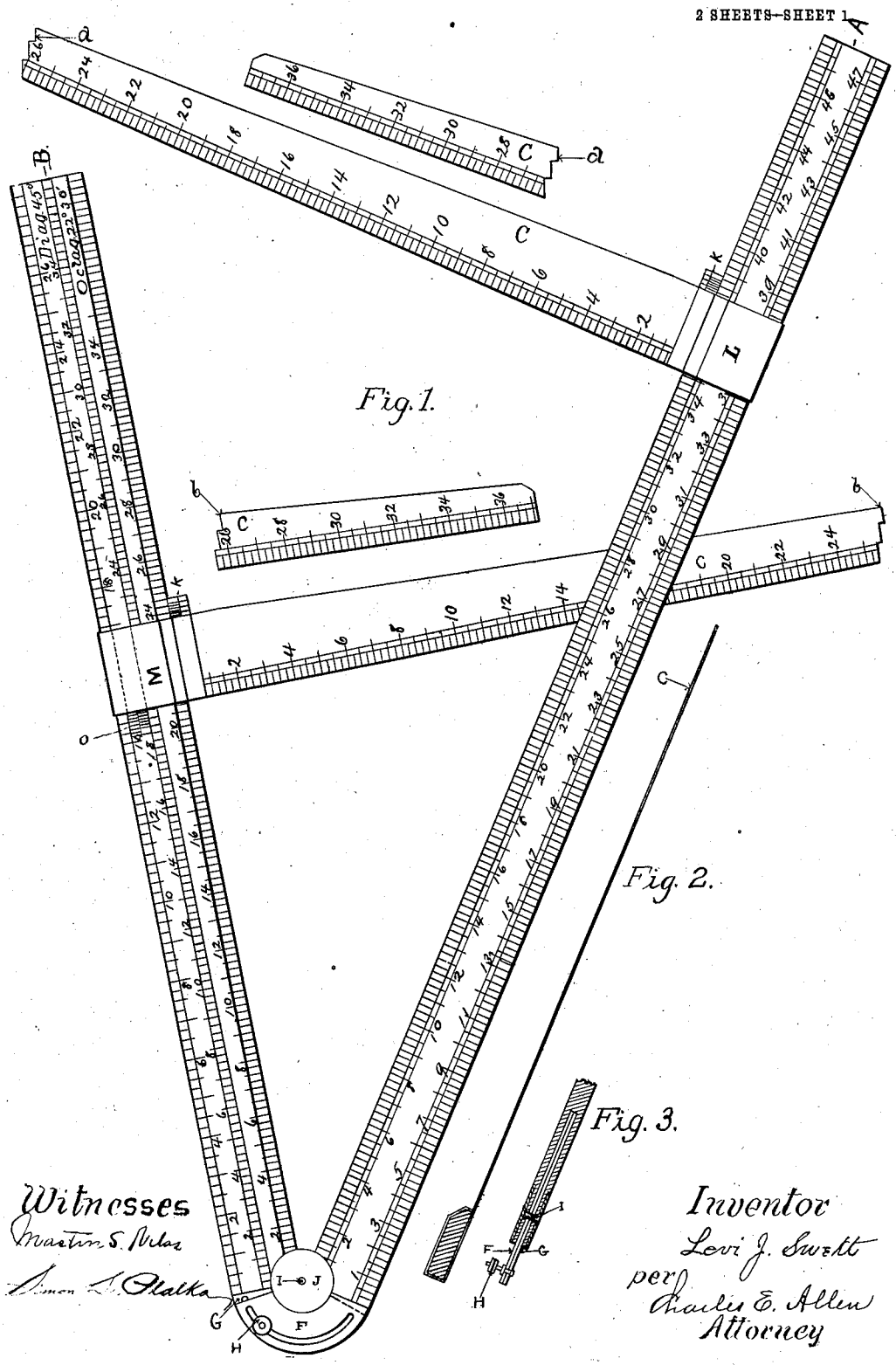

Fig. 1.

Fig. 2.

Fig. 3.

Witnesses
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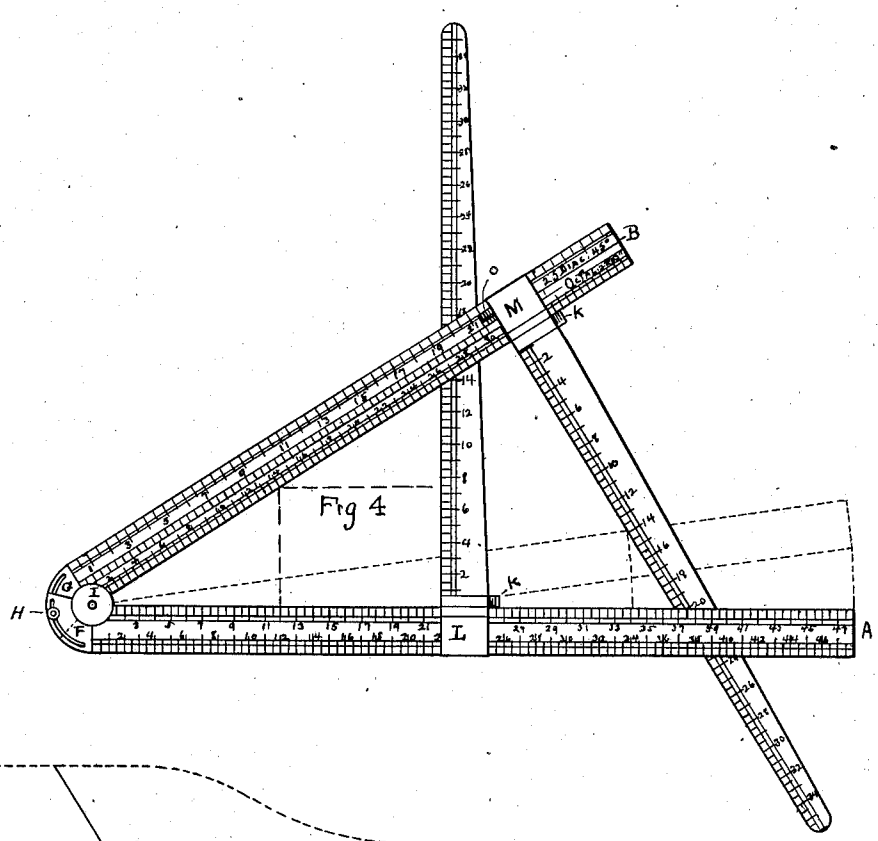

Fig 4

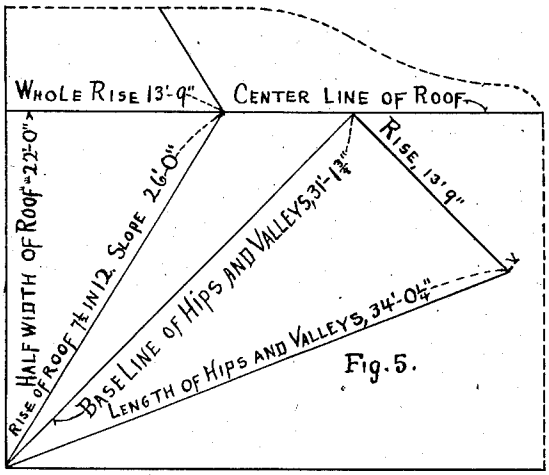

Fig. 5.

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UNITED STATES PATENT OFFICE.

LEVI J. SWETT, OF BURLINGTON, VERMONT.

JOINTED RULE.

972,134. Specification of Letters Patent. Patented Oct. 4, 1910.

Application filed May 11, 1907. Serial No. 373,150.

To all whom it may concern:

Be it known that I, LEVI J. SWETT, a citizen of the United States, residing at Burlington, in the county of Chittenden and State of Vermont, have invented certain new and useful Improvements in Jointed Rules, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to improvements in that class of mechanical instruments, known as jointed rules, which have measuring scales; and the object of my improvements is to provide a simple and reliable instrument by means of which architects, building contractors, carpenters and roofers, especially, can instantly and accurately compute the length of the hips and valleys, as well as all measurements of a roof.

It consists of a hinged rule, of any convenient or desired length, one limb, A, of which is divided into feet and inches, on a scale of one quarter of an inch to the foot; the inner edge of the other limb, B, being divided in the same manner, its outer edge into diagonal feet, (45°), and its center into octagonal feet, (22°, 30′), on the same scale. All parts of the rule are arranged to be read in inches by means of a vernier *k*, attached to the tapes C, C, which slide upon each limb of the rule. *o* is a double vernier on the slide M, of the limb B, to read the diagonal feet in inches. The tapes C, C, are of a length to correspond with that of the limbs, and are so constructed that they may slide past each other without difficulty. They are each divided into feet and inches, and are made of any suitable material; the slides L and M, to which they are attached, being preferably made of metal so that they can always be held at right angles to the limb upon which they slide. If desired, they can be rigidly secured to the limb by suitable thumb-screws.

To enable my instrument to be more clearly understood, I refer to the accompanying drawings, in which—

Figure 1, is a plan view of my rule. Fig. 2, is a cross section of the limbs of my rule. Fig. 3, is a cross section of the limbs, showing the connecting joint and the extension of the same for the clamp-screw. Fig. 4, is a half size plan view of my rule. Fig. 5, is a diagram of a part of a roof, drawn on the same scale as Fig. 4, to illustrate the practical workings of my rule.

In the drawings, A and B, are the two limbs of the rule, hinged at I, the movement of the two limbs being controlled by the thumb-screw H, which moves in a groove cut in the plates F and G, on the outside of the extension of the joint of the rule, by means of which the two limbs A and B, may be set and held at any angle to each other.

Slide L and slide M, of the tapes C, C, above referred to, are so made as to move upon their respective limbs A and B, of the rule, and to which the verniers *k*, are secured to enable the rule to be read in inches, if desired.

That I may illustrate the practical working of my invention, as shown in the drawings, (Figs. 3 and 4,) I will suppose, for example, that it is desired to ascertain the length of all measurements of a roof forty four feet in width, with a rise of seven and one half inches to the foot; first set the slide L, on the limb A, at 12 or 13 feet, as preferred, the rise of the roof being seven and one half feet in twelve feet, or fifteen feet in twenty-four feet. If set at twelve feet, then open the rule to seven and one-half feet on the tape C, of the slide L, as shown in dotted lines in Fig. 4. This gives the slope of the roof ($7\frac{1}{2}$ inches to the foot). Then move the slide L, to twenty-two feet, (one-half of the width of the roof,) shown in Fig. 4, and it is instantly found that the rise on the slide is thirteen feet and nine inches, which is the whole rise of the roof. At this point, on the inner edge of the limb B, we read twenty-six feet, which is the length of the slope. In this way, by moving the slide L toward the hinge, the length of all of the shorter rafters may be found at once.

To find the length of any hip or valley, in the same roof, set the slide M on the limb B at twenty-two, (diagonal) feet, designated on the outer edge of the limb B, and the base line of the hip or valley is instantly given, as thirty-one feet and one and three-eighths inches, on the inner edge of the limb B, without the necessity of any special plan or diagram.

Bring the limbs of the rule toward each other until the limb A, meets thirteen feet and nine inches, (the whole rise of the roof,) and it is found, on the limb A, that the length of the hip or valley will be thirty-four feet and one-quarter of an inch.

All of the above measurements corre-

spond with Fig. 5, which is given to show the usual method of obtaining these measurements, but which are ascertained by my rule in a fraction of the time by any other method. It is apparent that these measurements will be varied, according to the dimensions of the building, and gave any rise from one to forty inches.

Should it be desired to find the diagonal measure or miter of any number of feet and inches on an angle of 45°, find that number of feet and inches on the outer edge of the limb B, and on the inner edge of the same limb, exactly opposite, is the diagonal measurement sought for.

The center line of divisions on limb B, are octagonal feet, (angle 22° 30′), and can be used in the same way for octagonal roofs.

Having thus described my invention, what I claim is:—

1. A rule consisting of two limbs A and B pivoted together at one end, means for holding the limbs in their adjusted position, slides carried by the limbs and longitudinally movable thereon, flexible tapes carried by the lower edge of the slides and divided on their inner edges into feet and inches, verniers carried by the slides adjacent the limbs whereby the same can be read in inches, the inner and outer edges of the limb A divided into feet and inches, the inner edge of the limb B divided into feet and inches, and its outer edge into diagonal feet and inches on the same scale, and the center of the limb B divided into octagonal feet and inches on the same scale.

2. A rule consisting of two limbs A and B pivoted together, adjacent one end at their inner edges, outwardly extending plates carried by the limbs beyond the pivot and having registering segmental slots, a thumb-bolt passing through the slots and locking the limbs in their adjusted position, slides carried by the limbs and longitudinally movable thereon, flexible tapes carried by the lower edge of the adjustable slides and flush therewith, whereby they pass under the limbs and upon which the limbs rest, said tapes divided on their inner edges into feet and inches, the inner and outer edges of the limb A divided into feet and inches, the inner edges of the limb B divided into feet and inches and its outer edge into diagonal feet and inches on the same scale, and the center of the limb B divided into octagonal feet and inches on the same scale.

In testimony whereof I do affix my signature in presence of two witnesses.

LEVI J. SWETT.

Witnesses:
CHARLES H. CRANDALL,
EDWARD E. MORGAN.