B. A. HANDY.

EXTENSION STEP LADDER.

APPLICATION FILED MAR. 4, 1912.

1,040,313.

Patented Oct. 8, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

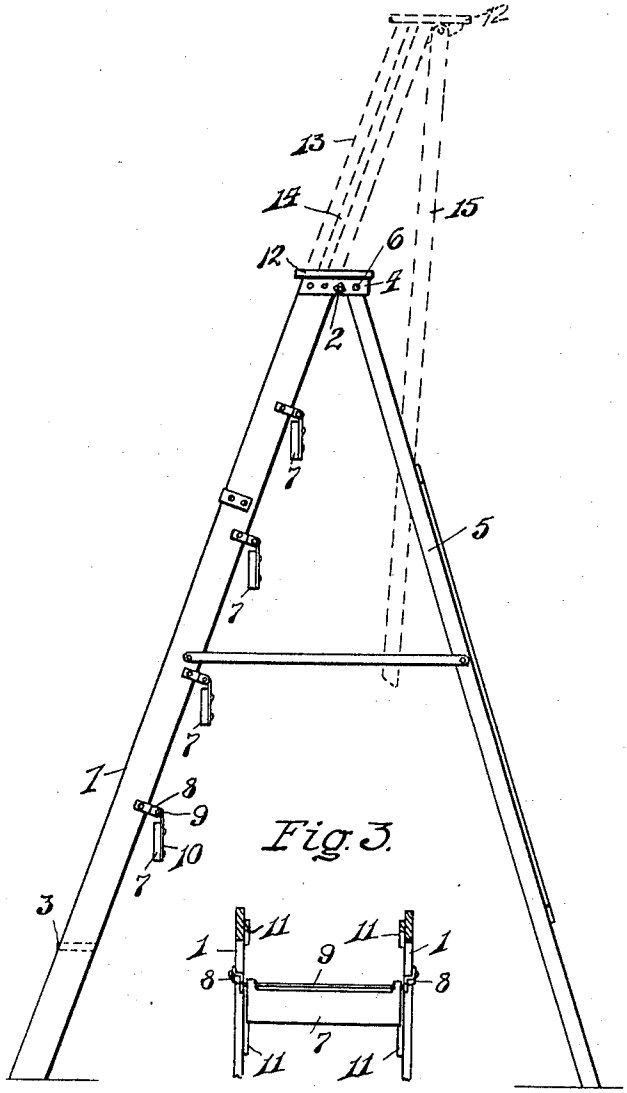
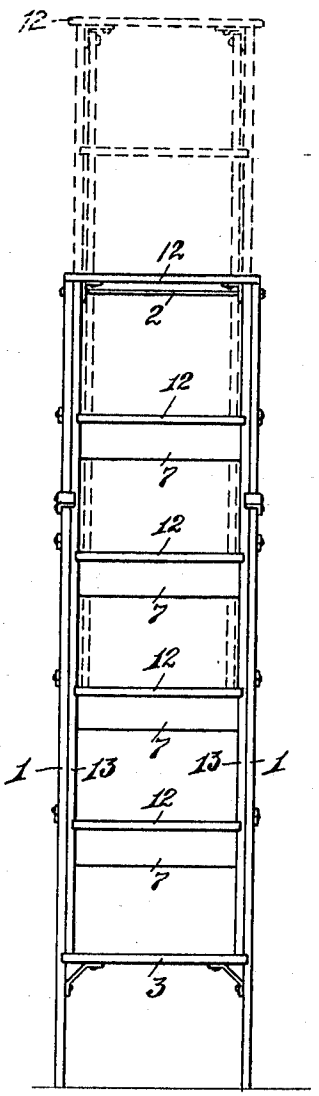


Fig. 3.

Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 4.

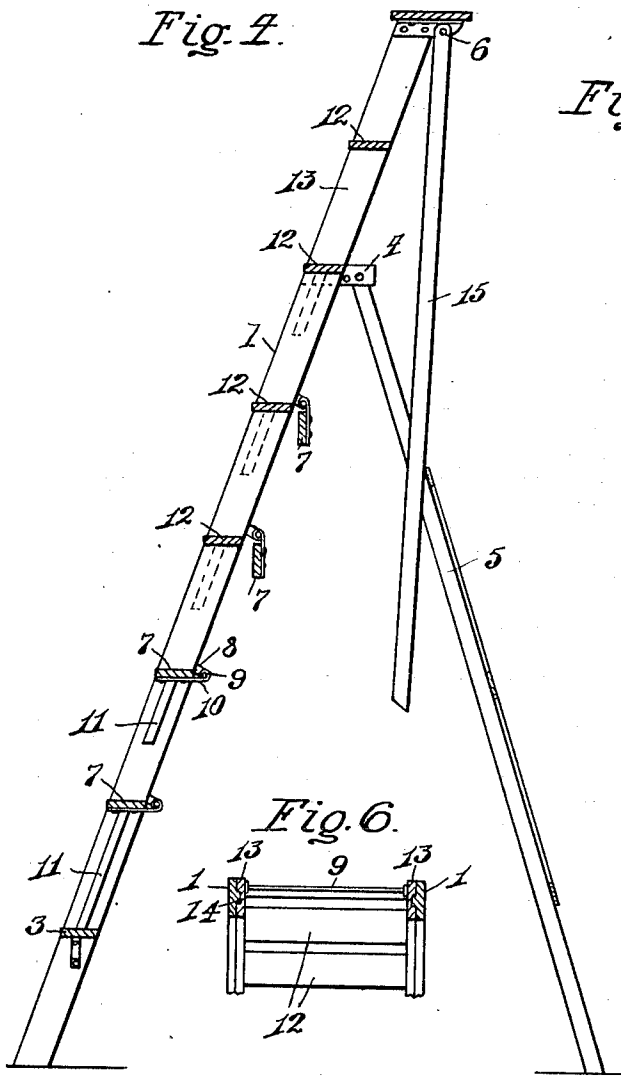

Fig. 5.

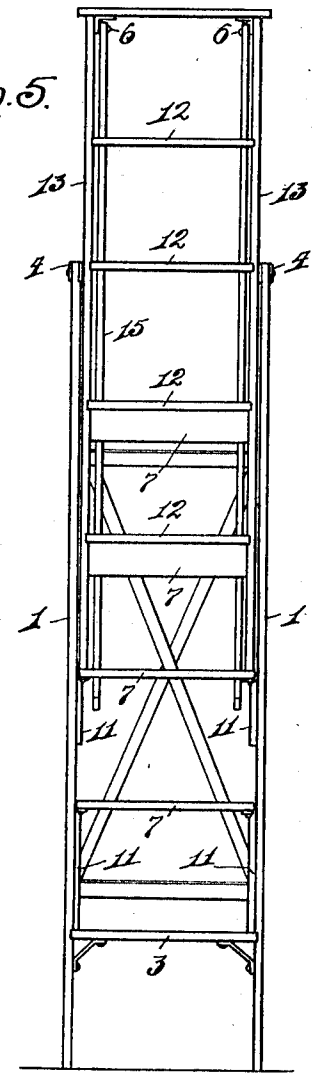

Fig. 6.

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[illegible]

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UNITED STATES PATENT OFFICE.

BURT A. HANDY, OF SOUTH BEND, INDIANA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO FOUR IN ONE MANUFACTURING CO., A CORPORATION OF INDIANA.

EXTENSION STEP-LADDER.

1,040,313. Specification of Letters Patent. Patented Oct. 8, 1912.

Application filed March 4, 1912. Serial No. 681,487.

To all whom it may concern:

Be it known that I, BURT A. HANDY, a citizen of the United States, residing at South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Extension Step-Ladders, of which the following is a specification.

One of the objects of my invention resides in the provision of an extension step ladder made up of two sections, each of which constitutes a complete step ladder in itself when separated.

A further object of the invention resides in the provision of two separate and distinct step ladders, so arranged and constructed that they may be jointly used to provide an extension ladder.

A still further object resides in the provision of a step ladder comprising two sections, so arranged and constructed that the side bars of one section forming a complete ladder by itself, may be guided and supported for extension purposes by the side bars of the remaining section, the step members of which are hingedly mounted, so as to permit their being swung into or out of the path of the adjoining side bars of the former section, and form a support for the extension section to rest upon, thus providing a simple, practicable and easily adjusted extension ladder, which may be supported in its various extended positions without the use of supporting and locking members other than the step members of the supporting section.

With the above and other objects in view, the invention consists of certain novel features of construction, arrangements and co-operation of parts, as hereinafter more fully described and pointed out in the claims, it being understood that the details of construction may be varied within the purview of the claims without departing from or sacrificing any of the advantages of the invention.

Referring now more particularly to the accompanying drawings: Figure 1 is a side elevation showing the ladder partially extended in dotted lines. Fig. 2 is a front elevation thereof. Fig. 3 is a fragmentary cross-sectional view showing the manner of mounting the swinging step members. Fig. 4 is a vertical section taken through the center of the ladder. Fig. 5 is a front elevation showing the ladder in a partially extended position, and Fig. 6 is a fragmentary cross-sectional view showing the relative position of the side bars of the two ladder sections.

The main, or supporting, ladder section consists of two side bars 1, which are connected at their upper ends by a stay, or cross rod 2, and at their lower ends by a step member 3, permanently secured to the side bars in any suitable manner, said stay rod and step members rigidly hold the side bars in their proper spaced relation. Hingedly connected at its upper ends with the said side bars by means of a metal yoke 4, is a prop 5, the ends of which are disposed between the spaced sides of the yoke and a pivot pin 6 passed through, so that the prop may be swung away from or folded against the side bars, all in the manner and for the purpose well understood in the art. Disposed in the proper spaced relation and hingedly mounted on the side bars 1, are swinging step members 7, brackets 8 connected by cross rods 9, which pass through the eyes of hinge irons 10 secured to the step members, hingedly supporting the latter. The swinging step members are adapted to be swung upwardly and between the side bars 1, resting upon the upper ends of the spaced cleat members 11, disposed longitudinally of and upon the inner opposite sides of the side bars. When swung out of position the step members 7 are in the position shown in Figs. 1 and 4, leaving the space between the side bars with the exception of the lower step member 3 open and unobstructed for the purpose presently explained. The section thus far described is a complete step ladder in itself and the step members thereof are swung into position between its side bars.

Referring now to the extensible ladder section, the same is of the usual step ladder construction, all of the step members 12 thereof being permanently secured to its side bars 13. These side bars are provided with a groove 14 on their outer side and extending the entire length thereof, and which grooves are adapted to receive the cleats 11 on the inner sides of the adjoining outer side bars 1 of the main ladder section, which cleats serve both as a support and a guide

for the extensible section, as the same is raised or lowered, thus forming a strong support for the ladder. The cleats 11 are arranged in endwise spaced relation so as to permit the swinging step members 7 to be swung into position, said step members resting upon the upper ends of said cleat members when in position for use. The prop 15 of the extensible section is adapted to support the ladder when removed from the main section and used separately, and may be folded against the prop 5 of the main ladder section and held in place in any suitable manner.

When the ladder is unextended the lower ends of the side bars 13 of the extensible section rest upon the fixed step member 3 of the main section, all of the remaining step members of the main section being swung out of the way of the extendible section, which may be freely shifted up or down, the cleats and grooves of the respective side bars of the two sections slidably supporting the extensible section. If it is desired to extend the ladder, for illustration, to the extent of the distance of two steps, the extensible section is raised to that extent, and the requisite number of swinging step members 7 are swung into place, as shown in Fig. 4, and the ends of the side bars 13 of the extensible section allowed to rest upon the uppermost step member so swung into position.

It will thus be observed that I have provided a simple and practicable extension step ladder, which may be easily and quickly extended, and the two sections of which may be disconnected entirely from each other to provide two ladders for separate use.

Having thus described my invention, what is claimed is:—

1. An extension ladder comprising a base and an extensible section, a slidable connection between the sections consisting of interengaging cleats and grooves on the outer and inner sides respectively of the side bars of said sections, and swinging step members mounted on the main section, said cleats being spaced endwise to permit said step members to be swung between the side bars of said section and to rest on the upper ends thereof for the support of the same.

2. An extension ladder comprising two complete ladder sections, the side bars of the extensible section having longitudinal grooves formed in their outer sides, swinging step members mounted on the main section and adapted to be swung between its side bars, the latter having cleats on their inner sides and spaced endwise to permit said step members to swing between the bars and rest on the upper ends thereof, said cleats engaging the grooves in the extensible section to slidably support the latter.

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

BURT A. HANDY.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."