

No. 716,899.

Patented Dec. 30, 1902.

F. JENSEN.

MEANS FOR REPAIRING WOODEN STAIRS.

(Application filed Mar. 21, 1901.)

(No Model.)

Fig. 1.

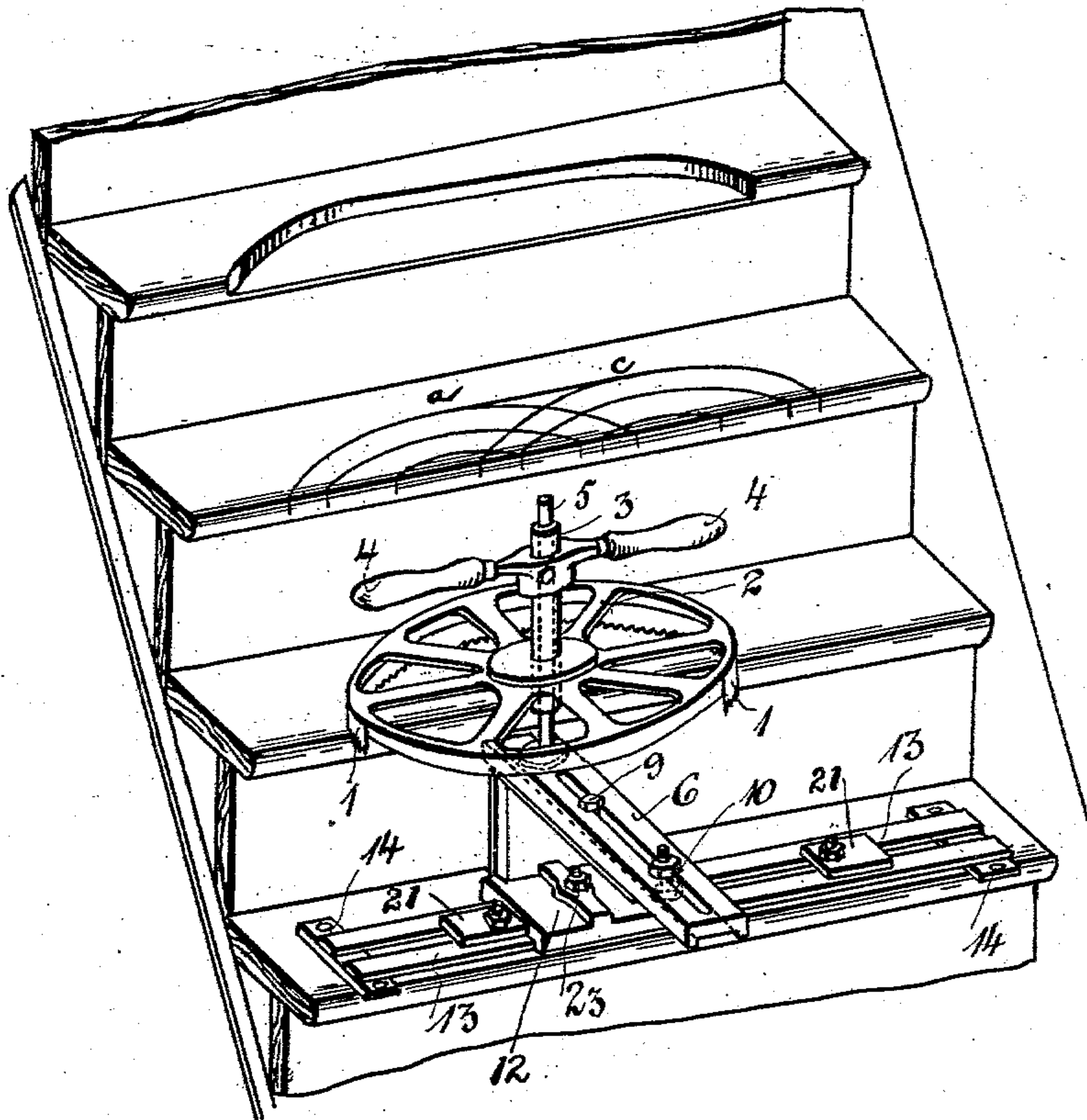


Fig. 2.

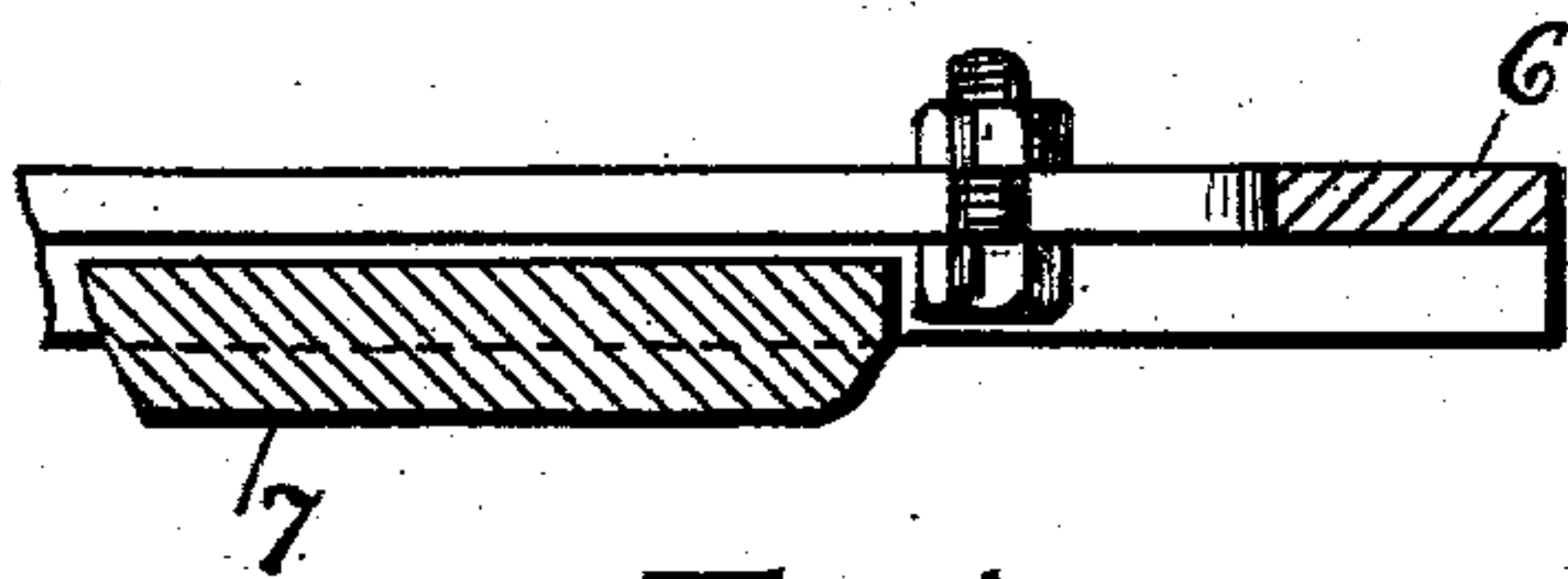


Fig. 3.

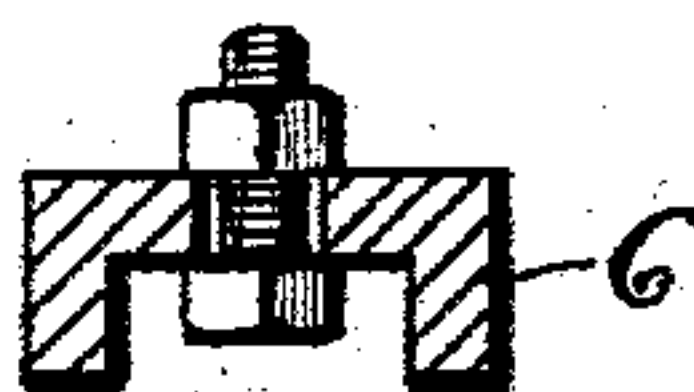


Fig 4.

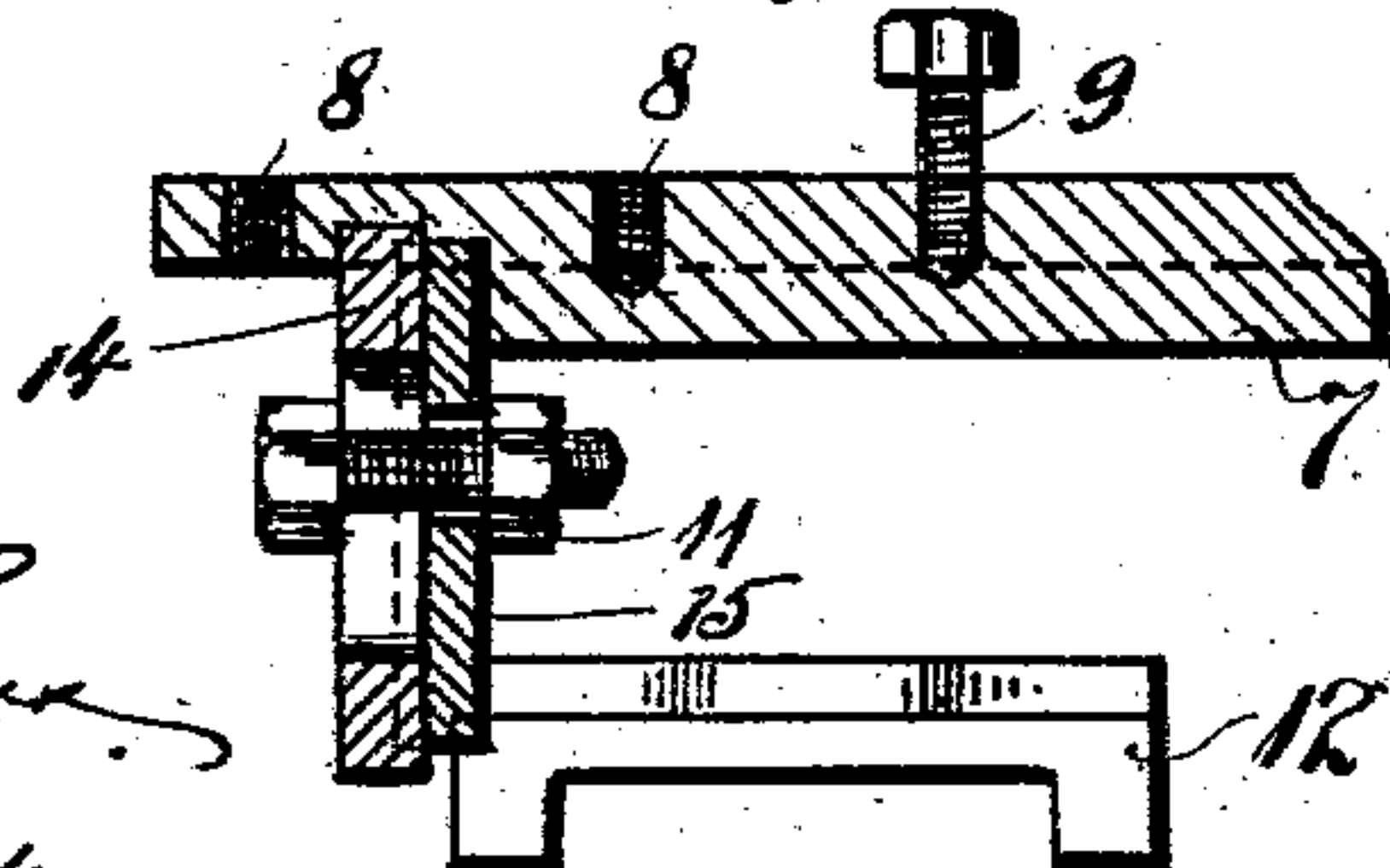
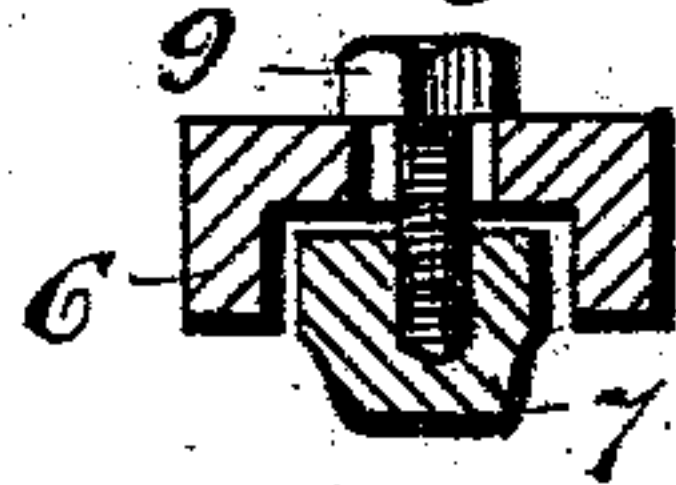


Fig. 5



Attest:
 [Signature]
 Mary J. Markam.

of Invention:—
Frederick Jensen
by Charles H. Allen *Att'y*

UNITED STATES PATENT OFFICE.

FREDERIK JENSEN, OF COPENHAGEN, DENMARK.

MEANS FOR REPAIRING WOODEN STAIRS.

SPECIFICATION forming part of Letters Patent No. 716,899, dated December 30, 1902.

Application filed March 21, 1901. Serial No. 52,208. (No model.)

To all whom it may concern:

Be it known that I, FREDERIK JENSEN, a resident of Copenhagen, Denmark, have invented a new and useful Improvement in Means for
5 Repairing Wooden Stairs, which invention is fully set forth in the following specification.

In methods hitherto in use for repairing worn-out wooden stairs, such as by inlaying new wooden boards or other suitable material, the removal of that part of the step to
10 be replaced is a troublesome labor of long duration, being usually cut away by hand with a mortise-chisel or cold-chisel and the inlays being afterward adjusted. The many strokes
15 upon the chisel, particularly the vertical ones, tend to destroy the stucco or plaster with which the back part of the staircase is usually covered, thus necessitating further repairs.

20 This present invention has for its object to obviate these disadvantages and to provide means whereby a piece of the same shape and the same dimensions is cut out of every step, so that inlays of even shape and dimensions
25 may be used for all the steps, whereby the adjustment of each single inlay is done away with.

This invention consists in a crown-saw mounted upon an adjustable frame for making
30 ing vertical circular cuts of an equal depth into the stairs to be repaired, the wood between the cuts afterward to be cut away by means of an ordinary flat chisel, and finally in planing the bottom of the cuttings by suitable means, the recesses thus formed in all
35 the steps being of the same shape and dimensions. The pieces to be inserted may now be fastened in the ordinary manner by screws, nails, or the like.

40 In order that my invention may be readily understood and carried into effect, I will now describe the same fully with reference to the accompanying drawings, in which—

Figure 1 shows four steps of a staircase.
45 The frame of the crown-saw is shown in position on the lowest step, the saw just commencing to make a vertical cut into the next following step, while the vertical circular cuts are shown on the third step. Figs. 2 and 3
50 show, respectively, a longitudinal section and a cross-section through the slide and the rail

of the adjustable frame with the stop for the slide. Figs. 4 and 5 show, respectively, a longitudinal section and a cross-section of the connection between the upper and the lower
55 part of the supporting-piece for the adjustable frame.

The crown-saw consists of an ordinary broad saw-blade 1 and is fixed to the edge of a wheel or disk 2, mounted on a sleeve or hub
60 3, rotatable on spindle 5. On sleeve 3 are fastened handles 4 for the purpose of imparting rotary motion to the saw.

The vertical spindle 5 is fixed upon the end of a horizontal slide 6, adapted to move upon
65 the rail 7, fixed on the upper part of a supporting-piece, said rail being provided with suitable holes 8, Fig. 4, adapted to receive a screw 9, thereby fastening the slide 6 to the rail 7. An adjustable screw and nut 10 serve
70 as a stop for the horizontal movement of the saw, thus keeping the width of the cutting constant.

The upper part 14 of the supporting-piece may slide upon the lower part 15, and there-
75 by be raised or lowered perpendicularly and be held in any position by means of the screw 11, passing through a slot in the former. The supporting-piece, which thus serves for adjustment of the saw partly in respect to the
80 different heights of the steps and partly in respect to the width and the depth to be given to the cuttings, may through the sliding piece 12 slide upon a cross-piece 13, whose end
85 pieces 14 may be fastened to the step below the step being worked upon. The sliding piece 12 may be secured to the cross-piece 13 by the screw 23. The stops 21, sliding between the pieces 13, may be secured to the
90 latter at any position, thereby limiting the movement of the slide 12, and consequently the distance between the outermost vertical cuts and the shape of the whole cut.

If it be desired to make the inlays wedge-shaped, wedges of a similar shape must be
95 put under the end pieces 14, the apparatus thereby obtaining a corresponding oblique position.

Wherever the stairs are a little worn only and if it be desired to give the cutting the
100 shape of a segment of a circle, this may be done by reversing the sliding piece 6, where-

by the distance between the step and the spindle 5 is increased, so that a crown-saw with a larger radius may be employed.

After making the necessary number of circular cuts the apparatus is taken away, a straight cut on the line *ac* is made to the same depth as the circular one, thus connecting the two extreme circular cuts, and the wood between the cuts is then removed with a mortise-chisel or flat cold-chisel and the bottom of the cuttings planed by suitable means.

In operation the rail 7 is adjusted to such height that when the desired depth of cut has been reached the lower end of sleeve or hub 3 comes into contact with the upper surface of slide 6, thus preventing a deeper cut. In this manner the several cuts produced by the saw are accurately made of uniform depth.

What I claim is—

1. In an apparatus for repairing stair-steps, a rotatable and axially-movable crown-saw, an upright spindle on which the saw is mounted to overhang the step to be operated upon, and a support for the spindle.

2. In an apparatus for repairing stair-steps, a rotatable and axially-movable crown-saw, an upright spindle on which the saw is mounted to overhang the step to be operated upon, and a support on which the spindle is adjustable in a direction transverse to the step.

3. In an apparatus for repairing stair-steps, a rotatable and axially-movable crown-saw, an upright spindle on which said saw is mounted to overhang the step to be operated upon, and a support for the spindle, said support being adjustable to different positions longitudinally of the steps.

4. In an apparatus for repairing stair-steps,

a rotatable axially-movable crown-saw, an upright spindle on which said saw is mounted to overhang the step to be operated upon, a support on which the spindle is adjustable in a direction transverse to the steps, and a frame or way upon which said support is adjustable in a direction longitudinal to the steps.

5. In an apparatus for repairing stair-steps, a rotatable axially-movable crown-saw, a spindle upon which the saw is mounted to overhang the step to be operated upon, a slide on which the spindle is mounted, a rail on which the slide is adjustable in a direction transverse to the steps, a support for the rail, and a frame or way adapted to be temporarily fastened to one of the steps and upon which the support is adjustable in a direction longitudinal of the steps.

6. In an apparatus for repairing stair-steps, a rotatable axially-movable crown-saw, a spindle upon which the saw is mounted to overhang the step to be operated upon, a slide on which the spindle is mounted, a rail on which the slide is adjustable in a direction transverse to the steps, a support on which the rail is vertically adjustable, and a frame or way adapted to be temporarily fastened to one of the steps and upon which the support is adjustable in a direction longitudinal of the steps.

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

FREDERIK JENSEN.

Witnesses:

J. H. V. BRAMMER,
S. CHRISTENSEN.