

W. Wickersham.

Railroad Rail-Joint.

N^o 78,630.

Patented Jun. 2, 1868.

Fig: 1.

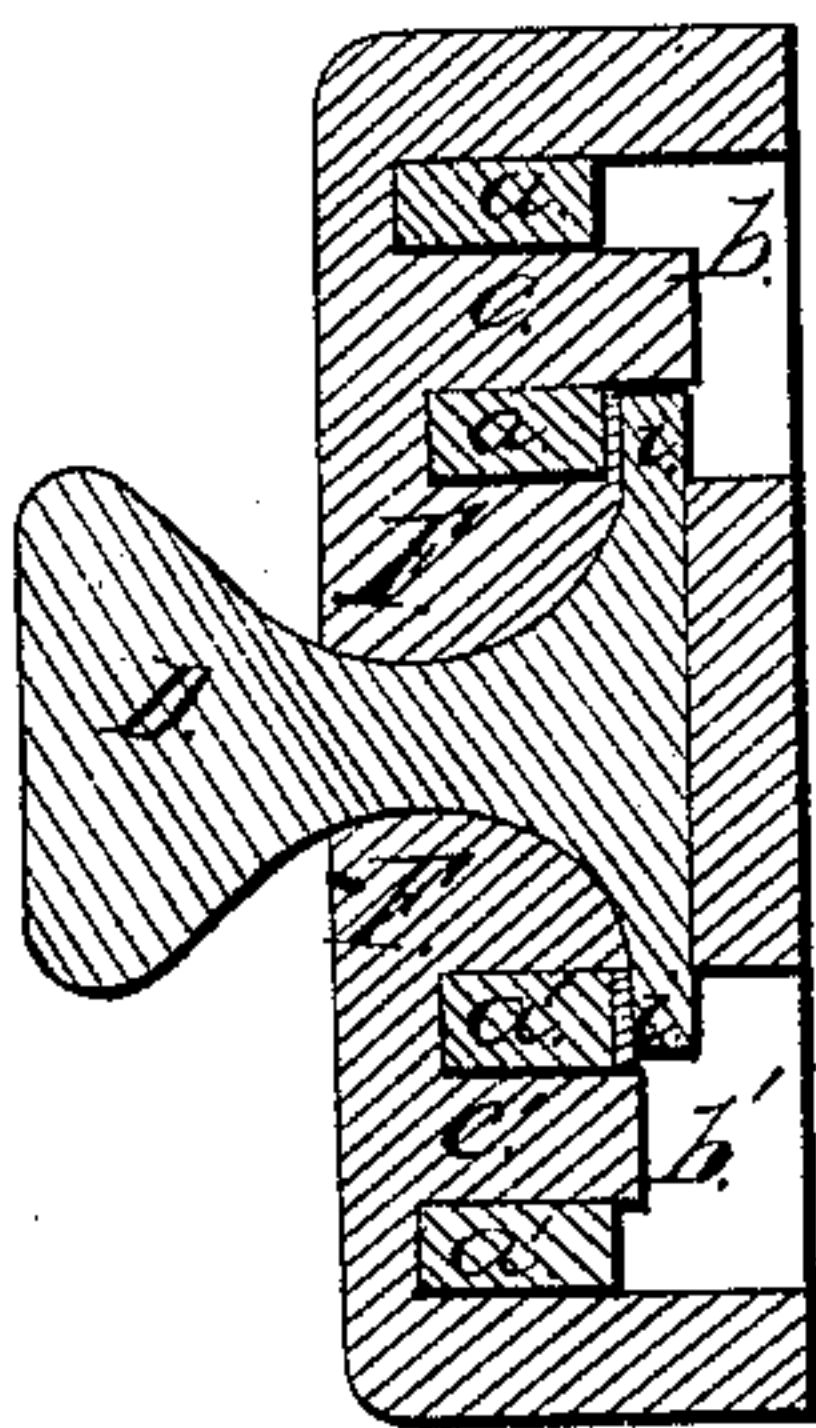


Fig: 2.

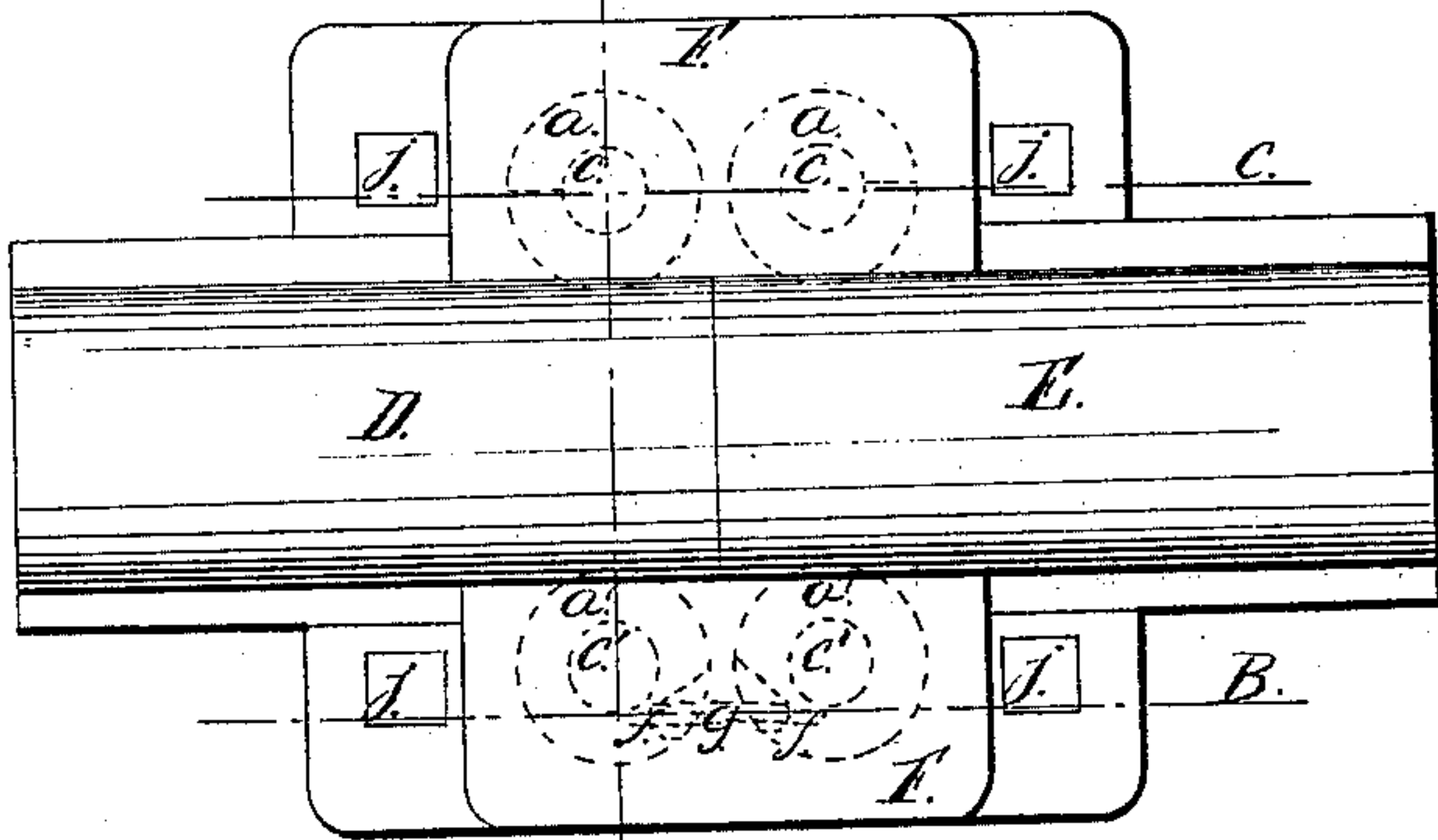


Fig: 3.

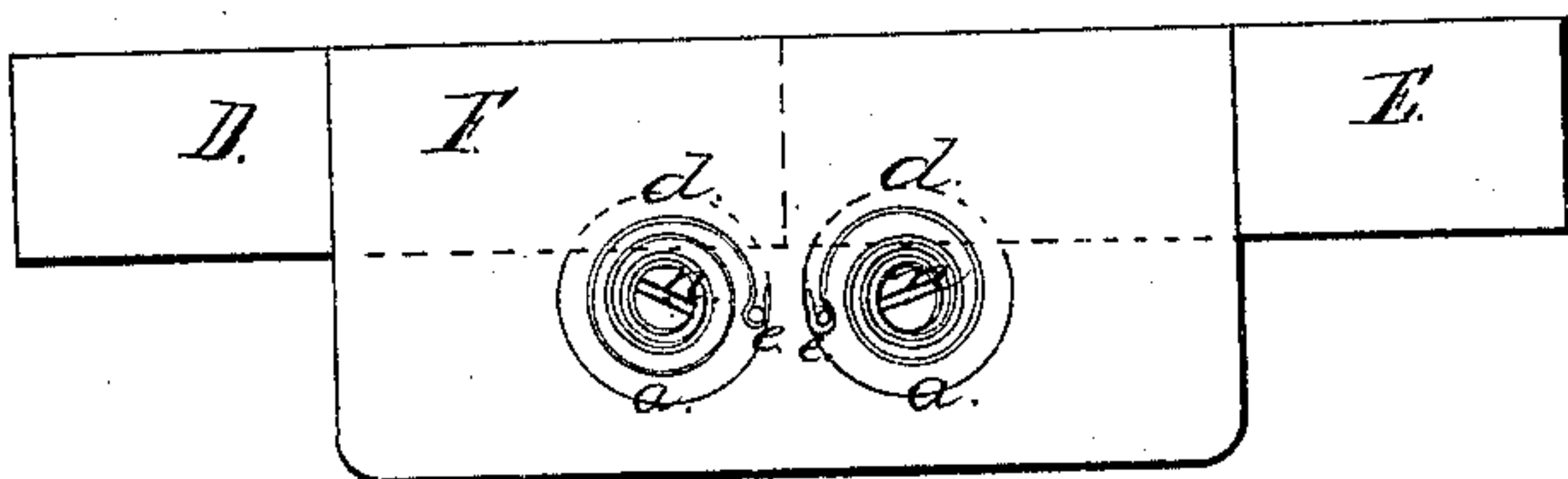


Fig: 4.

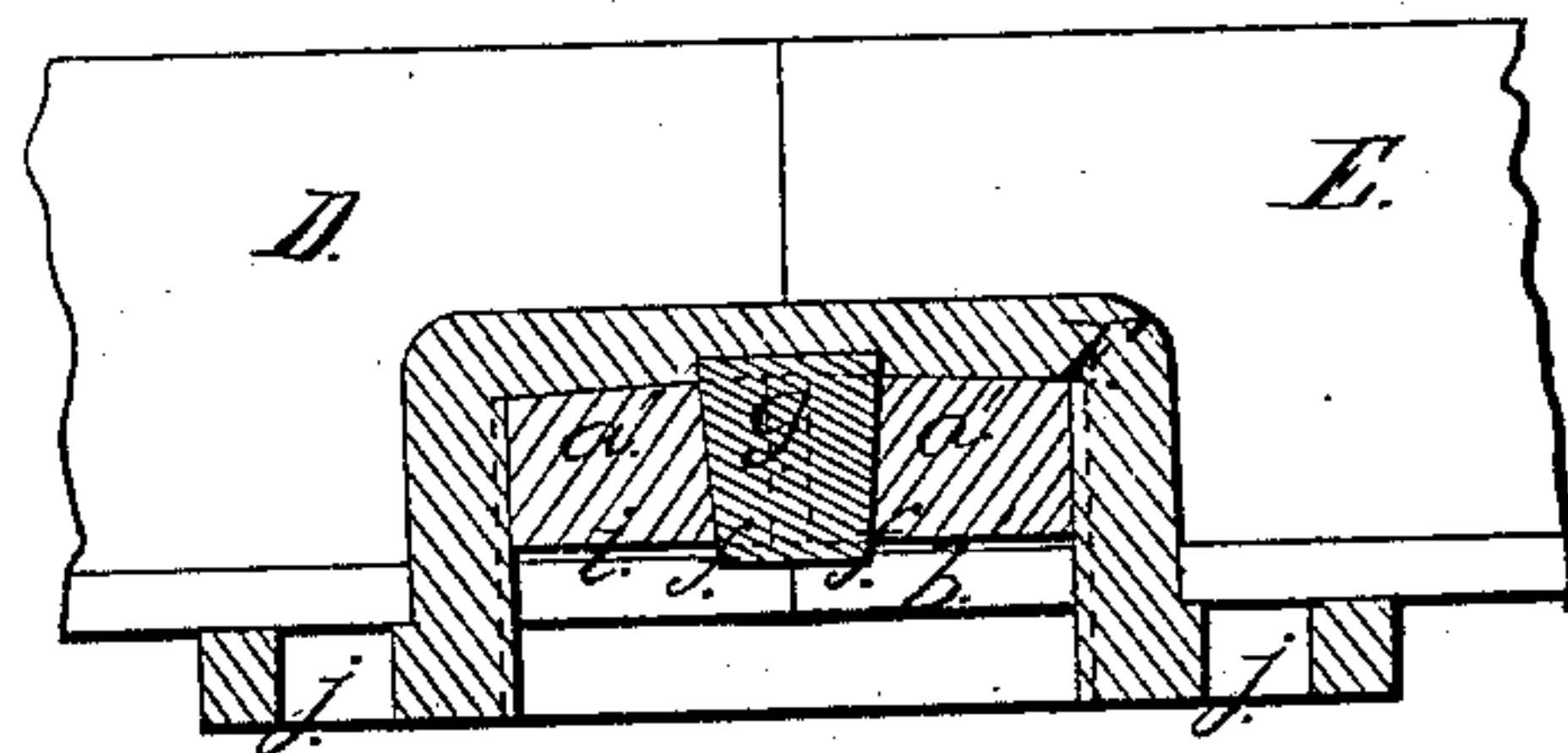


Fig: 5.

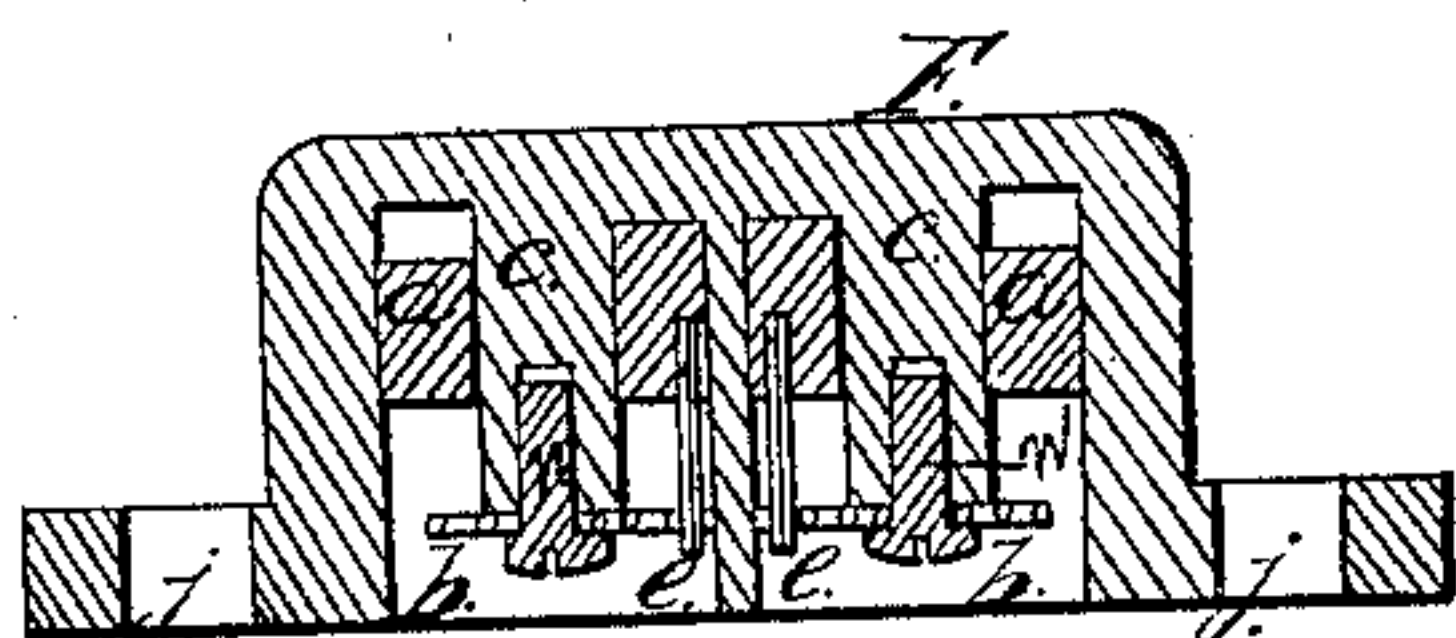
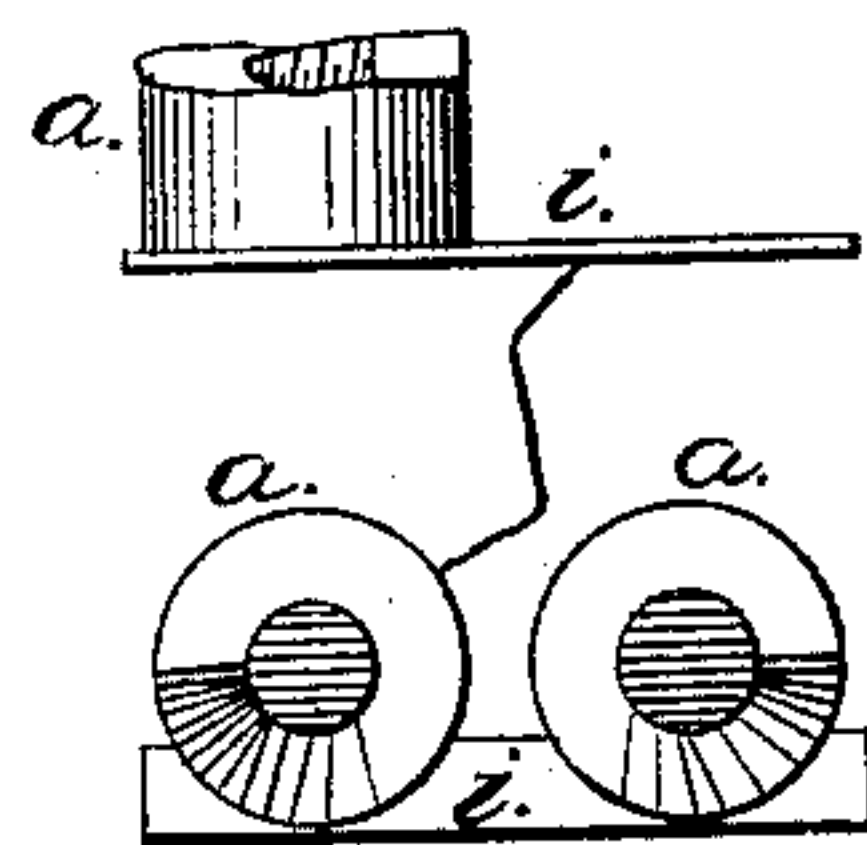


Fig: 6.



Witnesses:
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WILLIAM WICKERSHAM, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 78,630, dated June 2, 1868.

RAILWAY-RAIL CHAIR.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, WILLIAM WICKERSHAM, of Boston, in the county of Suffolk, and State of Massachusetts, have invented a new and useful Improvement on the Railroad-Chair; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and the letters and figures marked thereon, in which—

Figure 1 is a cross-section of the chair and the rail as secured in it at the red line A, fig. 2.

Figure 2 is a plan view of my chair, showing the manner in which the rails are placed in it.

Figure 3 shows the under side of half of the chair and rail.

Figure 4 is a perpendicular section in the red line B, fig. 2.

Figure 5 is a perpendicular section through the chair in the red line C, fig. 2.

Figure 6 shows the screw-cylinders in a top and side view.

D and E are the rails. F is the cast-iron haddy of the chair. *a a' a'* are four screw-cylinders, having their lower ends formed plain, and at right angles with their axes, and their upper ends are in the form of a screw, as shown in fig. 6.

These screw-cylinders are placed in cylindrical cavities *b b' b'* in the under side of the haddy of the chair F, the ends of which cavities are screw-shaped, and are made to agree with the form of the upper ends of the said screw-cylinders.

From the upper ends of said cavities *b b' b'* are projections, *c c' c'*, extending downward through the hollows of the screw-cylinders.

e e are two pins in the lower ends of the screw-cylinders *a a*, on to which are hooked the springs *d d*, which are attached to the lower ends of the projections *c c*, and formed and arranged in such manner as to turn said screw-cylinders in the right direction to cause them to move downward by reason of their screw formation at their upper ends.

The screw-cylinders *a' a'* are caused to revolve, and consequently to move downward, by a different method, which may in some cases be preferable.

I have spaces cut in the sides of the cylinders *a' a'*, at *f f*, of such form and position as to admit a wedge, *g*, with the narrow end downward, and so formed and arranged that the weight of the wedge will move it down, thereby turning said cylinders in the right direction to cause them to move downward by reason of their screw formation at their upper ends.

These screw-cylinders are all placed in the chair, with one side of each over one of the flanges of the rail, as shown in fig. 1, but between the lower end of the cylinder and the said flange there is a thin strip of metal, *h*, so formed and arranged in the chair that it cannot move endwise, at the same time allowing the said flanges to slip or move under it as the rails contract by cold or expand by heat.

The object of this is to prevent the flanges of the rails from turning the screw-cylinders back and forward by the contraction and expansion of the rail, which they would be likely to do, if said cylinders rested directly on the flanges, on account of the friction of the flanges against the cylinders.

j j j j are holes in the chair for the spikes, which secure it to the sleeper.

n n are the screws, which secure the springs *d d* to the projections *c c*.

Having described the parts, I now proceed to describe the use and operation of my invention.

The use of this chair is to secure the ends of the rails so firmly in their places that they will not yield or give way in the slightest degree when the train is moving over them.

Much money and time and talent have been expended on this, with as yet but partial success. The reason is obvious. The great strain and collisive force on the ends of the rails and the chair cannot do otherwise than indent the rail and chair at all points of contact, and wear both rapidly wherever there is friction, so that whatever may have been the plan or form of the chair, and however closely it may have bound the ends of the rails together at first, (considering the wearing force of the train,) they could not remain thus secure for but a short time, and as hitherto there has been no self-adjustment in the chair, by means of which, at the instant the wear-

ing takes place, the adjustment will be made by the chair itself, making the rail as firmly secure immediately after the wearing as before, hence, as I before stated, the inventions on the railroad-chair up to this time have but partially succeeded.

Now, in this invention I propose to supply this deficiency.

My chair is self-adjusting, and, though the wearing in any one place be only to the thickness of tissue-paper, the adjustment will instantly be made to that amount, leaving the rail as firm and secure in its place as before.

The advantages gained by this are obvious, as every one conversant with railroads knows how much more rapidly a loose rail is worn than one which rests firm and secure in its place, and every one knows, too, how these loose rails react on the locomotive and cars, acting like a sledge-hammer continually applied to the rims of the wheels as the train is running, augmenting thereby to a great amount the bills of repair, on the locomotives and cars.

The operation of my chair is simple.

The two ends, D and E, of T-rails being placed in the chair, as shown in the drawings, the screw-cylinders are pressed on to the flanges of the rails by the springs *d d*, acting with a continual force in turning them round, and thus screwing them down on to the rail, or on the other side the screw-cylinders *a' a'* have grooves, at *f f*, cut in them, in such manner that the wedge *g*, by its own weight, acts as a continual force in turning said screw-cylinders round and screwing them down on to the flanges of the rails, all in such manner that when the slightest wear takes place in the part secured by the chair, these screw-cylinders are forced round and thus screwed down until the rail is as closely bound down on to the bottom of the chair as before the wearing took place.

The thin strips of metal, *i i*, meantime lying between the said screw-cylinders and the flanges of the rails to prevent the improper action of the rails on said cylinders by contraction and expansion.

The tremulous motion of the road when the train is passing over favors these screw-cylinders in turning round to their closest position on the rail.

I have been thus careful to explain the advantages of securing the ends of rails automatically, because I considered this automatic element the principle of my invention, and when it is introduced and its utility becomes apparent, I know very well that many modifications will be suggested of the formal device or precise plan and form of mechanism which I have presented to the office; for instance, a simple wedge forced automatically into a space over the flange of the rail may perform the same office of my screw-cylinders *a*, and this may be effected by a spring, or by another wedge placed in a perpendicular position, and operating by its own weight as the wedge *g* does, or a lever may be substituted for either the wedge or the screw-cylinder, or the screw may be applied in various ways, and for aught I know a dozen other forms of mechanism embodying this same automatic element which I have invented may be used, performing the same office and being a mechanical equivalent of the screw-cylinder *a*.

I do not, therefore, confine myself merely to this particular form of mechanism, but to the character of my machine and the automatic principle embodied therein, which operates through the mechanical medium as portrayed in my specification and drawings.

My invention thus specified, I will state my claim to be as follows:

I claim—

1. In a railway-rail chair, the screw-cylinders *a a*, when constructed to work or operate automatically, substantially for the purpose set forth.
2. In combination with the screw-cylinders, the springs *d d*, as described and for the purpose set forth.
3. The construction of the screw-cylinders *a' a'*, with the spaces *f* and wedge *g*, in combination with the chair, substantially as described and for the purpose set forth.
4. In combination with the screw-cylinders, the metallic strips *i i*, as described and for the purpose set forth.

WILLIAM WICKERSHAM.

Witnesses:

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J. J. LOUD.