(No Model.) 2 Sheets—Sheet 1.

W. P. ROOSA.

STAIR BUILDER'S GAGE.

No. 597,915. Patented Jan. 25, 1898.

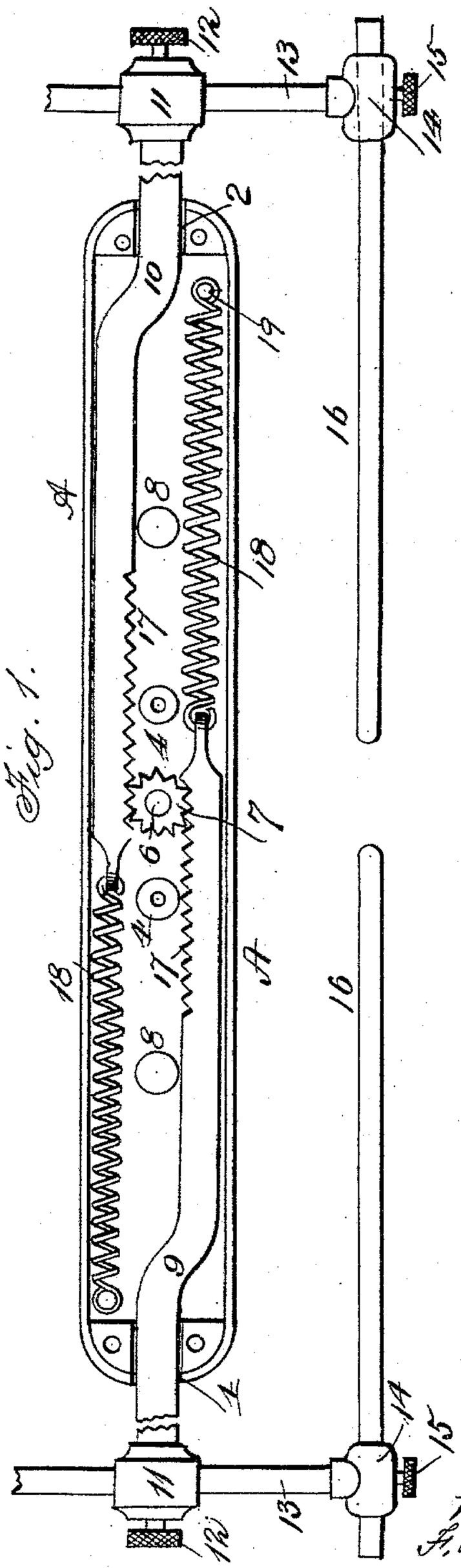

Fig. 1.

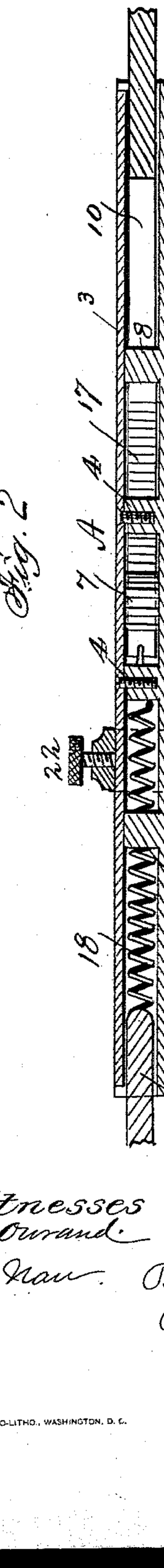

Fig. 2.

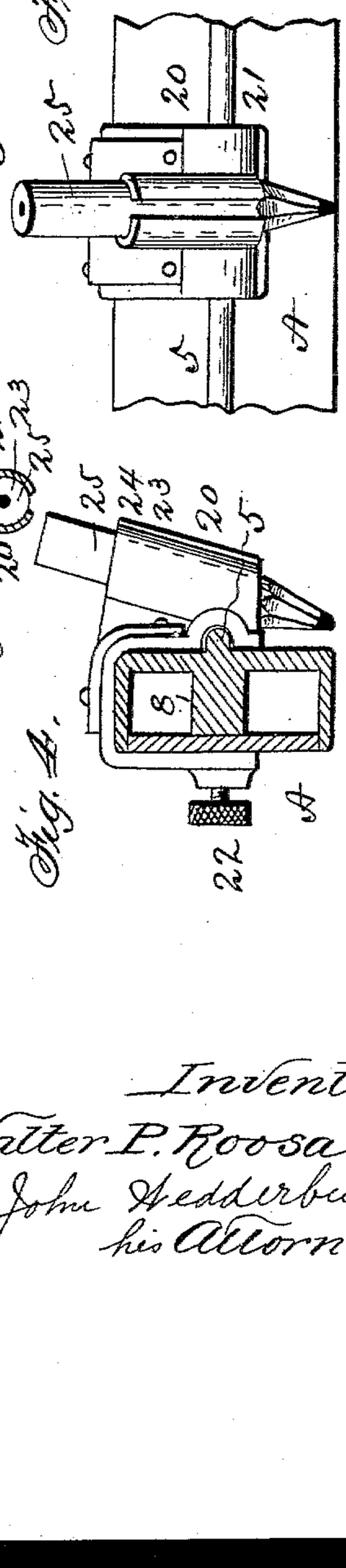

Fig. 3.

Fig. 4.

Witnesses
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Inventor
Walter P. Roosa
By John Hedderburn
his Attorney

(No Model.) 2 Sheets—Sheet 2.

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FIG. 5.

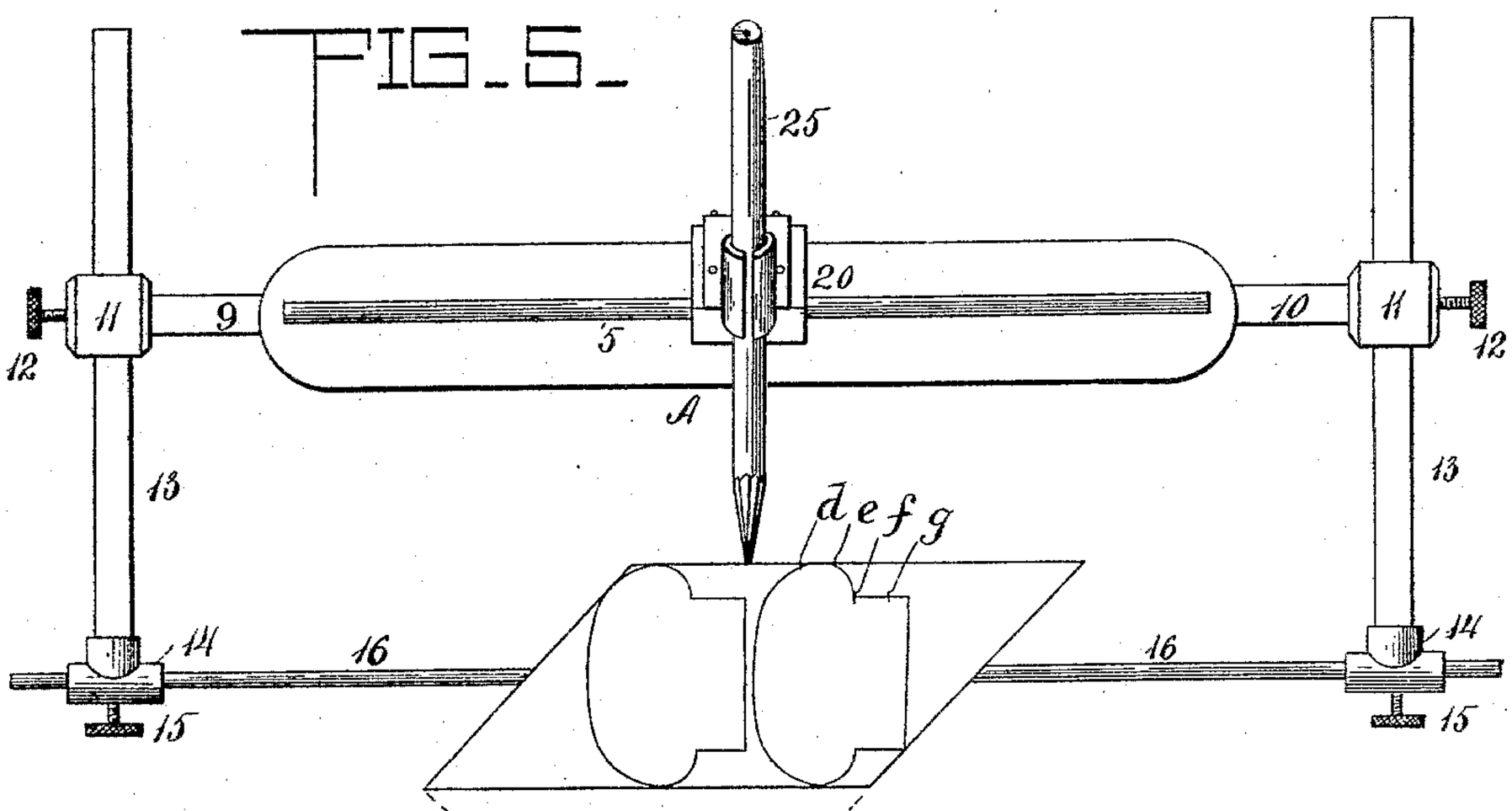
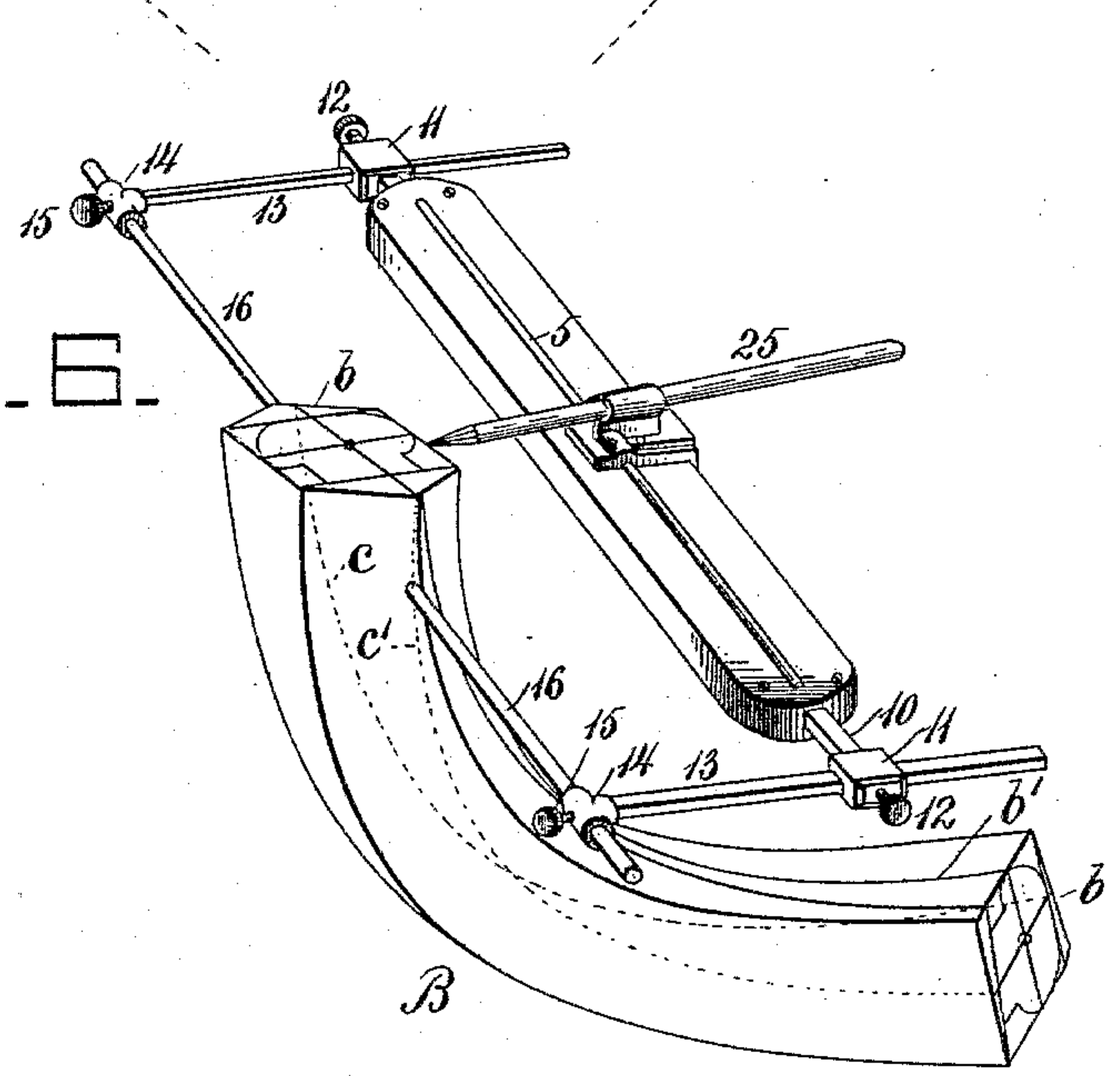


FIG. 6.



WITNESSES

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Attorney

UNITED STATES PATENT OFFICE.

WALTER P. ROOSA, OF WATERBURY, CONNECTICUT.

STAIR-BUILDER'S GAGE.

SPECIFICATION forming part of Letters Patent No. 597,915, dated January 25, 1898.

Application filed June 1, 1896. Serial No. 593,818. (No model.)

To all whom it may concern:

Be it known that I, WALTER P. ROOSA, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Stair-Builders' Gages; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to stair-rail gages for determining the "twist" of the wreath-piece of the rail.

Heretofore, so far as I am aware, stair-rails have consisted of a body or frame, adjustable rods or markers, and a pencil. The markers are used to play along the sides of the wreath-piece and the pencil to define the twist-line. In wreath-pieces, however, the length of the plumb or center line is constantly changing from one end to the other of the piece inasmuch as said line is changing its angle with the face of the plank or piece. Hence the length of the center line at one end of the piece is greater than at the other, and in the old form of gage the markers or pointers are not adapted to properly define the twist-line, because said pointers do not automatically adjust themselves to the constantly-varying length of the center or plumb line.

My object is to provide a stair-rail gage adapted for determining the twist-line of the wreath-piece without necessitating computation of any kind.

A further object is to provide a stair-rail gage which will be of such improved construction that the pointers or markers will automatically adjust themselves to the varying length of the center or plumb line, and hence the pencil will properly define the twist-line.

The foregoing objects are accomplished by the provision of a stair-rail gage comprising in its make-up certain improved features and novel combinations of parts appearing more fully hereinafter.

In the accompanying drawings, Figure 1 is a side elevation of my improved gage, showing the cover removed and the gage-rods separated as if in use; Fig. 2, a longitudinal section; Fig. 3, a detail view showing the adjustable pencil and its holder in position on the cover; Fig. 4, a view in cross-section showing the pencil and its holder; Figs. 5 and 6, views showing the application of the gage when determining the twist-line of a wreath-piece.

A designates the elongated casing, provided with openings 1 and 2 at its ends and having a cover 3 held in position by screws which connect it to lugs 4. Said casing has a longitudinal spline or key 5. The casing is also provided with a centrally-disposed pintle 6, on which a pinion 7 is revolubly mounted. Additional studs 8 are also provided to further strengthen the cover.

The numerals 9 and 10 designate duplicate adjusting-rods having bent portions that pass through the openings 1 and 2 and are provided with a clamping-box 11 and a clamping-screw 12. A rod 13 passes through the box and is adjustable in relation thereto, said rod carrying a clamping-box 14 and a clamping-screw 15 on one end. A round steel gage-rod 16 is received in the clamping-box 14, as shown. That portion of the adjusting-rod which lies within the casing is provided with a rack 17, meshing with the pinion 7. A coil-spring 18 connects the adjusting-rod with a stud 19, projecting from the casing and exerts a tendency to keep said adjusting-rod retracted and the ends of the gage-rods in contact. This peculiar arrangement of the parts causes the adjusting-rods, and hence the gage-rods, to be advanced or retracted at an equal rate.

I provide an adjustable pencil-holder 20, which straddles the casing, being provided with a keyway 21, which receives the key 5, and having a set-screw 22 for clamping it in position. An inclined slotted pencil-clasp 23 is connected to the holder by an angular plate 24.

The pencil is designated by the numeral 25.

The gage is used in the following manner: The pencil-holder is set at the right position in relation to the central point of the casing.

Referring to Fig. 6, it will be seen how my improved gage is used. B designates a wreath-piece whose sides have been worked plumb from the face-mold. The center or plumb line of this wreath-piece is shown at *b*.

Owing to the shape of the wreath-piece it will be observed that the length of the line *b* at the top of the piece is somewhat longer than the length of the same line at the lower end of said piece. The length of this center line *b* is constantly changing or varying from its length at its upper end to that at its lower end. On account of this constantly-varying length of the center line the old form of gage is not well adapted to perform its purpose. The twist-line is shown at *b'*. This twist-line is the line defined by the pencil-gage, and it is obvious that the old form of gage would not properly define this twist-line inasmuch as the pointers or markers do not at all times automatically adjust themselves to the variations in length of the center or plumb line *b*. With my gage, however, the pointers or gage-rods are at all times kept in contact with the faces of the wreath-piece, and hence the twist-line is properly defined. The paths of the tips of the gage-rods are shown at *c* and *c'*. The shape of the ends of the finished rail are seen at the ends of the wreath-piece. The advantage of having the pencil adjustable on the casing will be seen from an inspection of the drawings, where it will be observed that as many twist-lines can be marked off successively as found desirable—as, for instance, at the points *d*, *e*, *f*, and *g*.

Having thus described the invention, what is claimed as new is—

1. In a stair-rail gage, the combination with a casing, of a pinion, adjusting-rods having racks in mesh with the pinion, gage-rods connected to the adjusting-rods, and springs connected to the adjusting-rods and retracting the gage-rods toward each other, substantially as described.

2. In a stair-rail gage, the combination with a casing having a longitudinally-extending key or spline, of a pencil-holder slidable longitudinally of the key and casing, a clamping-screw carried by said pencil-holder, which is adapted to secure the same to the casing in adjusted position, gage-rods adapted for simultaneous and equal actuation longitudinally of the casing in relation thereto and located on opposite sides of the pencil-holder but which are independent of the latter.

3. In a stair-rail gage, the combination with a casing, of a pinion, adjusting-rods each provided with a rack meshing with the pinion, gaging devices connected to said adjusting-rods, springs connected to the adjusting-rods and to the casing, said springs drawing the gage-rods toward each other, and a scratch-point or pencil secured to the casing and adjustable longitudinally of the same and which is fixed relatively to the adjusting-rods.

4. In a stair-rail gage, the combination with a casing, of a marker carried thereby and simultaneously and equally spring-retracted gage-rods carried by said casing and adapted for extension in opposite directions from each other, being located on opposite sides of the marker.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WALTER P. ROOSA.

Witnesses:
MARIA J. ROOSA,
C. BRADSHAW.