

No. 702,141.

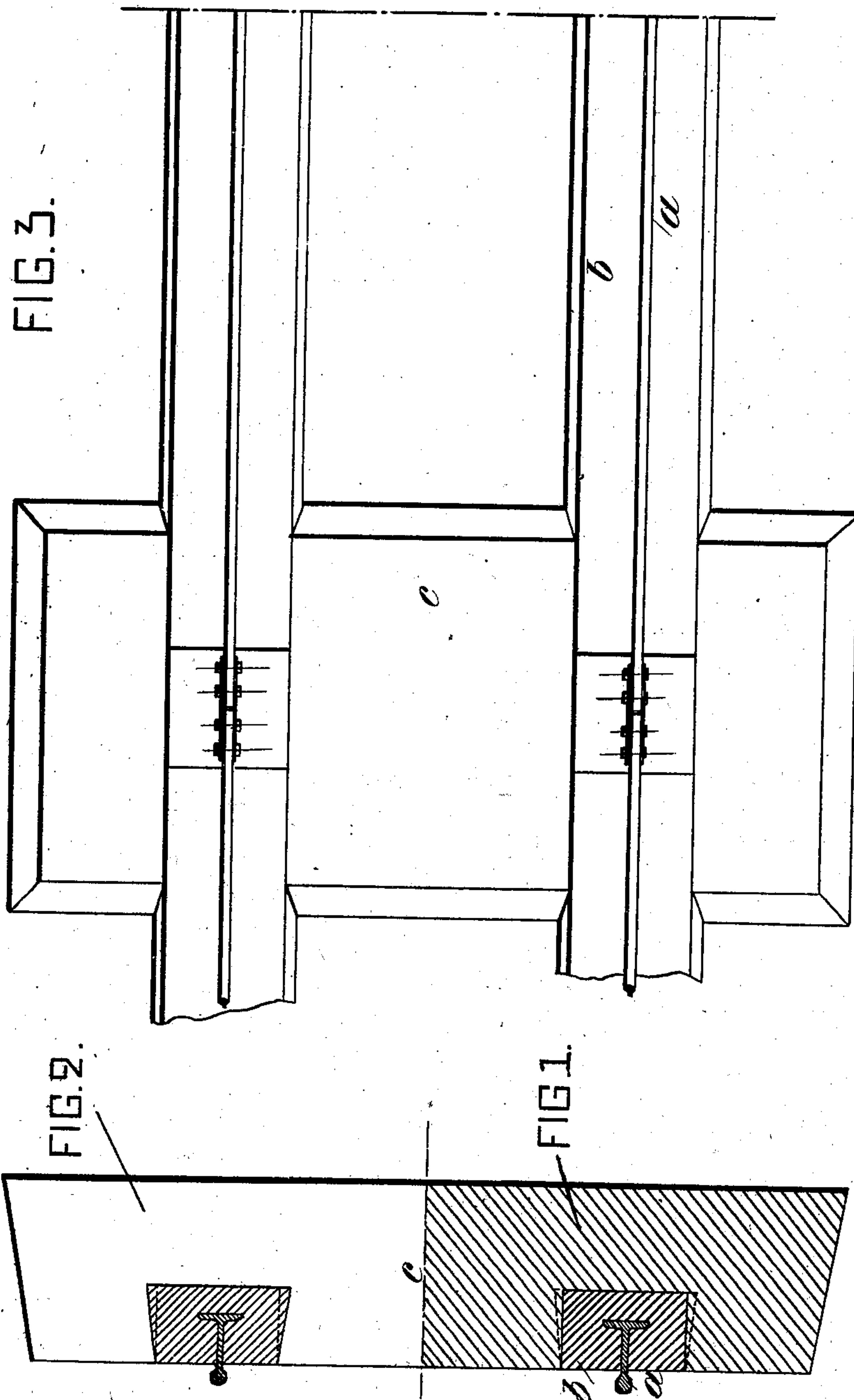
Patented June 10, 1902.

G. LE R. DE LENCHÈRES.  
RAILWAY CONSTRUCTION.

(Application filed Dec. 28, 1901.)

(No Model.)

5 Sheets—Sheet 1.



WITNESSES:  
*Margaret Potter*  
*Henry Salubier*

INVENTOR  
*G. Le Roy de Lenchères*  
BY *Lawrence W. Hale*  
ATTORNEYS.

No. 702,141.

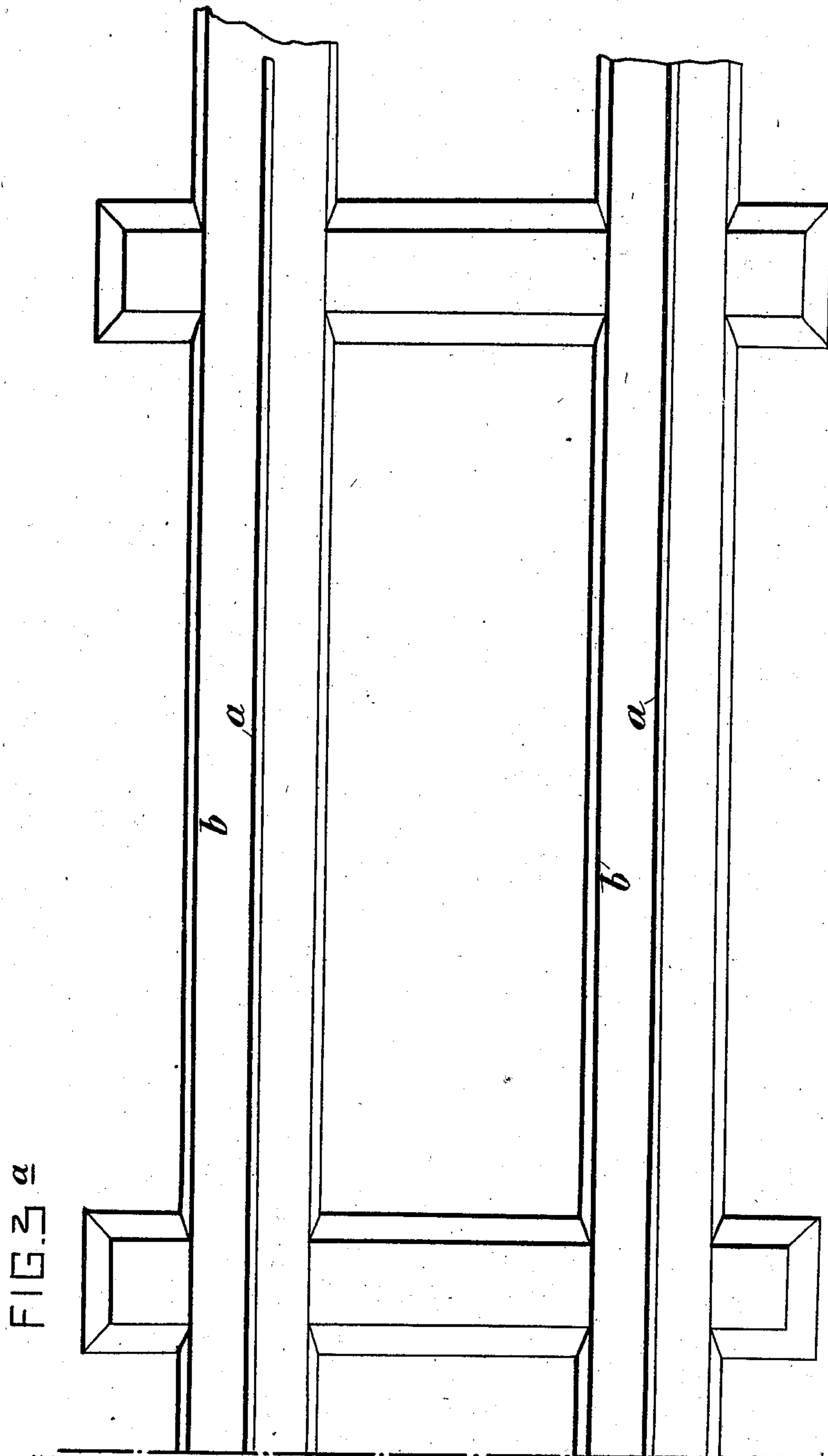
Patented June 10, 1902.

G. LE R. DE LENCHERES.  
RAILWAY CONSTRUCTION.

(Application filed Dec. 26, 1901.)

(No Model.)

5 Sheets—Sheet 2.



WITNESSES:

Margaret Potter  
Henry Schubert

INVENTOR

Geoffroy Le Roy de Lenchères  
BY  
G. W. W. W.  
ATTORNEYS.

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G. LE R. DE LENCHÈRES.  
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5 Sheets—Sheet 3.

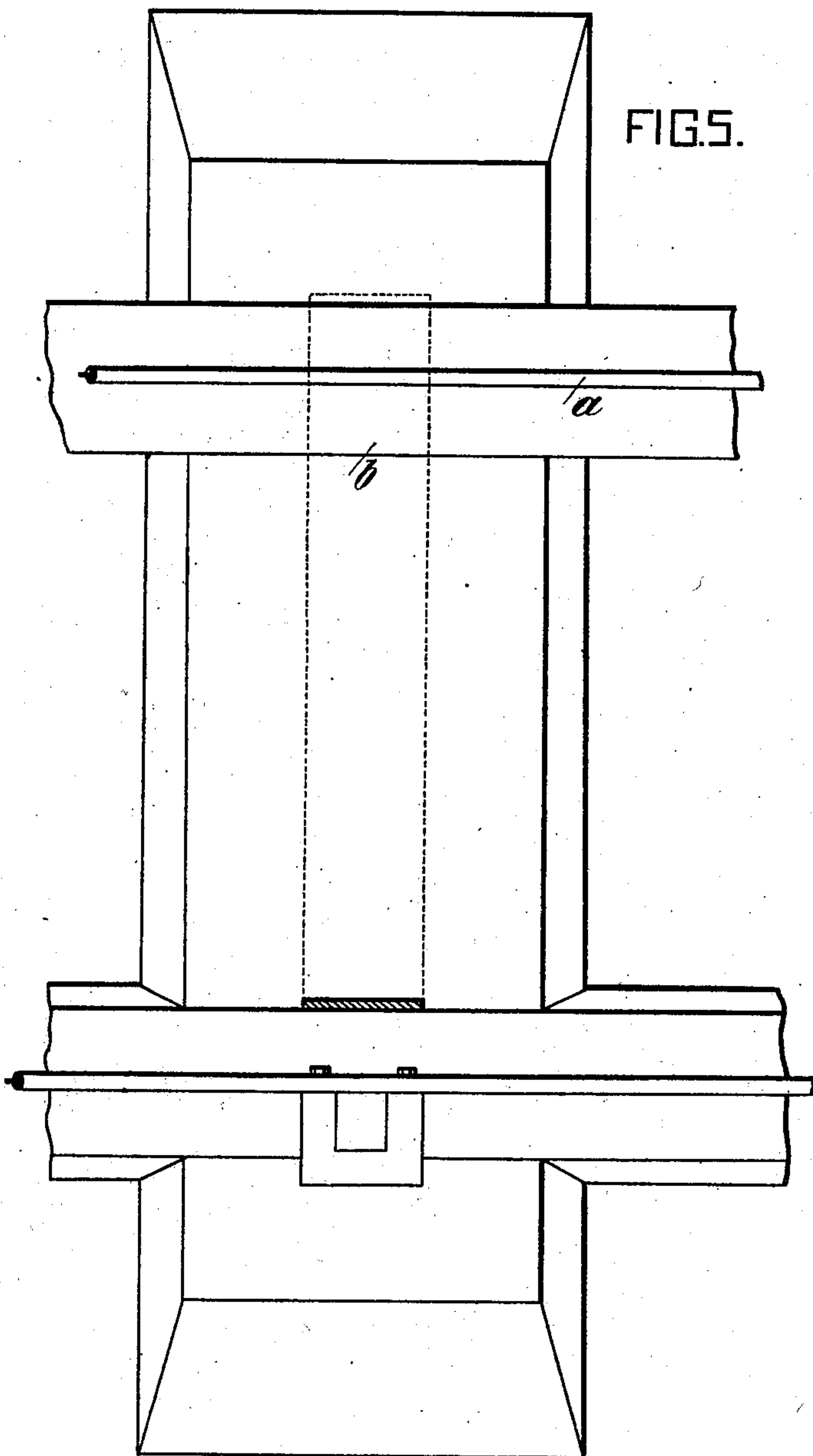


FIG. 5.

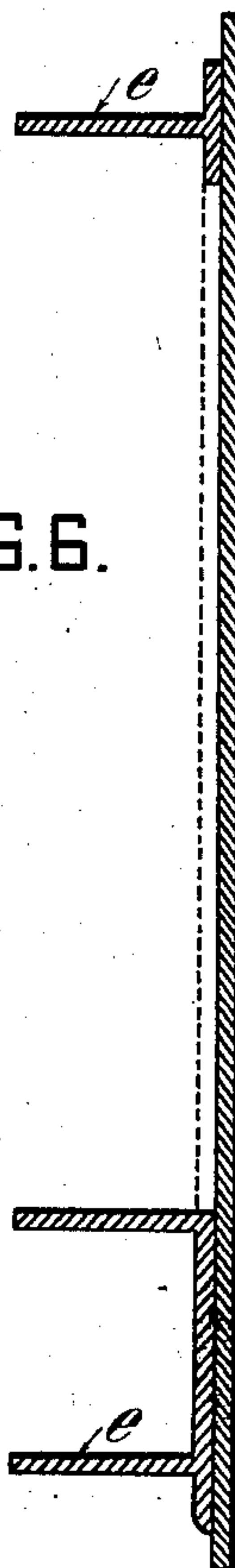


FIG. 6.

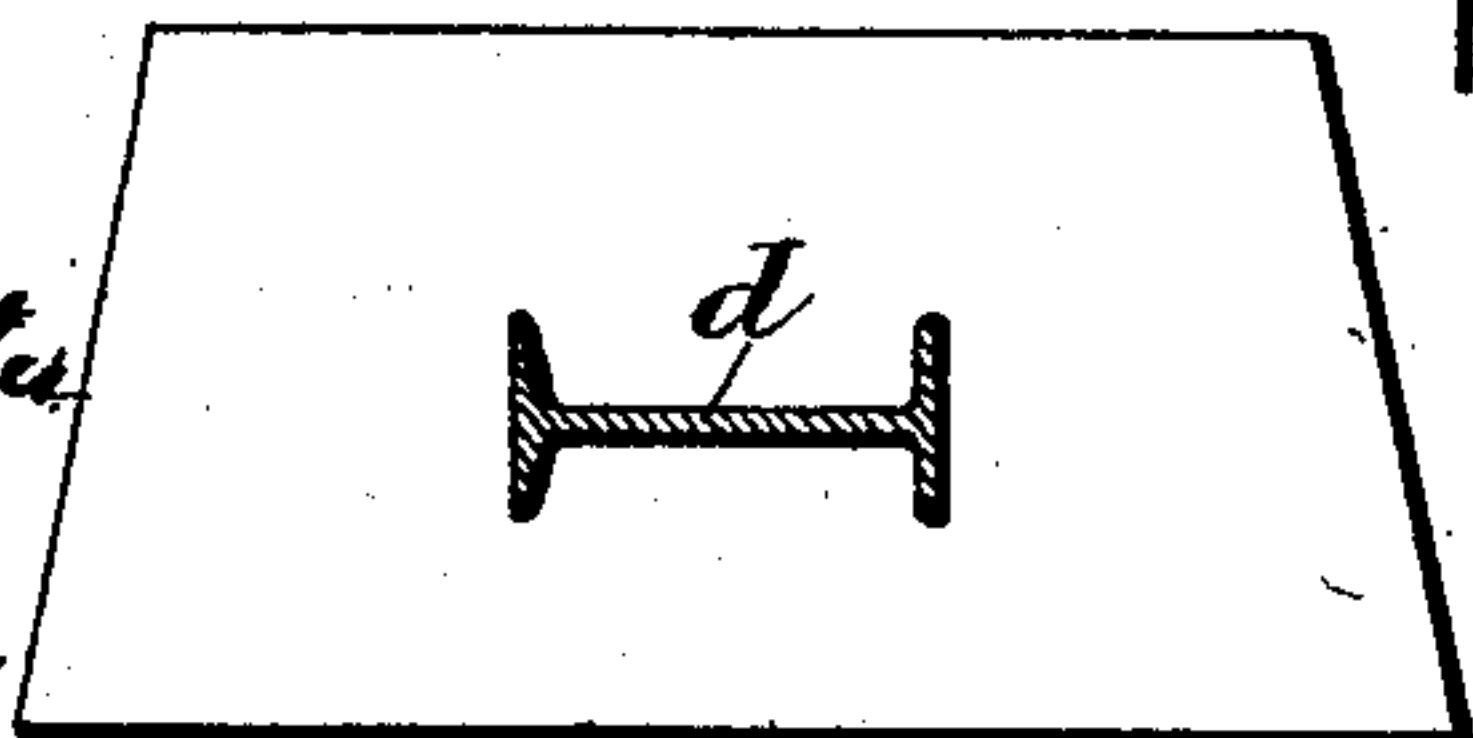


FIG. 4.

WITNESSES:  
*Margaret Pitts*  
*Joseph H. Niles.*

INVENTOR  
*Goffroy Le Roy de Lenchères*  
BY *Loeue & Walle*  
ATTORNEYS.



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FIG. 8.

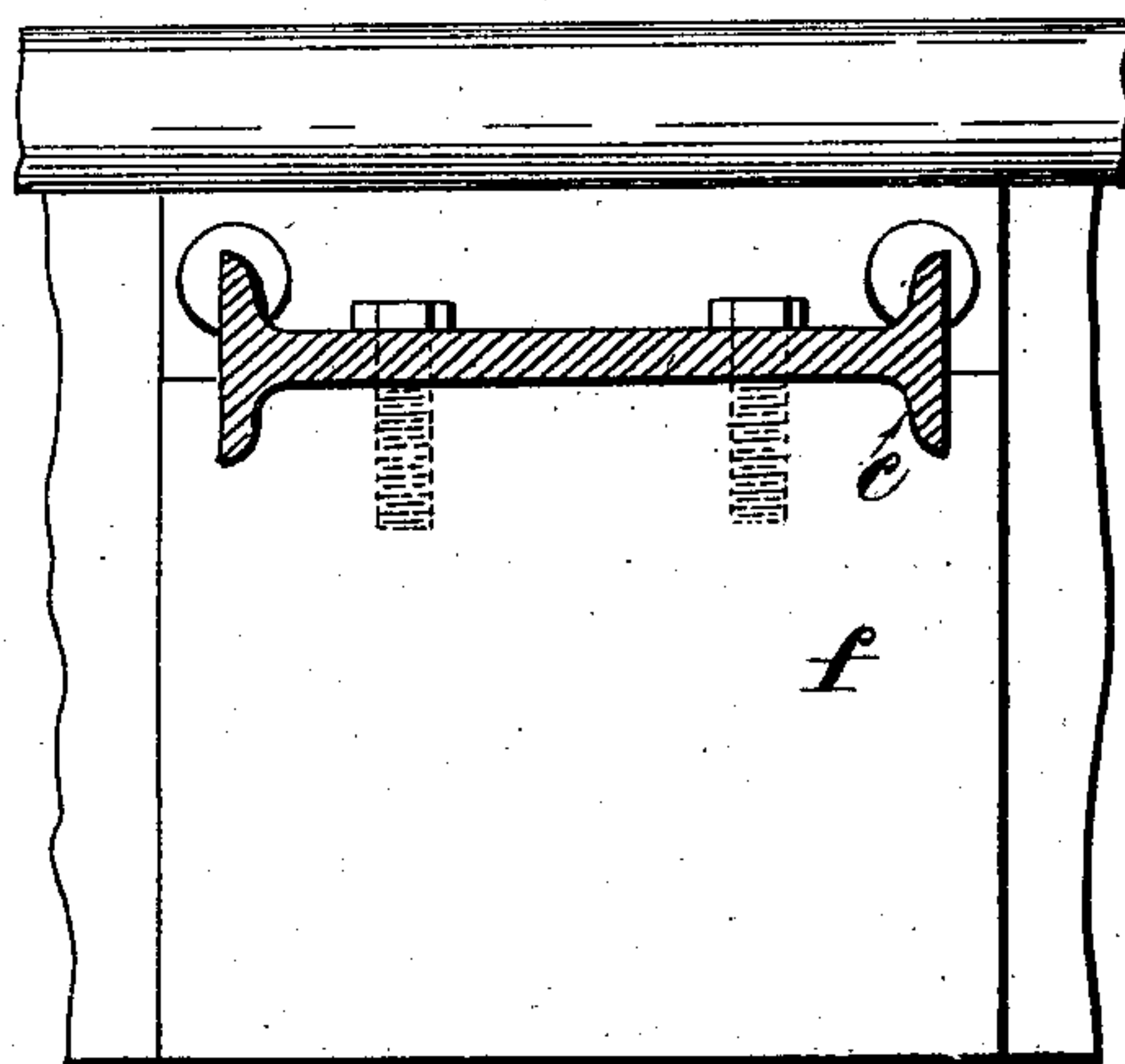


FIG. 7.

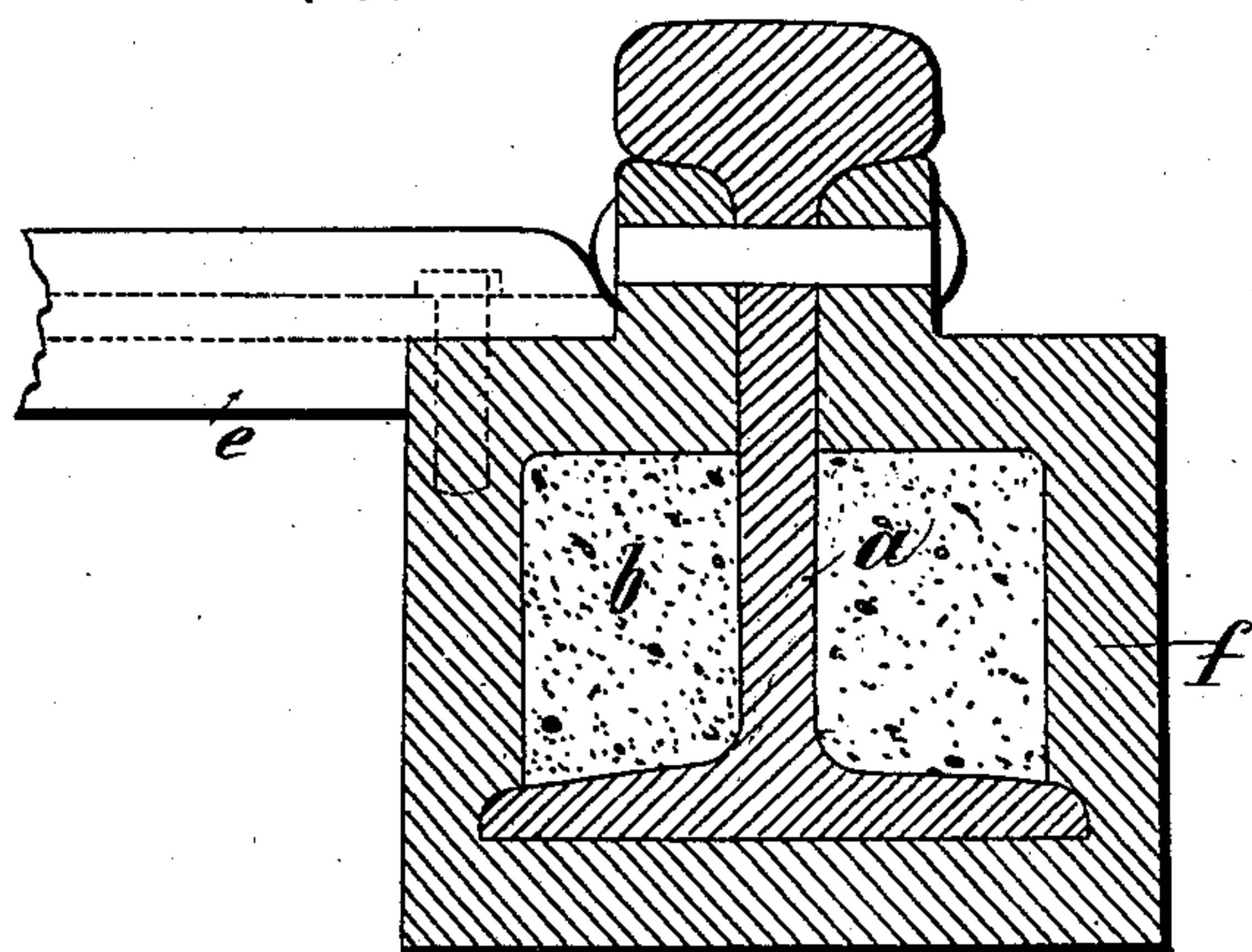
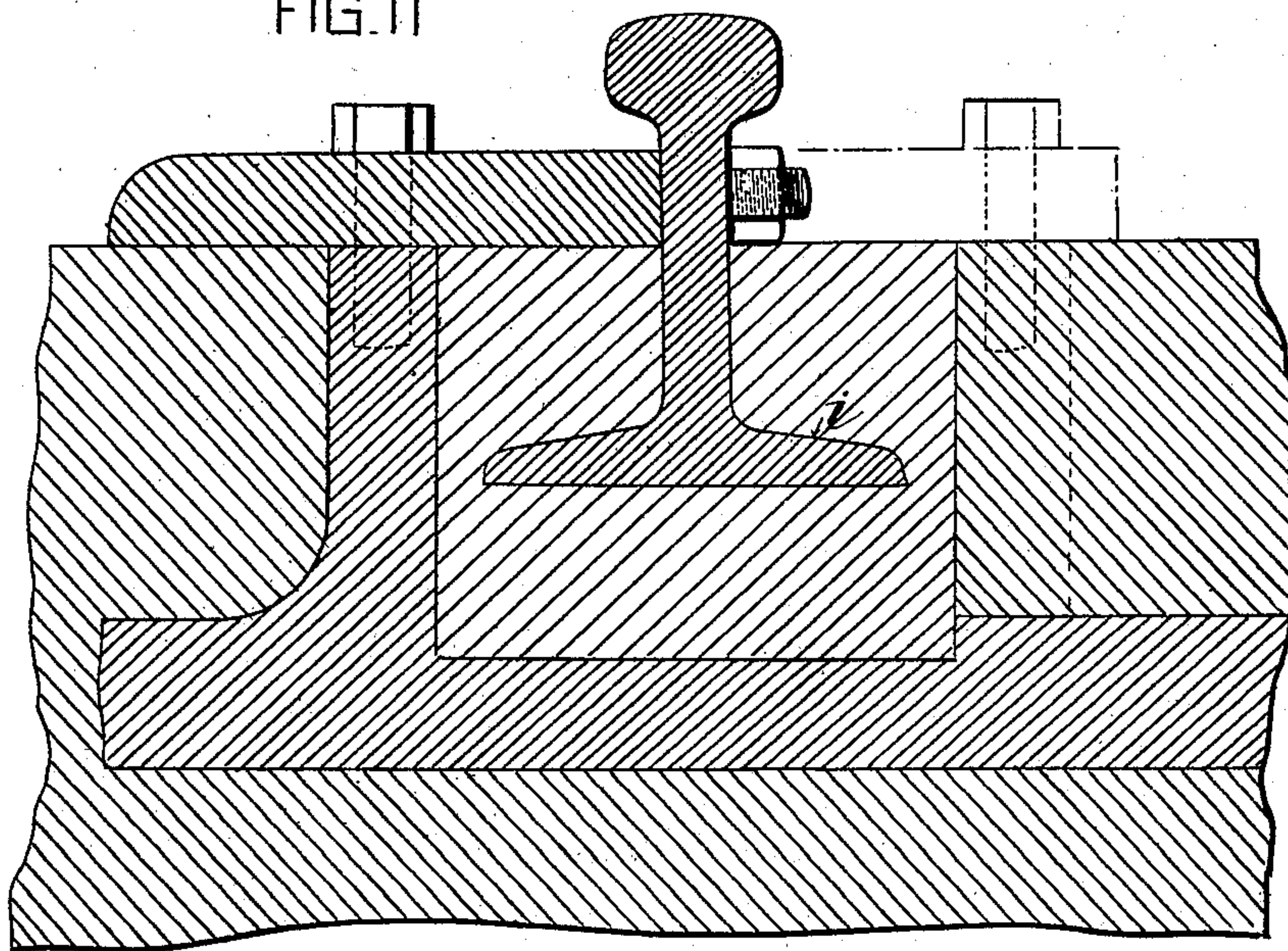


FIG. 11



WITNESSES:

Margaret A. Potter  
Henry Schubert

INVENTOR

Goffroy Le Roy de Lenchères

BY

James W. Hale

ATTORNEYS.



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5 Sheets—Sheet 5.

FIG. 10.

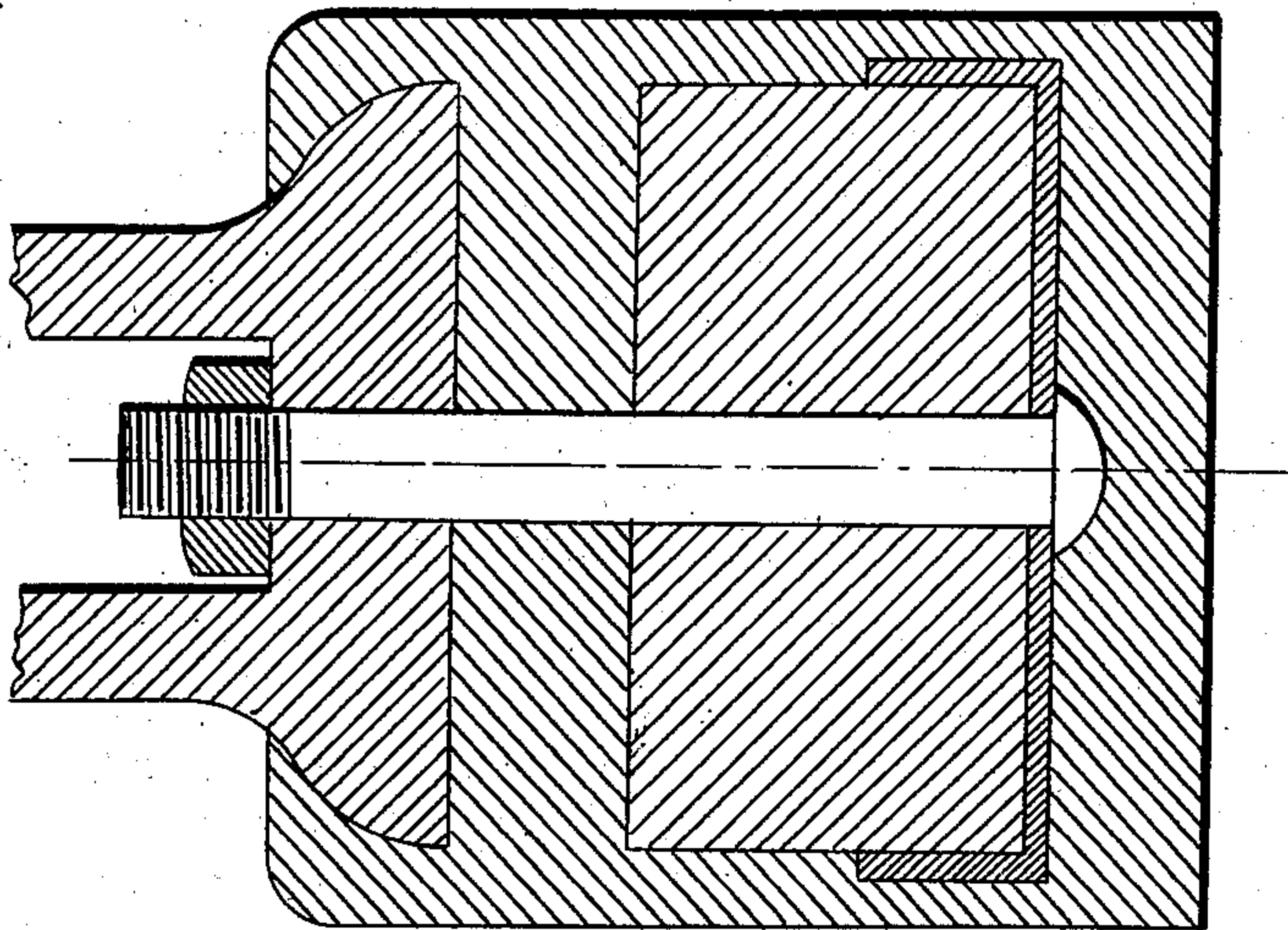
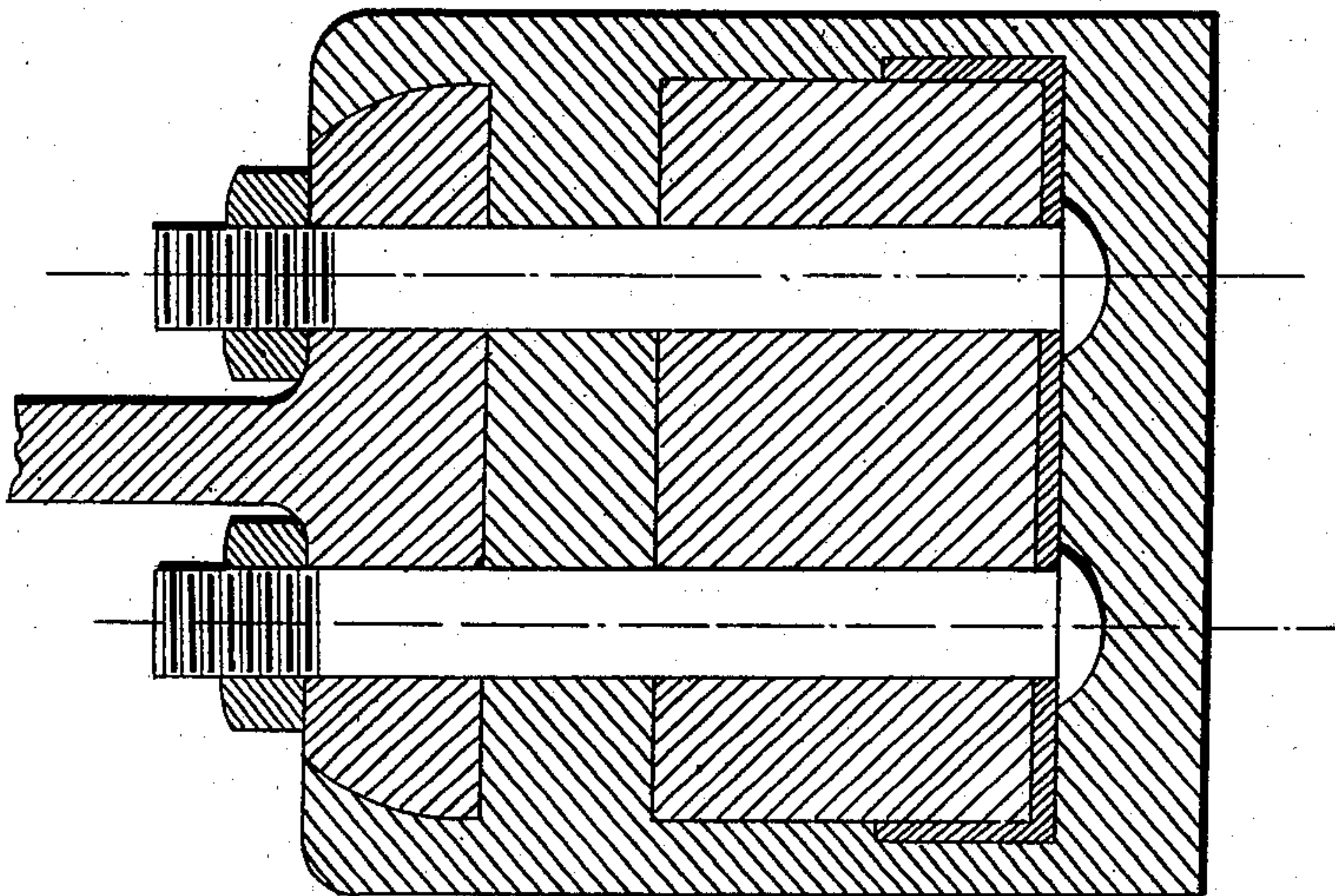


FIG. 9.



WITNESSES:

*Margaret Potter*  
*Henry Subrier*

INVENTOR

*Geoffroy Le Roy de Lenchères*  
BY *Geuch Wahl*  
ATTORNEYS



# UNITED STATES PATENT OFFICE.

GEOFFROY LE ROY DE LENCHÈRES, OF VIERZON, FRANCE.

## RAILWAY CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 702,141, dated June 10, 1902.

Application filed December 26, 1901. Serial No. 87,266. (No model.)

*To all whom it may concern:*

Be it known that I, GEOFFROY LE ROY DE LENCHÈRES, inventor, a citizen of the Republic of France, residing at Bel Air, Vierzon, Cher, in the Republic of France, have invented a certain new and useful Railway Construction, of which the following is a specification.

Railway-tracks as hitherto constructed consist of rails attached to either cross or longitudinal sleepers by means of chairs, wedges, bolts, clamps, or the like. The strength of the whole system depends, first, upon the total weight of the construction; second, upon the strength of the rails, sleepers, &c., and, third, upon the fixity and constant maintenance of all the separate parts.

If we assume a length of rail supported at *a* and *b*, its middle point being designated by the letter *c*, it is obvious that between the points of support *a* and *b* the rigidity and stability are less than at the points *a* and *b* themselves and that vibration and flexion increase from *a* to *c* and diminish from *c* to *b* at the expense of the regularity of travel of the vehicles passing over the rails. These points of attachment and support necessitate the employment of various materials—such as cast-steel, iron, wood, and the like—and require constant repairs.

From what has been stated above it is evident that it would be of the greatest practical advantage, first, to considerably increase the weight, and volume, and consequently the moment of inertia, of the whole system; second, to fix the rail for its entire surface, except the head, in an elastic substance of great adherence and opposing a homogeneous and continuous resistance to all the efforts which the rail is called upon to support.

In a previous application for patent I have claimed a novel asphalt-like substance which I have termed "siderolite."

The railway-track which forms the subject of this invention is characterized by the utilization for supporting the rails of this novel substance siderolite either in combination with iron parts or not.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a section through a cross-sleeper, showing its assemblage with the longitudinal support in cases in which these two parts

are formed exclusively of siderolite. Fig. 2 is an elevation of the cross-sleeper, showing the longitudinal sleeper or support in section. Fig. 3 is a plan view showing the assemblage constituted by the cross-sleepers and the longitudinal rail-supports as a whole. Fig. 4 is a section through the siderolite-sleeper in which the gage is lodged. Fig. 5 shows, upon a large scale, a plan view of one of the cross-sleepers, the gage being indicated in dotted lines. Fig. 6 is a longitudinal section through the gage and angle-irons. Figs. 7, 8, 9, 10, and 11 illustrate a case in which, owing to certain conditions under which the line has to be worked, it is considered necessary to provide both the longitudinal supports and the cross-sleepers with a metal stiffening.

As shown in Figs. 1, 2, 3, 4, 5, and 6, the track consists, essentially, of siderolite, longitudinal supports or sleepers assembled with siderolite cross sleepers or ties, within which are arranged gages maintaining the rails at a fixed distance apart. In these figures, *a*, is the rail; *b*, the longitudinal support; *c*, the cross-ties, and *d* the gage carrying the angle-pieces *e*. In order to increase the rigidity of the whole, both the cross-sleepers and the longitudinal supports may be provided with metal stiffening. (See Figs. 7, 8, 9, 10, and 11.) Thus in Fig. 7 the rail *a* is embedded in a longitudinal support *b* of the siderolite, which is arranged in metal casing *f*, attached to the sleepers *c*.

Figs. 9 and 10 illustrate modifications of the combination of the rails with longitudinal supports which are partly metallic and partly of siderolite.

Fig. 11 represents in cross-section the longitudinal support and in longitudinal section the sleeper, which latter is shown only in elevation in Fig. 7.

It will be seen that in accordance with my method of construction the surface of the entire track bearing upon the ground—that is to say, the sleepers and the longitudinal supports—is far greater than that of the wooden sleepers and rails hitherto employed. The total weight of railway-tracks as hitherto constructed represents only one-quarter or one-fifth of that of my novel construction, and by my method I obtain a fixed and homogeneous construction, advantageously re-



placing the light and unstable construction constituted by rails resting directly upon wooden cross-ties.

5 The stability of my improved railway-track is of the greatest importance at the present time, when the tendency is to increase more and more the velocity of the trains running upon such tracks.

10 I will now point out the differences which may exist in the application of this system when double-headed rails and when rails with one head and a foot are employed respectively. In the case of rails provided with a foot, the foot *i* is completely embedded in 15 the mass of the siderolite as shown in Fig. 11. When the system is applied to double-headed rails, I may fix upon the lower head, by any suitable means, a metal strengthening - plate, thus increasing the strength of 20 the lower head, and this may be done during the manufacture of the rail.

What I claim, and desire to secure by Letters Patent of the United States, is—

A railway construction, consisting of longitudinal sleepers of siderolite, rails embedded throughout their entire length continuously in said sleepers and projecting therefrom at the upper side of the same, transverse ties of siderolite connecting said sleepers and formed integral therewith, and gages 30 completely embedded in said transverse ties and connected at their ends with the rails within the sleepers, substantially as set forth.

In testimony whereof I have hereunto set 35 my hand, in presence of two subscribing witnesses, this 11th day of December, 1901.

GEOFFROY LE ROY DE LENCHÈRES. [L.S.]

Witnesses:

CU DE NUCHÈZE,

R. FAVRE D'ECHALLENS.