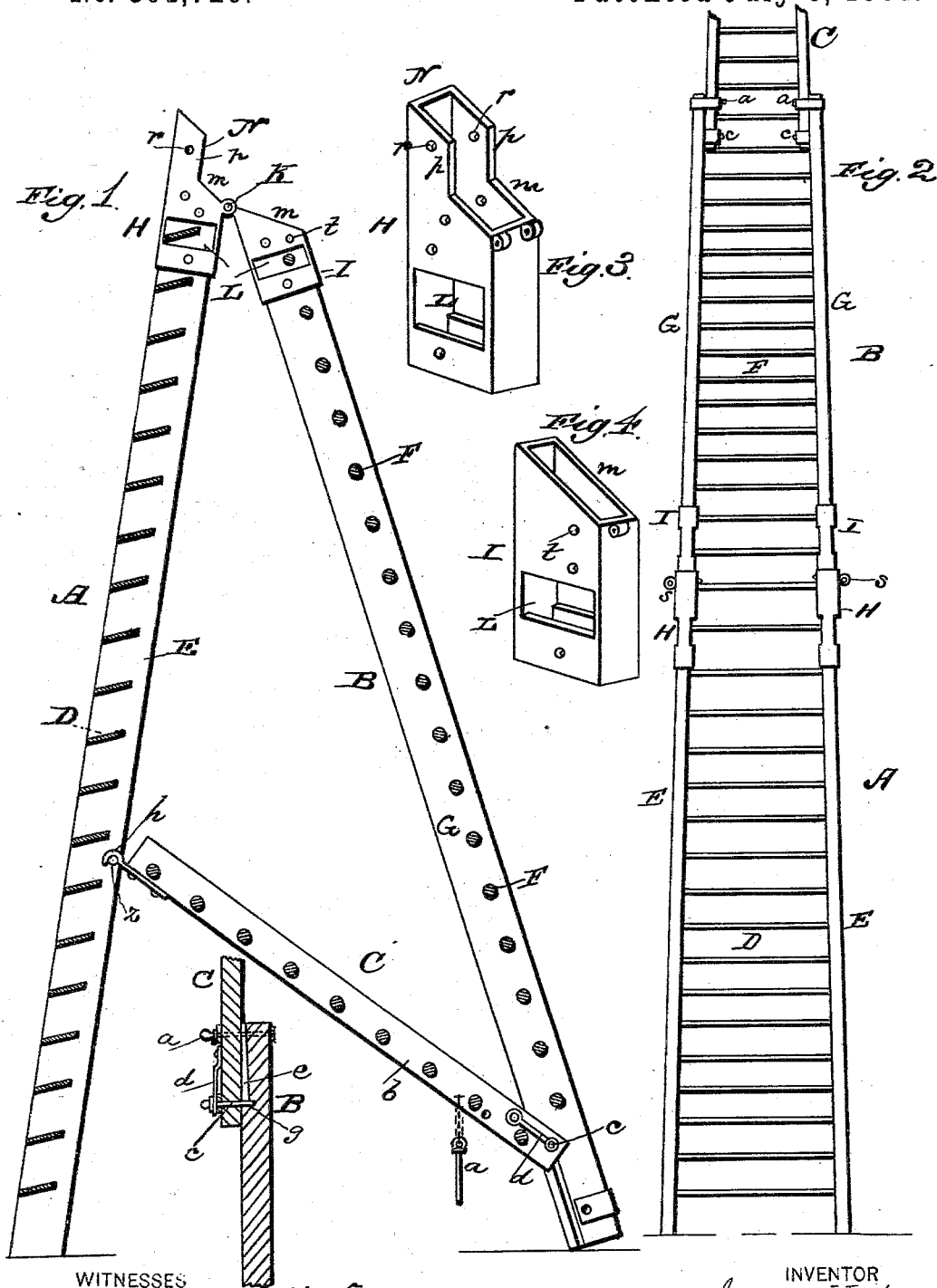


(No Model.)

J. A. KOCH.
STEP LADDER.

No. 301,726.

Patented July 8, 1884.



WITNESSES
S. H. Bates
R. E. Massi.

Fig. 5.

INVENTOR
Jacob A. Koch
by Anderson Smith
his ATTORNEYS

UNITED STATES PATENT OFFICE.

JACOB A. KOCH, OF SANDUSKY, OHIO.

STEP-LADDER.

SPECIFICATION forming part of Letters Patent No. 301,726, dated July 8, 1884.

Application filed May 15, 1884. (No model.)

To all whom it may concern:

Be it known that I, JACOB A. KOCH, a citizen of the United States, residing at Sandusky, in the county of Erie and State of Ohio, have
5 invented certain new and useful Improvements in Step-Ladders; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to
10 make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a vertical sectional view. Fig. 2 is a front view. Figs. 3 and 4 are perspective views of the hinge-casting, and Fig. 5 is a sectional detail view.

The object of this invention is to provide a step-ladder which can be readily converted
20 into a straight ladder, when such a change is desired; and it consists in the construction and novel arrangement of devices, as hereinafter set forth and pointed out in the appended claims.

In the accompanying drawings, the letter A designates the first section of the ladder B the second, and C the third or brace section. The section A is usually made a little longer than the section B; or they may be of the same
30 length. Section A is provided with steps D, which do not extend to the rear or inner edges of the side bars, E, the object being to leave an interval to receive the third or brace section, when folded inward, between the sections A and B. For the same reason the rounds F of section B are placed near the
35 outer edges of the bars G thereof. The casting H is wider than the casting I, so as to receive a portion of the latter within its walls when the sections are extended.

The sections A and B are provided, respectively, at their joint ends with castings H and I, which are hinged together at K. These castings are of elongated form, being designed
45 to extend for a distance on the side-bars of the sections, and in order to provide for the attachment of the round, as the case may be. The casting is made with a lateral opening, L, through which the tenon or end of said
50 step or round extends into the side bar. The

abutting or joint ends of the castings are correspondingly beveled, as shown at m, and the casting H of the step-section A is formed with an upwardly-extending brace-flange, N, which
55 is made with lateral walls p, having perforations r, through which the holding-pins s pass, extending also through a bearing, t, in the casting I. The brace-section C is not so wide as the section B, between the bars of which it is arranged when the several sections form a
60 straight ladder, being connected thereto by the pins a. The ends of the bars b of section C are extended beyond the rounds or steps, and are provided with pivots c, having springs d, whereby they are kept in engagement with the
65 bars G of the section B, and at the same time arranged for easy disengagement when it is desired to convert the long ladder into a step-ladder.

In order to facilitate the application of the
70 brace-section to the section B, the ends of the latter are provided with grooves e, beveled from their outer ends to the bearings g, at their inner ends, which engage the ends of the pivot-pins c. When the sections C are
75 in line with sections B, they are held in position by the pins a and c. When the pins a are drawn out of their bearings, the section C can be turned, and if the pin s, which secures sections A and B, is withdrawn, the section B
80 can be turned downward and braced in position to the section A, to form a step-ladder by the brace-section C, the bars of which are provided with end hooks, h, adapted to engage the loops or pins z of the bars of section
85 A. The section C is made detachable, so that the straight ladder may be shortened by its removal.

Having described this invention, what I claim, and desire to secure by Letters Patent, 90 is—

1. In a step-ladder, the combination of the sections A and B, the joint-castings H and I, having the lateral apertures L, the section H, having the stop-flange N, provided with the
95 transverse perforations to engage and register with the perforated walls of the casting I, and the lock-pin s, all adapted to operate substantially as specified.

2. The step-ladder consisting of the step- 100

section A, and the second section, B, having the joint-castings H and I, constructed and hinged together, as shown, the brace-section C, having rounds or steps, and pivoted near
5 one end to the section B, having the fastening-pin near one end, and at the opposite end a hook to engage bearings of the section A, whereby the ladder may be converted from a step-ladder to a straight ladder, and the brace-section

made to form a section of the straight ladder, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

JACOB A. KOCH.

Witnesses:

C. C. BITTNER,

S. C. WHEELER.