

H. P. DAVIS & T. VARNEY.

TROLLEY.

APPLICATION FILED NOV. 8, 1907.

932,538.

Patented Aug. 31, 1909.

2 SHEETS—SHEET 1.

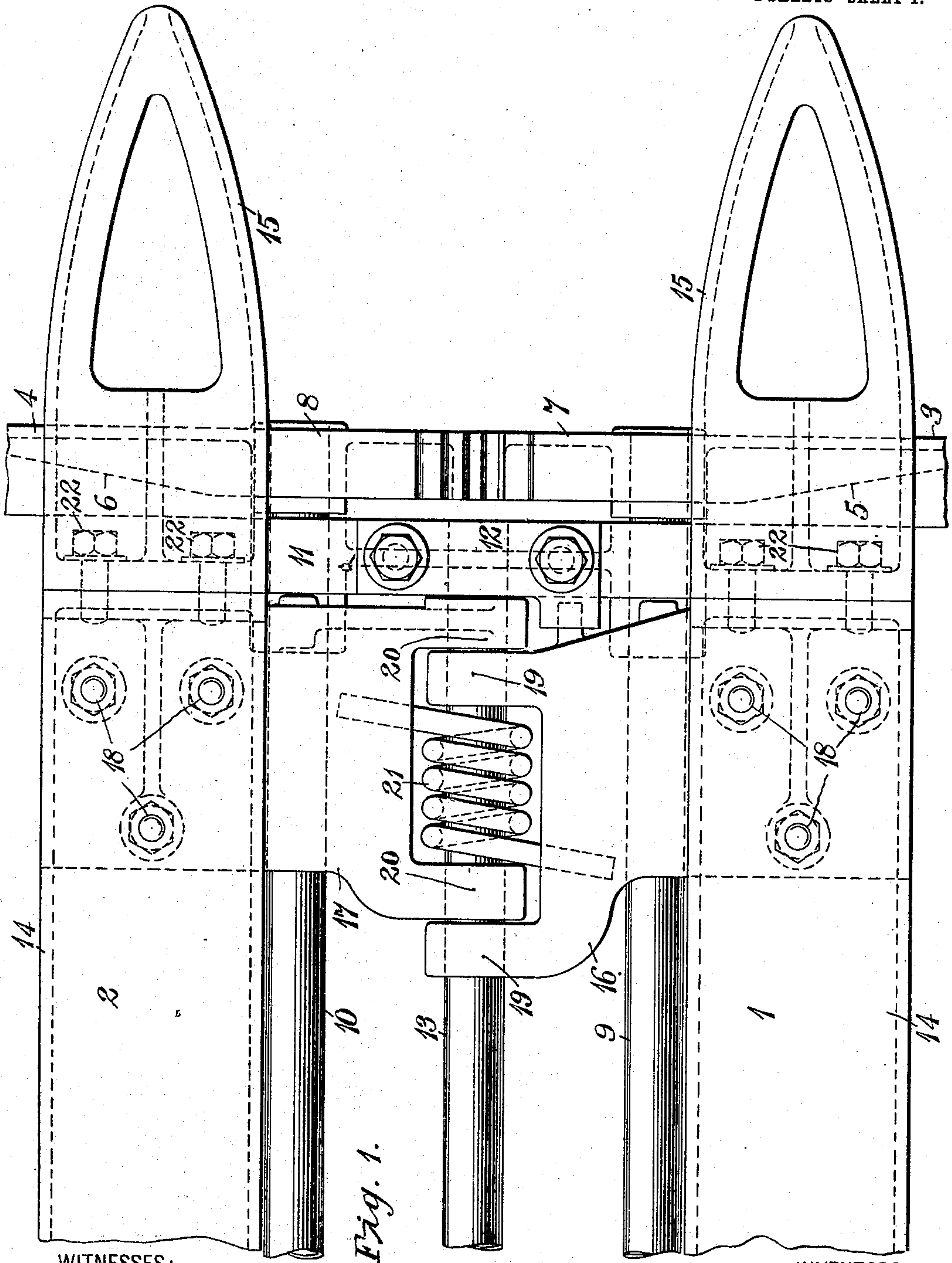


Fig. 1.

WITNESSES:

Fred H. Miller
R. J. Carbone

INVENTORS

Harry P. Davis
& Theodore Varney
BY
Wesley E. Carr
ATTORNEY

H. P. DAVIS & T. VARNEY.

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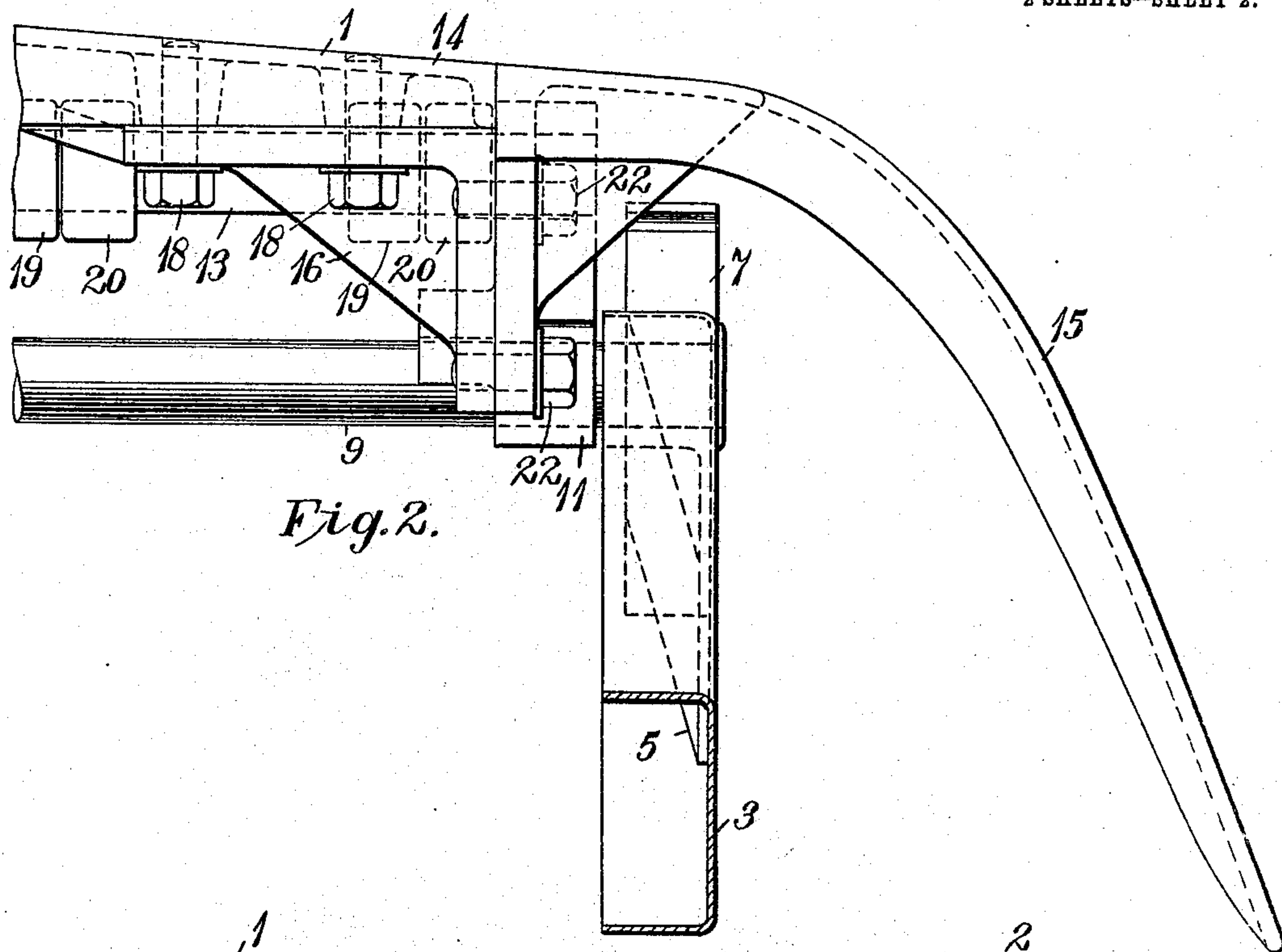


Fig. 2.

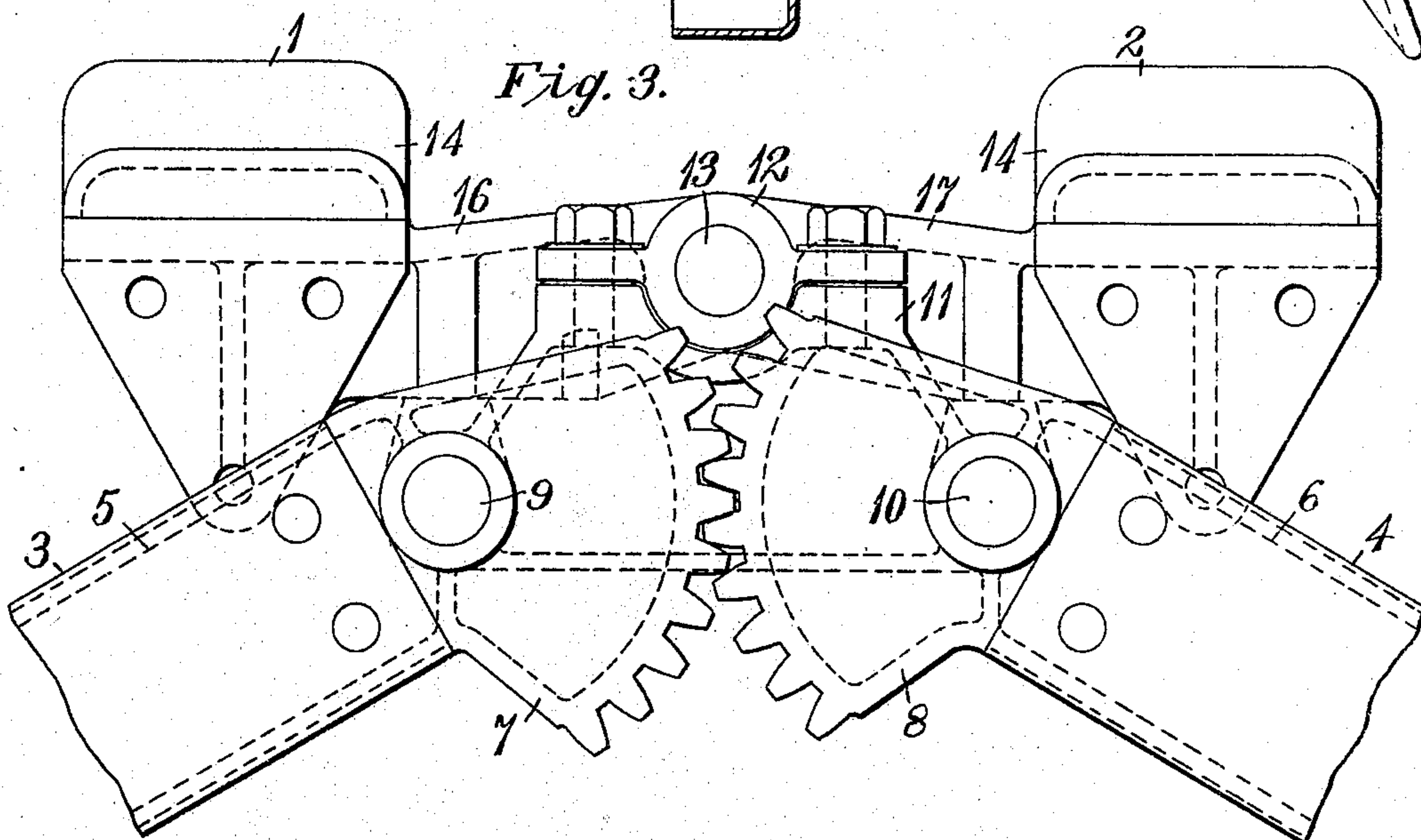


Fig. 3.

WITNESSES:

Fred H. Miller
R. J. Carbone.

INVENTORS

Harry P. Davis
& Theodore Varney
BY
Wiley S. Carr
ATTORNEY

UNITED STATES PATENT OFFICE.

HARRY P. DAVIS AND THEODORE VARNEY, OF PITTSBURG, PENNSYLVANIA, ASSIGNORS, BY MESNE ASSIGNMENTS, TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, OF EAST PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

TROLLEY.

932,538.

Specification of Letters Patent.

Patented Aug. 31, 1909.

Application filed November 8, 1907. Serial No. 401,269.

To all whom it may concern:

Be it known that we, HARRY P. DAVIS and THEODORE VARNEY, citizens of the United States, and residents of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Trolleys, of which the following is a specification.

Our invention relates to current-collecting devices for electric vehicles, and has special reference to trolleys of the pantograph type that are adapted to operate at high speeds and to transmit large quantities of energy from overhead conductors to electric railway vehicles.

The object of our invention is to provide an improved device of the class above indicated which may advantageously be employed on electric locomotives in lieu of various well known forms of current collectors heretofore used.

Figure 1 of the accompanying drawings is a plan view of a portion of a current-collecting device constructed in accordance with our invention. Fig. 2 is a side elevation and Fig. 3 is an end elevation of a portion of the device shown in Fig. 1.

Referring to the drawings, the trolley illustrated comprises a supporting frame having a pantograph or lazy tongs structure similar to that shown and described in a co-pending application, Serial No. 296,318, filed January 16, 1906 by Theodore Varney, a pair of twin contact shoes 1 and 2, and means for adjustably mounting the shoes at the upper end of the pantograph frame. The side bars of the supporting frame may be constructed of any suitable material, but we prefer to use wrought iron or steel channel beams 3 and 4, parts of which are illustrated in Fig. 3.

The upper extremities of the rods or beams 3 and 4 are secured to projections 5 and 6 of intermeshing gear segments 7 and 8 that are pivotally mounted upon the outer ends of cross-rods 9 and 10. The rods 9 and 10 are supported by end castings 11 which also serve as pillow blocks to support bearings 12 in which a third cross-rod or shaft 13 is mounted.

The trolley shoes 1 and 2 are similar to each other and comprise sheet metal punchings 14 formed into bows and end castings 15 that extend outwardly and downwardly,

their outer surfaces being adapted to form continuations of the contact surfaces of the shoes.

The contact shoes are supported, near their ends, upon castings 16 and 17 which are pivotally mounted upon the ends of the shaft 13 and are secured to the shoes by bolts 18. The castings 16 and 17 are provided with projections 19 and 20 which are drilled to fit over the shaft 13 and are so arranged that, when the shoes occupy corresponding positions relative to the supporting frame, the projections are adjacent to each other.

Helical springs 21 are provided for maintaining a pressure between the shoes and the trolley conductor with which they engage by giving them a tendency to rotate in opposite directions about the shaft 13. The springs 21 surround the shaft 13 and are disposed between the projections 19 and 20 of the castings 16 and 17 and their extremities project laterally outward in opposite directions and engage the under surfaces of the castings. The castings 16 and 17 are of such form that the end castings 15 may be rigidly secured thereto by means of bolts 22.

The gear segments 7 and 8 are of special advantage, since they tend to maintain the shoes at the same elevation, and the twin shoe construction presents a large contact surface to the trolley conductor, so that large quantities of energy may be supplied to the vehicle.

While we prefer to utilize the shoe construction illustrated and described in the co-pending application, Serial No. 366,502, filed April 5, 1907, by Theodore Varney, any suitable contact shoe may be substituted therefor, and we desire that only such limitations shall be imposed upon our invention as are indicated in the appended claims.

We claim as our invention:

1. A trolley for electric vehicles comprising a supporting frame having a cross-rod at its upper extremity, a pair of elongated contact shoes materially separated from each other and having laterally projecting arms journaled upon said rod, and a helical spring surrounding said cross-rod and having projecting ends which tend to force said shoes upwardly toward each other.

2. A trolley for electric vehicles comprising a supporting frame having a cross-rod at its upper extremity, a pair of elongated

contact shoes materially separated from each other and having laterally projecting arms journaled upon said rod, and a helical spring located on said rod between said arms and
5 having free ends which project beneath said arms to force the shoes upwardly.

3. A trolley for electric vehicles comprising a supporting frame having a plurality of cross-rods, end castings in which the rods
10 are mounted, side bars rotatably mounted near the extremities of two of said rods and provided with gear segments which mesh with each other, and twin contact shoes rotatably mounted upon a third rod.

15 4. A trolley for electric vehicles comprising a supporting frame having three cross-rods near its upper extremity, end castings in which the rods are supported, and side

bars rotatably mounted near the extremities of two of the rods, a pair of twin contact
20 shoes materially separated from each other and rotatably mounted on the third rod, the said shoes comprising strips that are bowed from end to end and end projections that extend outwardly and downwardly there-
25 from, and resilient means tending to rotate the contact shoes upwardly.

In testimony whereof, we have hereunto subscribed our names this 28th day of Oct., 1907.

HARRY P. DAVIS.
THEODORE VARNEY.

Witnesses:

CAROLINE E. SMYERS.
BIRNEY HINES.