

No. 702,574.

Patented June 17, 1902.

A. MAU & C. PAESEL.

STEP LADDER.

(Application filed Nov. 2, 1901.)

(No Model.)

Fig. 1

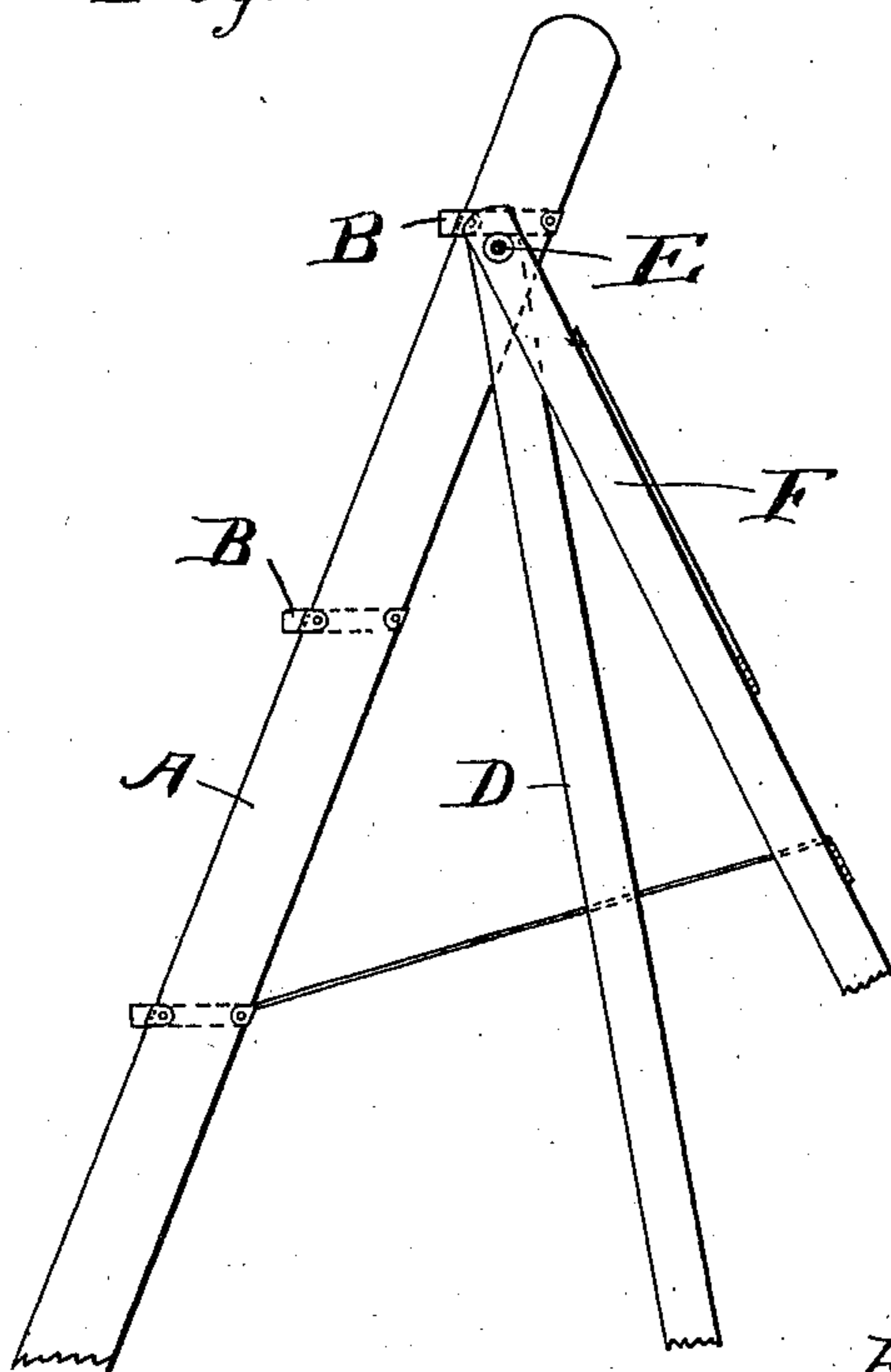


Fig. 2

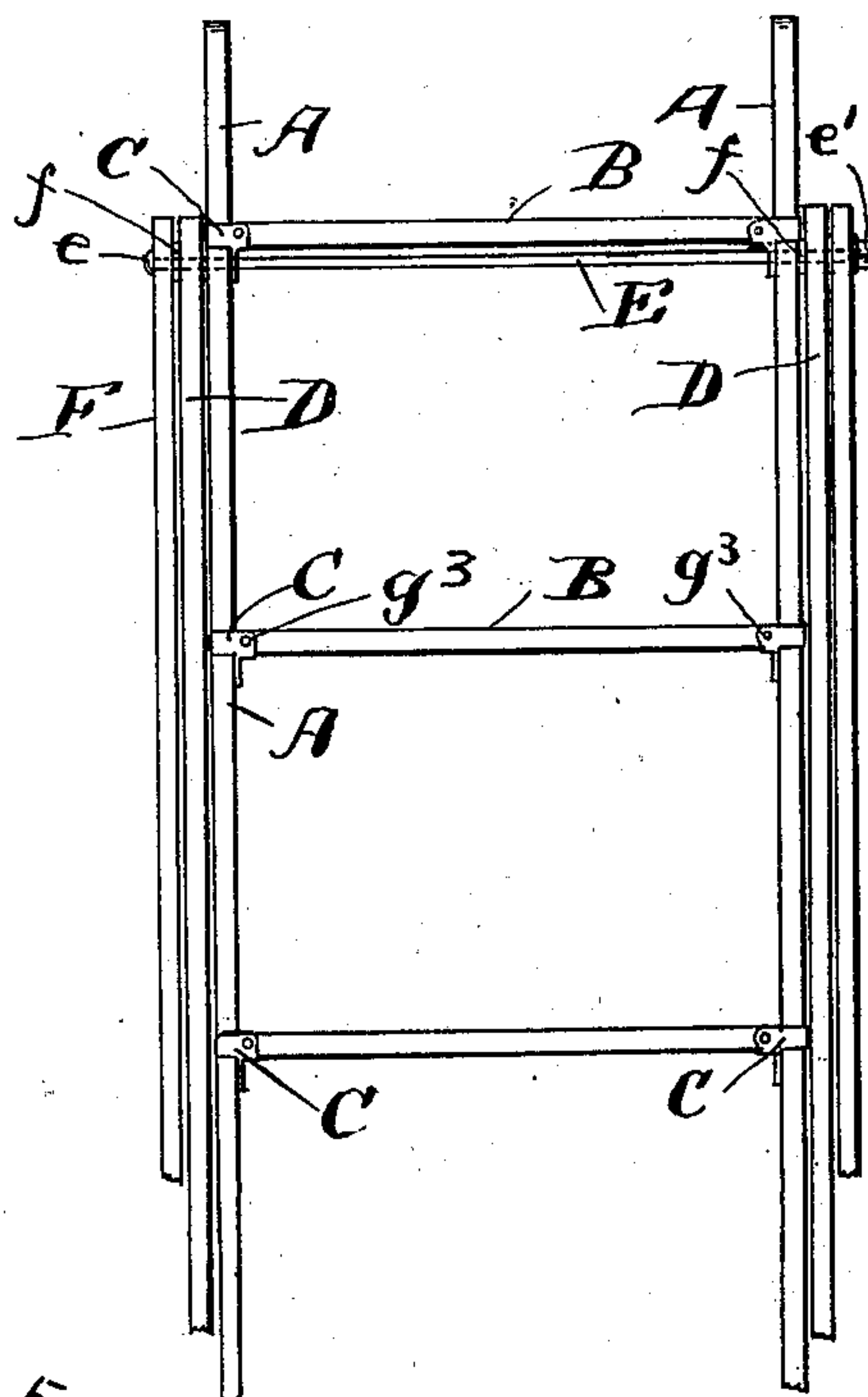


Fig. 5

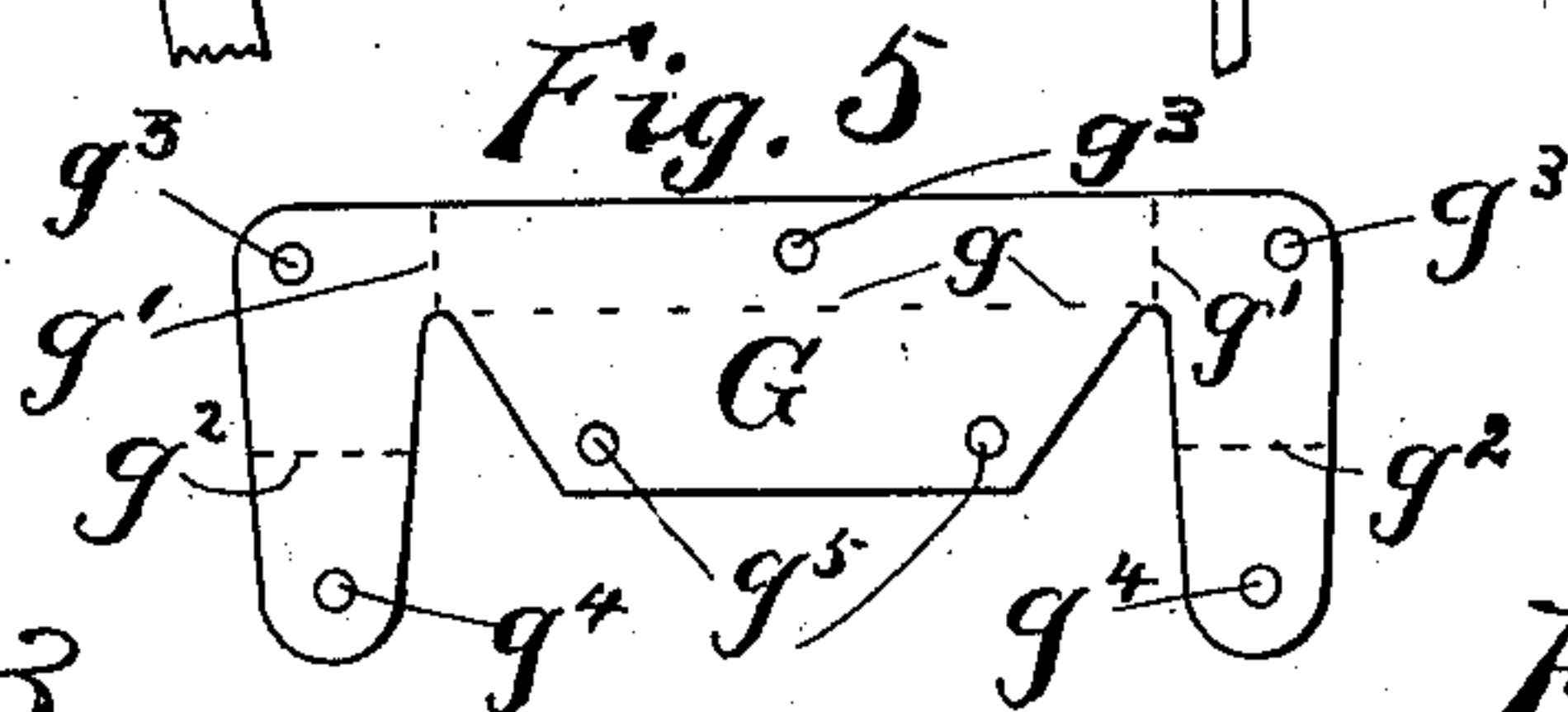


Fig. 3

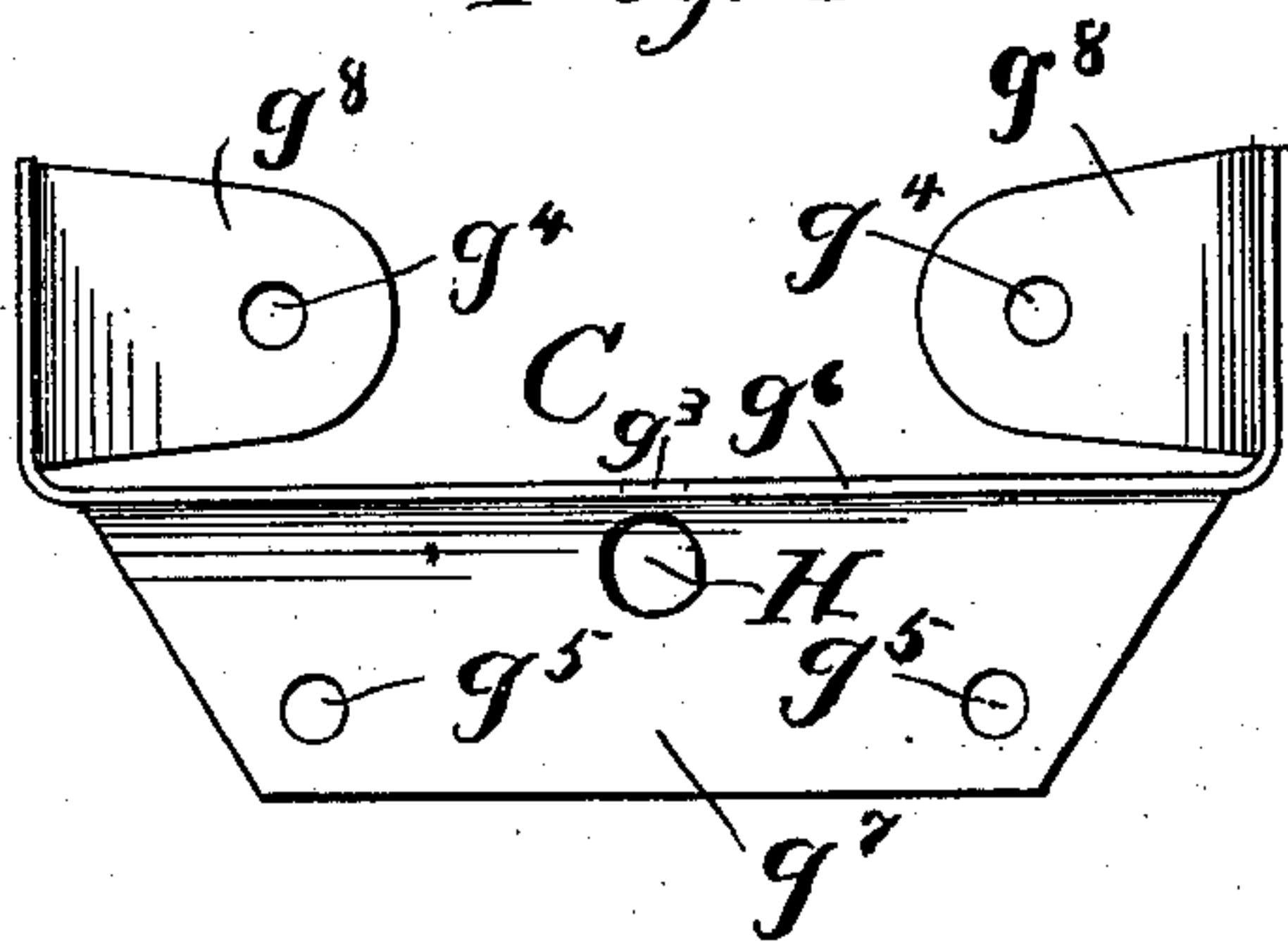
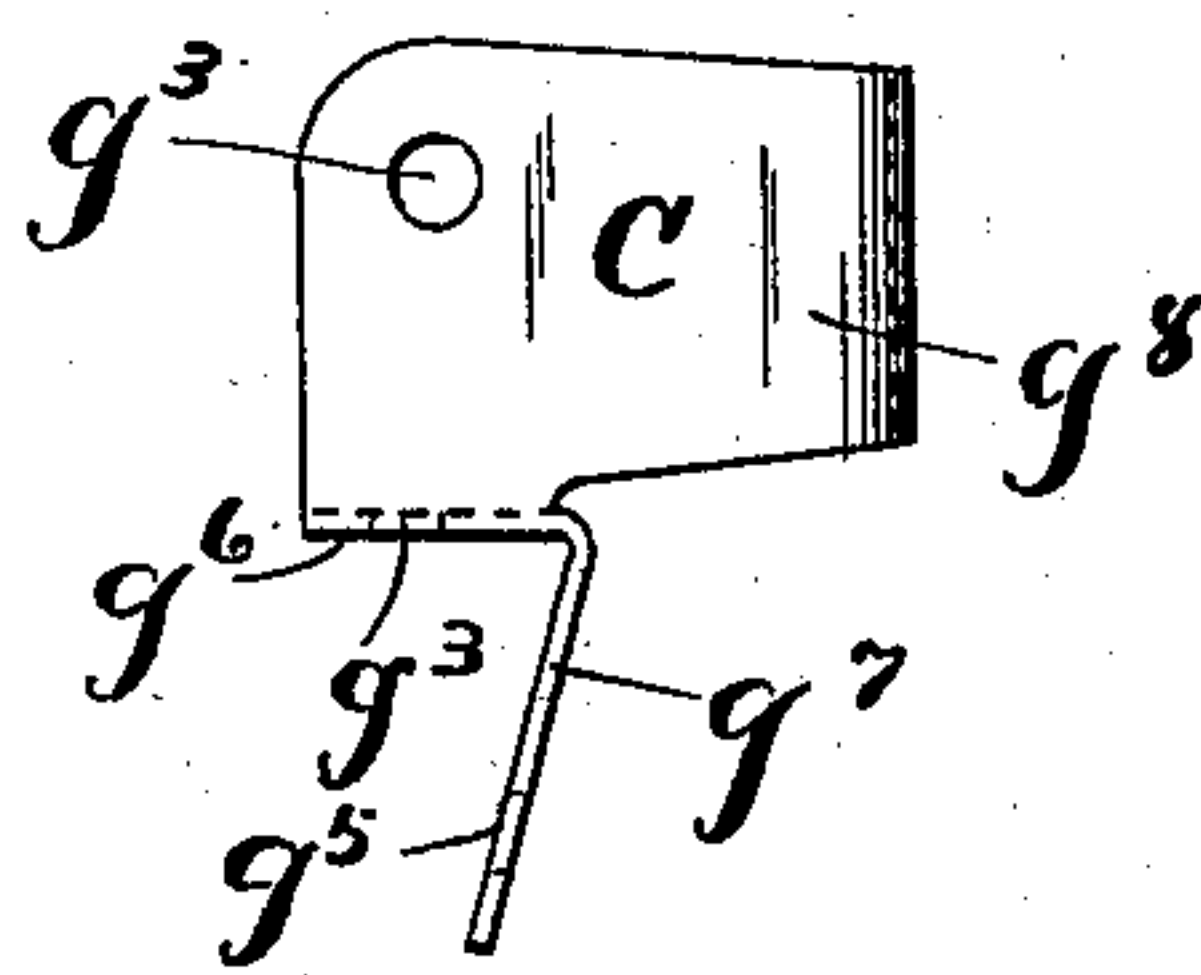


Fig. 4



Witnesses:

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UNITED STATES PATENT OFFICE.

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ASSIGNORS TO PETER BENT.

STEP-LADDER.

SPECIFICATION forming part of Letters Patent No. 702,574, dated June 17, 1902.

Application filed November 2, 1901. Serial No. 80,876. (No model.)

To all whom it may concern:

Be it known that we, ALBERT MAU, a resident of Chicago, and CHARLES PAESEL, a resident of Clyde, in the county of Cook and State of Illinois, citizens of the United States, have invented certain new and useful Improvements in Step-Ladders, of which the following, when taken in connection with the drawings accompanying and forming a part hereof, is a full and complete description sufficient to enable those skilled in the art to which it pertains to understand, make, and use the same.

This invention relates to step-ladders designed to be used particularly by workmen, as painters, plasterers, and the like; and the object of the invention is to obtain a step-ladder which will be strong and durable and economical in construction.

In the drawings illustrating this invention, Figure 1 is a side elevation of the upper end of a step-ladder embodying our invention. Fig. 2 is a front elevation of such upper end of a step-ladder. Fig. 3 is a front elevation of a combined angle-piece and strap forming an element in the step-ladder embodying our invention. Fig. 4 is an end elevation of the combined angle-piece and strap illustrated in Fig. 3, and Fig. 5 is a blank from which the combined angle-piece and strap illustrated in Figs. 3 and 4 is made.

A reference-letter applied to designate a given part is used to indicate such part throughout the several figures of the drawings wherever the same appears.

A A are the side rails of a step-ladder.

B B are the steps of the step-ladder, and C C are combined angle-pieces and straps securing steps B B to side rails A A, respectively.

D D are the folding legs of the step-ladder, and in a step-ladder embodying our invention such legs are pivotally attached to the side rails by rod or bolt E, extending through such legs and side rails slightly below the upper step of the step-ladder. Rod or bolt E preferably extends entirely through both rails A A and legs D D, with a head *e* on one end thereof and a nut *e'* on the other end

thereof, as illustrated in Fig. 2 of the drawings.

F F are additional folding legs, which may also be pivotally attached to the side rails, as by rod or bolt E. Such additional folding legs are shorter than folding legs D D and are used when the step-ladder is employed on stairways and the like.

The combined angle-piece and strap C is formed up from sheet-metal blank G (see Fig. 5) by bending such blank on the broken lines $g\ g'\ g'$ and $g^2\ g^2$, respectively.

$g^3\ g^3\ g^4\ g^4\ g^5\ g^5$ and H are holes through the combined angle-piece and strap C. Holes $g^3\ g^3$ are in the part of the combined angle-piece and strap C which comes adjacent to the steps B B, respectively, the center one of such holes being in table part g^6 and the end ones in the strap portion g^8 thereof. A nail is driven upward through the central one of such holes g^3 into the under side of the step B and through the end ones of such holes into the edges of such step to secure such combined angle-piece and strap to the step. To secure such combined angle-piece and strap C to the rail A, nails are driven through holes $g^4\ g^4$ in the strap portion $g^8\ g^8$ into the side rail, and also nails are driven through holes $g^5\ g^5$ in the substantially vertical part g^7 into the side rail A.

Between the side rails A A and the folding legs D D and F F we prefer to place the washers *ff* on rod E.

It will be observed that the rod E extends through hole H in the combined angle-piece and strap C, which is secured to the upper one of the steps B B and to the side rails A A. Splitting of the side rails by strain on the rod E is obviated by the passing of such rod E through hole H. Tendency to split the rail A A, as well as tendency to tear the steps B B from such rail, is obviated by the use of the combined angle-piece and strap C, as hereinbefore described.

We find in practice that the pivotal connection between the folding legs of the step-ladder and the remaining part of such step-ladder is very substantial when made as hereinbefore described and that by the use of the

combined angle-piece and strap C the several steps and side rails are firmly secured together.

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

1. In a step-ladder the combination of steps, side rails to which the steps are secured, such side rails extending above the upper step of the step-ladder, combined angle-pieces and straps formed of sheet metal and attached to the side rails and to the steps, folding legs on the outside of the side rails, a rod extending underneath the top step of the ladder through the folding legs, through the side rails and through the parts of the combined angle-pieces and straps which are attached to the side rails, with means for securing the rod in place, whereby such rod constitutes the pivot of the folding legs and a tie binding the top step, the side rails and the folding legs together, and the parts of the combined angle-piece and strap which are attached to the side rails form sheet-metal plates to prevent splitting of the side rails by such rod; substantially as described.

2. In a step-ladder, side rails and steps, in combination with a combined angle-piece and straps, such angle-piece and straps formed from a sheet-metal blank to obtain a vertical part contacting with the side rails, a table on which the steps may rest, end extensions of such table, such end extensions respectively bent into planes substantially at right angles to the table, and straps extending from the sides of the end extensions which are adja-

cent to the vertical part, and such straps extending partially around the side rails; substantially as described.

3. A combined angle-piece and straps consisting of a blank of ductile sheet metal formed to obtain a vertical part, a table on which the steps may rest, end extensions of such table, such end extensions respectively bent into planes substantially at right angles to the table, and straps extending from the sides of the end extensions which are adjacent to the vertical part, with perforations provided in such combined angle-piece and straps whereby the same may be secured to the steps and side rails of a ladder; substantially as described.

4. In a step-ladder the combination of side rails, steps, folding legs and additional folding legs, and a rod extending through the folding legs, through the additional folding legs and through the side rails underneath the top step of the ladder, with means for securing such rod in place, the side rails of the step-ladder extending above such top step, the folding legs and the additional folding legs independently movable on the rod, as a pivot, whereby such folding legs or such additional folding legs may be used as the support of the side rails and steps, as preferred; substantially as described.

ALBERT MAU.
CHARLES PAESEL.

In presence of—

CHARLES TURNER BROWN,
CORA A. ADAMS.