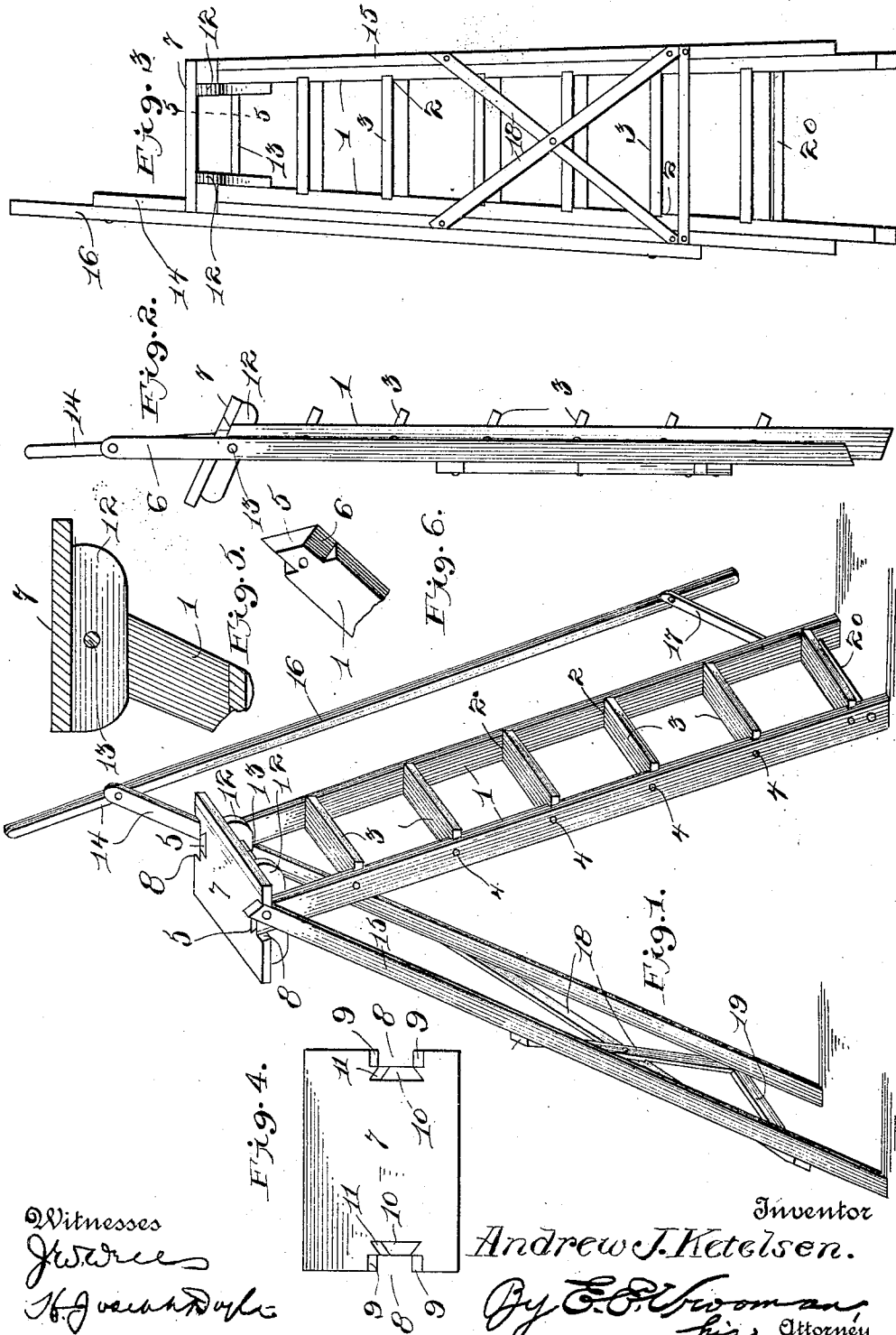


A. J. KETELSEN.
STEP LADDER.
APPLICATION FILED OCT. 16, 1909.

961,357.

Patented June 14, 1910.



Witnesses
J. J. [Signature]
H. J. [Signature]

Inventor
Andrew J. Ketelsen.
By *E. P. [Signature]*
his Attorney.

UNITED STATES PATENT OFFICE.

ANDREW J. KETELSEN, OF SAGINAW, MICHIGAN.

STEP-LADDER.

961,357.

Specification of Letters Patent.

Patented June 14, 1910.

Application filed October 16, 1909. Serial No. 522,993.

To all whom it may concern:

Be it known that I, ANDREW J. KETELSEN, a citizen of the United States, residing at Saginaw, in the county of Saginaw and State of Michigan, have invented certain new and useful Improvements in Step-Ladders, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to step ladders, and the principal object of the same is to provide means for preventing the ladder from spreading when in use.

Another object of the invention is to provide a guard rail for the ladder which will lie close to the ladder when the ladder is folded, but which will automatically rise to a guarding position at one side of the ladder when the latter is open for use.

In carrying out the objects of the invention generally stated above it will be understood, of course, that the essential features of the same are necessarily susceptible of changes in details and structural arrangements, one preferred and practical embodiment of which is shown in the accompanying drawings, wherein:—

Figure 1 is a perspective view of the improved ladder as it appears ready for use. Fig. 2 is a side elevation of the same folded. Fig. 3 is a rear view. Fig. 4 is a detail top plan view of the platform at the top of the ladder. Fig. 5 is a fragmentary vertical sectional view taken on the line 5—5, Fig. 3. Fig. 6 is a fragmentary perspective view of one end of one of the side members of the ladder.

Referring to said drawings by numerals, 1 designates the side members of the improved ladder which have regularly spaced holding grooves 2 formed on their inner faces for the ends of the flat steps 3 which are rigidly fastened therein by the nails or other fasteners 4. The upper end of the side members is provided with a reduced tenon 5 the longitudinal sides 6 of which are outwardly beveled. The top platform 7 of the ladder is provided with a centrally located notch 8 at each end the sides 9 of which are on an inward incline. Said notches communicate with a flaring mortise 10 having beveled sides 11. The tenons 5 of the side member 1 are fitted in said mortises 10 with their upper end flush with the upper surface of the platform 7. Transversely arranged

the platform 7 adjacent each end thereof and are held in position by the pivot bar 13 which passes through the side members 1 and said braces 12. The ends of said pivot bar 13 project beyond the outer surface of each side member 1 and serve as a pivot support for the brace legs 14—15. The brace leg 14 projects through and beyond the guiding notch 8 and has its projected end pivotally connected to one end portion of a hand rail 16 which is parallel with one of the side members 1 and has its other, or lower end, pivotally connected to the outer end of a link 17 the inner end of which is pivotally connected to said side member 1. The brace leg 15 has its upper end extended into its notch 8, the upper end of said leg 15 being cut away so that it will be substantially flush with the upper surface of the platform 7.

As will be observed by reference to Fig. 1, the notches 8 of the platform 7 are sufficiently large enough to permit the necessary pivotal movement of the brace legs 14—15 so that they may be swung to an open or closed position, but limits said pivotal movements by contact of the said legs with the inclined sides of said notches so when in either an open or a closed position, one edge of the legs will have a firm engagement with said inclined sides of the notches. As will be obvious the use of the end notches obviates the necessity of employing links or the like for connecting the legs 14—15 to the side members for limiting the opening movement of the ladder.

The legs 14—15 are preferably braced by the crossed strips 18 and the horizontal strip 19. Also bars 20 may be employed in connection with the side members 1 for reinforcing the same, said bars being located beneath each step, one being shown in Figs. 1—3.

From the foregoing it will be seen that when the ladder is in an open position, as shown in Fig. 1, the hand rail 16 will be held parallel with, but spaced from one of the side members so that an efficient guard is provided for the user of the ladder, and when the ladder is folded, said rail will be close to the outer side of said member 1 so that but the minimum of storage space is required for the ladder.

What I claim as my invention is:—

1. A step ladder comprising stationary side members, regularly spaced steps car-

ried thereby, a top platform rigidly connected to the upper end of said members, said platform being provided with end notches, brace legs having a pivotal connection with said side members and platform, said members projecting into and being limited in their movements by said notches, one of said legs projecting beyond said platform, a hand rail having one end portion pivotally connected to the projected end of said leg, and a pivotally mounted link connecting the other end of said rail to one of said side members.

2. A step ladder comprising a step section, a platform for the upper end thereof provided with notches, brace legs pivotally connected to said step section and projecting through said notches and limited in their pivotal movement by said notches, and a guard rail pivotally connected to one of said legs and to said step section.

3. A step ladder comprising a stationary step section, a top platform therefor provided with end notches, brace legs pivotally connected to said step section and said platform, said legs projecting into and limited in their pivotal movement by said notches, and a guard rail pivotally con-

nected to one of said legs and one side of said step section.

4. A step ladder comprising stationary side members, steps carried thereby, the upper end of said members being provided with a tenon, a top platform provided with end mortises for said tenons and notches communicating with said mortises, transverse brace bars arranged on the under side of said platform adjacent each end thereof, a pivot bolt extending through said bars and side members, brace legs pivotally mounted on said pivot bolt and projecting into said notches, one of said legs projecting through and above its notch, a hand rail having one end portion pivotally connected to the projected end of said leg, and a link having one end pivotally connected to the lower portion of one of said side members and its other end pivotally connected to said hand rail.

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

ANDREW J. KETELSEN.

Witnesses:

J. S. BEACH,
CLARA E. BOTTKE.