F. C. CARSTARPHEN.

AERIAL TRAMWAY.

APPLICATION FILED JAN. 27, 1922.

1,422,255.

Patented July 11, 1922.

2 SHEETS—SHEET 1.

Fig. 1.

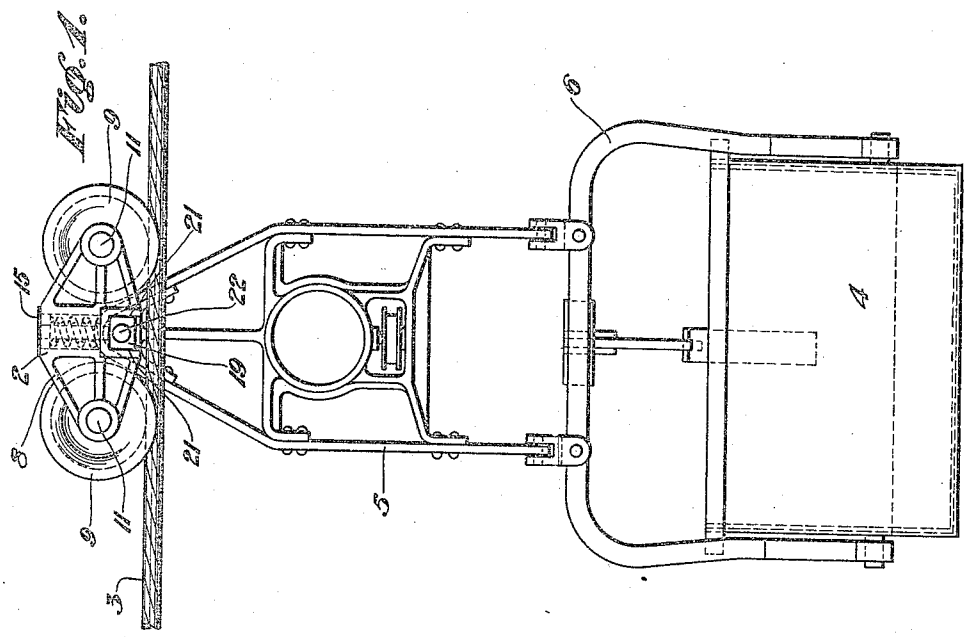
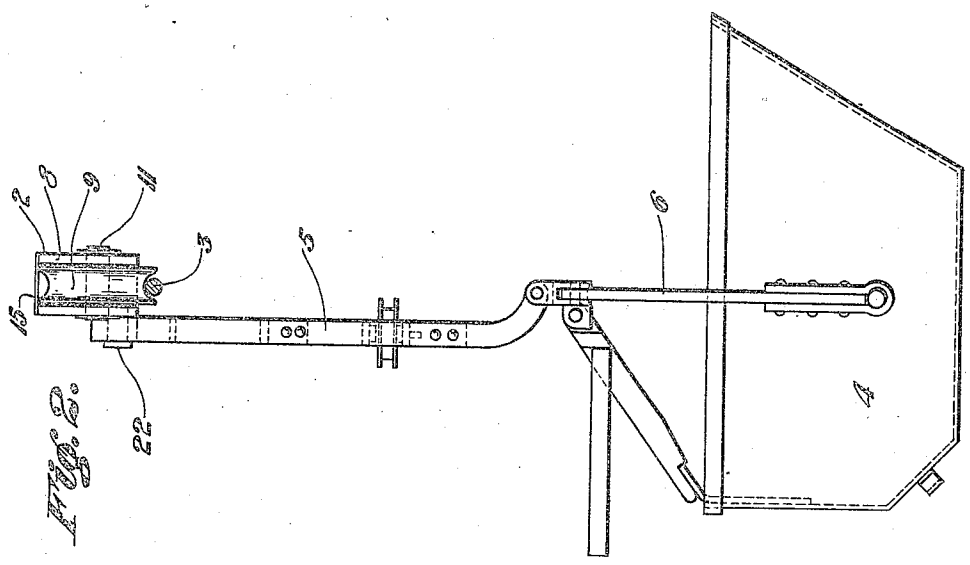


Fig. 2.



Witnesses:
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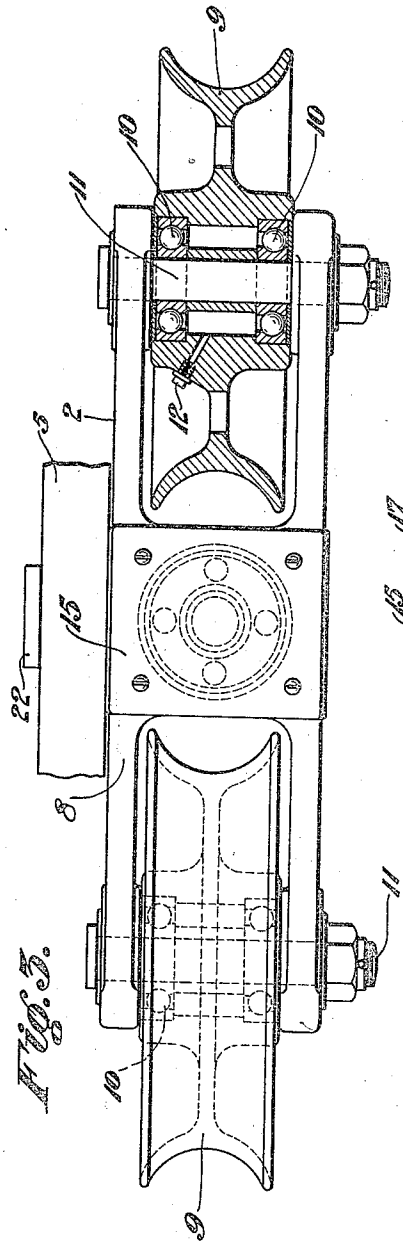


Fig. 3.

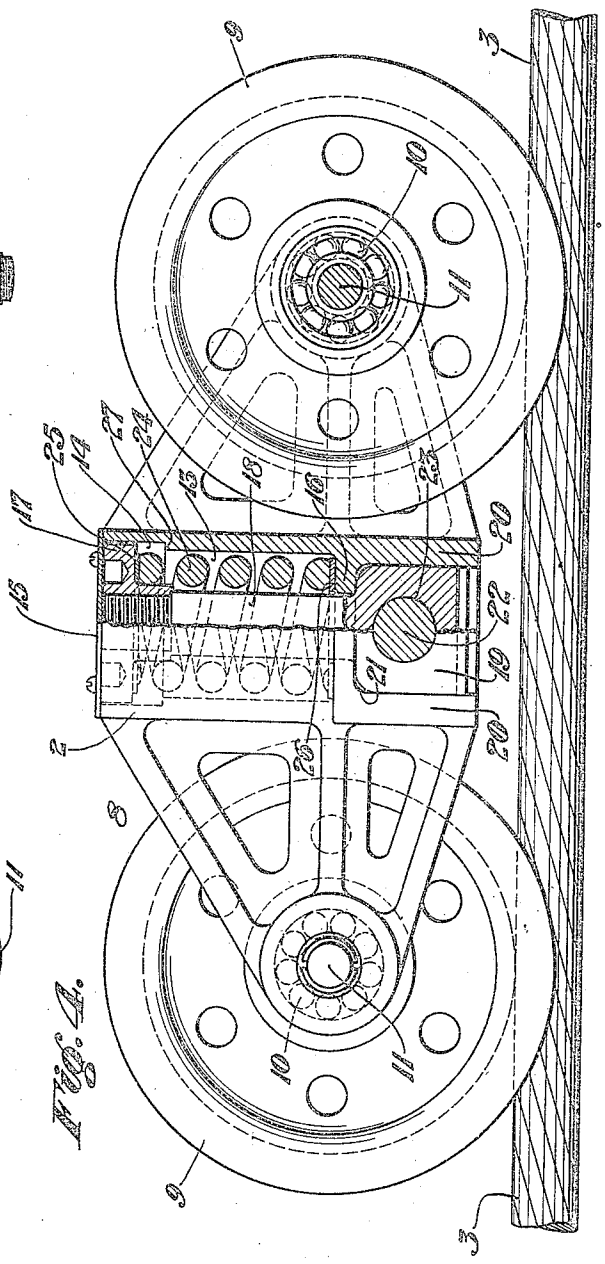


Fig. 4.

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his Attorney.

UNITED STATES PATENT OFFICE.

FREDERICK C. CARSTARPHEN, OF TRENTON, NEW JERSEY, ASSIGNOR TO THE AMERICAN STEEL AND WIRE COMPANY OF NEW JERSEY, A CORPORATION OF NEW JERSEY.

AERIAL TRAMWAY.

1,422,255. Specification of Letters Patent. Patented July 11, 1922.

Application filed January 27, 1922. Serial No. 532,139.

To all whom it may concern:

Be it known that I, FREDERICK C. CARSTARPHEN, a citizen of the United States, and a resident of Trenton, in the county of Mercer and State of New Jersey, have invented certain new and useful Improvements in Aerial Tramways, of which the following is a specification.

This invention relates to aerial tramways and more particularly to carriages for aerial tramways, and has for its object the provision of a novel form of carriage adapted to transport heavy loads with a minimum of vibration.

Another object is to provide a carriage that will have a minimum of friction in its moving parts.

A further object is to provide a carriage of the class described that will have a resilient or elastic load carrying member whereby any shocks or vibrations will be cushioned.

A still further object is to provide a carriage having the novel construction and combination of parts described in the following specification and illustrated in the accompanying drawings.

In the drawings, Figure 1 is a side elevation of the carriage mounted on a section of cable and having a load carrying bucket suspended therefrom.

Figure 2 is an end elevation of the same.

Figure 3 is an enlarged top plan of the carriage, partly in section.

Figure 4 is an enlarged side elevation of the carriage, partly in section.

Referring more particularly to the drawings the numeral 2 designates the carriage, as a whole, which is adapted to travel upon a suitable cable 3. It will be understood, however, that any suitable track may be provided, such as a rail or combined rail and cable track.

The carriage 2 is adapted to suspendingly support any suitable load carrying device such as the bucket 4. The bucket 4 is of the usual automatic dump type suspended from a pendant 5 which has its upper end mounted on a pin projecting outwardly from the one side of the carriage, and the lower end thereof is bent inwardly under the carriage 2 so that the bale 6 of the bucket 4 may be pivotally secured thereto at a point slightly beyond the vertical axis of the carriage and thus balance the carriage on the track or cable 3.

The carriage 2 is composed of a one piece integral cast body portion 8 having grooved wheels 9 at each end journaled on anti-friction bearings 10 on shafts 11, and provided with oil cups 12 to provide a convenient means for lubricating the anti-friction bearings 10.

The body portion 8 of the carriage is provided intermediate its ends with a vertical recess 13 which is enlarged at its upper end to form a cylinder portion 14, and is closed at its upper end by a removable plate 15, and at its lower end by an apertured wall 16.

A piston or load suspending member comprising a piston head portion 17 and a shank or rod portion 18 is mounted in the recess 13. The rod 18 projects downwardly through the aperture in the wall 16 and is provided with a squared portion 19 adapted to bear against the walls 20 of a recess 21 formed below the vertical recess 13 and thus prevent the piston member from turning.

The piston member is adapted to carry the bucket 4 or other load carrying member and therefore the pendant 5 is mounted on a pin 22 secured in a recess 23 formed in the squared portion 19 of the piston member.

A coiled spring 24 is mounted around the shank or rod portion 18 of the piston and has its respective ends abutting washers 25 and 26, which bear against the piston head 17 and bottom wall 16, respectively.

The spring 24 is under compression at all times and is of such strength as to hold the piston normally in its uppermost position even when carrying a load. However, when the carriage is compelled to ride over couplings, shoes, or other rough portions of track, the sudden shock will tend to cause the piston to reciprocate and such movements will be cushioned on the down stroke by the spring 24, and on the up stroke the piston head 17 will compress the air in the cylinder above the head on the up stroke, thereby forming an air cushion on the up stroke.

By enlarging the recess 13 to form the cylinder 14 a shoulder 27 is formed which serves to limit the downward movement of the piston.

It will readily be appreciated that by providing a yielding or cushioned load suspending member that the disastrous vibrations, jars, etc., heretofore caused by the carriage of aerial tramways passing over shoes, couplings and the like, is entirely eliminated.

Therefore the life of the track cable and associated parts are greatly lengthened.

I claim:—

1. An aerial tramway carriage comprising a body portion, wheels journaled at each end of said body portion and a combined air and spring cushioned load suspending member mounted intermediate the ends of said carriage.

2. An aerial tramway carriage comprising a body portion, wheels journaled at each end of said body portion, a piston member mounted in a suitable cylinder recess formed intermediate the ends of said carriage, said piston being provided with a head portion and a shank portion and adapted to suspendingly support a load carrying member, a spring member for normally yieldably holding said piston in its uppermost position, and said piston head portion being adapted to form an air cushion above said head on the up stroke when said piston is reciprocated vertically.

3. An aerial tramway carriage comprising a body portion, wheels journaled at each end of said body portion, a piston member mounted in a suitable cylinder recess formed intermediate the ends of said carriage, said piston being provided with a head portion and a shank portion and adapted to suspendingly support a load carrying member, a coiled spring mounted around said piston shank and having its respective ends abutting said piston head and the bottom wall of said cylinder recess, said spring being adapted to normally yieldably hold said piston in its uppermost vertical position, and said piston head portion being adapted to form an air cushion above said head on the up stroke when said piston is caused to reciprocate vertically.

4. An aerial tramway carriage comprising an integral one piece body portion, wheels journaled on shafts having anti-friction bearings at each end of said body portion, a piston member mounted in a suitable cylinder formed intermediate the ends of said carriage and being adapted to suspendingly carry a load carrying device, said piston member comprising a head portion and a shank portion, a coiled spring mounted around said piston shank portion and having its respective ends abutting said piston head and the bottom wall of said cylinder, said spring being adapted to normally yieldably hold said piston in its uppermost vertical position and to cushion the downward movement thereof, and said piston head being adapted to compress the air in said cylinder above said head on the up stroke when said piston is reciprocated, and means for limiting the downward movement of said piston.

In testimony whereof I have hereunto set my hand.

FREDERICK C. CARSTARPHEN.