

No. 610,284.

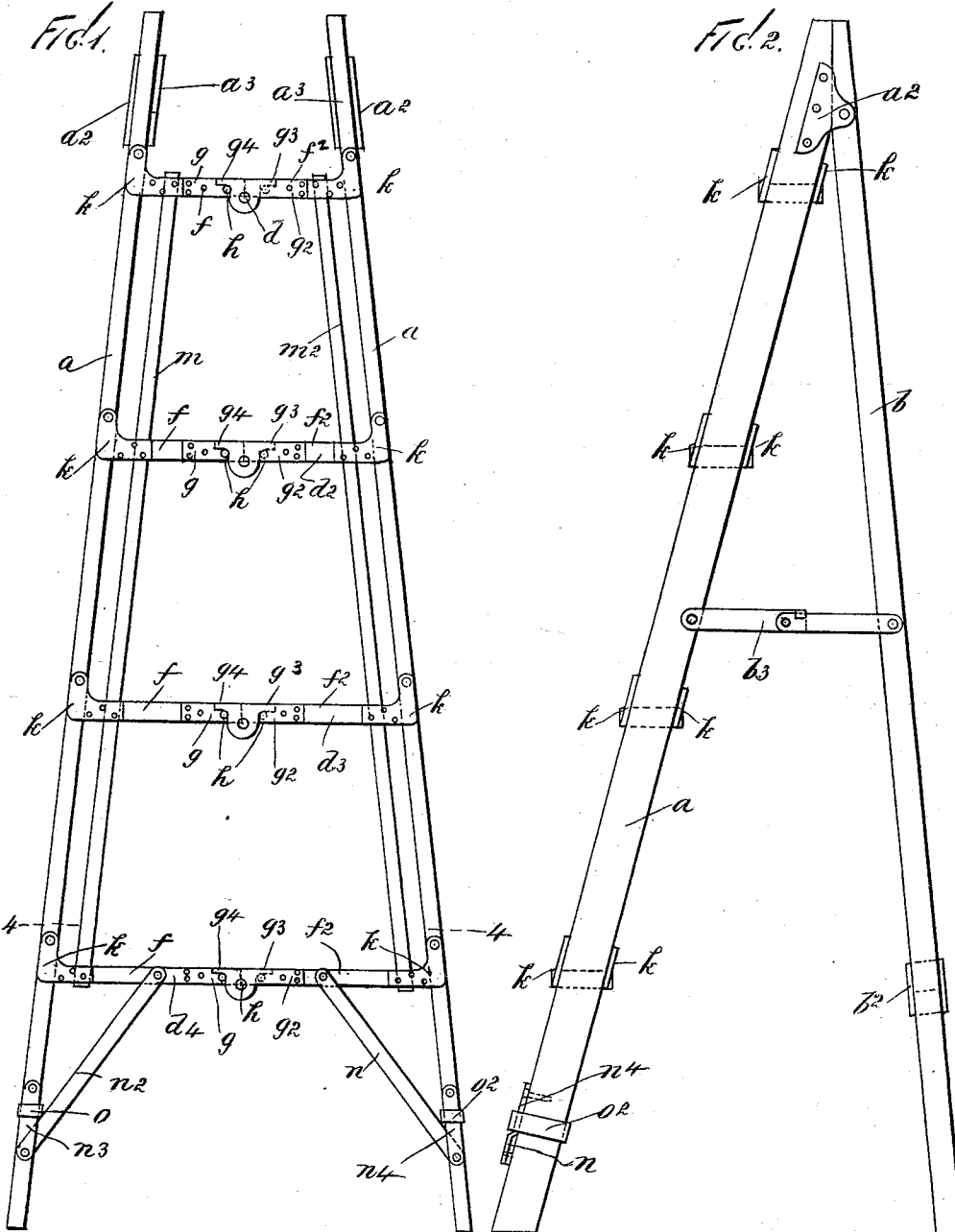
Patented Sept. 6, 1898.

H. SCHUBERT.
STEP LADDER.

(Application filed Oct. 4, 1897.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

John Buckler,
C. G. Gush

INVENTOR

Hermann Schubert.
BY
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ATTORNEYS.

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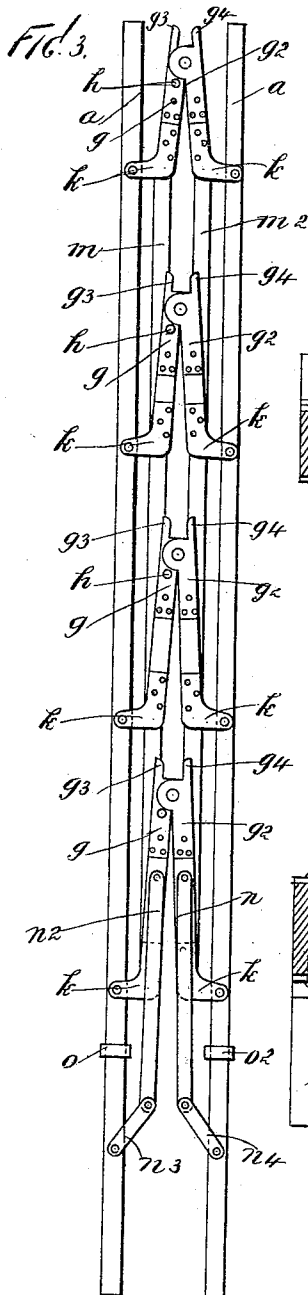
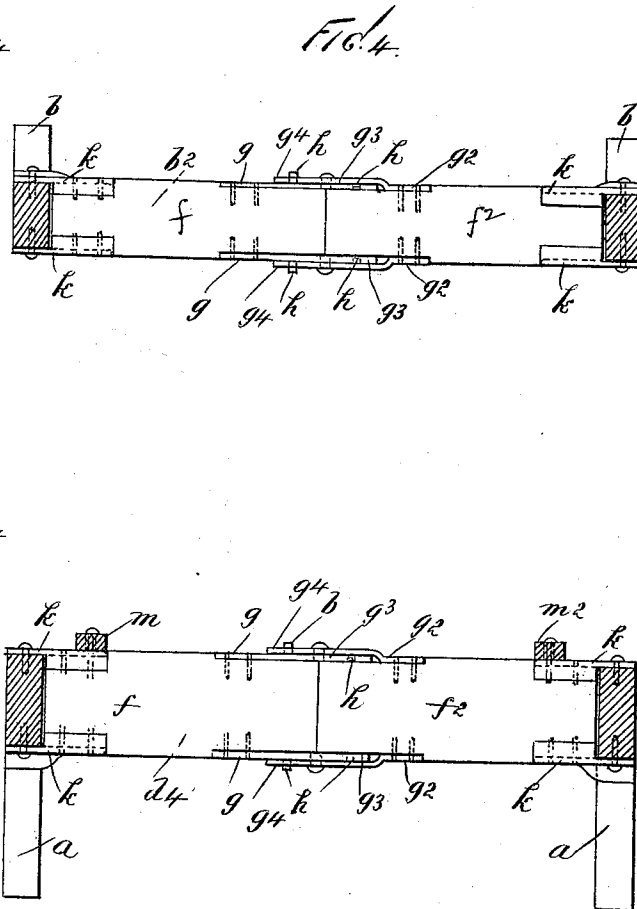
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UNITED STATES PATENT OFFICE.

HERMANN SCHUBERT, OF NEW YORK, N. Y.

STEP-LADDER.

SPECIFICATION forming part of Letters Patent No. 610,284, dated September 6, 1898.

Application filed October 4, 1897. Serial No. 653,944. (No model.)

To all whom it may concern:

Be it known that I, HERMANN SCHUBERT, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Step-Ladders, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to step-ladders, and more particularly to that class thereof which are especially designed to fold when not in use.

The object of the invention is to provide a step-ladder of the above-described class which can be so folded when not in use as to occupy little room and be readily handled and transported from place to place.

A further object is to produce a step-ladder which will be simple in construction, inexpensive to manufacture, and yet sufficiently strong and durable to insure efficiency in operation without derangement or undue wear of any of its various parts.

My invention consists in the novel features of construction hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the drawings, Figure 1 is a front elevation of my improved ladder; Fig. 2, a side elevation thereof; Fig. 3, a front elevation when the ladder is folded, and Fig. 4 an enlarged sectional view on the line 4 4 of Fig. 1.

Like letters refer to like parts throughout the several views.

In the accompanying drawings the letter *a* denotes the front step-supporting standards, and *b* denotes the rear standards, which are joined to said front standards by being pivoted between plates *a*² *a*³, firmly attached to each of the same. The upper portions of these standards are relatively so shaped as to form abutting surfaces when the ladder is unfolded.

Attached to the front standards are a plurality of steps *d* *d*² *d*³ *d*⁴. Inasmuch as these steps are similar in construction and are attached to said standards by the same means a description of one of these plates will be

sufficient. Each step is composed of two sections *f* *f*², which are pivoted together at a central point by means of plates *g* *g*², arranged so as to be flush with the edges of each step, and which are provided with overlapped extensions *g*³ *g*⁴, which, in conjunction with stop-pins *h* on each plate, are adapted to give rigidity to the central portion of the step when unfolded and ready for use.

Firmly attached to the step at each free end is a plate *k*, which is pivoted to the standards *a* at a point thereof which will admit of the folding of the ladder. These plates *k* are also arranged so as to be flush with the edges of each step and have extensions which encompass the edges of said step.

The plates *k* are preferably made with the arms attached to the standards and to the steps, respectively, at approximately right angles to facilitate the folding, as aforesaid.

m *m*² denote, respectively, rods which are pivoted to each of the steps in order to insure a unity of motion when the ladder is folded or extended. These rods also act as braces and help to retain the various parts firmly in position.

n *n*² denote braces pivoted to the lower step and to links *n*³ *n*⁴, which are pivoted to the standards *a* and when the ladder is unfolded firmly secured in the relation shown in Fig. 1 by means of the sliding collars *o* *o*².

The rear standards *b* are preferably braced near their lower extremities by means of a folding brace *b*², which is similar in construction to the plates *d* *d*², as already described.

To lend additional rigidity to the erected structure, I provide side braces *b*³, pivoted at their central point, as in the ordinary step-ladder now in general use.

The operation of erecting and folding my improved ladder is as follows: The ladder as folded is in the position shown in Fig. 3, and when it is desired to erect the same the standards are separated, thus extending the steps and the rear brace *b*² until their extreme ends abut against said standards, and the further downward movement of said steps is prevented by reason of the extensions *g*³ *g*⁴ thereon coming in contact with the stop-pins, the configuration of the pivoted plates *k* readily admitting of this movement. The lower braces

$n n^3$ swing downwardly with said steps and come in alinement with said standards by reason of the links $n^3 n^4$, which, as aforesaid, are brought in this relation in order to facilitate their being secured by means of the collars $o o^2$, which slide on these standards. The rods $m m^2$ being pivotally connected to each of the steps make this portion of the unfolding process uniform and also lends additional rigidity and strength to the front portion of the erected structure. When the steps and the rear brace have been brought in their proper relation, the front and rear standards are separated at the base until their upper adjoining surfaces abut and the side braces b^3 forced downwardly, as shown in Fig. 2, the plate a^2 affording this movement.

The operation of folding my improved ladder is the reverse of the means employed in erecting.

All of the plates and angle-irons herein referred to are preferably made of malleable metal cast in one piece and of sufficient strength to insure perfect security while the ladder is in use.

By the above-described means it will readily be observed that the objects of my invention are fully attained. I have produced a ladder which is simple in construction, which can be folded into the minimum of space, capable of being handled without personal discomfort, and which is durable, while being inexpensive to manufacture.

It is to be observed that it is not my intention to limit the scope of my invention to the precise construction herein shown and described, as it is obvious that there may be many changes in minor details of construction without departing from the spirit of the same.

Having fully described my invention, I

claim as new and desire to secure by Letters Patent—

1. In a step-ladder, the combination with the standards, of a plurality of steps, each of said steps comprising two sections pivoted together and provided at their outer edges with longitudinal extensions and stops and having end extensions by which the sections are pivoted to said standards, substantially as and for the purpose set forth.

2. In a step-ladder, the combination with the standards, of a plurality of steps pivoted thereto, each of said steps comprising two sections pivoted together and a rod pivoted to a section of each step at each side of the step-ladder, substantially as set forth.

3. In a step-ladder, the combination with the standards, of a plurality of steps, each of said steps comprising two sections, each pivoted at its outer end to a standard, and the inner ends of the sections being pivoted together and provided with longitudinal extensions and stops, substantially as set forth.

4. In a step-ladder, the combination, with the standards, of a plurality of steps pivoted thereto, each of said steps comprising two sections pivoted together, braces comprising two links each pivoted to a standard and to one of said steps, and a collar, whereby when said ladder is unfolded said collar will encompass one of said links to insure additional rigidity, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 28th day of September, 1897.

HERMANN SCHUBERT.

Witnesses:

PAUL JANERT,
 CHAS. JANZ.