(No Model.)

D. H. RIVERS.

STEP FOR SHIPS' LADDERS OR FIRE ESCAPES.

No. 441,585. Patented Nov. 25, 1890.

Fig. 1.

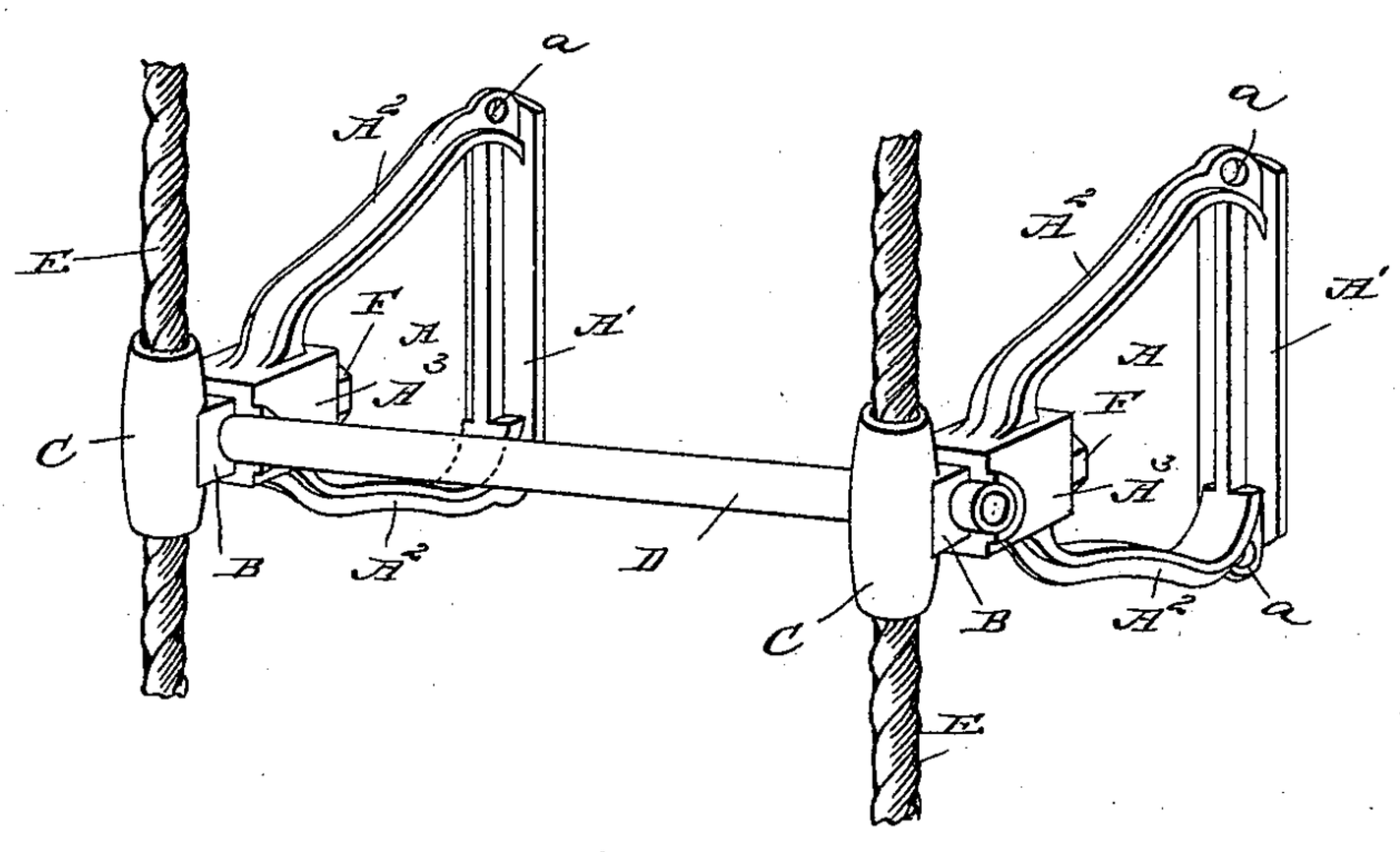


Fig. 2.

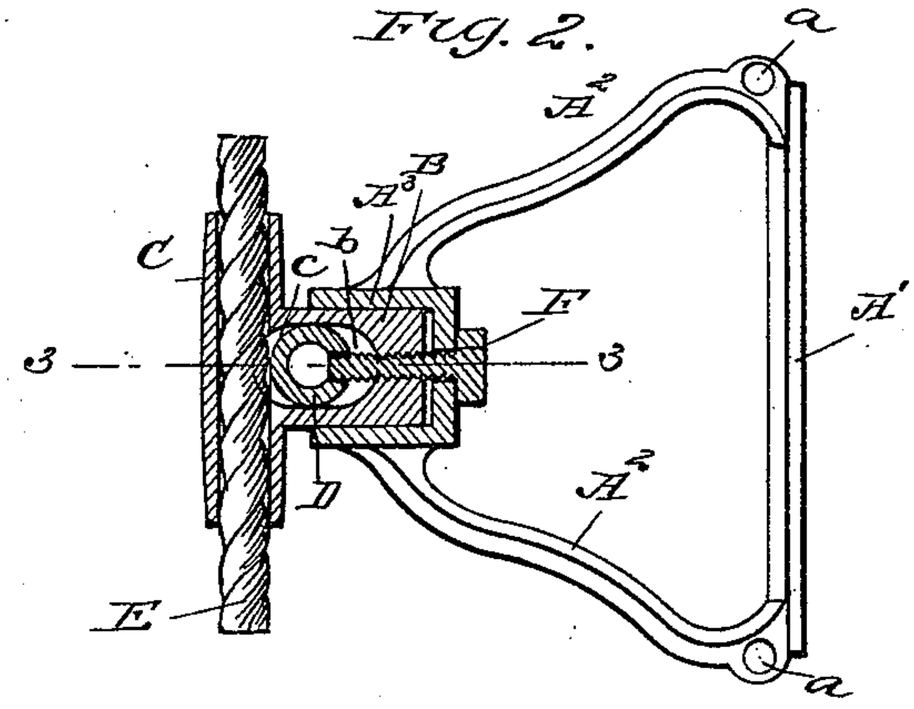
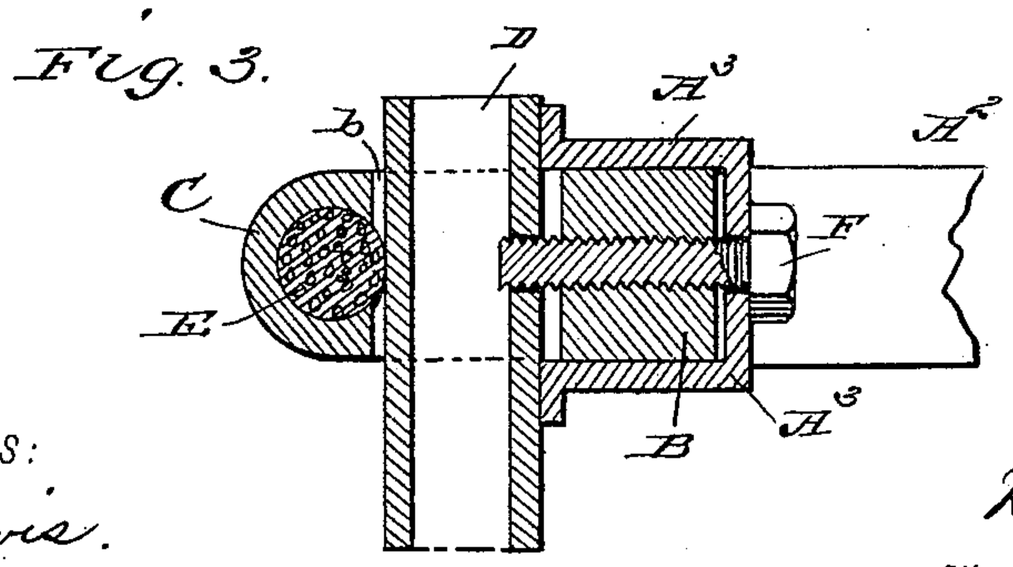


Fig. 3.



WITNESSES:

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DAVID H. RIVERS, OF THOMASTON, MAINE.

STEP FOR SHIPS' LADDERS OR FIRE-ESCAPES.

SPECIFICATION forming part of Letters Patent No. 441,585, dated November 25, 1890.

Application filed August 18, 1890. Serial No. 362,351. (No model.)

To all whom it may concern:

Be it known that I, DAVID H. RIVERS, of Thomaston, in the county of Knox and State of Maine, have invented a new and Improved Step for Ships' Ladders or Fire-Escapes, of which the following is a full, clear, and exact description.

My invention relates to improvements in steps for ships' ladders or fire-escapes, and it may also be applied to all varieties of rope ladders.

The object of my invention is to produce a simple, durable, and convenient step which may be quickly and easily secured to the ropes of a ladder, and which when attached will not encumber the ropes, but will permit of their being rolled up into a very small compass.

To this end my invention consists in certain features of construction and combinations of parts, which will be hereinafter fully described, and then pointed out in the claims.

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

Figure 1 is a perspective view of the step embodying my invention, showing the same applied to the ropes of a ladder. Fig. 2 is a side elevation of the same with the portion adapted for attachment to the ropes in vertical section, and Fig. 3 is a broken horizontal section on the line 3 3 of Fig. 1 on an enlarged scale.

The step comprises the two side brackets A, the connecting-rung D, and the means for clamping the rung and brackets to the ladder-ropes, as described below. The brackets A are provided with a flat base A′, adapted to rest against the surface of a wall, and with the outwardly-extending braces A^2, which gradually converge, and which are united at their outer ends by means of a hollow box A^3, having its outer end open, as shown. The brackets are also provided at top and bottom with eyes *a*, so that the several brackets of a ladder may be united at their bases by means of a cord or chain, if desired. A block B is held in the box A^3, so as to be horizontally movable therein, and fixed to the outer end of the block is a sleeve C, extending at right angles to the block and adapted to inclose the side ropes E of the ladder. The block B is provided with an elongated transverse opening *b*, which extends outwardly through the inner shell of the sleeve C, and the ladder-rung D extends through these openings in the blocks B. The rung D is preferably hollow. A bolt F extends loosely through a hole in the inner wall of each of the boxes A^3, through a threaded hole in the inner end of the block B, and into a hole formed in the rung D. It will thus be seen that by tightening the bolts the block B and sleeve C will be drawn inward, which will cause the rung D to impinge upon the ropes E, thus binding the rung to the ropes, (see Fig. 3,) and the bolts F will prevent the rung from being moved laterally.

To adjust the steps to a ladder, the ropes E, which are preferably of wire, are passed through the sleeve C of the steps, and the bolt F is tightened, so as to hold the step in position upon the rope, and it will be readily seen that a ladder provided with these steps may be dropped into position and that the bases A′ of the brackets will assume a vertical position against the wall of the ship or building, as the case may be, and the ladder is then in position for use.

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

1. A step for ladders and fire-escapes, comprising a rung, brackets for receiving the ends thereof, sleeves for embracing the ladder-ropes, and clamping devices acting to move the sleeves relatively to the rungs and thereby clamp the ropes, substantially as described.

2. A step for ladders and fire-escapes, comprising two side brackets having their outer ends terminating in horizontal boxes, blocks arranged to move horizontally in the boxes, said blocks carrying sleeves adapted to inclose a rope and being connected by a rung, as shown, and means for tightening the rung and sleeves upon the rope, substantially as described.

3. A step for ladders and fire-escapes, comprising two side brackets having their outer ends terminating in boxes, as shown, blocks mounted in the boxes and provided with elongated transverse openings, a rung extending

through the openings in the boxes, sleeves fixed to the blocks and having an inner opening opposite the rungs, and bolts extending through the boxes and blocks and connecting with the rung, substantially as described.

4. A step for ladders and fire-escapes, comprising two side brackets having eyes at their upper and lower portions by means of which they may be connected, a connecting-rung mounted in the outer ends of the brackets, sleeves mounted in the outer ends of the brackets and adapted to inclose a rope, and means for fastening the sleeves and rung to the ropes, substantially as described.

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Witnesses:
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H. M. OVERLOCK.