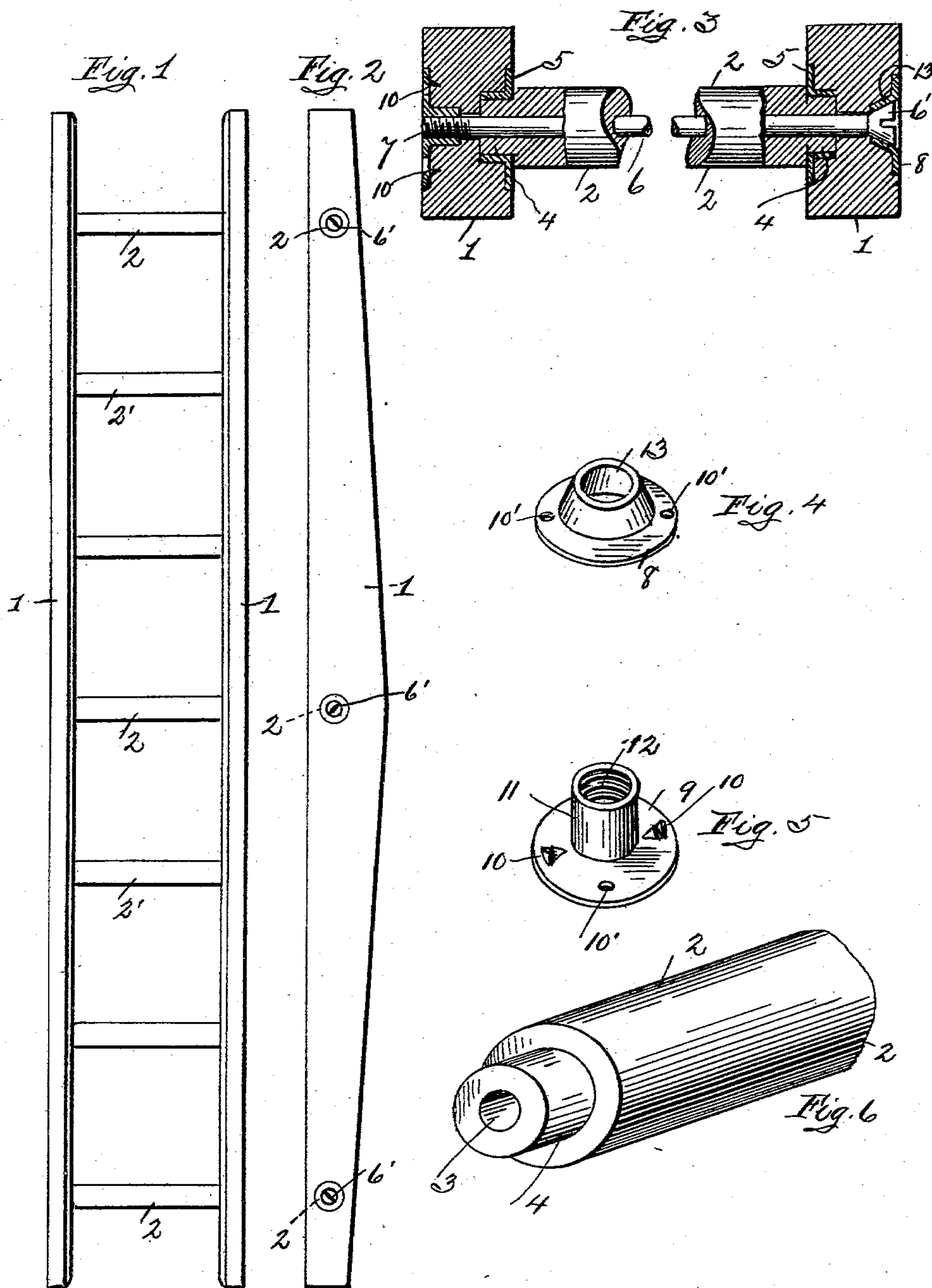


No. 743,640.

PATENTED NOV. 10, 1903.

E. L. HARMON.
KNOCKDOWN LADDER.
APPLICATION FILED FEB. 6, 1903.

NO MODEL.



Witnesses:
M. E. Harmon.
J. A. Hervey.

Inventor.
E. L. Harmon.
By
O. O. Hervey
Att'y.

UNITED STATES PATENT OFFICE.

ELMER L. HARMON, OF SHERIDAN, PENNSYLVANIA.

KNOCKDOWN LADDER.

SPECIFICATION forming part of Letters Patent No. 743,640, dated November 10, 1903.

Application filed February 6, 1903. Serial No. 142,108. (No model.)

To all whom it may concern:

Be it known that I, ELMER L. HARMON, a citizen of the United States, residing at Sheridan, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Knockdown Ladders, of which improvement the following is a specification.

This invention relates to an improved ladder, and more particularly to that class of ladders known in the art as "stage" ladders for painters' use, &c.; and it consists in the certain details of construction and combination of parts, as will be fully described hereinafter.

In the accompanying drawings, Figure 1 is a front elevation of my improved ladder, the same being constructed and arranged in accordance with my invention. Fig. 2 is a side elevation of the same. Fig. 3 is an enlarged sectional plan view taken through one of the rungs of the ladder. Fig. 4 is a perspective view of one of the ferrules used in connection with the head of the tie-bolt. Fig. 5 is a perspective view of the opposite ferrule adapted to connect with the threaded end of the tie-bolt. Fig. 6 is a perspective view of a portion of one of the hollow rungs, showing the shoulder formed thereon.

To construct a ladder in accordance with my invention, I form from suitable material the side rails 1 and connect the one with the other by a series of rungs 2 and 2', as shown at Fig. 1 of the drawings. Each of these rungs are formed at their ends with a shoulder 4 and fitted with an annular ferrule 5, let into the side rails of the ladder, as will be seen by reference to Fig. 3 of the drawings. Two or more of these rungs 2 are provided with a central bore 3, through which a tie-bolt is passed, the same consisting of a rod 6,

having a head 6' at the one end and a threaded portion 7 at the other, the said threaded portion 7 engaging with sockets 12, forming a part of a ferrule 9 let into the side rails 1 of the ladder. This ferrule consists of a disk 9, having spurs 10 or openings 10', as a means of engagement with the side rails to prevent the ferrule from turning. A somewhat similar ferrule 8, having a tapering socket 13, is provided for the head end of the bolt 6, the said ferrule being best shown at Fig. 4 of the drawings. By this construction and arrangement of a ladder the same may be taken apart and packed in a comparatively small space, besides being strong, durable, and efficient and of small cost.

Slight modifications and changes may be made in the details of construction without departing from the spirit of the invention.

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

In a ladder, the combination with the side rails thereof, of rungs connecting said side rails, said rungs having their ends reduced in thickness, ferrules arranged on the reduced end portions of said rungs, and projecting into the said side rails, a rod extending through said rungs and side rails, and ferrules engaging the opposite ends of said rods, one ferrule of each pair having a screw-threaded interior and provided with spurs to engage the side rails.

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

ELMER L. HARMON.

In presence of—

JOHN GROETZINGER,
M. E. HARRISON.