

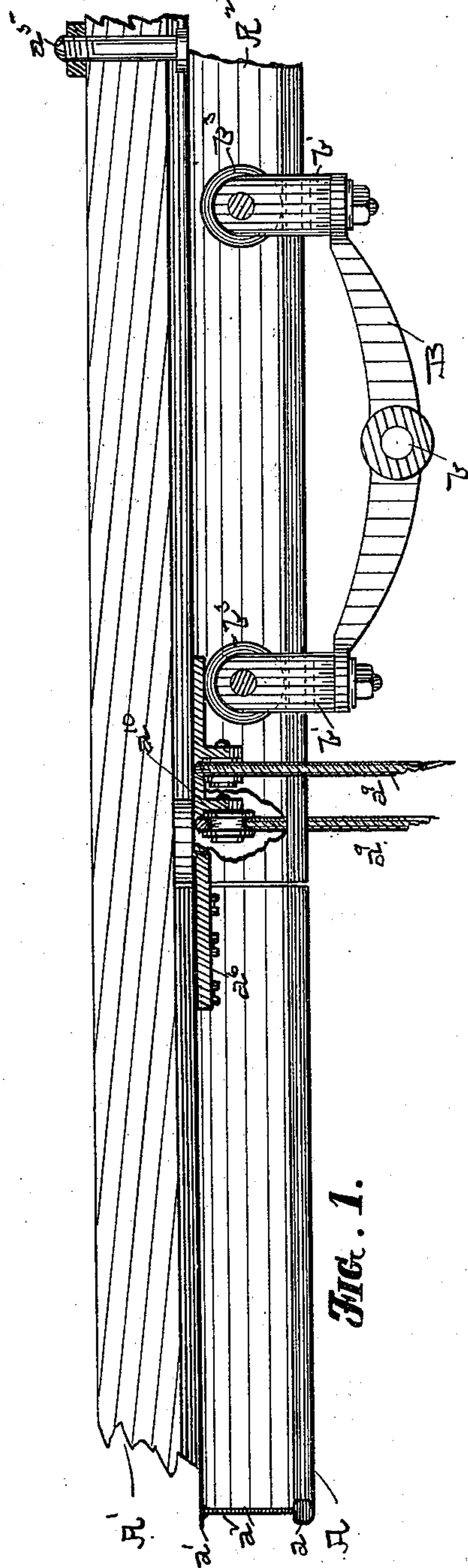
(No Model.)

2 Sheets—Sheet 1..

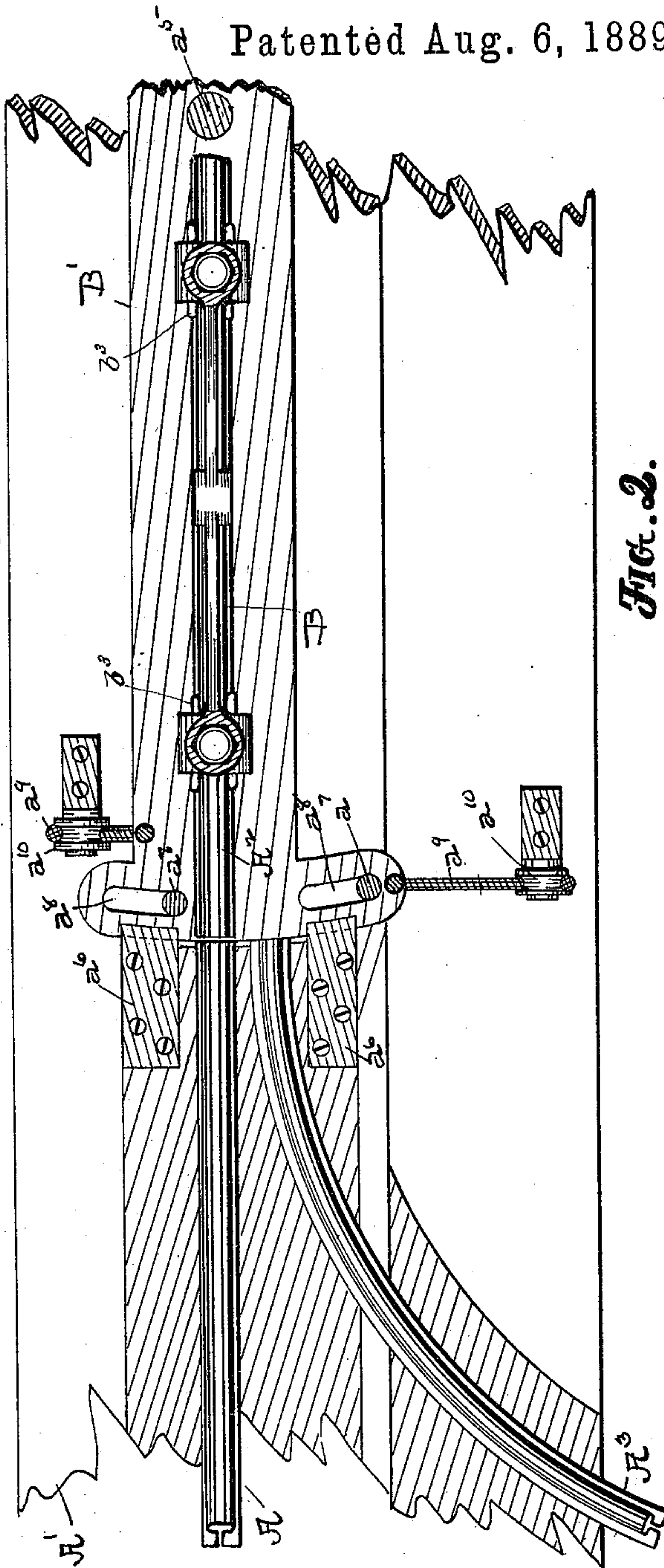
J. H. MORLEY.  
TROLLEY TRACK.

No. 408,503.

Patented Aug. 6, 1889..



**Fig. 1.**



**Fig. 2.**

**WITNESSES:**

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J. E. Chapman

**INVENTOR**

J. H. Morley

BY James T. Chapman

ATTORNEY§-

(No Model.)

2 Sheets—Sheet 2.

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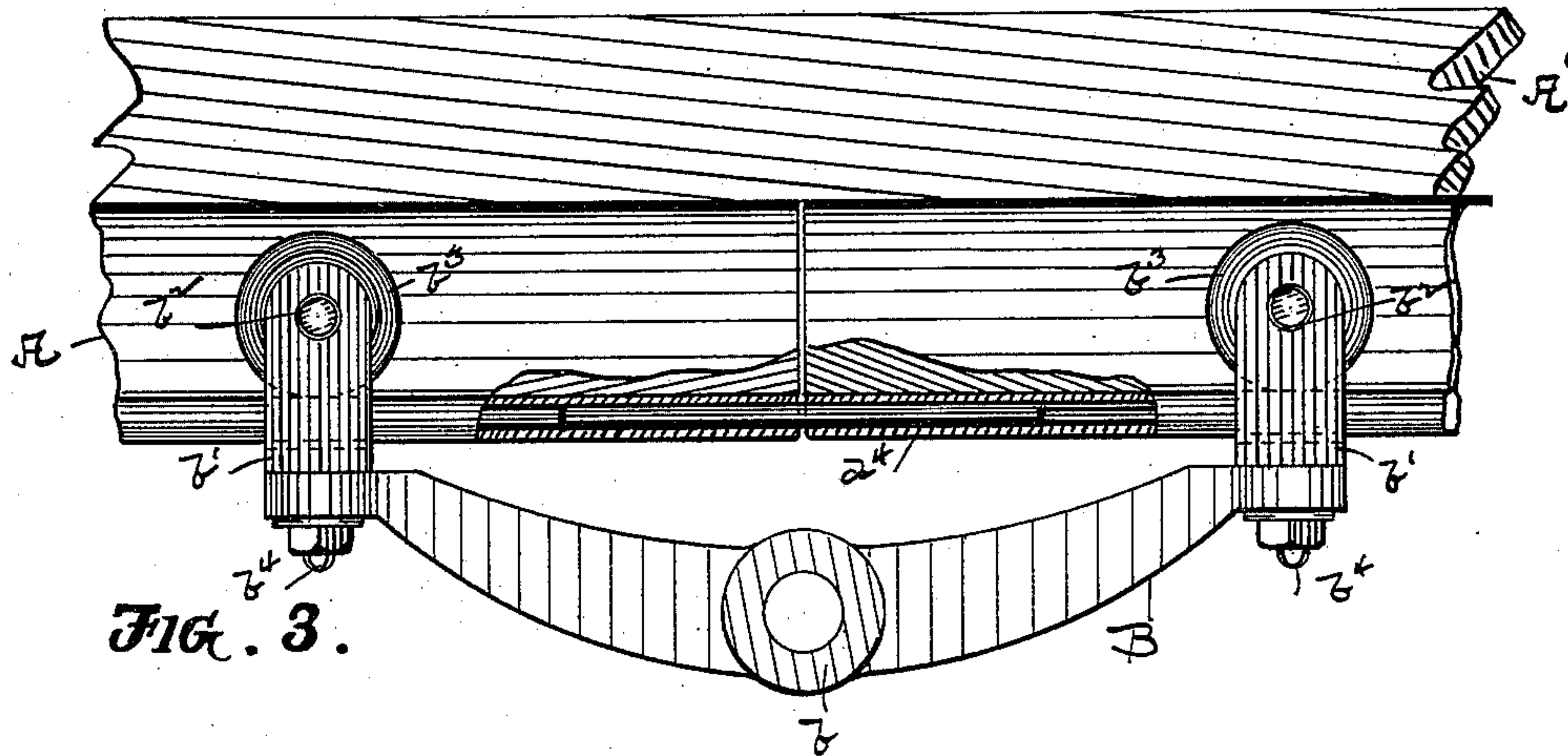


FIG. 3.

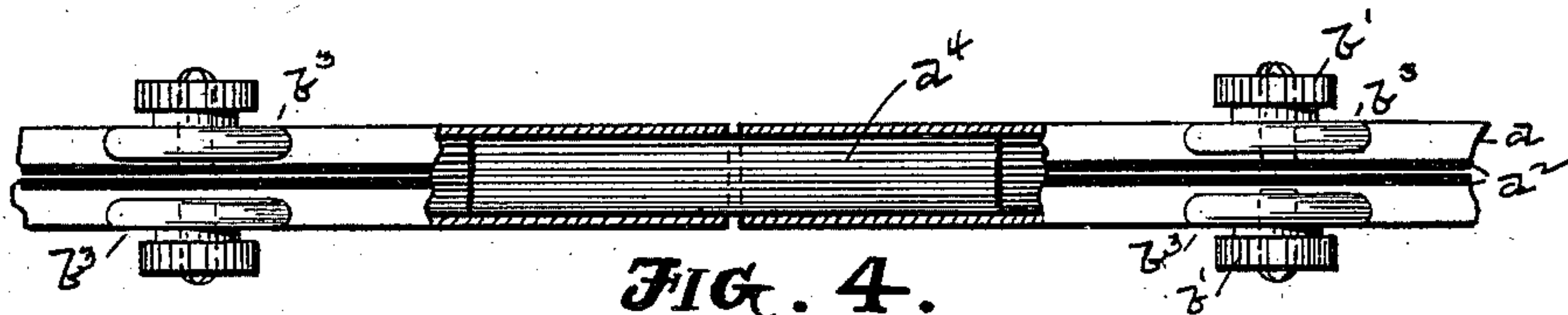


FIG. 4.

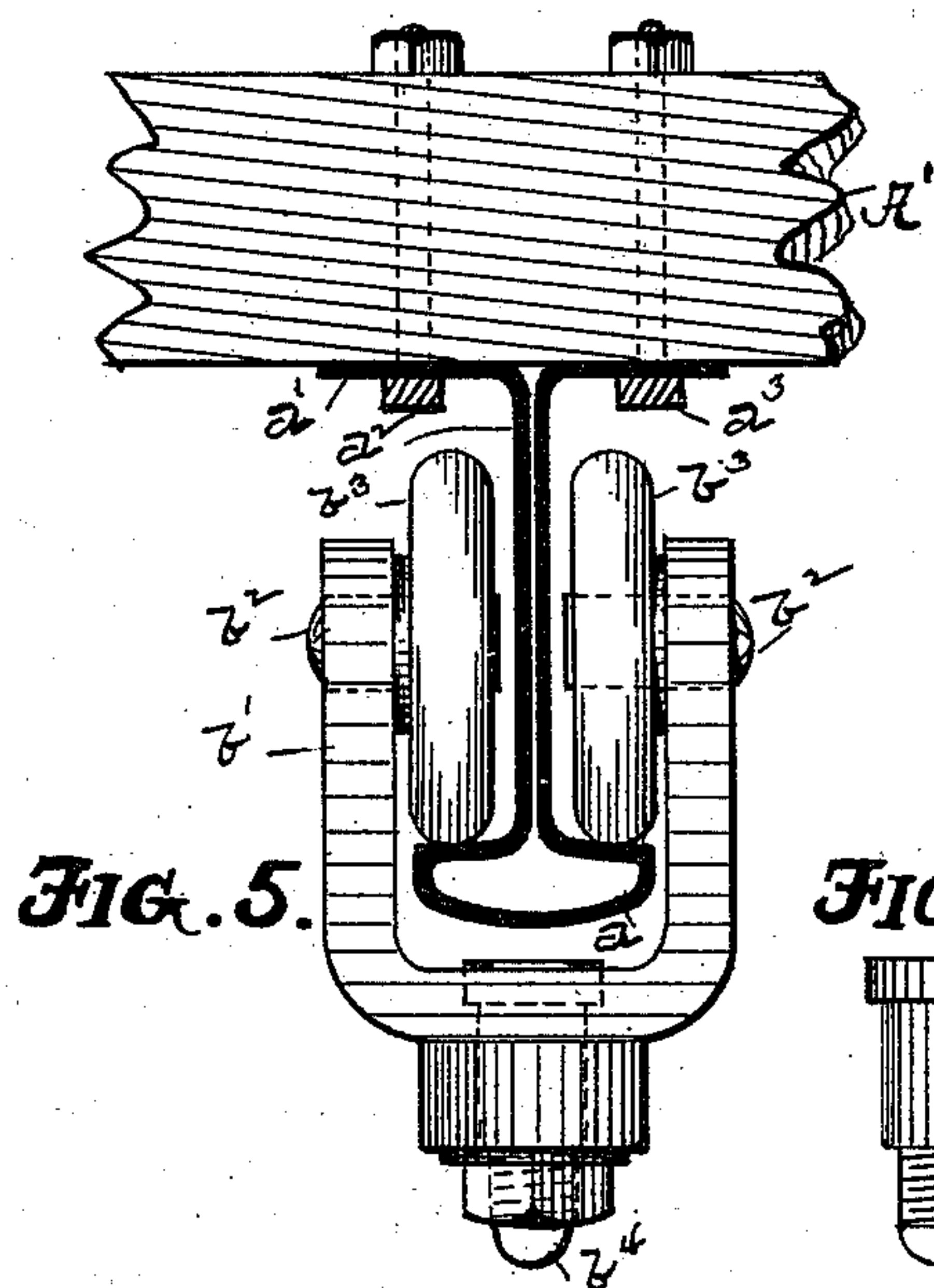


FIG. 5.

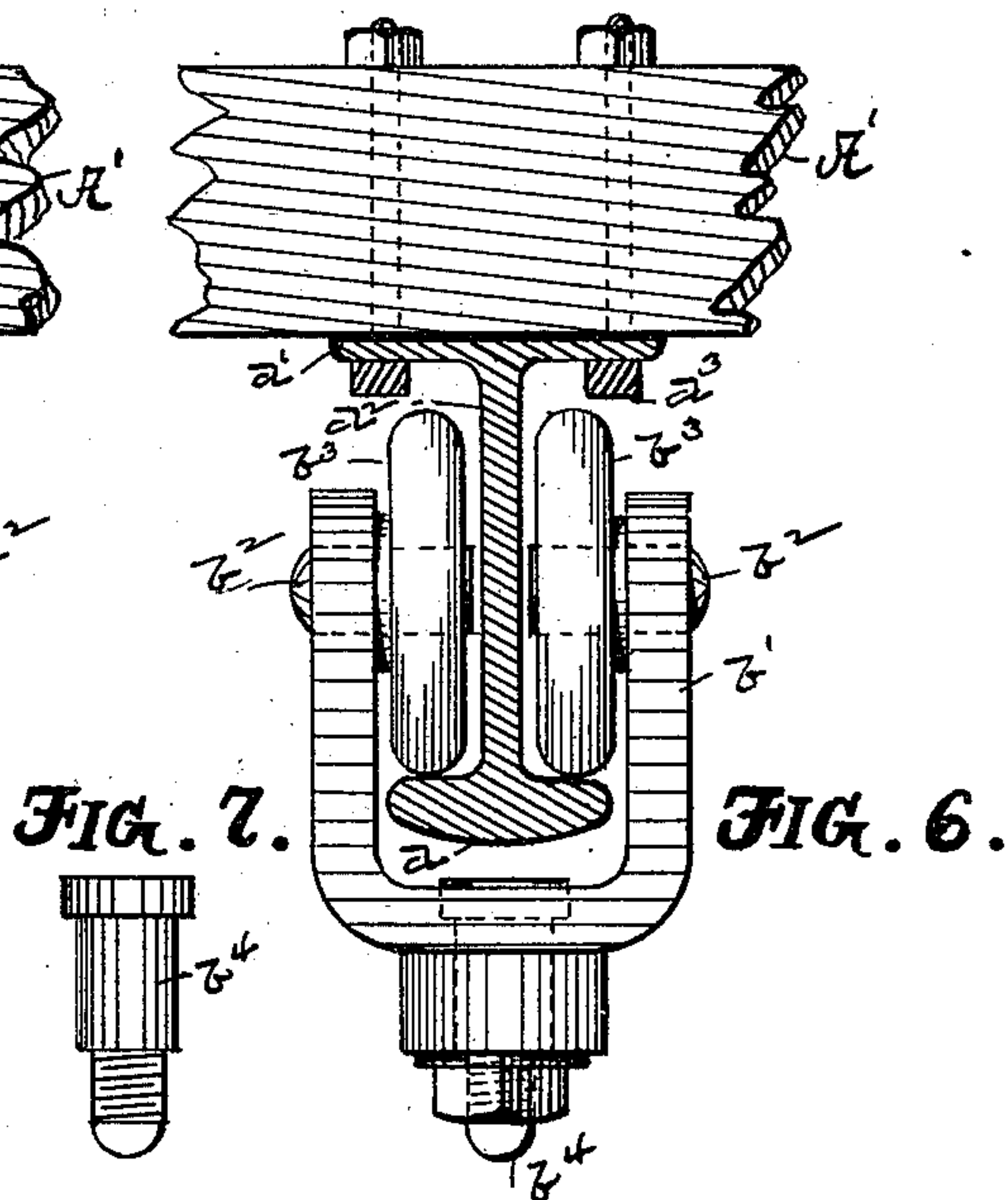


FIG. 7.

FIG. 6.

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# UNITED STATES PATENT OFFICE.

JAMES H. MORLEY, OF FLORENCE, ASSIGNOR OF ONE-HALF TO GEORGE NIGHTINGALE, OF HOLYOKE, MASSACHUSETTS.

## TROLLEY-TRACK.

SPECIFICATION forming part of Letters Patent No. 408,503, dated August 6, 1889.

Application filed February 15, 1889. Serial No. 300,068. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES H. MORLEY, of Florence, in the county of Hampshire and State of Massachusetts, have invented a new and useful Improvement in Trolley-Tracks, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to tracks adapted to be suspended from overhead supports to serve as ways for the wheels of a carrier moving beneath the track; and while the track devised by me is especially designed for use in connection with the transportation of merchandise and other articles for short distances, which tracks are usually known as "trolley-tracks," it is also applicable for use as an overhead railway for street and other cars.

The object of the invention is to provide a track which will possess great strength and stiffness, which can be cheaply manufactured and erected, and which will support the carrier in such manner that curves and switches can be located therein without affecting the free movement of the wheels of the carrier.

To these ends my invention consists in a track consisting of a single "double-headed" rail adapted to be suspended from an overhead support, and in a carrier the wheels of which are adapted to bear upon the inner side of the head of said track upon opposite sides of the web which unites said head to the base, as hereinafter fully described, and particularly pointed out in the claims.

Referring to the drawings, in which like letters designate like parts in the several figures, Figure 1 is a side elevation of the track, the carrier, and a switch located in said track. Fig. 2 is an inverted plan of the same parts. Fig. 3 is a side elevation, partly in section, of the track and carrier, showing the preferred means for connecting the ends of the rails. Fig. 4 is an inverted plan, partly in section, of the same parts. Fig. 5 is an end view of the track and carrier. Fig. 6 is a similar view showing in cross-section a slightly-modified form of the track. Fig. 7 is a detail view of one of the swivel-bolts by which the hangers are connected to the carrier.

The letter A designates the track, which consists of a single double-headed rail, of which  $a$  designates the head,  $a'$  the base, and  $a^2$  the web uniting said head and base together. When the track is to be used for the transportation of comparatively light articles, it will preferably be rolled or otherwise formed from sheet metal, as shown in Figs. 1 to 5, inclusive; but for carrying cars and other very heavy work it will be made, as shown in Fig. 6, in solid form, and by any of the processes now employed for making the double-headed rails for surface railways.

The track is suspended from the overhead support A' by the bolts  $a^3$ , passing through suitable holes in the base  $a'$ , or by other similar means, such as screws passing into the ceiling when the track is designed for use within buildings.

When the sheet-metal form of track is used, I prefer to connect the meeting ends of the rails by a core  $a^4$ , of hard wood or iron, of the proper size and shape in cross-section to closely fit within the head  $a$  of the rail, as shown in Figs. 3 and 4, whereby the ends of the rails are kept in perfect alignment and increased stiffness is imparted to the track. The core  $a^4$  can be continued throughout the entire length of each rail in cases where particularly heavy wear and strain are to be encountered, in which case the core would support the carrier even if the inner side of the head  $a$ , upon which the wheels bear, should be worn entirely through in places; but for the uses to which trolley-tracks are ordinarily put such extension of said core will be unnecessary.

The letter B designates the carrier, which in the example shown consists simply of a yoke having in the center thereof an eye  $b$  to facilitate the connection thereto of the parcel-receptacle, suspending-hook, ladder, or other weight to be carried, and the hangers  $b'$ , connected to said yoke at or near each end thereof. The hangers  $b'$  are of substantially U shape and are provided at or near the ends of their arms with the studs  $b^2$ , which project inwardly therefrom in one and the same straight line. Upon the studs  $b^2$  are journaled the wheels or rollers  $b^3$ , and the distance between the inner ends of the studs



being but slightly greater than the width or thickness of the web  $a^2$  of the rail A, said wheels are caused to bear and have their movement upon the inner surface of the head  $a$  of said rail, as shown in Figs. 5 and 6.

To enable the carrier to readily move upon curved sections of the track, I prefer to connect the hangers  $b'$  to the yoke by means of the headed bolt  $b^4$ , (shown detached in Fig. 7,) which is threaded only at its lower end to receive a nut, as shown, whereby a swivel-joint is formed, which enables each hanger to have a free pivotal movement upon the yoke.

By reference to Figs. 3, 4, and 5 it will be observed that when the wheels of the carrier are once applied to the track, as described, they cannot possibly leave the track except at the end thereof, so that all danger of jumping the track is avoided. It will be observed, furthermore, that the web  $a^2$  of the rail serves as a perfect guide to the two or more sets of wheels, so that the carrier will move upon curved sections of the track without causing any cramping or binding action between the wheels and the track. The said guiding action of said web also enables me to readily locate switches in the track, as shown, for example, in Figs. 1 and 2, in which a section  $A^2$  of the track is secured to a switch-block  $B'$ , said block at one end being pivotally secured to the overhead support by bolt  $a^5$ , and at its opposite end resting upon plates  $a^6$ , secured by screws or otherwise to said support. The free end of said block is thus rendered capable of lateral movement, which movement is limited in each direction by stop-pins  $a^7$ , projecting into arc-shaped slots  $a^8$  in said block. The end of a curved branch track  $A^3$  lies adjacent to the end of the main track A, and it is obvious that by moving said switch-block to cause the end of the track-section  $A^2$  to register with either of the tracks  $A$   $A^3$  the carrier will move over either of the latter tracks, as may be desired. Various devices for imparting such movement to the switch-block from the ground or floor can be utilized, one of the most simple of which is illustrated in Figs. 1 and 2, the same consisting of cords  $a^9$ , connected at one end to opposite sides of said block and running over pulleys  $a^{10}$ , their free ends extending downwardly to a point where they can be reached by a person standing upon the ground or floor of a building. By connecting the ends of said cords to opposite ends of a lever, which lever is pivoted at its middle point and is connected at one end to said switch-block, the free ends of the cord can be permitted to hang down from the same side of the track, instead of from opposite sides, as shown, and various other arrangements of levers, cords, &c., for accomplishing said result will suggest themselves to persons skilled in the art.

It will be observed that the weight carried by the hangers  $b'$  occupies the vertical plane of the web of the rail A, which lies midway between the wheels  $b^3$ , whereby the latter are caused to run evenly upon the inner side of

the head of the rail with a minimum amount of friction. The track herein described is therefore especially well adapted for use as an overhead railway for street and other cars, which can be suitably suspended from the hangers, thereby avoiding the many objections to surface tracks. When used for this purpose, the form of rail shown in Fig. 6 will be employed, and the web of the rail can be made of open iron-work to secure lightness without detracting materially from its strength.

The wheels  $b^3$  preferably have their peripheries rounded, as shown, to reduce friction, but could be otherwise shaped, or the inner sides of the head of the rail could be made to conform to the shape of said peripheries in cross-section, if desired, within the spirit of my invention.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the track consisting of a rail having a base by which it is secured to an overhead support, a head, and a connecting-web uniting said head and base, of a carrier consisting of a yoke having between its ends means for attaching a weight thereto, and having connected thereto near each end by a swivel-joint a substantially U-shaped hanger, said hangers having at or near their upper ends inwardly-projecting studs, upon which are journaled wheels or rollers which bear upon the inner side of the head of said rail upon opposite sides of the connecting-web, substantially as and for the purpose described.

2. The trolley-track herein described, composed of a rail of sheet metal bent to form head  $a$ , base  $a'$ , and intermediate web  $a^2$ , substantially as set forth.

3. The trolley-track herein described, having the substantially tubular head  $a$ , web  $a^2$ , and base  $a'$ , combined with the cores  $a^4$ , inserted within said tubular head and connecting the meeting ends of separate sections of said track, substantially as and for the purpose set forth.

4. The combination, with two track-sections, as A  $A^3$ , each consisting of a base by which they are secured to an overhead support, a head, and an intervening web, of a third track-section, as  $A^2$ , corresponding in size and shape with said first-mentioned sections, said last-mentioned section being secured by its base to a pivoted switch-block, whereby one end thereof is adapted to be moved into alignment with the ends of either of said first-mentioned sections, means, substantially as described, for imparting movement to said switch-block, and a carrier suspended from wheels which bear upon the inner side of the head of said track-sections and upon opposite sides of the intervening web, substantially as set forth.

5. The combination, with track-sections A  $A^3$ , suspended from an overhead support,



of block B', pivotally suspended from said support near one end by means of bolt  $a^5$ , and having its opposite end resting upon plates  $a^6$ , secured to said support, stop-pins 5  $a^7$ , projecting from said support into slots  $a^8$  in said block, track-section A<sup>2</sup>, suspended from said block, and means, as the cords  $a^9$ , passing over pulleys  $a^{10}$ , for moving the free end of said block in opposite directions, arranged and operating substantially as and for 10 the purpose described.

6. The combination, with track A, composed of the head  $a$ , base  $a'$ , and web  $a^2$ , of the substantially U-shaped hanger  $b'$ , hav-

ing near the outer end of each of its arms an 15 inwardly-projecting stud  $b^2$ , said studs being located in one and the same straight line, and the distance between their adjacent ends being slightly greater than the width of said web  $a^2$  of the track, and wheels  $b^3$ , journaled 20 upon said studs and bearing upon the inner side of the head  $a$  of the track, substantially as and for the purpose set forth.

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Witnesses:

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W. H. CHAPMAN.