

No. 666,306.

Patented Jan. 22, 1901.

J. W. EHLERS.
ELECTRIC RAILWAY.
(Application filed Dec. 19, 1899.)

(No Model.)

Fig. 1.

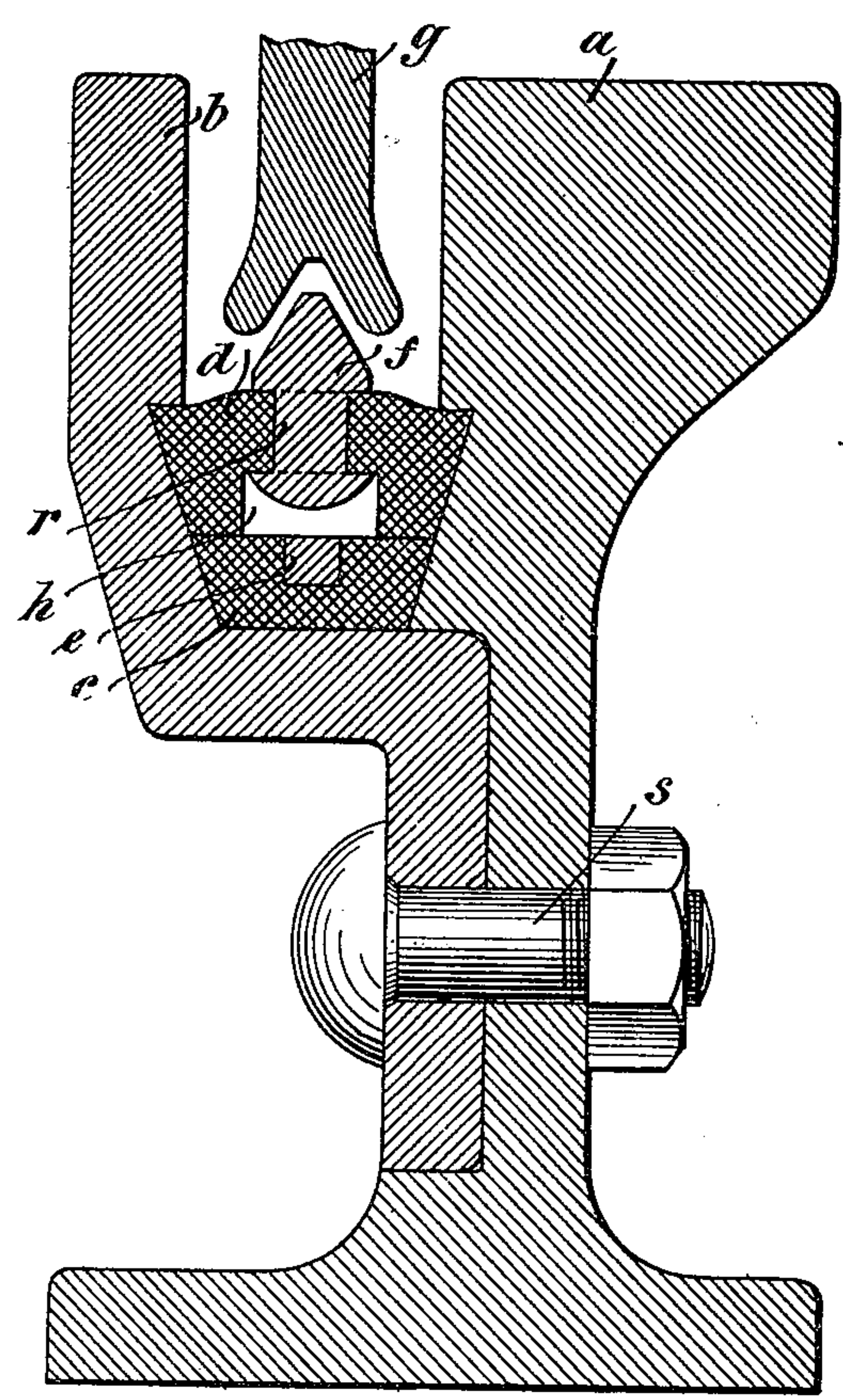


Fig. 2.

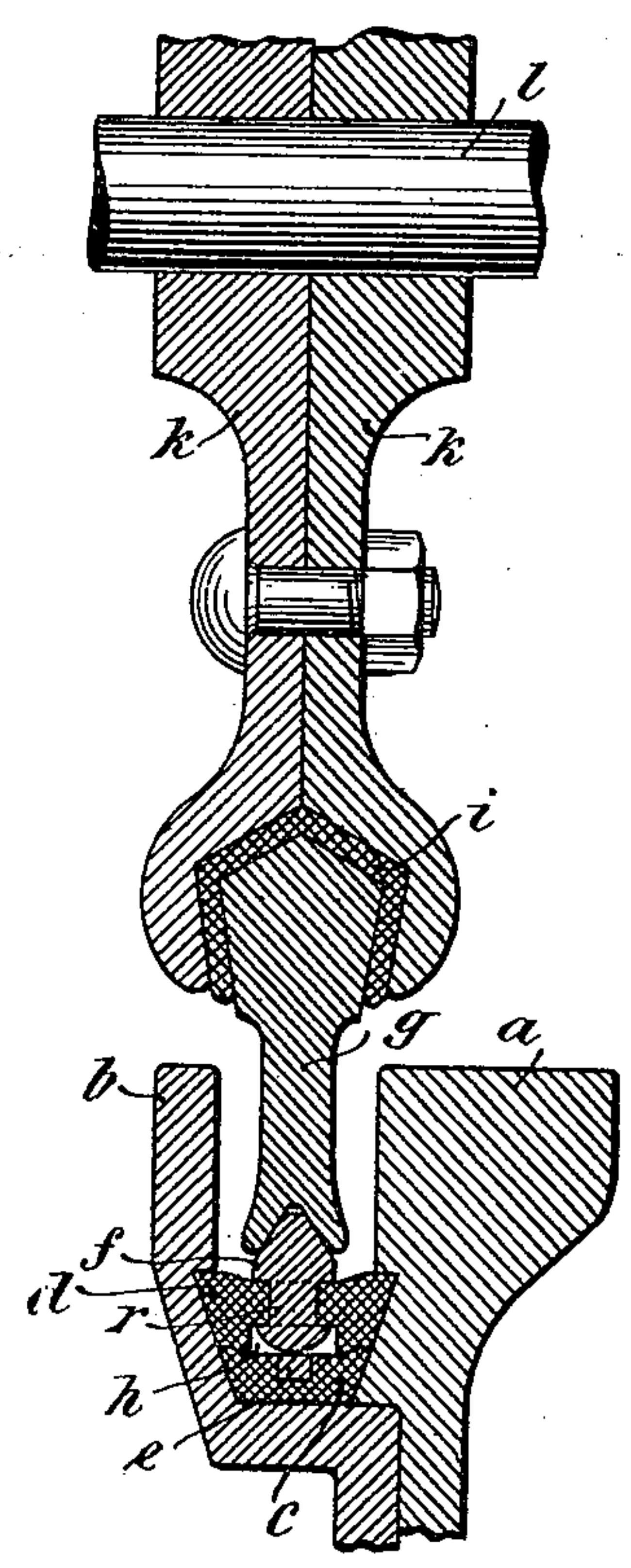


Fig. 3.

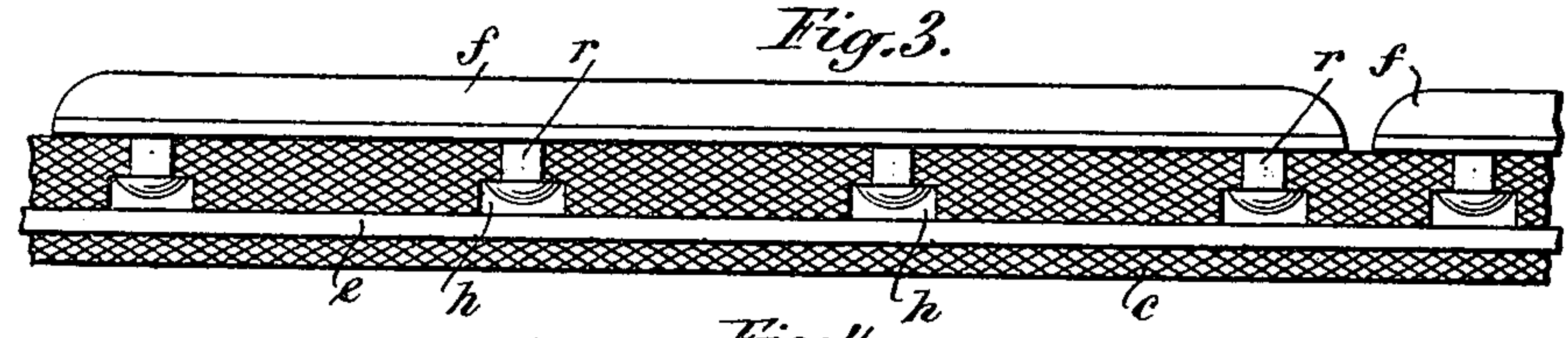
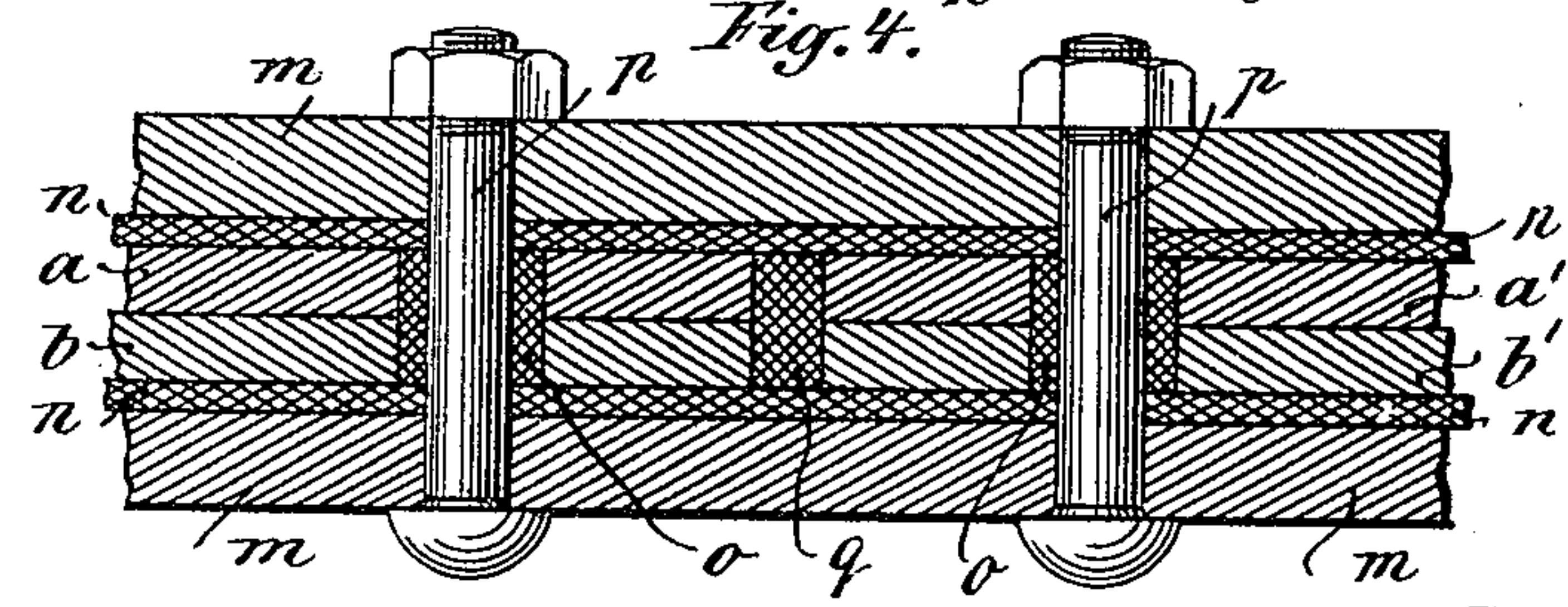


Fig. 4.



Witnesses:
Carl Funder.
August W. Schumacher

Inventor:
Johs. W. Ehlers.
By: Ernest W. Hoppen
Atty

UNITED STATES PATENT OFFICE

JOHANNES WILH. EHLERS, OF HAMBURG, GERMANY.

ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 666,306, dated January 22, 1901.

Application filed December 19, 1899. Serial No. 740,899. (No model.)

To all whom it may concern:

Be it known that I, JOHANNES WILHELM EHLERS, a subject of the Emperor of Germany, residing at Hamburg, Empire of Germany, have invented a useful Improved Means for Feeding Electric Current to Motor-Cars, of which the following is a description.

The present invention relates to means for feeding the electric current to motor-cars, and comprises a series of elastically-mounted sectional conductors which when depressed by the special contact or take-up wheel of the car make contact with the main conductor mounted within the rail beneath the said sectional conductors, and thus current is fed to the motor on the car.

In order to render the present specification easily intelligible, reference is had to the accompanying drawings, in which similar letters of reference denote similar parts throughout the several views.

Figure 1 is a cross-section through a rail, showing the arrangement of the main conductor, the sectional conductor, and a part of the contact or take-up wheel. Fig. 2 is a similar section drawn to a smaller scale, showing the position of the parts when contact is being made. Fig. 3 is a vertical longitudinal section on a still smaller scale, showing a whole sectional conductor; and Fig. 4 is a horizontal section through a rail-joint, showing the insulation of the fish-plates and bolts.

The rail is of the ordinary type car-rail, consisting of the main rail *a* and the secondary rail *b*, bolted together by means of bolts *s*. The main conductor *e* is, with the exception of its upper surface, embedded in an insulating-bed *c*, of elastic rubber or of an elastic and insulating equivalent. This conductor is insulated at the upper side and covered in by an elastic rubber covering *d*, having a series of cavities *h* and carrying on its crown the sectional conductors *f*, having downwardly-projecting contact-lugs *r*, lying one in each cavity *h*, which when the crown of the said cavity is depressed by the take-up wheel *g* of the car, Fig. 2, contact with the main conductor *e* and feed current to the car-motor through these parts. The upper edges of the cover *d* fit advantageously under ledges or shoulders of the rails *a* and *b*. The sections are of suitable length and mounted at

such distance apart that contact will be made with one section before it is broken at the previous one. The upper surface of the sections *f* is advantageously made of a tapering cross-section to fit a corresponding peripheral groove of the wheel or roller *g*, so as to secure proper engagement of the parts. The free lying surfaces of the cover *d* may be coated with some suitable tough coating.

The rim of the take-up wheel or roller *g* is advantageously insulated, Fig. 2, being formed of two halves *k k*, bolted together and having their rims formed to a claw-like cross-section to grip the similarly-formed rim *g* with an interposed layer *i*, of insulating material. A brush or other contact should then be provided on the car to take the current from the rim of *g*. A similar arrangement of sectional conductors is advantageously provided for the return current. In order to prevent the sections *f f* from being connected up by means of water, which might accumulate at the points of interruption of the sections, water-outlets should be provided at these points. It is also advantageous to provide a brush on the car in front of the roller *g*.

The fish-plates *m n*, Fig. 4, are advantageously insulated at the rail-joints either by enamel coatings or by means of interposed rubber sheets *n n*, the bolts *p p* also having insulating-sleeves *o o*, and if necessary an insulating-piece *q* is also provided between the end of the rails *a b* and *a' b'*. In order to insulate the interior of the rails, the inner surface may be provided with an insulating-coating or they may be enameled.

The operation of the device will be evident from the foregoing description and needs no further explanation.

I claim as my invention—

1. In a device for feeding current to electric-motor cars, the combination of a main conductor, an insulating-bed mounted in the track-rail to receive and partially inclose said conductor, a covering-strip of rubber or of an elastic and insulating equivalent having cavities in its lower surface and adapted otherwise to close down on the lower bedding of rubber or of an elastic and insulating equivalent, sectional conductors mounted on the top of said rubber covering and having contact-lugs extending downwardly through

the said covering into the said cavities and means for depressing said sectional contacts substantially as described.

2. In a device for feeding current to electric-motor cars the combination of a main conductor, an insulating-bed mounted in the track-rail to receive and partially inclose said conductor, a covering-strip of rubber or of an elastic and insulating equivalent having cavities in its lower surface and adapted otherwise to close down onto the lower bedding of rubber or of an elastic and insulating equivalent and means for retaining said cover between the rails, sectional conductors mounted on the top of said rubber covering and having contact-lugs extending downwardly through the said covering into the said cavities and means for depressing said sectional contacts substantially as described.

3. In a device for feeding current to electric-motor cars, the combination of a main conductor, an insulating-bed mounted in the track-rail to receive and partially inclose said conductor, a covering-strip of rubber or of an elastic and insulating equivalent having cavities in its lower surface and adapted otherwise to close down on the lower bedding of rubber or of an elastic and insulating equivalent, sectional conductors mounted on the top of said rubber covering having an upwardly-tapered cross-section to fit a groove

in the contact-roller, and having contact-lugs extending downwardly through the said covering into the cavities and means for depressing said sectional contacts substantially as described.

4. In a device for feeding current to electric-motor cars, the combination of a main conductor, an insulating-bed, mounted in the track-rail to receive and partially inclose, said conductor, a covering-strip of rubber or of an elastic and insulating equivalent having cavities in its lower surface and adapted otherwise to close down on the lower bedding of rubber or of an elastic and insulating equivalent, sectional conductors mounted on the top of said rubber covering and having contact-lugs extending downwardly through the said covering into the said cavities and means for depressing said sectional contacts consisting of a roller having disks bolted together to form an annular claw and a rim gripped by said claw and interposed insulating-layer between said rim and claw substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

JOHS. WILH. EHLERS.

Witnesses:

E. H. L. MUMMENHOFF,
W. N. GOLDSCHMIDT.