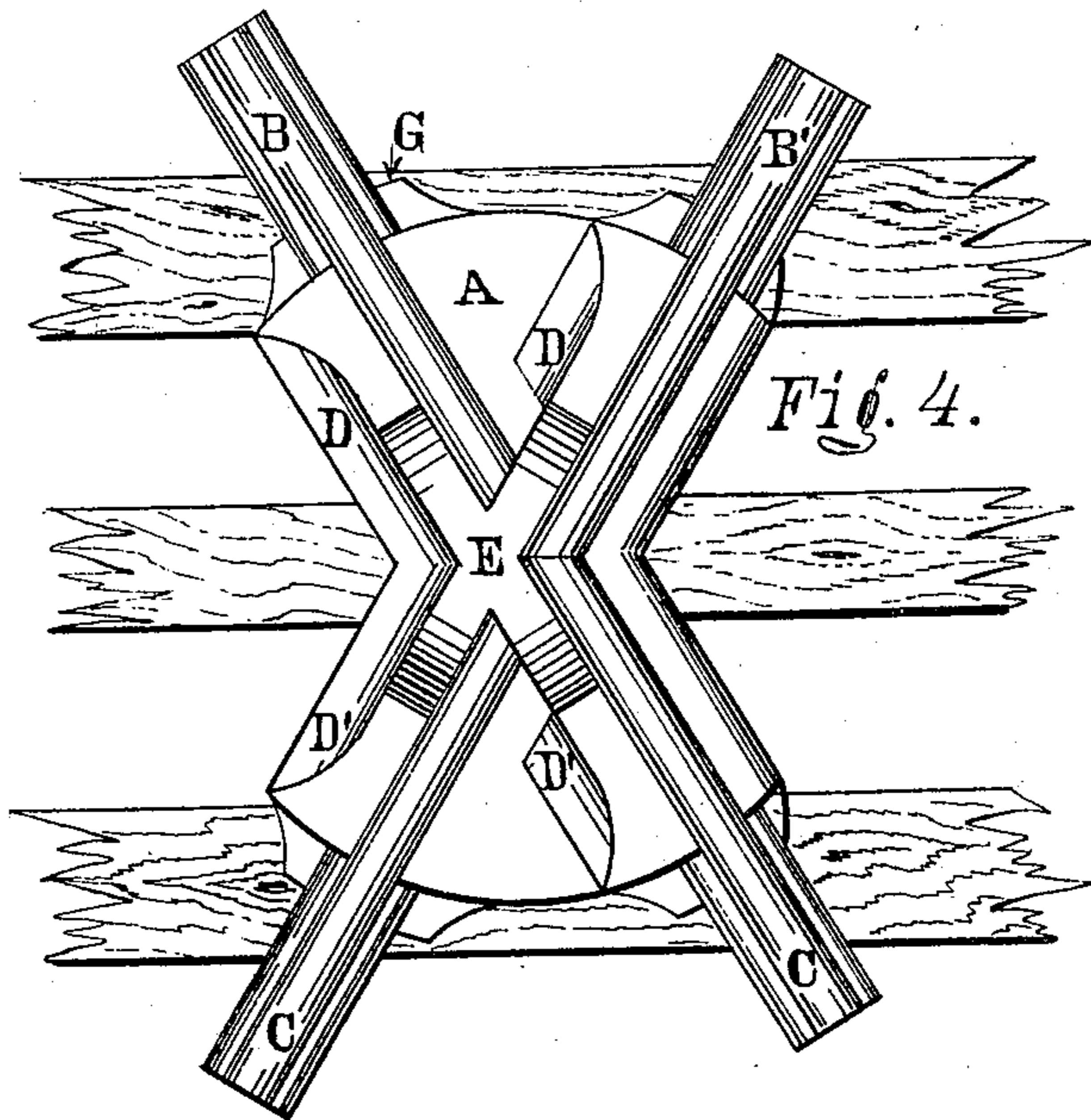
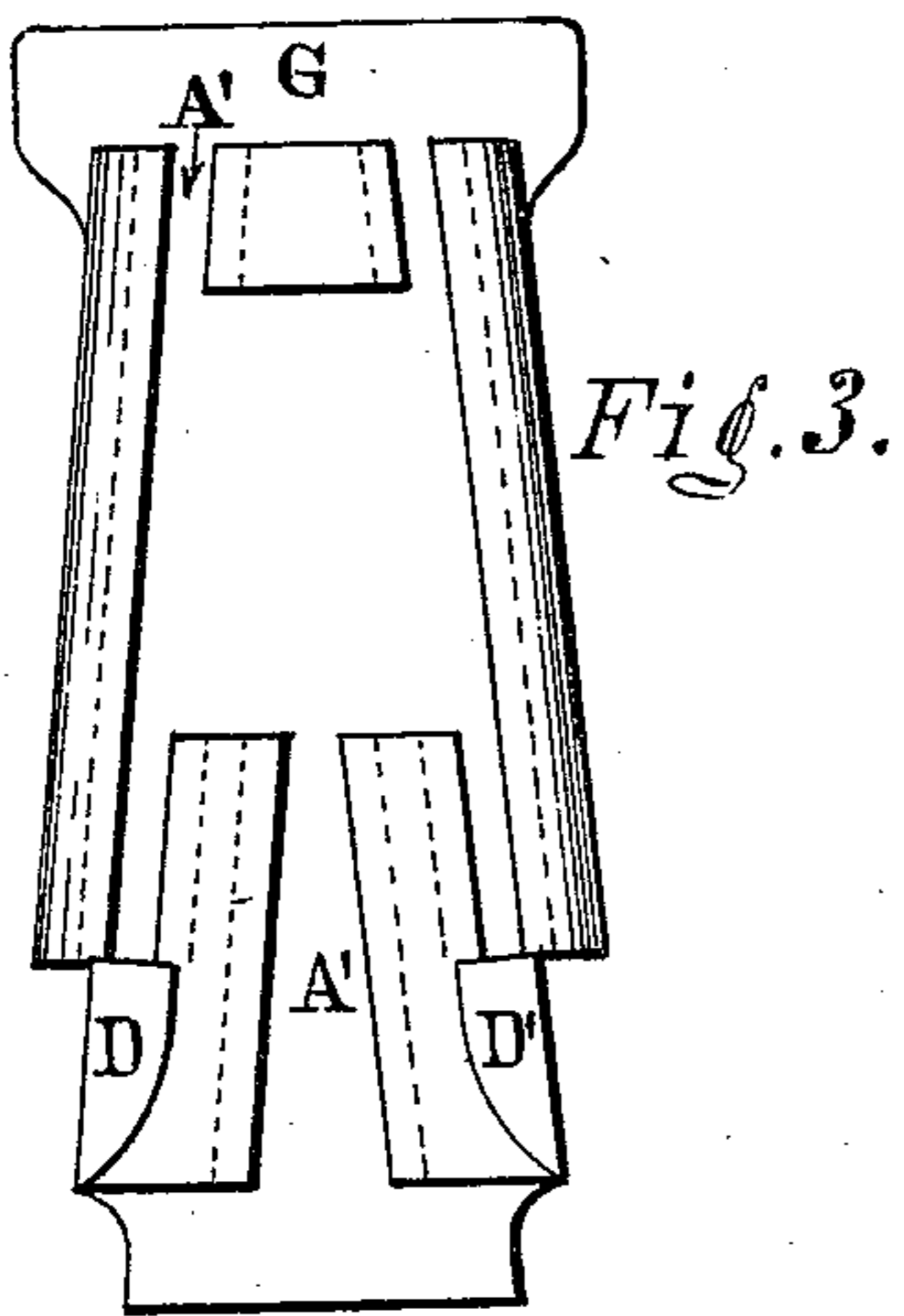
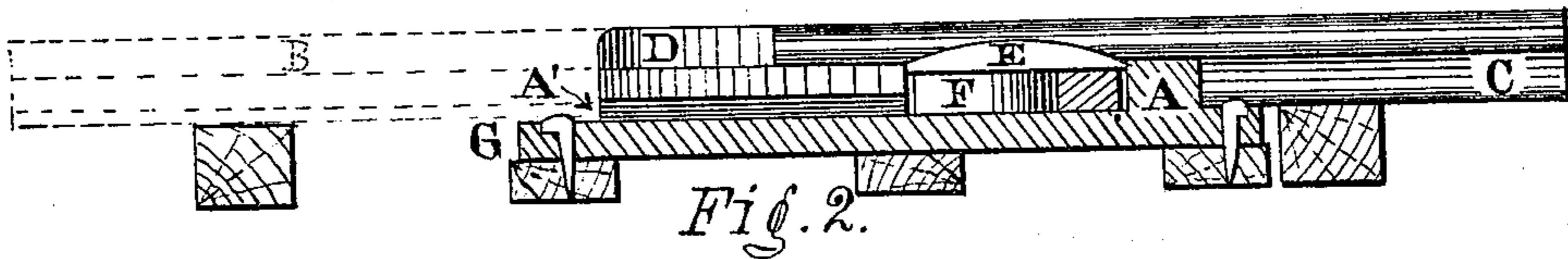
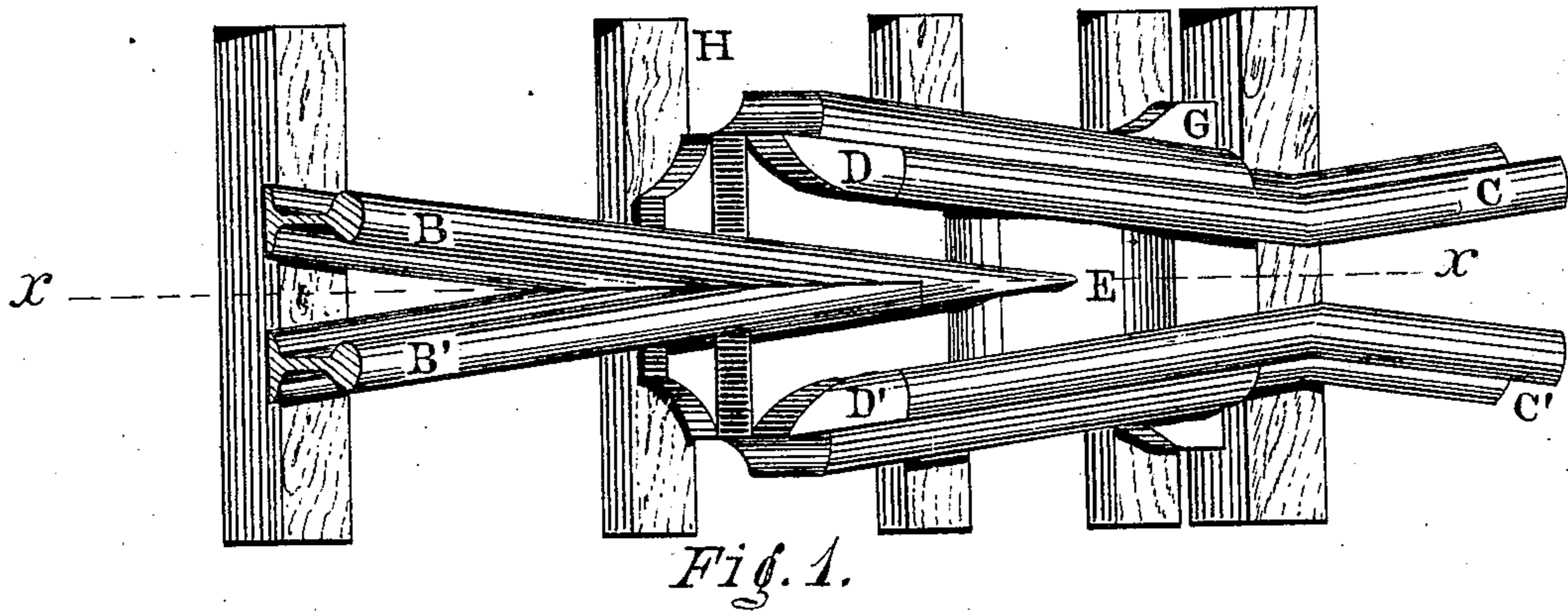


J. CUMMING.  
Railway-Frog.

No. 166,855.

Patented Aug. 17, 1875.



WITNESSES:  
*John B. Edmonds*  
*Chas. A. Borsart*

INVENTOR:  
*James Cumming,*  
by *Michael J. Stark*  
his attorney.

# UNITED STATES PATENT OFFICE.

JAMES CUMMING, OF BUFFALO, NEW YORK.

## IMPROVEMENT IN RAILWAY-FROGS.

Specification forming part of Letters Patent No. **166,855**, dated August 17, 1875; application filed May 15, 1875.

*To all whom it may concern:*

Be it known that I, JAMES CUMMING, of the city of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements on Switch and Crossing Frogs for Railways; and I do hereby declare that the following is a full, clear, and exact description of the same, having reference to the accompanying sheet of drawings, which makes a part of this specification, and illustrates my invention more fully. In the same—

Figure 1 is a perspective plan of my improved railway-frog. Fig. 2 is a longitudinal section in line X X of Fig. 1. Fig. 3 is a plan of my frog-chair, the rails being removed; and Fig. 4 is a plan view of a crossing-frog embodying my improvements.

Like letters of reference indicate similar parts in the various figures.

In order to enable any one skilled in the art to which my invention appertains to make and use the same, I shall proceed to describe its nature and construction, and point out its novel features in the claim.

The present invention relates to improvements on switch and crossing frogs; and it consists in the arrangement with a cast-iron chair, having recesses for the reception of the rails, and the guide-rails cast in one piece, of a yielding bridge-piece, placed between the rails, in such a position that when the car-wheels pass from one to the adjacent rail they will be carried over the gap by the flanges of the wheels passing over the bridge, which, although being yielding, on account of a rubber blade or other spring placed thereunder, will present sufficient resistance to accomplish the object. This arrangement I place on all kinds of frogs, whether switch or crossing, the bridge-pieces being made in such shapes that they will fit the various frog-angles, and it is on account of its cheapness and the saving of rolling-stock, that it produces a decided improvement upon the frogs now in common use.

A is the chair of my frog, which is made in various configurations to suit the particular requirements. In Figs. 1 and 3 I show one adapted to a switch, and in Fig. 4 another one serving as a crossing-frog. This chair I

provide with recesses corresponding to the cross-section of the foot and web of a rail, and insert the rails therein. It is made of cast-iron, with the recesses for the rails cast therein, and is provided with projections D D', also cast with the chair, serving as guide-rails. Within the recesses A' I place the two intersecting track-rails B B' and the succeeding rails C C', the latter being continuations of the former. These rails fit the recesses A' snugly, and retain their position without the intervention of bolts, keys, or the like. D D' are guide-rails cast upon the chair-base, except in switch-frogs, where I cast only the rounded ends thereof, and insert rails for the continuations. Within the channels of the said intersecting rails, and into a recess provided in the chair, I place a yielding bridge-piece, E, made of cast-steel and beveled on its edges, and retain it in its proper position by the sides of the before-mentioned recess, and the heads of the rails overlapping the said bridge-piece. This bridge I make of various designs, so as to fit the different members of the frogs, and support them within the recess in the chair by an elastic cushion or spring, F, made of rubber or other suitable material or metal, and thereby make the said bridge flexible when a train of cars passes over the same.

The tongue and point of a switch-frog are formed by the two rails B B', notched and beveled, as shown in Fig. 1, without steel or iron detachable points. I am enabled to do this on account of the introduction of the bridge-piece E into the channels, whereby the flanges of the wheels will run over the said bridge-piece, and the treads be raised sufficiently to clear the tongue and point without coming in contact therewith. The chair is provided with projections, flanges, or lugs, whereby it is spiked down upon the cross-ties in the usual manner.

In frogs having the bridge-piece fixed to the chair, the wheel-flanges will soon cut grooves or gutters therein, and thus render their removal and renewal necessary. Fixed bridges also cause more or less jolting when the wheels cross the channels.

In my present invention these obstacles are to a great measure, if not entirely, overcome

by making the said bridge yielding, so that it will be depressed when the flanges pass the same, though not sufficiently to injure the frog-points. The chair cast with its recesses for the rails, and the guide-rails cast thereon, makes an excellent support for the rails, while the mode of constructing the point, as shown in Fig. 1, of rails without detached plates, that are always unreliable and subject to derangement, is far cheaper, and, in conjunction with the yielding bridge-piece, better than any other frog with which I am acquainted.

By reference to the figures in the drawings it will be readily seen that my invention is applicable to any angle of intersection of the rails, from the most obtuse to the most acute angle.

Having thus fully described my invention, I claim—

The combination, with the track-rails B B' and C C', intersecting each other at any angle, of a yielding bridge-piece, E, provided with the cushion F, and arranged within a recess in the chair-base, and held therein by the heads of the rails, substantially as described, and for the use and purpose set forth.

In testimony whereof I have hereto set my hand in the presence of two subscribing witnesses.

JAMES CUMMING.

Witnesses:

MICHAEL J. STARK,  
JOHN B. EDMONDS.