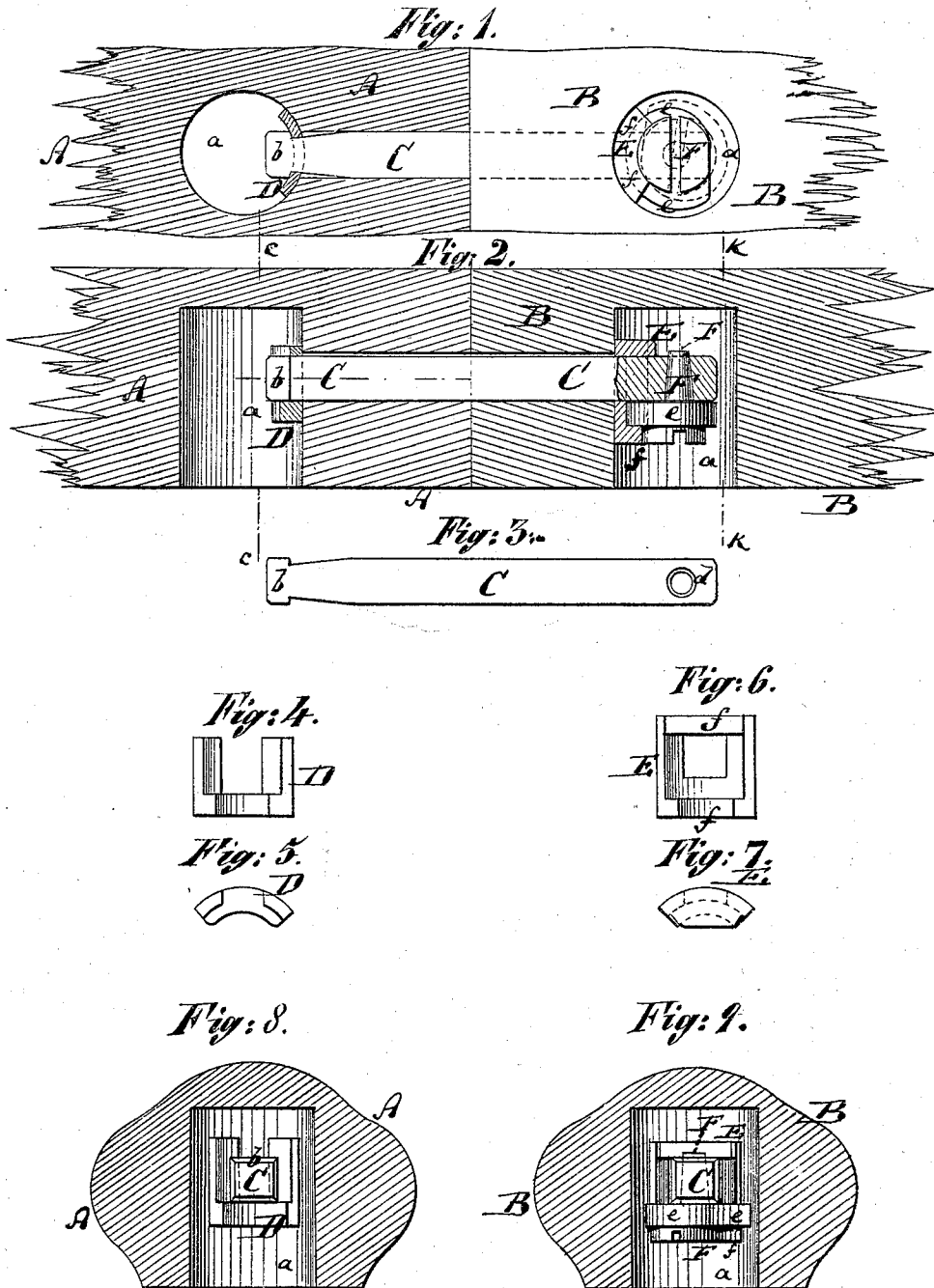


W. LEDUC.

Joints for Stair Hand-Rails.

No. 147,659.

Patented Feb. 17, 1874.



Witnesses:
 Fred Harper
 Fred Auer

Wm Leduc
 by his Attorneys
 Brown & Allen

UNITED STATES PATENT OFFICE.

WILLIAM LEDUC, OF ELIZABETH, NEW JERSEY.

IMPROVEMENT IN JOINTS FOR STAIR HAND-RAILS.

Specification forming part of Letters Patent No. **147,659**, dated February 17, 1874; application filed January 23, 1874.

To all whom it may concern:

Be it known that I, WILLIAM LEDUC, residing at Elizabeth, in the county of Union and State of New Jersey, have invented an Improved Stair-Rail Bolt, of which the following is a specification:

Figure 1 is a bottom view, partly in section, showing portions of adjoining rail-sections connected by my improved bolt. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a detail plan view of the bolt; Fig. 4, a side view of the clasp applied to one end of the bolt; Fig. 5, an end view of such clasp. Fig. 6 is a face view of the curved washer used at the other end of the bolt; Fig. 7, an end view of such washer. Fig. 8 is a transverse section on the line *c c*, Fig. 2, showing that end of the bolt to which the clasp is applied. Fig. 9 is a transverse section on the line *k k*, Fig. 2, showing the opposite end of the bolt with the curved washer and eccentric cam-lock.

Similar letters of reference indicate corresponding parts in all the figures.

This invention relates to a new arrangement of devices for connecting the adjoining sections of stair-rails; and consists in combining a bolt which is headed at one end and perforated at the other with a retaining-clasp and with an eccentric pin and washer, so that, by means of these parts, the adjoining ends of stair-rails may be quickly, firmly, and cheaply connected together.

In the accompanying drawing, the letters A B represent the two adjoining sections of a stair-rail made of wood or other suitable material. Into each section is bored from beneath, and at a short distance from the end, a cylindrical mortise, *a*, and from these mortises extend channels longitudinally toward the ends, for the reception of the bolt C. These channels and mortises are produced by ordinary or suitable drilling apparatus. The bolt C is made with a head, *b*, at one end and with an aperture, *d*, at the other end, as clearly

shown in Fig. 3. Otherwise it may be flat or round, as desired, and as long about as the distance from center to center of the two mortises *a a* of the channel rail-sections A B.

When the sections are to be united the bolt C is fitted through the longitudinal channel aforesaid so as to enter both mortises, and over its head *b* is then placed a forked clasp, D, which clasp straddles the neck portion of the bolt and bears against the side of the mortise *a*, to prevent the bolt from being drawn through the longitudinal channel. The other end of the bolt in the mortise *a* of the section B is fitted through a curved washer, E, said washer being shaped to correspond with the curvature of the mortise, and perforated, as shown in Fig. 6, to receive the end of the bolt. A pin, F, is finally introduced through the aperture *d*, said pin having a cam-flange, *e*, which, when turned, bears against the washer, and crowds the sections A B together. The flange *e* of the pin enters above a flange or projection, *f*, of the washer E, the latter projection holding the flange-pin *f* in position from dropping out. At one portion the flange *e* projects so little from the pin F as not to enter under the projection *f*, in which position the pin is loosened and capable of drawing out for the removal or repair of the parts. The lower end of the pin F may be notched to receive a screw-driver, or otherwise prepared to facilitate its being turned.

I claim as my invention, and desire to secure by Letters Patent—

1. The combination of the clasp D, washer E, and eccentric F with the bolt C, all arranged to operate as specified.

2. The washer E, provided with a projecting flange, *f*, to confine the cam-flange *e* in position, as described.

WILLIAM LEDUC.

Witnesses:

BENJ. TOOKER,
A. V. BRIESEN.