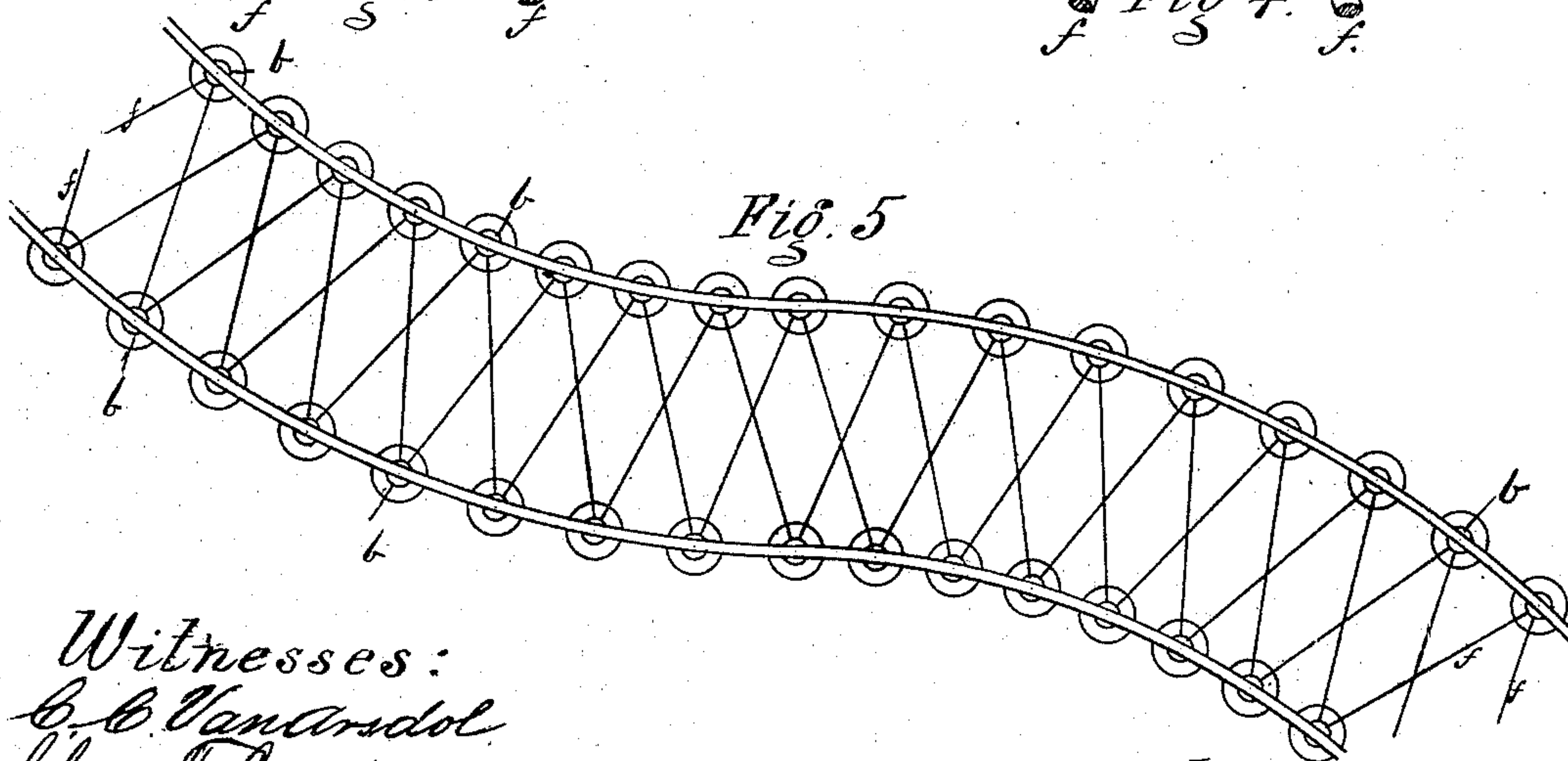
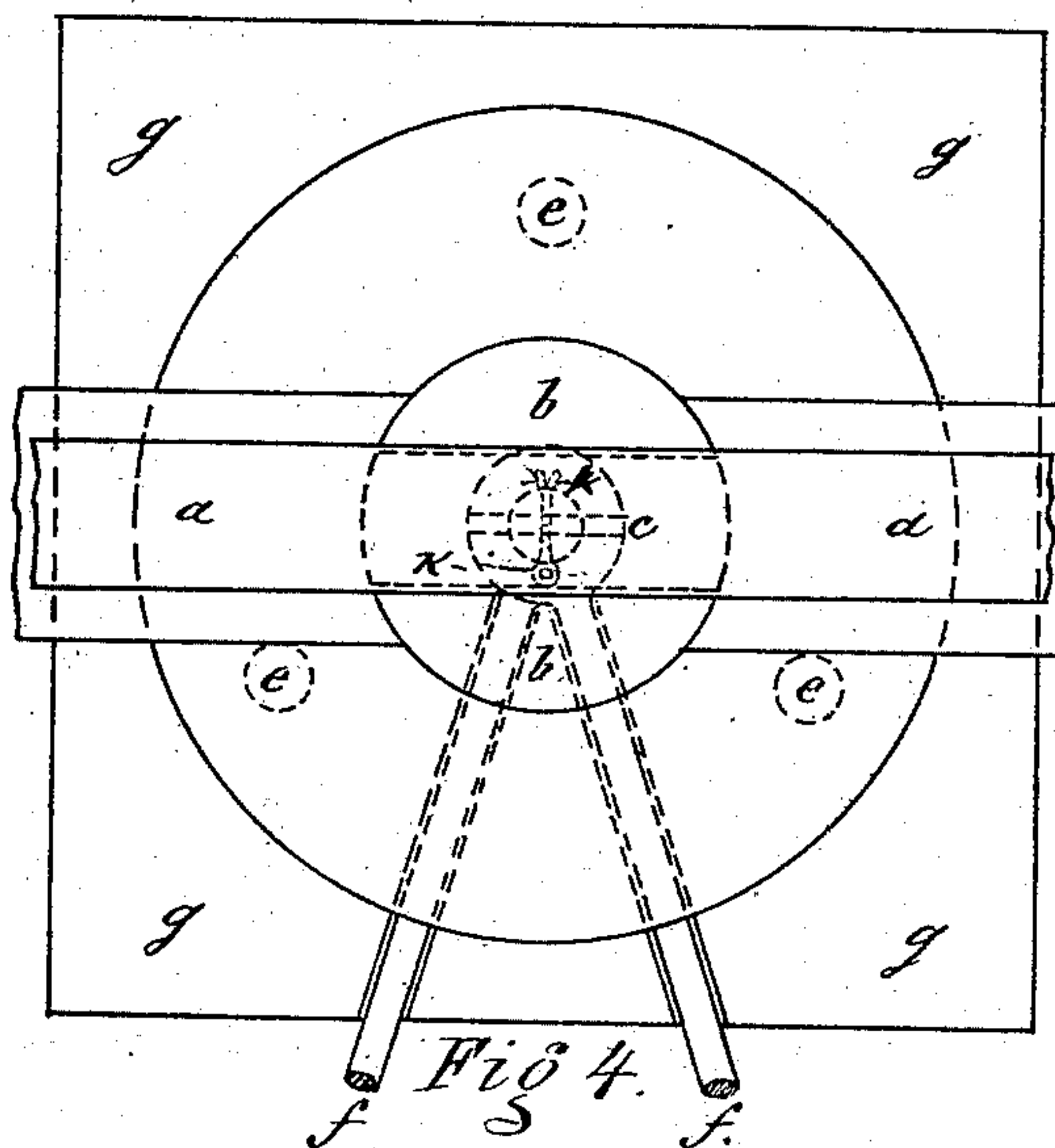
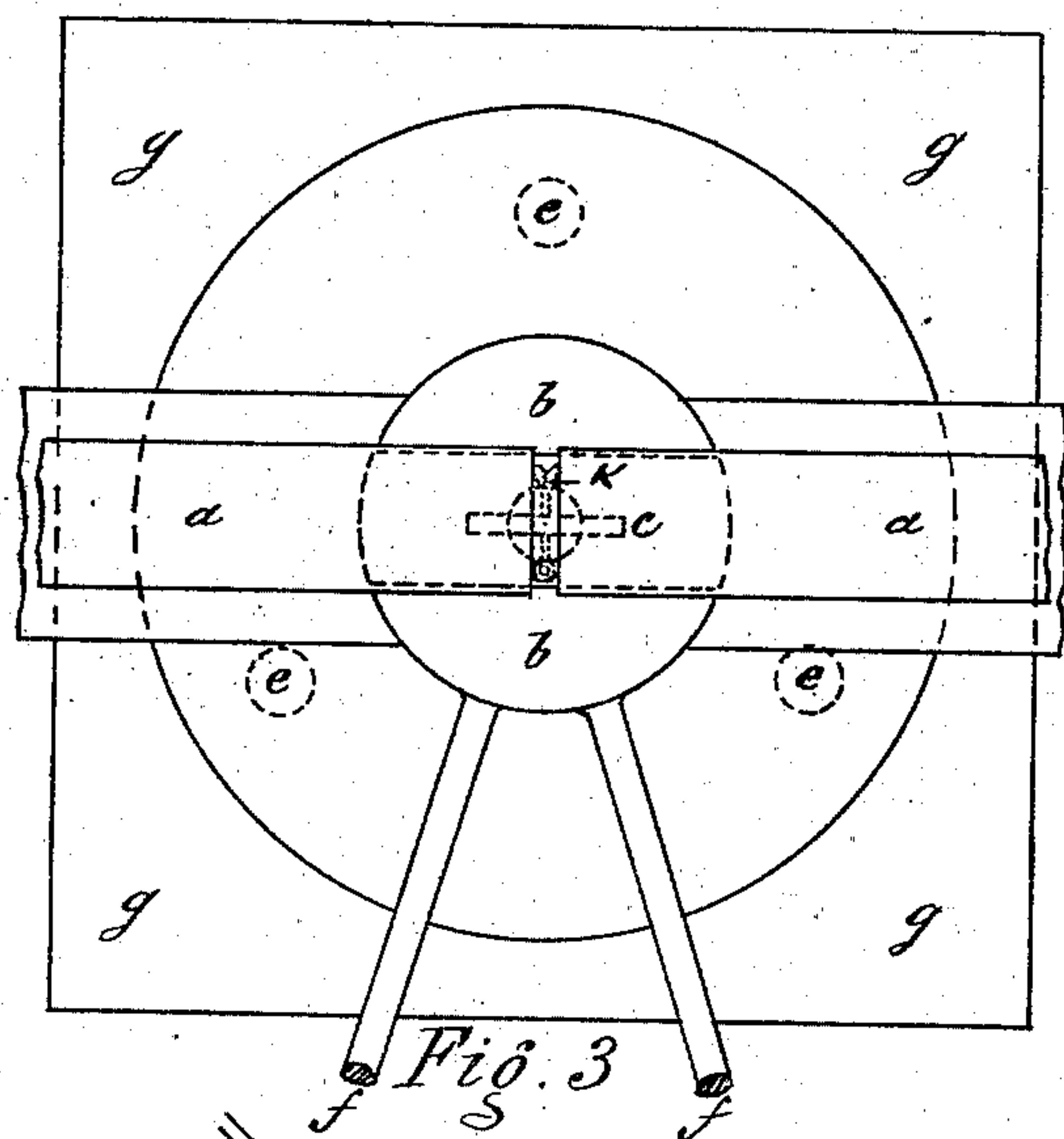
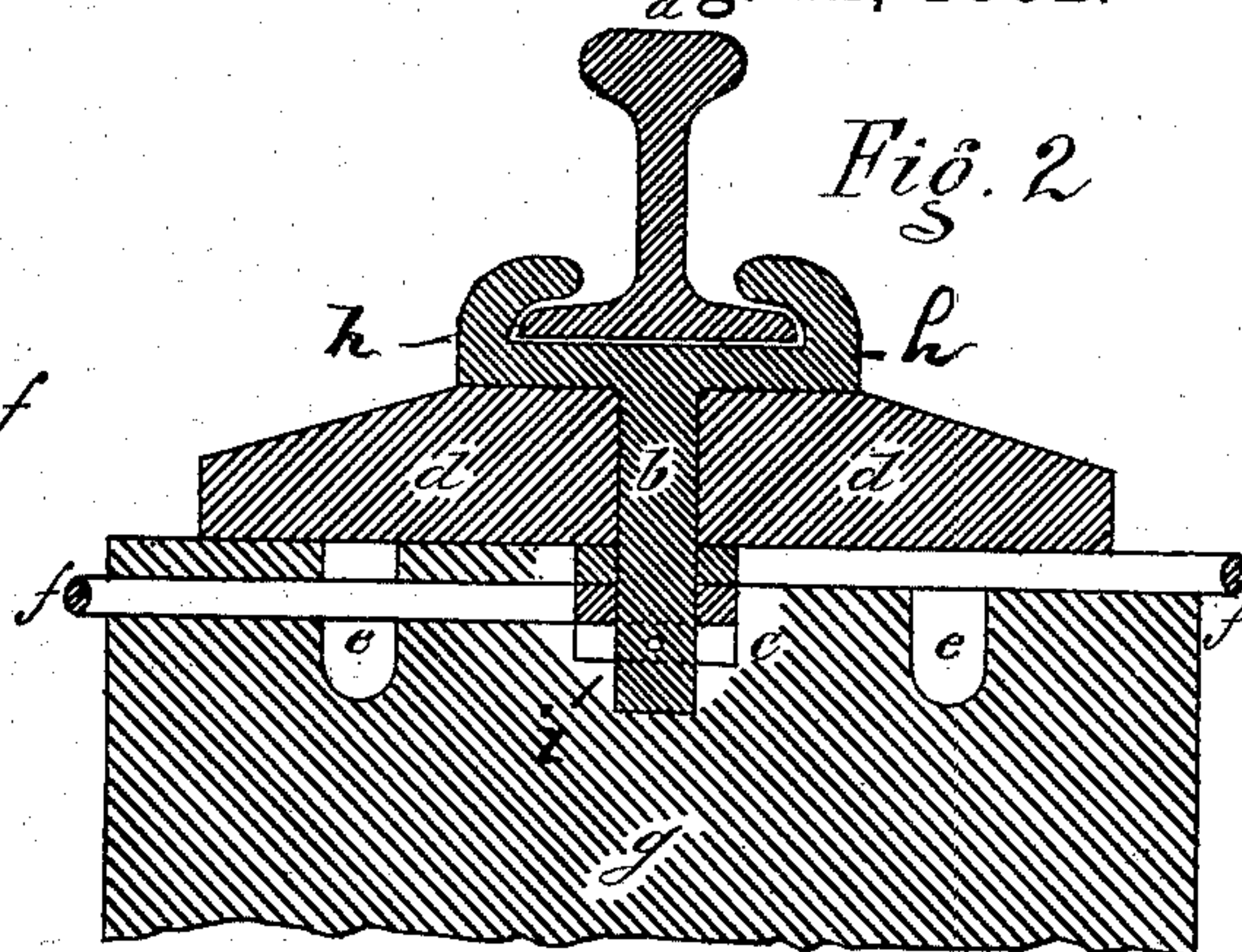
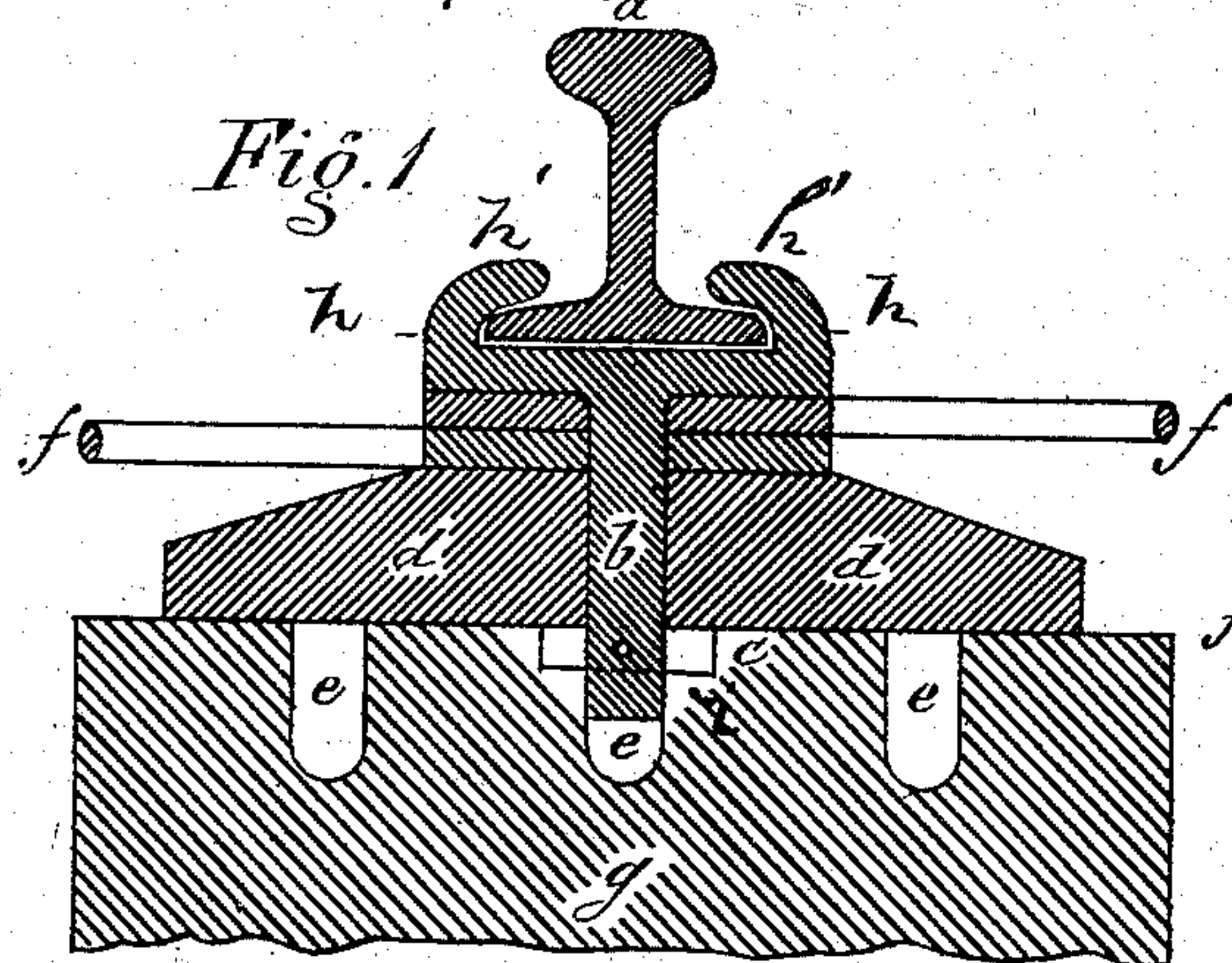


(No Model.)

F. TUNICA.  
SAFETY RAILROAD TIE.

No. 263,078.

Patented Aug. 22, 1882.



Witnesses:  
C. B. Vandordol  
Chas F Jordan

Inventor.  
Francis Tunica.



# UNITED STATES PATENT OFFICE.

FRANCIS TUNICA, OF OMAHA, NEBRASKA.

## SAFETY RAILROAD-TIE.

SPECIFICATION forming part of Letters Patent No. 263,078, dated August 22, 1882.

Application filed January 16, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, FRANCIS TUNICA, a citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented the Double-Triangular and Absolute-Safety Railroad-Tie; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to safety railway-ties; and it consists in details of construction and arrangement of the several parts, as will be hereinafter more specifically set forth in the specification and claims and pointed out in the accompanying drawings, in which—

Figures 1 and 2 are vertical sections of my device; Fig. 3 and 4, plan views of same; and Fig. 5, a diagrammatical plan view, showing the system of tying.

Like letters of reference refer to like parts in the several figures.

Referring more particularly to the drawings, *a* represents a rail seated in a plate or chair, *h*, having the curved flanges *h'*, which curve over the flanges of the rail-base and prevent slipping or jumping of the rail. This plate *h* is provided with a downwardly-projecting pin, *b*, whose function will be hereinafter explained. Underneath the chair is placed a foundation-plate, *d*, having a central perforation for the reception of the pin *b* on the plate or chair *h*. This plate *d* is preferably made of iron, and is provided with dowels, which enter openings for the purpose in a concrete foundation, *g*. This foundation is prepared at proper intervals, varying according to the nature of the ground, and when it hardens makes an unyielding bed, whereby the rails are prevented from sinking and becoming bent when strained by a load passing over them. Now, it is not only necessary that the rails should be prevented from yielding vertically to the degree above stated, but they must be prevented from "spreading," and this I accomplish by means of the diagonal ties and their peculiar fastenings to the chair or plate *h*, or to the foundation, and which are removably connected thereto, so that a new rail, chair, or tie can be replaced when necessary. This I ac-

complish as follows: After the foundations are prepared at the required intervals, the bed-plate *d* is placed thereon and rigidly secured thereto by the dowels *e*. I then place the ties over the bed and slip the pin *b* of plate *h* through openings in the ties, then insert the wedge-key *c*, and secure it by a pin, *k*, and the several parts are securely and integrally held together. It may be proper to here state that when the ties are laid on a bridge the pin *b* may pass through the stringers and be keyed beneath, or the bed-plate may be placed on the stringers and then the ties placed on them and keyed up, as before. The ties run diagonally from chair to chair, forming on the ground a complete system of ties in best relation to resist cross and lateral strain, and the ties can be secured in this way, not only on a tangent, but on a curve, as shown in Fig. 5, without altering their length.

As shown in Fig. 2, the ties may be placed underneath instead of on top of the bed-plate *d*, and secured as before described.

In order to repair the rails or ties it is only necessary to "jack up" (or lever up) both rails simultaneously, using three jacks to the rail, and remove the key and pin, when a new rail, tie, or plate can be substituted and the elements again placed in their original position.

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

1. A system of railway-ties arranged on the ground diagonally to each other, in combination with a rail-chair foundation and foundation-plate secured to each other, substantially as and for the purpose set forth.

2. A railway-tie or system of ties arranged on the ground diagonally to each other, the ties being secured to a rail chair or plate, a concrete foundation, and a foundation-plate placed thereon by a projecting pin or the rail-chair keyed in the foundation, all combined substantially as set forth.

3. A system of railway-ties secured to rigid concrete foundation and arranged diagonally to each other on the ground, in combination with a foundation-plate and rail plate or chair, each rail-chair being connected to two others on the other side of the track by two diagonal

ties, said ties being secured to each other and the foundation-plate by a pin locked and keyed in the foundation, as described, whereby the parts are secured to each other and spreading  
5 of the rails prevented, as set forth.

4. The combination of the rail *a*, seated in the chair *h*, the foundation-plate provided with dowels *e*, the rails *f*, and the concrete founda-

tion, the several parts being secured together substantially as shown, for the purpose set forth.

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Witnesses:

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CHAS. F. JORDAN.