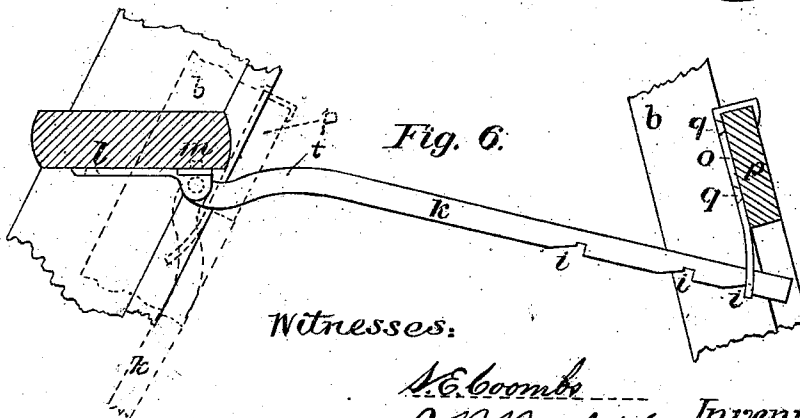
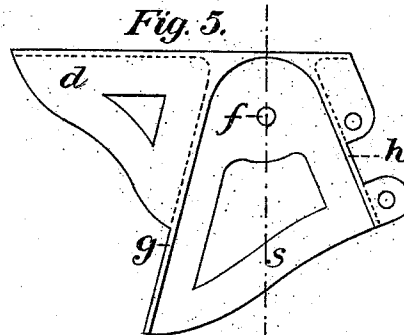
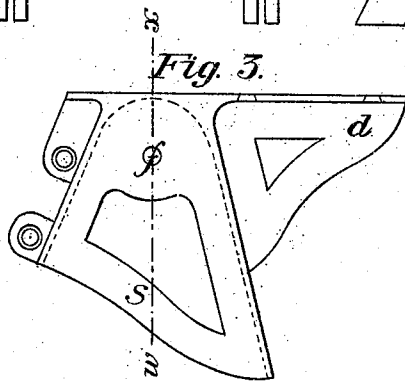
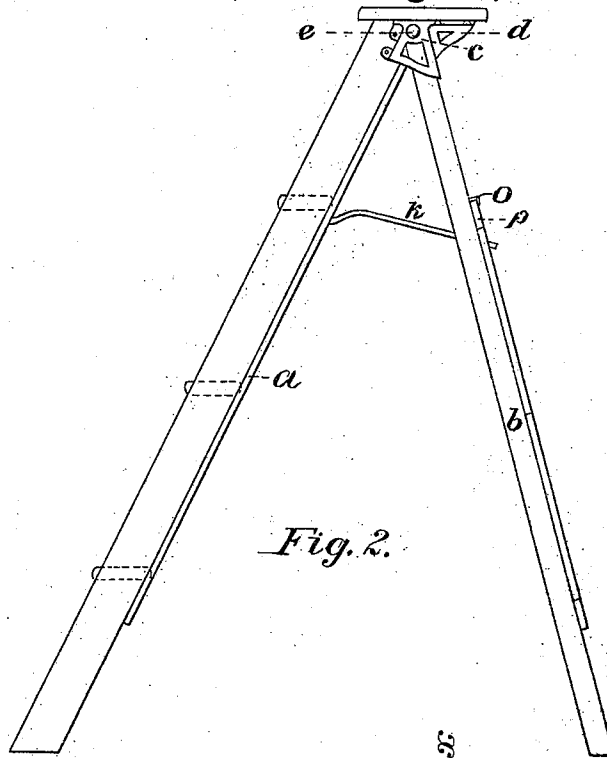
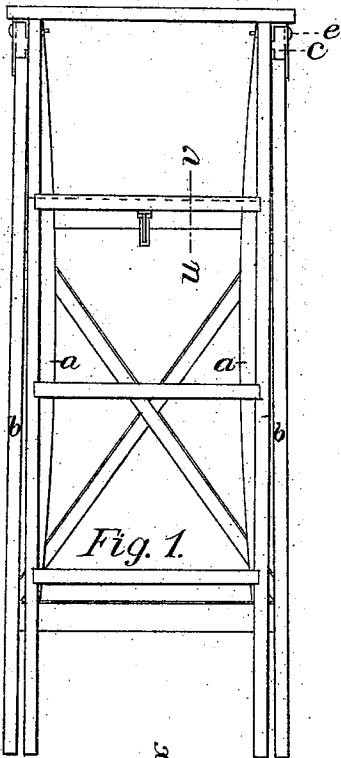


(No Model.)

C. RIVERS.
STEP LADDER.

No. 503,165.

Patented Aug. 15, 1893.



Witnesses:

A. E. Coombs
J. R. Rackliffe
Inventor
Campbell Bros.

UNITED STATES PATENT OFFICE.

CAMPBELL RIVERS, OF ST. JOSEPH, MISSOURI.

STEP-LADDER.

SPECIFICATION forming part of Letters Patent No. 503,165, dated August 15, 1893.

Application filed October 2, 1891. Serial No. 407,580. (No model.)

To all whom it may concern:

Be it known that I, CAMPBELL RIVERS, a citizen of the United States, residing at St. Joseph, Missouri, have invented a new and useful Improvement in Step-Ladders, of which the following is a specification.

My invention is a step ladder; so designed as to combine lightness, compactness and strength; through improvements in various parts as shown in the accompanying drawings.

Figure 1 is a front elevation of the step ladder. Fig. 2 is a side elevation of the step ladder. Fig. 3 is a side view of the casting which forms the joint on which the legs swing. Fig. 4 is a cross section of the same on line W. X. Fig. 5 is a side view of hinges; reverse of Fig. 3. Fig. 6 is a cross section of part of ladder on line U. V. Fig. 7 is a cross section of a certain new form of staple fastening shown in plan in Fig. 8. Cross section taken along line Y. Z.

The stiffener *a*, is a solid strip that is fastened to the ladder strings, and also to the steps, thus preventing spreading of the strings, while fastening these parts of the ladder together. The swinging legs *b*, Fig. 2, fold upon the ladder as in dotted lines Fig. 6, and are allowed to do so by the hinge joint casting *c*, shown enlarged in Figs. 3, 4 and 5, which forms a receptacle for the upper end of the legs. This casting is fastened to the sides and to the top step of the ladder and is provided with bracket *d*, which gives additional support to the top step. The legs swing on a bolt *e*, passing transversely through the hole *f* in this casting and through the side of the step ladder. The projecting sides or flanges *g* and *h* of this casting form a stop to prevent the swinging legs from spreading beyond a certain limit.

The spread of the ladder can be adjusted by notches *i, i, i*, in the brace bar *k*, which passes through a hole in catch *o*. This brace bar is so curved at *t* as in dotted lines Fig. 6, that the brace folds down out of the way the

curves being reversed curves; the length of the radius of the end one of which is two thirds that of the interior curve. This brace is hung from a step by means of a transverse hole in the bar and a malleable iron staple Figs. 7 and 8 which is screwed to the bottom of the step at *l*, and has two projecting bosses *m, m*, which are forced into the wood and prevent lateral motion. The brace bar hangs on the projections *n, n*, by springing the staple apart so that the hole in the bar fits over the projections, and then springing together and is put in place on the ladder by screwing to the step with one screw, the bosses *m, m*, preventing the staple spreading apart.

The catch *o*, is so shaped passing over the top of the brace *p*, that two screws at *q*, are sufficient to hold it in place, and is curved so as to allow the bar to fold down out of the way as shown in dotted lines Fig. 6.

What I do claim as my invention, and desire to procure by Letters Patent, is—

1. The solid segmental stiffener *a* fastened throughout its length, both to steps and ladder strings.

2. The hinge joint casting *c* forming with side piece of ladder a receptacle and hinge for end of swinging leg and sides *g* and *h* forming stops for the leg, the rear one being longer than the front one, and connected thereto by the side "S" substantially as shown.

3. The brace bar "*k*," in combination with the stepladder; with reversed curves at connecting end, the radius of the end curve being two-thirds that of the interior curve.

4. The form of staple for holding brace bar which can be spread apart, with the bosses *m, m*, to prevent its spreading when fastened in place.

CAMPBELL RIVERS.

Witnesses:

J. W. CAMPBELL,
FRANK C. REILLY.