

(No Model.)

H. D. WINTON.

RAILROAD RAIL CONNECTION.

No. 315,586.

Patented Apr. 14, 1885.

Fig. 1.



Fig. 2.

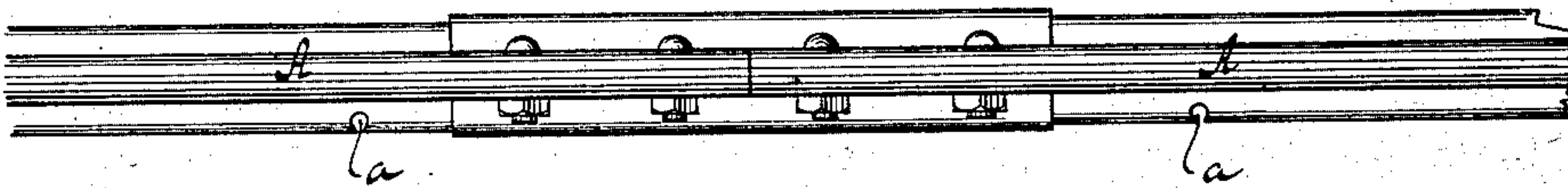


Fig. 3.

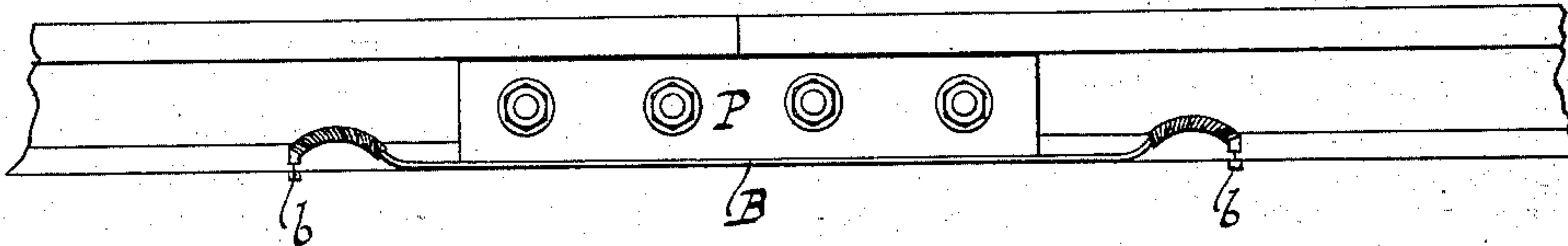


Fig. 4.

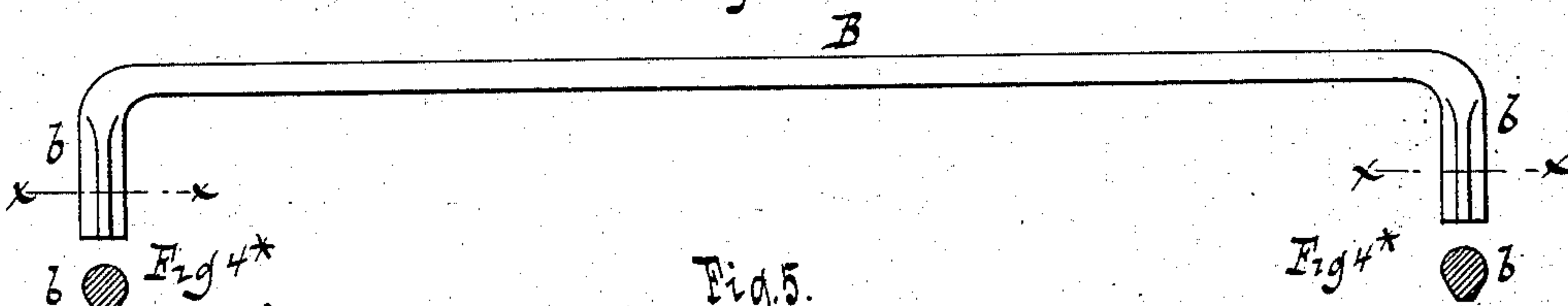


Fig. 5.

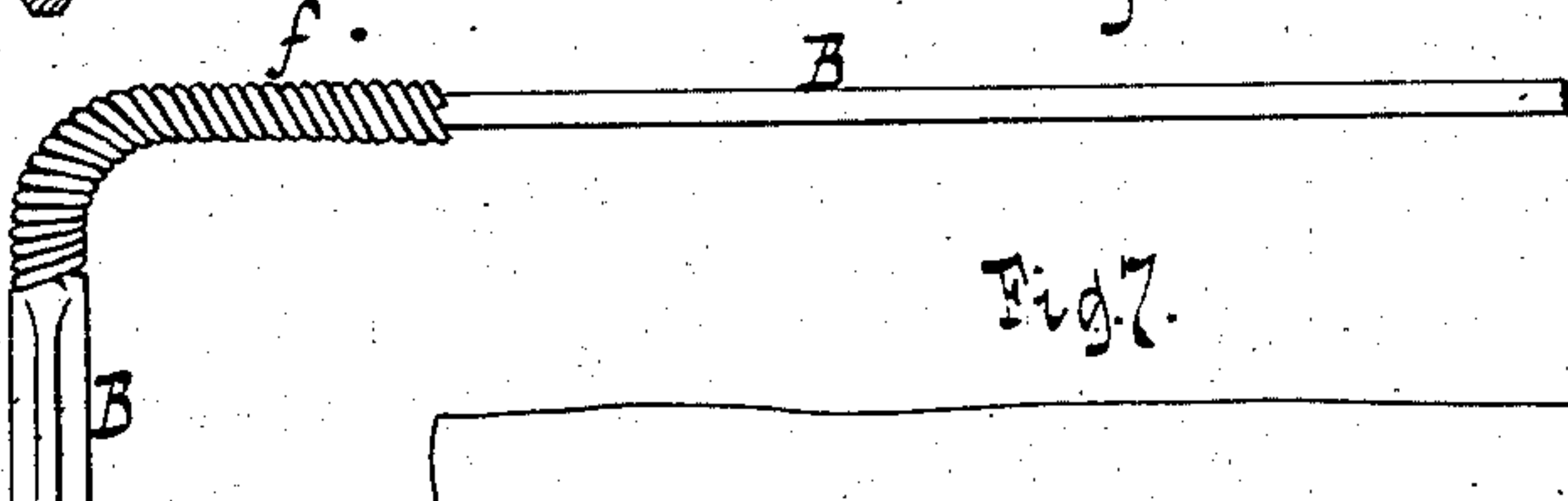
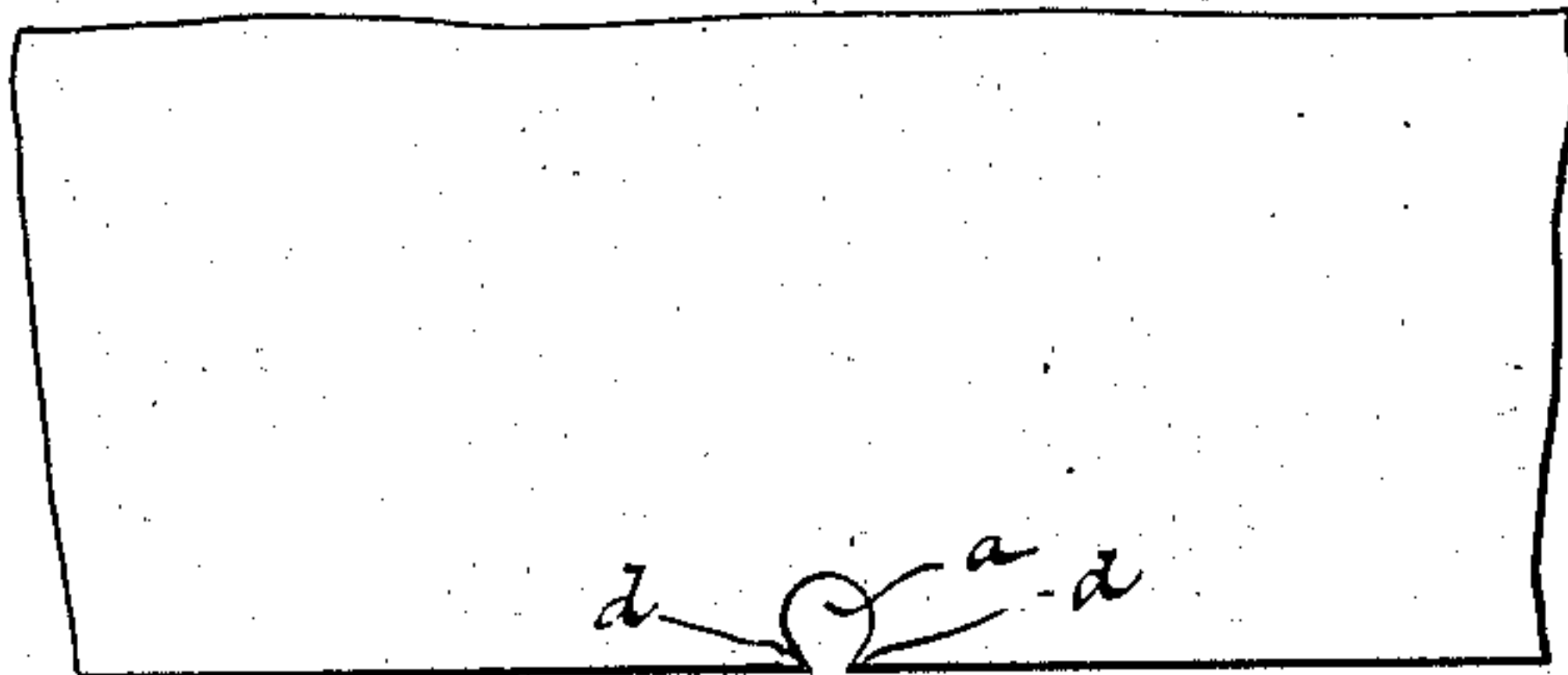


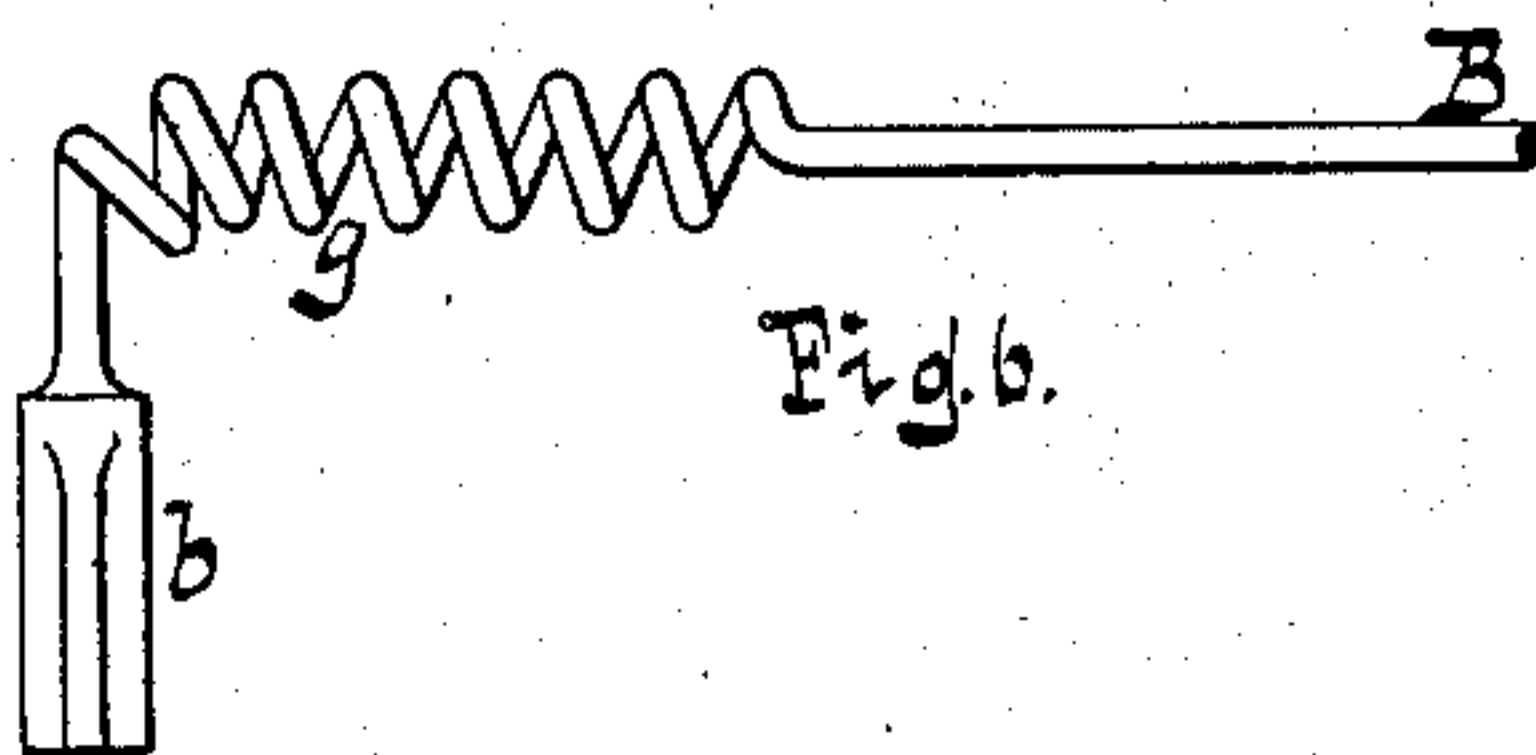
Fig. 7.



WITNESSES:

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Fig. 6.



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HENRY D. WINTON, OF WELLESLEY HILLS, MASSACHUSETTS.

RAILROAD-RAIL CONNECTION.

SPECIFICATION forming part of Letters Patent No. 315,586, dated April 14, 1885.

Application filed June 12, 1884. (No model.)

To all whom it may concern:

Be it known that I, HENRY D. WINTON, a citizen of the United States, residing at Wellesley Hills, in the county of Norfolk and State of Massachusetts, have invented new and useful Improvements in Railroad-Rail Connections for Conducting Electricity, of which the following is a specification.

The object of my invention is to provide a simple, cheap, and durable means for producing perfect metallic contact between the rails of a railroad-track when the said rails are used for conductors of electricity.

The peculiar and novel device which I use for the purpose above stated is pointed out in the following specification and claims and illustrated in the accompanying drawings, in which—

Figure 1 represents a side view of portions of two adjoining rails provided with my connecting device. Fig. 2 is a plan or top view of the same. Fig. 3 is a side view showing a modification of the connecting device. Fig. 4 is a side view of the connecting device detached, on a larger scale than the previous figures. Fig. 4* is a horizontal section of the same in the plane *x x*, Fig. 4. Fig. 5 is a detached side view of the modification of the connecting device shown in Fig. 3, on a larger scale than this figure. Fig. 6 is another modification of the same. Fig. 7 is a plan of the flange of a railroad-rail, showing the opening provided for the reception of my connecting device, on a scale corresponding to the scale of Figs. 4 and 5.

Similar letters indicate corresponding parts.

In the drawings, the letters *A A* designate the adjoining ends of two railroad-rails which are fastened together by a fish-plate, *P*, or by any other means generally used for this purpose. In the flanges of these rails I punch holes *a a*, which are by preference pear-shaped, as shown in the drawings, but which may be made triangular, or in any other form suitable for my purpose. These holes are intended to receive the ends *b b* of the connecting device *B*, the cross-section of said ends being formed (see Fig. 4*) to correspond to the shape of the holes *a a* in the flanges of the rails. These holes are open at the edge of the

flange, and they are provided with sharp edges *d d*, Fig. 7.

In order to secure the connecting device *B* in position, the ends *b b* are inserted into the holes *a a*, and then by striking the edges *d d* of these holes with a hammer the metal of the flange is caused to close tightly around the ends *b b* of the connecting device, so as to retain the same firmly in position, and to produce a complete metallic contact between the adjoining rails *A A*. The ends *b b* project on the under side of the rail-flanges, and by bending these projecting portions slightly the ends *b b* become practically clinched on the under side, and the joints between the connecting device *B* and the rail-flanges are rendered perfectly tight.

The connecting device consists of a metallic rod or wire, and the ends *b b* of this wire are enlarged, so as to obtain a good contact between them and the rail-flanges. The operation of enlarging said ends can be carried out in different ways—such, for instance, as shown in Fig. 5, where a secondary wire, *f*, is wound round the ends of the main wire, and by heating the two together the ends *b b* are brought into the form shown in cross-section in Fig. 4*. Another object of enlarging the ends of the connecting device is to prevent the same from breaking by the vibrations caused by passing trains, it being found that the wire is liable to break near its junction with the rails from the cause above named. The connecting device may also be made in the form shown in Fig. 6, where the junction between the ends *b b* and the body of said connecting device is effected by spirals *g g*. By these spirals the danger that the connecting device may break by the vibrations produced by passing trains is effectually prevented.

In putting my invention into practice, I use a light hand-power screw-punch constructed to be adjusted to the rail. This punch, being of forged steel and light, can be carried along the line by two men, and the holes *a a* can be quickly punched cold. The connecting devices *B*, which have been previously prepared by means of a suitable press or otherwise, are then introduced into the holes *a a* and fastened therein by a few blows of a hammer, as

already stated. By these means a thoroughly tight and durable connection can be made in a comparatively short time.

In practice I prefer to use copper wire for the connecting devices, since copper is a good conductor of electricity, and the connecting devices, when made of copper wire, do not increase the resistance of the circuit much more than if the rail were made continuous, and at the same time, owing to its toughness, copper wire resists the vibrations caused by moving trains, and is not much liable to crystallize. The connecting devices may, however, be made of iron, phosphor-bronze, or other metallic wire of good conductivity.

I am aware that prior to my invention connecting devices of different construction have been used—such as wires provided with studs, which are driven into holes bored in the rails, and spring contact-washers, and pieces of different forms. I do not therefore claim, broadly, a connecting device for railroad-rails made of wire.

I am also aware that a track-circuit connector formed of wire having its ends bent at a right angle to form studs or projections of the same size as the body, to be driven into holes in the rail, and also having between such studs or projections and the body of the connector convolutions formed with the wire thereof in planes nearly parallel to the body, is old. My device differs from such in that the ends to be driven into the rails are made larger than the body, for reasons hereinbefore set forth, and the convolutions are made by twisting the wire in planes at nearly a right angle to the body of the connector, so that the action of the spirals under vibration and contraction shall be more nearly that of the ordinary spiral spring.

I am also aware of Patent No. 227,102, which describes a wire provided at its ends with connected driving-studs to be driven into holes bored in the rails. I use no driving-studs.

The enlarged ends *b b* of my connecting device are simply inserted into the open sharp-edged holes *a a* and secured therein by striking the edges *d d*, as already explained.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with two adjacent rails, each having an aperture formed in its flange, said aperture extending to the edge thereof, so as to have open sharp edges, of a connecting device having a body and enlarged ends for insertion into the rail-flange apertures, and adapted to be secured therein and form good electrical contact by the compression of the open sharp edges upon the enlarged ends of the connector, substantially as described.

2. A device for electrically connecting adjacent rails in a track-circuit, consisting of a metallic wire or rod body having enlarged ends at an angle thereto, made homogeneous therewith, and adapted to be secured in apertures in the flanges of the rails, having open sharp edges at the sides of the flange, substantially as described.

3. A device for electrically connecting adjacent rails in a track-circuit, consisting of a metallic wire or rod body provided with enlarged ends made homogeneous therewith and at an angle thereto, for insertion into apertures in the flanges of the rails extending to the edges thereof, and having a spiral or helical spring at each end of the body, between the enlarged ends and such body, whose convolutions are at a right angle to, or approach a right angle to, the body, substantially as described.

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

HENRY D. WINTON. [L. S.]

Witnesses:

ALBERT JENNINGS,
M. M. DUTTON.