J. L. ISAACS & R. HALLIDAY.

Step-Ladder.

No. 162,075. Patented April 13, 1875.

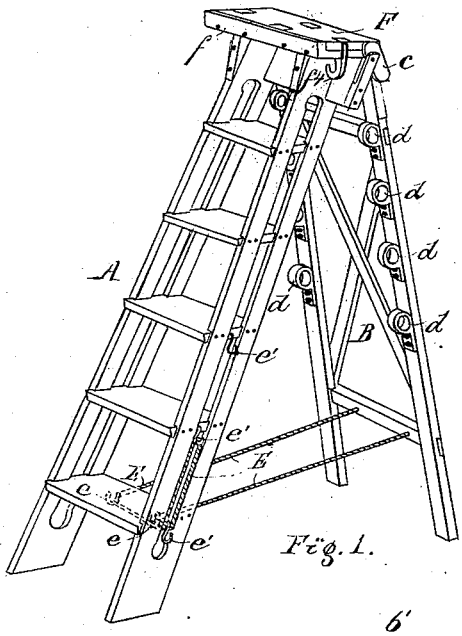

Fig. 1.

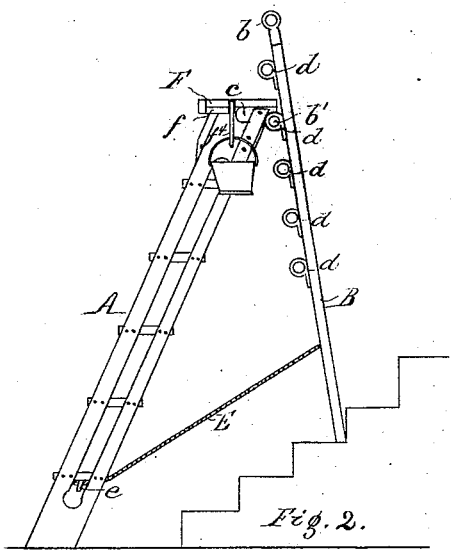

Fig. 2.

Fig. 5.

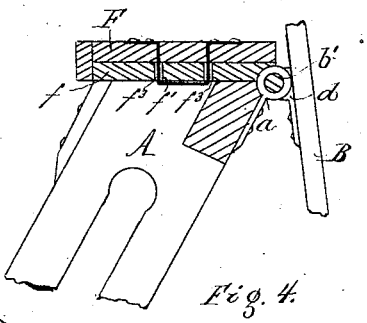

Fig. 4.

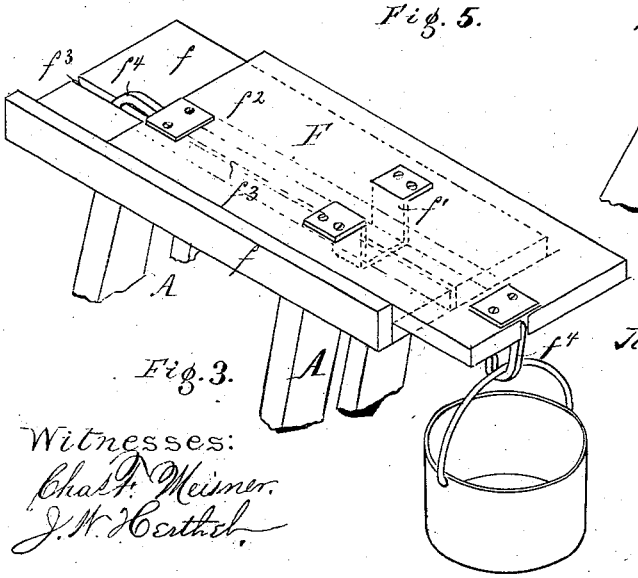

Fig. 3.

Witnesses:
Chas. D. Meisner.
J. W. Herthel.

Inventors:
Jacob L. Isaacs and
Richard Halliday
per Herthel & Co
Attys

UNITED STATES PATENT OFFICE.

JACOB L. ISAACS AND RICHARD HALLIDAY, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN STEP-LADDERS.

Specification forming part of Letters Patent No. 162,075, dated April 13, 1875; application filed February 23, 1875.

To all whom it may concern:

Be it known that we, JACOB L. ISAACS and RICHARD HALLIDAY, both of St. Louis, county of St. Louis and State of Missouri, have invented an Improved Step-Ladder, of which the following is a specification:

This invention relates to certain improved features of step-ladders, as follows: first, to the peculiar manner of connecting the back support to the ladder proper, so that the latter can be used with or without the former; secondly, to the further improved manner of connection, by means whereof the back support can be adjusted and secured in varying heights, as the emergencies of use demand; thirdly, to the arrangement of the cord attachment, and manner of securing the same to firmly hold the ladder parts in position; fourthly, in providing the top of the ladder with an additional top having a slide movement, and the manner of securing the same, from which baskets, buckets, and other receptacles may be suspended; lastly, to certain details of construction of parts, all of which will more fully appear.

In the drawing, Figure 1 is a perspective view of our improved ladder as adapted for use on level surfaces. Fig. 2 is a side elevation, showing the ladder adapted for stairways and uneven surfaces. Fig. 3 is an enlarged perspective of the top portions of the ladder, showing its sliding top and manner of securing the same. Fig. 4 is an enlarged detail transverse section of the top part of the ladder, showing detail features. Fig. 5 is a side view of the connecting-bar.

A is the ladder or front part thereof; B, its back support. Our improved manner of connecting the back support to the ladder is as follows: To the ladder A we secure journal-bearings, as at *a*, (see Fig. 4;) also, to the back support B we secure the journal-bearings, as at *b*. (See Figs. 2 and 4.) To connect the ladder parts, these are brought in position, so that the journal-bearings *a b* are brought alongside of each other. This done, a connecting-bar, *b'*, (see Fig. 5,) is passed through said bearings *a b*, as indicated in Figs. 1, 2, 4. The connecting-bar can thus be readily inserted or taken out of the bearings, and this enables us to use the ladder proper without its back support—a feature most advantageous and frequently required, and which is readily apparent. When the parts A B are connected at the top, as aforesaid and shown in Fig. 1, the step-ladder can be used on level surfaces. In order to prevent the connecting-bar from self-disengagement, we provide a movable plate, *c*, which we pivot in such wise to a suitable bearing-plate that said movable plate can be made to assume a horizontal or nearly vertical position, as shown in Figs. 1 and 2. When in such latter position the movable plate is brought sufficiently in line with the connecting-bar to prevent its disengagement from its bearings. It is only when the movable plate is nearly horizontal that said connecting-bar can be removed. The further purpose of the plate *c*, when nearly vertical, is to secure the sliding top stationary, and when nearly horizontal to allow said slide-top to be extended to one side, as will hereinafter appear. The aforesaid manner of connecting the ladder parts A B also enables us to adapt the step-ladder for use on stairways or uneven surfaces. This we can do by means of the further duplicated journal-bearings *d*, which we secure to the back support. (See Figs. 1 and 2.) The same connection can therefore be made in any of the series of bearings *d*, thus rendering the ladder adjustable, and adapted to assume the varying positions frequently demanded. E is the cord attachment, which secures the lower part of the back support to that of the ladder. Our arrangement of the cord E is such as to be first fastened to the back support; thence passed through two staples at *e;* from thence the loop end can be carried and hung to any of the side hooks *c'* on each step, as indicated in Fig. 1. Thus attaching the cord, the operator can readily disengage the loop end from its hook, and draw inward or extend outward the back support, and fasten said cord to the proper hook. A most ready way is thus had to secure the ladder parts in just the position required. We further provide the top of the ladder with a sliding top, which is to serve as the top proper, and especially adapt the ladder for uses such as to suspend a bucket basket, or other receptacle. F is therefore this sliding top, which we secure to the top *f* of the ladder as follows: A band or strap, *f'*,

as seen in Figs. 3 and 4, passes through slots $f^2 f^3$, which are in the top f of the ladder. The band f^1 thus passed through the slots $f^2 f^3$ has its ends secured to the sliding top F. The sliding top is thus not only secured to the top f, but the band f^1 further permits a slide movement to be imparted to the sliding top. This slide movement is limited to the length of the slot f^2, which, as shown in Fig. 3, extends from one side of the uprights to another. The slot f^3, however, as shown in Fig. 3, reaches to the ends of the false top f. This feature is for the purpose of allowing the use and operation of suspended hooks f^4. The hooks f^4 are pivoted to the slide-top, and, when vertically suspended, (see Fig. 1,) pass through the slot f^3. This arrangement of the hooks f^4 enables us further to secure the opposite side of the slide-top when the same is in an extended position, as shown in Fig. 3. The hooks act as a fastener, no matter to what side the sliding top is extended; also, as apparent, one or both hooks are at all times serviceable upon which to hang a receptacle.

In order to slide the slide-top it is necessary, as before stated, that the movable plates c shall be nearly horizontal. When the slide-top is not used it is held stationary by the projecting movable plate c in the position shown in Fig. 1. Our step-ladder thus made, possessing the improved features, as described, is serviceable for the use of painters, paper-hangers, fruit-growers, artisans, and for stores and general household purposes.

What we claim is—

1. The back support B, having journal-bearings d, in combination with connecting-bar b' and journal-bearing a of a ladder, as and for the purpose set forth.

2. The combination of the ladder A, having the movable plate c, journal-bearing a, with connecting-bar b', journal-bearing b or d, and back support B, to operate as and for the purpose set forth.

3. The cord attachment E, when united to the back support, and arranged to pass through staples e, and looped to side hooks e', in the manner herein shown and described, and for the purpose set forth.

4. In combination with the top f of a ladder, the sliding top F, band f^1, to operate as and for the purpose set forth.

5. In combination with the top f of a ladder, the sliding top F, its band f^1, and hooks f^3, as and for the purpose set forth.

6. The sliding top F, band f^1, hooks f^3, movable plate c, in combination with the top f of a ladder, to operate as and for the purpose set forth.

In testimony of said invention we have hereunto set our hands.

JACOB L. ISAACS.
RICHARD HALLIDAY.

Witnesses:
WILLIAM W HERTHEL,
CHAS. F. MEISNER.