No. 792,436. PATENTED JUNE 13, 1905.

E. A. MEACHAM.

LADDER.

APPLICATION FILED FEB. 21, 1905.

FIG. 1.

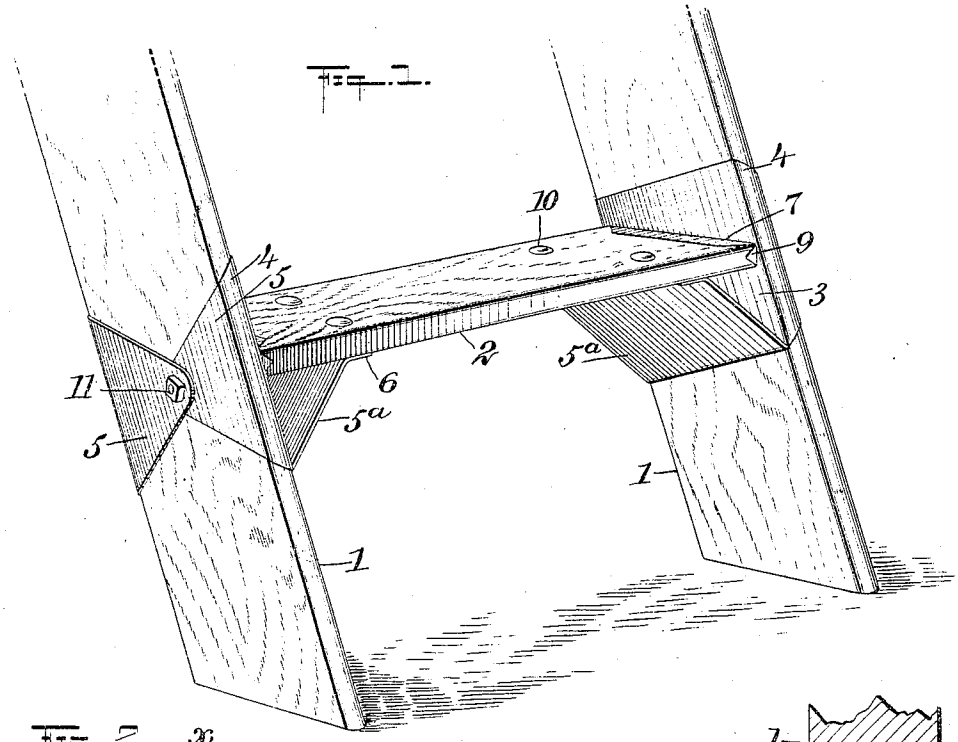



FIG. 2.

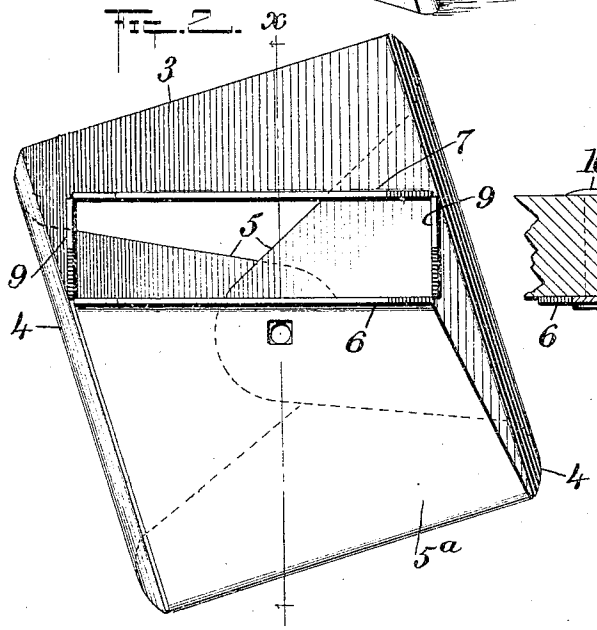
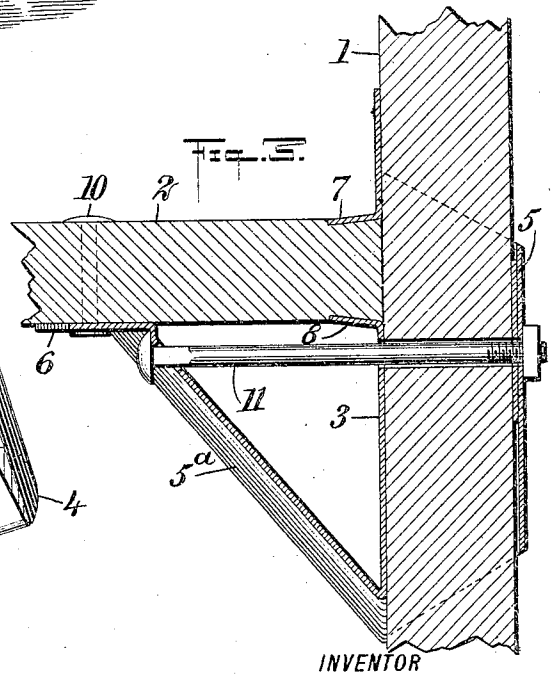



FIG. 3.




WITNESSES: x

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PHOTO LITHOGRAPHED BY SACKETT & WILHELMS LITHO. & PTG. CO. NEW YORK

No. 792,436. Patented June 13, 1905.

# UNITED STATES PATENT OFFICE.

ERNEST ALONZO MEACHAM, OF RIVERSIDE, CALIFORNIA.

## LADDER.

SPECIFICATION forming part of Letters Patent No. 792,436, dated June 13, 1905.

Application filed February 21, 1905. Serial No. 246,730.

*To all whom it may concern:*

Be it known that I, ERNEST ALONZO MEACHAM, a citizen of the United States, and a resident of Riverside, in the county of Riverside and State of California, have invented a new and Improved Ladder, of which the following is a full, clear, and exact description.

This invention relates particularly to improvements in means for securing steps to the side rails of ladders, cellar-stairs, or the like, an object being to provide a simple means for securing the steps without mortising the steps into the rails, so as to weaken the rails, a further object being to so construct the fastenings that they will not only add to the strength of the steps and rails, but will stiffen the whole structure.

I will describe a ladder embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of a ladder or stairway embodying my invention. Fig. 2 is a perspective view of the fastener, and Fig. 3 is a section on the line $x$ $x$ of Fig. 2.

Referring to the drawings, 1 designates side rails, and 2 a step.

The fastening device consists of a single sheet of metal, preferably galvanized iron. The body portion 3 is designed to engage against the inner side of a rail, and at the sides of this body portion are outwardly-turned flanges 4 for engaging the front and rear edges of the rail, and from these flanges 4 flanges 5 extend inward to engage against the outer surface of the rail. From the lower end of the inner or body plate 3 a portion $5^a$ extends at an upward and inward angle and terminates in a horizontally-disposed portion 6 for engaging against the under side of the step. These portions $5^a$ and 6 practically form a bracket. Above the bracket, flanges 7 8 are turned inward from the plate and are designed to engage, respectively, with the upper and under sides of a step. Flanges 9 at the ends are also turned outward for engaging with the front and rear edges of the step, thus preventing any lateral play. These several flanges 7, 8, and 9 are formed by slitting the plate 3 crosswise and at the ends of the slit forming divergent slits, and then the parts are turned outward, as clearly indicated in Fig. 2.

In using the device after placing the body-plate on the side rail the end of the step is to be inserted between the flanges 7 8 9, and bolts or rivets 10 are passed through the step and through the portion 6 of the bracket. A fastening-bolt 11 also passes through the portion $5^a$ of the bracket, through the plate 3, the side rail, and the lapped members 5.

By employing the fastening embodied in my invention the steps are greatly strengthened at the ends and are prevented from splitting, and, further, by using the device much lighter wood may be used than in the ordinary construction of ladders.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. As an article of manufacture, a device for securing a step to a side rail, consisting of a metal plate having an inner portion for engaging against the inner side of the rail, a part extended upward and inward from the lower end of said inner portion, flanges turned inward from said inner portion for engaging the upper and lower sides of a step, and outwardly-turned flanges on opposite vertical edges of said inner portion for engaging with the front and rear edges of the side rail.

2. As an article of manufacture, a device for securing a step to a side rail, consisting of a metal plate having an inner portion for engaging against the inner side of the rail, side flanges on said plate for engaging against the front and rear edges of the side rail, flanges on said side flanges for engaging against the outer side of the rail, a part extended upward and inward from the lower end of the plate and terminating in a horizontally-disposed portion, and flanges extended from the plate for engaging against the upper and lower sides of a step.

3. A device for attaching a step to a side rail, comprising a metal plate having a bracket portion extended upward from its lower edge, transverse flanges above said bracket for en-

gaging against the upper and lower sides of a step, flanges at the ends of said transverse flanges for engaging against the front and rear edges of a step, and flanges on the plate for engaging against the front and rear edges of the side rail and against the outer side of said side rail.

4. The combination with a side rail and step of a ladder, of a fastening device comprising a metal plate having a portion for engaging against the inner side of the side rail, inwardly-extended flanges for engaging against the upper and lower sides of the step, a bracket portion extended upward at an angle from the lower edge of the plate and terminating in a horizontally-disposed portion, a fastening device extended through the step and through said horizontally-disposed portion, flanges on the opposite vertical sides of the plate for engaging against the front and rear edges of the side rail, and a bolt passing through the upwardly-inclined portion and through the side rail.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ERNEST ALONZO MEACHAM.

Witnesses:

CURTIS F. HUSE,

PETER J. BOLLINGER.