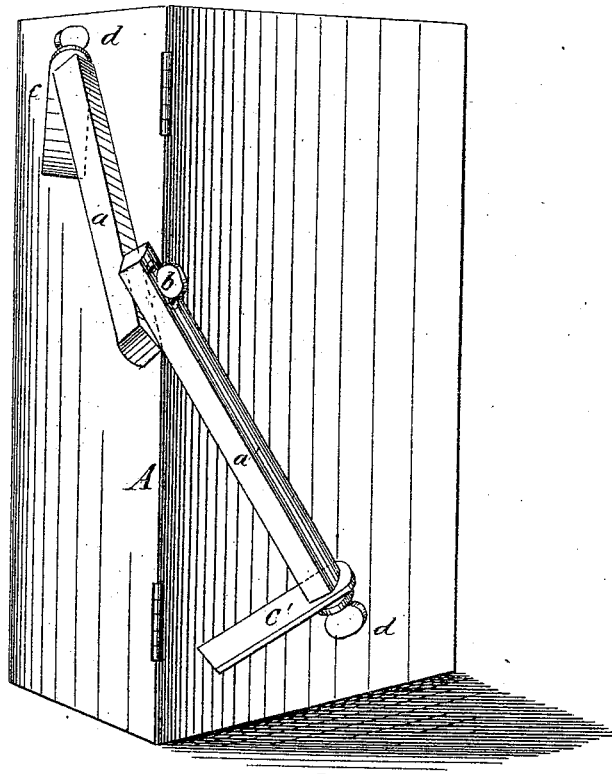


T. SIMONSON.  
STAIR-BUILDERS' TOOLS.

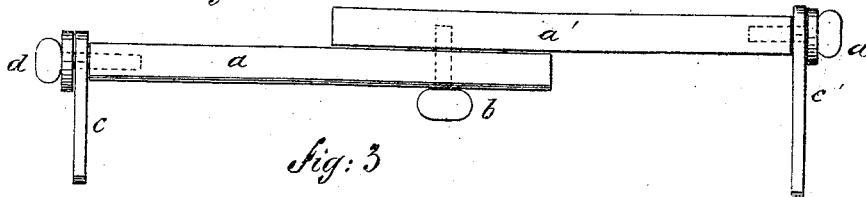
No. 183,222.

Patented Oct. 10, 1876.

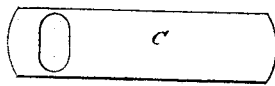
*Fig: 1.*



*Fig: 2.*



*Fig: 3*



WITNESSES:

*Cmas. N. ...  
John ...*

INVENTOR:

*T. Simonson*

BY

*Mumford*

ATTORNEYS.

# UNITED STATES PATENT OFFICE.

THEODORE SIMONSON, OF HILLSBOROUGH, OHIO.

## IMPROVEMENT IN STAIR-BUILDERS' TOOLS.

Specification forming part of Letters Patent No. **183,222**, dated October 10, 1876; application filed June 20, 1876.

*To all whom it may concern:*

Be it known that I, THEODORE SIMONSON, of Hillsborough, in the county of Highland and State of Ohio, have invented a new and Improved Stair-Builder's Tool, of which the following is a specification:

Figure 1 is a perspective view. Fig. 2 is a side elevation. Fig. 3 is a detail view of one of the parts.

Similar letters of reference indicate corresponding parts.

My invention relates to the class of tools used by stair-builders in getting the pitch, bevels, and length of wreaths or twists in hand-rails; and it consists of two bars of wood or other material hinged or pivoted together, having at their free ends adjustable slotted pieces, which are held in place by thumb-screws, the object being to provide an instrument which will facilitate the work referred to by avoiding the complication of geometric lines, usually resorted to, and accomplishing the desired result with two simple lines.

To do this I provide two pieces of board of equal length, and hinge them together in such a manner as to present a sharp angle, as shown at A in Fig. 1. These boards are held in any required position by slotted pieces and a thumb-screw, placed in the angle formed by the boards. This device is placed on the ground-plan of the stairway, with the face side to lines tangent to the circle formed by the center of the hand-rail. A line is then drawn on each piece of board at the required

pitch, giving the pitch of each tangent. These are the only lines required.

The device just described is auxiliary to my improvement described below.

Two bars or arms, *a a'*, of wood or other suitable material, are jointed or pivoted together by the thumb-screw *b*. Slotted pieces *c c'* are attached to the ends of the bars *a a'* by thumb-screws *d d'*, and are held at right angles with the bars.

The manner of using my device is as follows: The bars *a a'* are placed on the pitch-lines on the boards previously described, the upper surface of the bar *a* and the under surface of the bar *a'* being placed on the lines. The thumb-screw *b* is then tightened, holding the bars *a a'* rigidly at the required angle. At the same time the adjustable pieces *c c'* at the ends of the bars are placed against the sides of the boards and tightened by the thumb-screws *d d'*. The angle between the bars or arms *a a'* is the one by which the joints of the twist may be squared, and the adjustable pieces *c c'* give the bevel for the end or joint of the twist.

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

The combination of the bars *a a'*, adjustable pieces *c c'*, and the screws *b*, *d*, and *d'*, substantially as shown and described.

THEODORE SIMONSON.

Witnesses:

WM. HOYT,  
R. R. WATTS.