

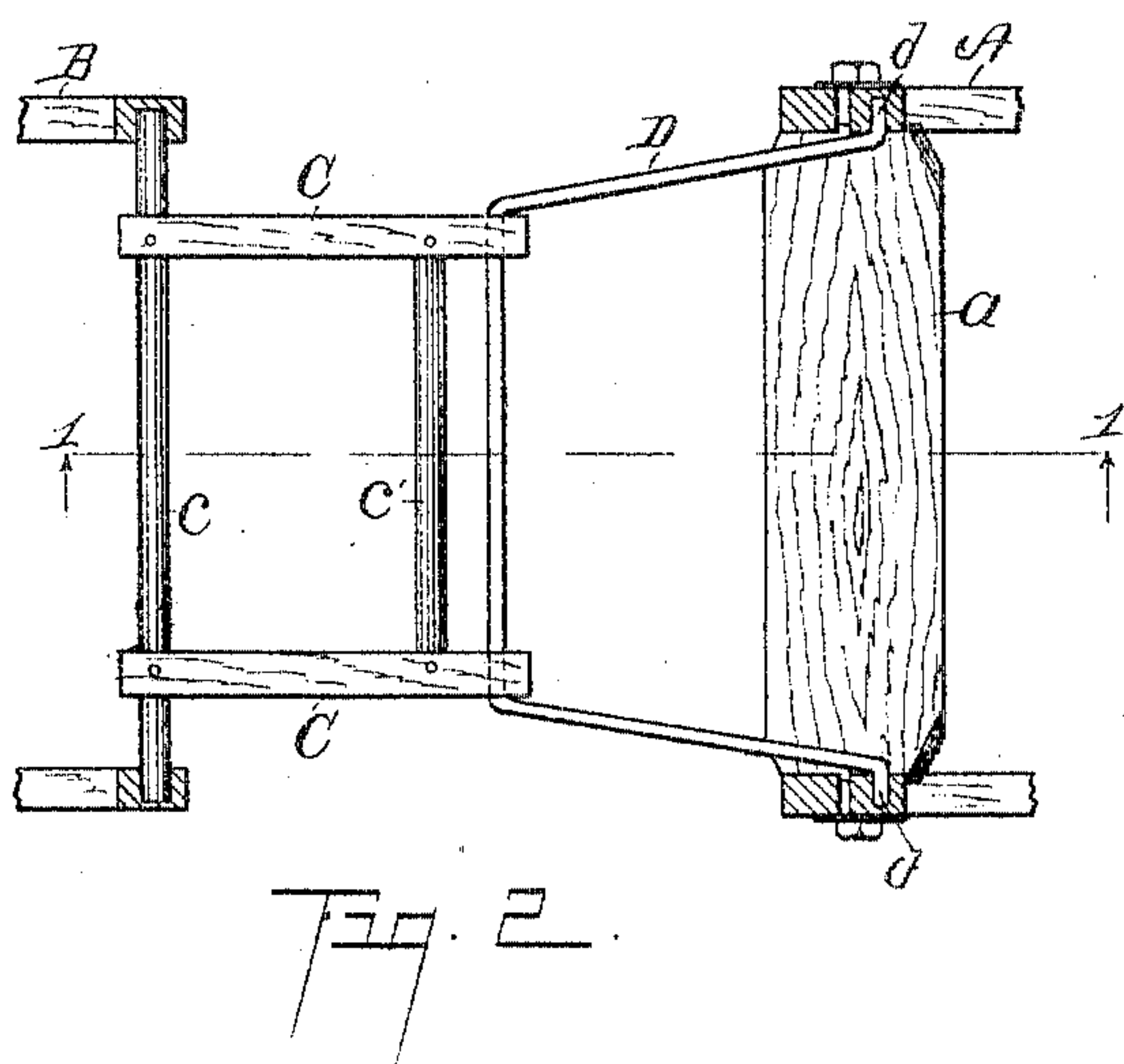
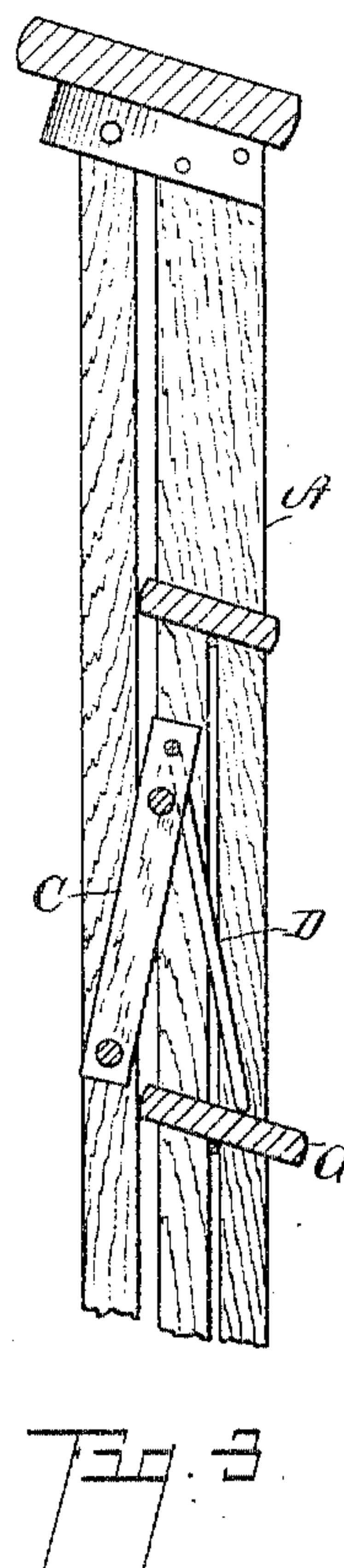
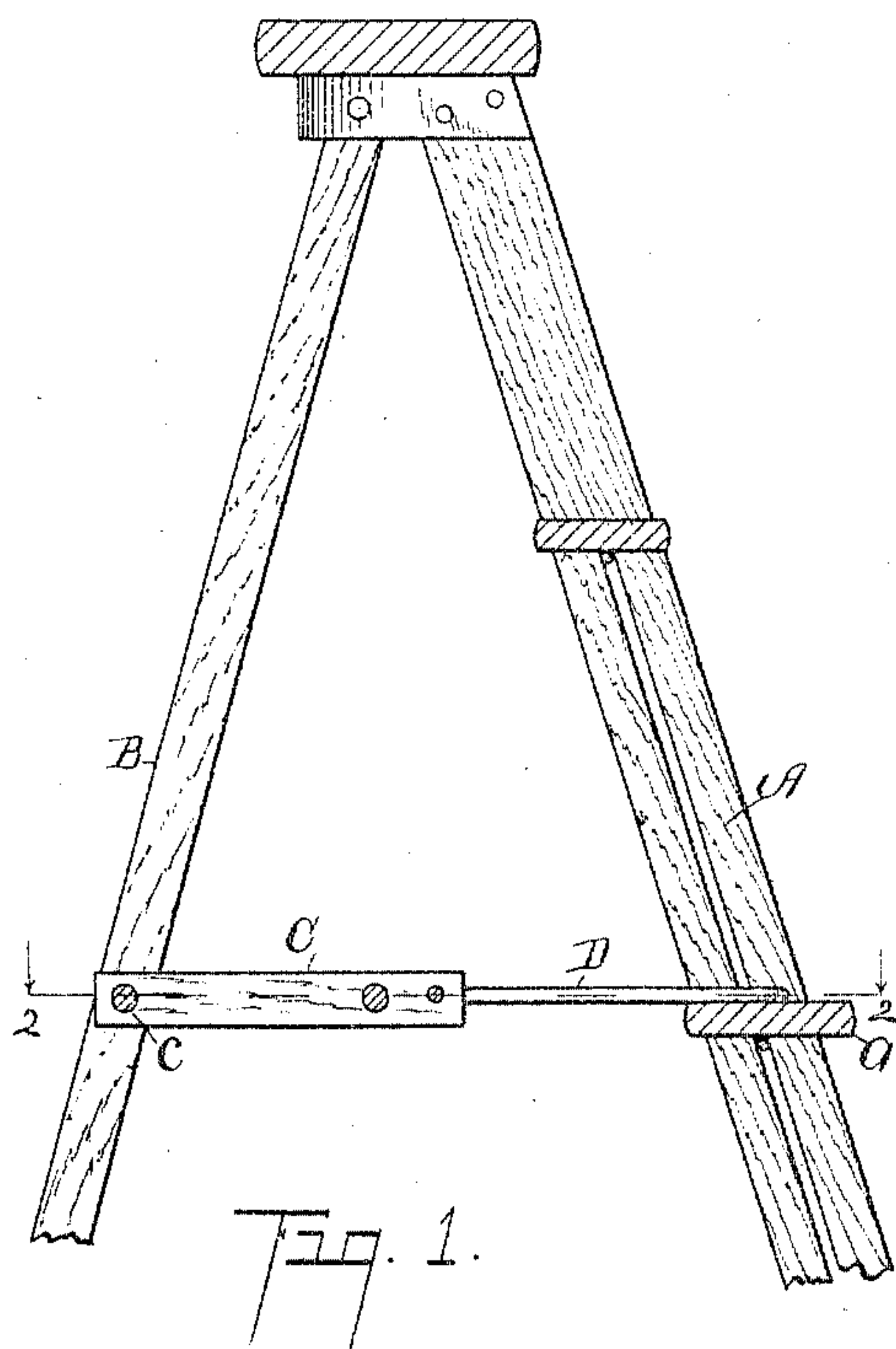
No. 777,069.

PATENTED DEC. 13, 1904.

A. P. BOYER.
STEP LADDER.

APPLICATION FILED MAR. 16, 1904.

NO MODEL.



Witnesses:

Estel A. Selber
Q to R Carl

Inventor,

By Allen P. Boyer
Fred L. Chappell
Att'y.

UNITED STATES PATENT OFFICE.

ALLEN P. BOYER, OF GOSHEN, INDIANA.

STEP-LADDER.

SPECIFICATION forming part of Letters Patent No. 777,069, dated December 13, 1904.

Application filed March 16, 1904. Serial No. 198,452. (No model.)

To all whom it may concern:

Be it known that I, ALLEN P. BOYER, a citizen of the United States, residing at the city of Goshen, county of Elkhart, State of Indiana, have invented certain new and useful Improvements in Step-Ladders, of which the following is a specification.

This invention relates to improvements in step-ladders.

It relates particularly to improvements in locking means therefor.

The objects of this invention are, first, to provide an improved step-ladder, an improved locking means which shall serve as an effective lock and also as a brace for the ladder; second, to provide an improved step-ladder which is simple and economical in structure and strong and durable.

Further objects and objects relating to structural details will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined, and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a detail vertical sectional view of a structure embodying the features of my invention, taken on a line corresponding to line 1 1 of Fig. 2. Fig. 2 is a detail cross-sectional view taken on line 2 2 of Fig. 1. Fig. 3 is a detail vertical sectional view corresponding to that shown in Fig. 1, showing the ladder in its collapsed position.

In the drawings the sectional views are taken looking in the direction of the little arrows at the ends of the section-lines, and similar letters of reference refer to similar parts throughout the several views.

Referring to the lettered parts of the drawings, the risers A, which are provided with suitable steps *a*, and the struts B are pivotally secured together in the usual or any desired manner. A pivot-rod *c* is arranged in suitable bearing-sockets in the inner faces of the struts B. Secured to this pivot-rod are forwardly-projecting arms or bars C, which are

connected by a cross piece or round *c'*, making a rigid frame. A bail-like member D, formed of a rod having its ends turned outwardly to form journals or pivots *d*, is pivotally arranged through the forward ends of the bars C. The pivots *d* engage suitable bearing-sockets in the inner faces of the risers A. These bearings are located adjacent to and above one of the steps *a*, so that when the locking device is in its operative position the member D rests upon the step, thereby holding the locking device in position. When the risers and the struts are in their extended position, the point of pivotal connection of the locking members falls below their bearing connections to the risers and the struts, thereby locking the parts in their extended position. When it is desired to collapse the ladder, the inner ends of the locking members are lifted upwardly beyond their dead-center, which releases them and allows the risers and struts to be collapsed.

My improved locking device serves as a very effective brace for the steps and risers. I am by this arrangement of parts enabled to make the struts and risers and their connections of comparatively light material, and the structure will be very rigid, strong, and durable. When the ladder is collapsed, the locking device folds between the risers and struts, so that the structure is very compact.

I have illustrated my improved step-ladder in the form preferred by me on account of its simplicity and strength. I am, however, aware that it is capable of considerable structural variation without departing from my invention.

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

1. In a step-ladder, the combination of the risers; suitable steps therefor; struts pivotally secured to said risers; a pivot-rod arranged in suitable sockets in said struts; forwardly-projecting bars having a suitable cross-piece at their forward ends forming a rigid frame, secured to said pivot-rod; a bail-like member having its ends turned outwardly to form journals, pivotally arranged through the forwardly-projecting arms or bars C, which are connected by a cross piece or round *c'*, making a rigid frame. A bail-like member D, formed of a rod having its ends turned outwardly to form journals or pivots *d*, is pivotally arranged through the forward ends of the bars C. The pivots *d* engage suitable bearing-sockets in the inner faces of the risers A. These bearings are located adjacent to and above one of the steps *a*, so that when the locking device is in its operative position the member D rests upon the step, thereby holding the locking device in position. When the risers and the struts are in their extended position, the point of pivotal connection of the locking members falls below their bearing connections to the risers and the struts, thereby locking the parts in their extended position. When it is desired to collapse the ladder, the inner ends of the locking members are lifted upwardly beyond their dead-center, which releases them and allows the risers and struts to be collapsed.

ward ends of said bars; and suitable pivot-sockets in said risers located adjacent to and above one of the steps, adapted to receive said journals, all coacting for the purpose specified.

- 5 2. In a step-ladder, the combination of suitable risers; suitable steps therefor; struts pivotally secured to said risers; a locking device consisting of a rigid frame member, pivotally secured to said struts; and a member pivotally
10 secured to said frame and to said risers, the pivot-point of said member to said risers be-

ing adjacent to and above one of said steps and adapted to rest thereon when in its extended position, to support the locking device in its operative position, for the purposes specified. 15

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

ALLEN P. BOYER. [L. s.]

Witnesses:

E. E. MUMMERH,

CAL A. FORNEY.