

**No. 653,221.**

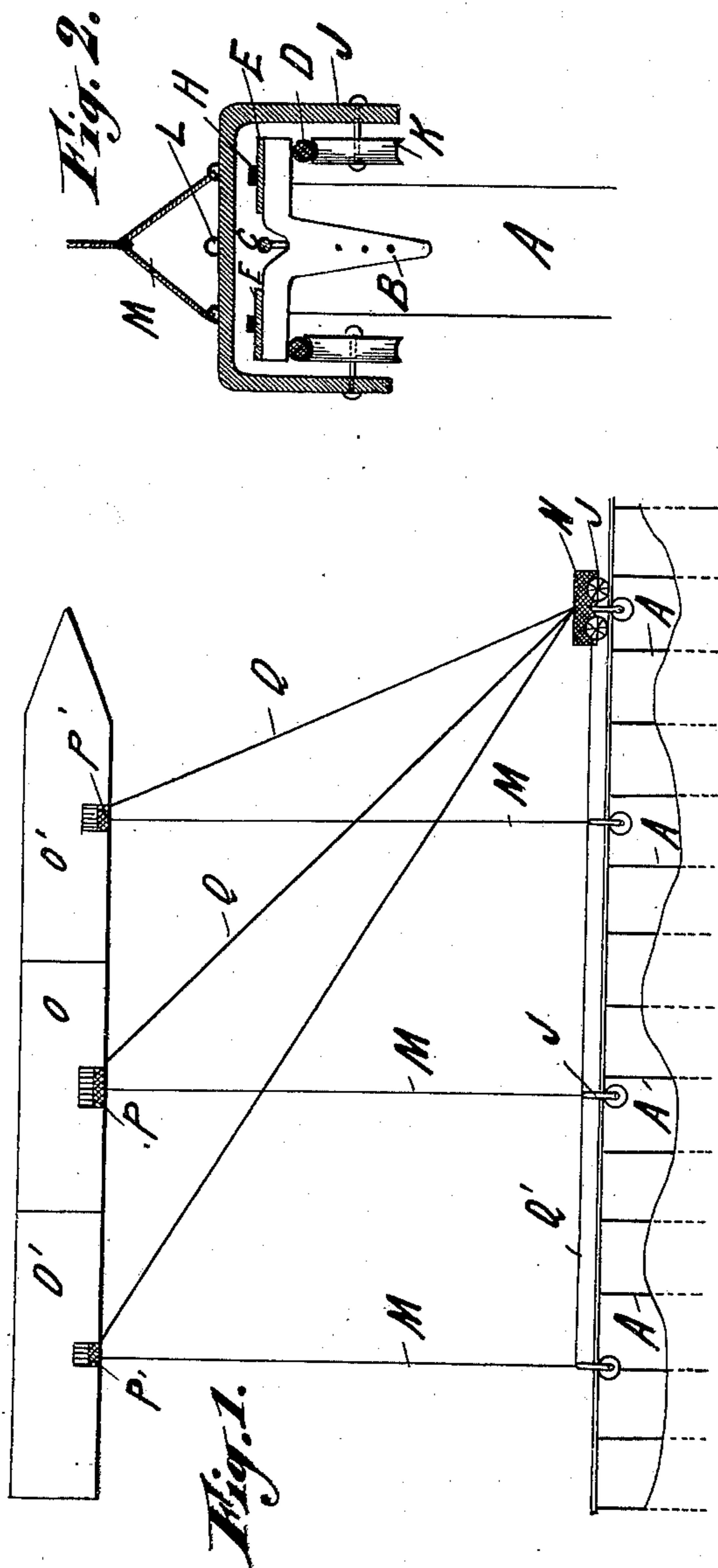
**Patented July 10, 1900.**

**M. J. A. DEYDIER.**  
**ELECTRIC TRACTION BALLOON.**

(Application filed Aug. 11, 1898.)

(No Model.)

**2 Sheets—Sheet 1.**



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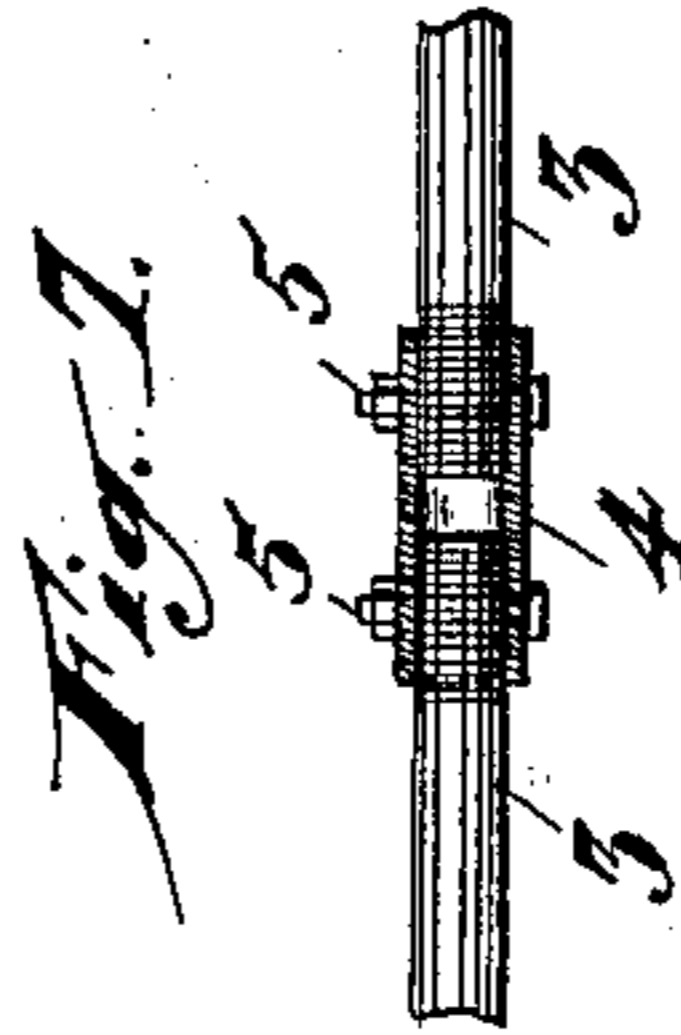
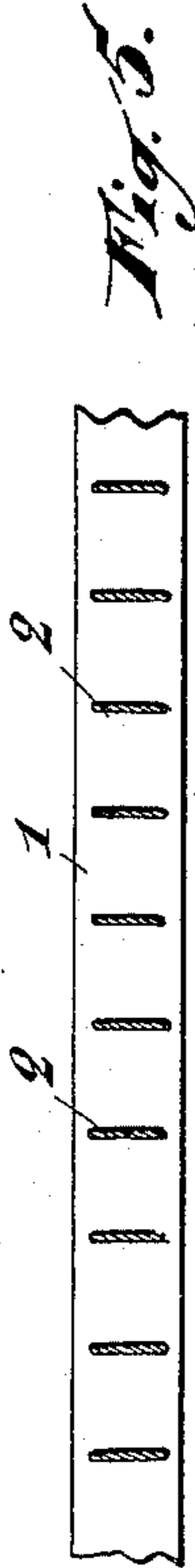
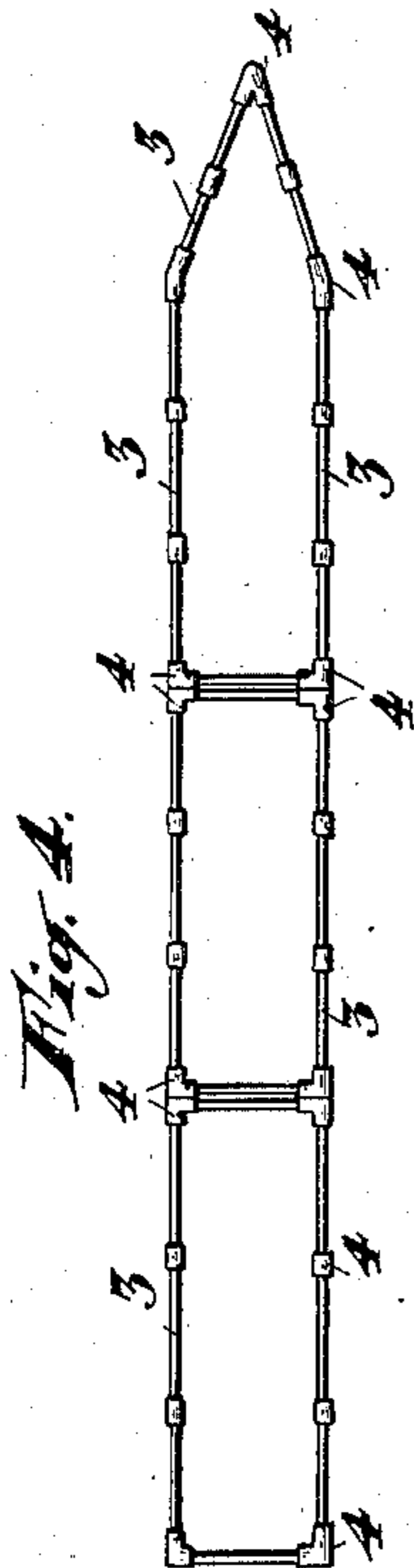
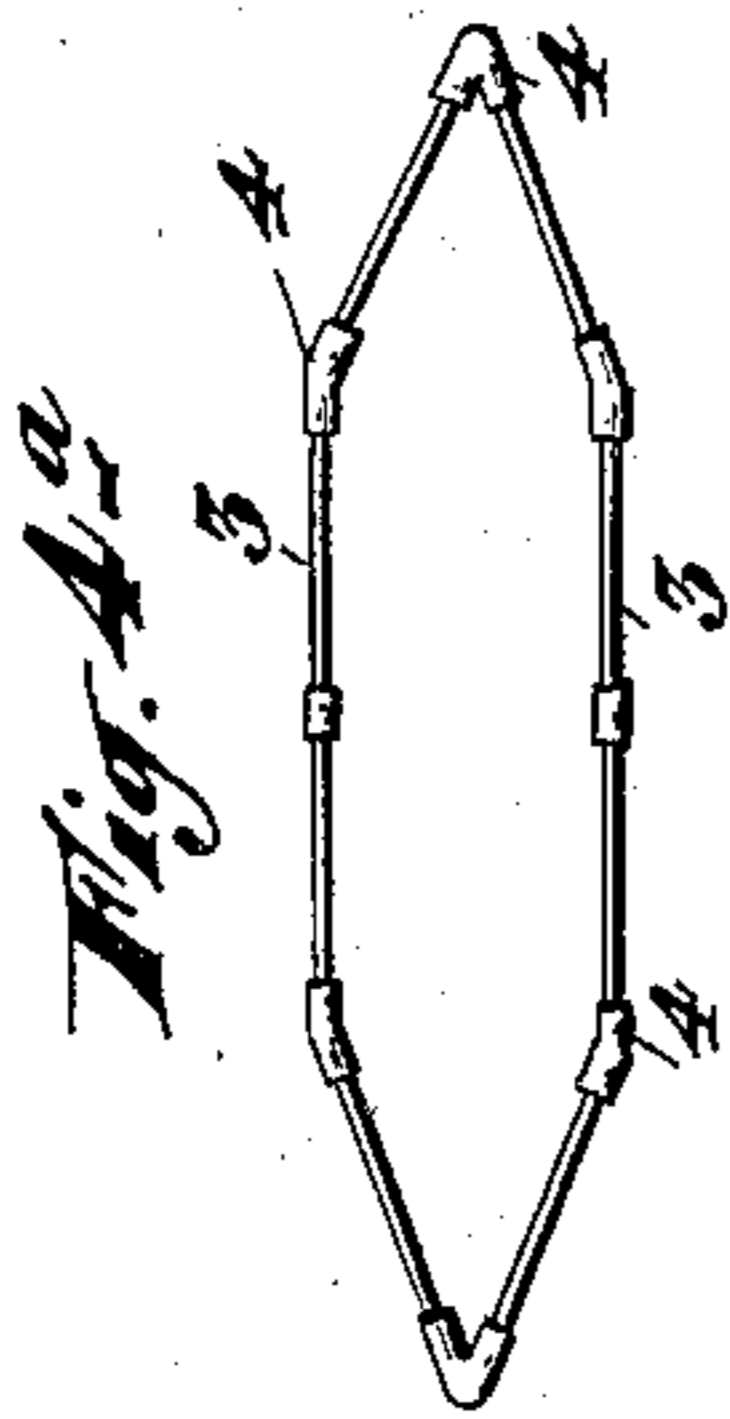
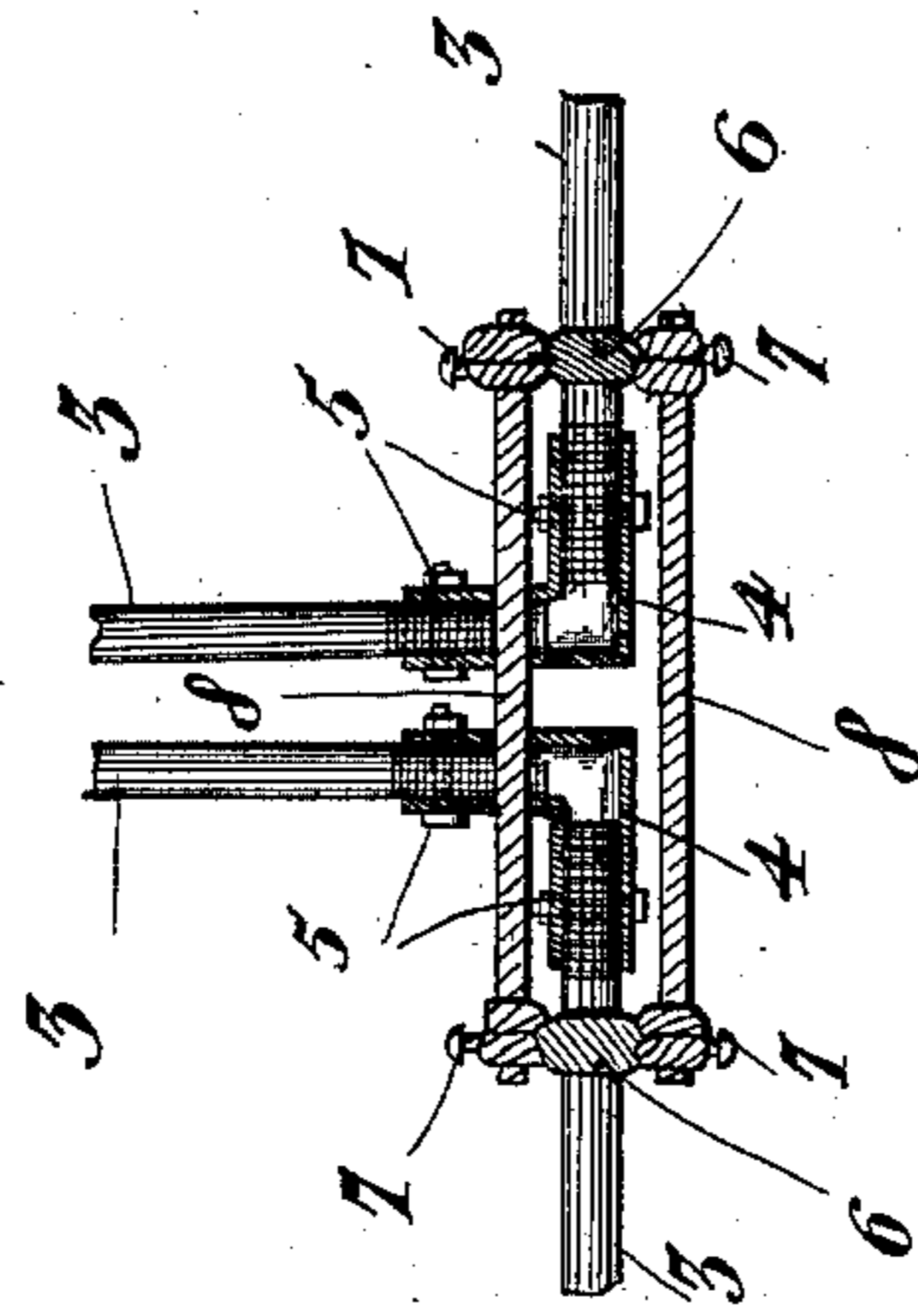


Fig. 8.



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# UNITED STATES PATENT OFFICE.

MARIE J. AUGUSTIN DEYDIER, OF NYONS, FRANCE.

## ELECTRIC-TRACTION BALLOON.

SPECIFICATION forming part of Letters Patent No. 653,221, dated July 10, 1900.

Application filed August 11, 1898. Serial No. 688,388. (No model.)

*To all whom it may concern:*

Be it known that I, MARIE JOSEPH AUGUSTIN DEYDIER, a citizen of the Republic of France, residing at Nyons, France, have invented certain new and useful Improvements in Electric-Traction Balloons, of which the following is a specification.

The present invention concerns balloons; and the special object thereof is an arrangement for towing one or more captive balloons by means of electric traction.

The traction-engine, whichever be the system employed, offers great dangers, which are to a great extent done away with by accomplishing the transportation by means of balloons; but hitherto no efficacious means have been found for steering these balloons, so as to obtain a regular service.

The arrangement contemplated as an object by the present invention enables the realization of transport by balloon, even at high rate of speed and notwithstanding the direction of the wind, excepting in cases of storms, by towing one or more balloons connected together and held by cables with an electric truck running on suitably-arranged railway-tracks, as hereinafter more particularly set forth and claimed. The annexed drawings illustrate this novel arrangement and show a practical embodiment of the various parts thereof.

In the drawings, Figure 1 is an elevation of the complete arrangement, showing a train of balloons drawn by an electric truck. Fig. 2 is an enlarged sectional view of the track and a guiding apparatus. Fig. 3 is an elevation of another arrangement, showing a balloon drawn along the road by a motor-car. Fig. 4 shows a frame made of bamboo canes for a train of balloons. Fig. 4<sup>a</sup> shows a frame for a single balloon. Fig. 5 shows a portion of a band provided with loops hereinafter referred to. Fig. 6 shows a portion of a bamboo cane ready to be secured to the connecting-sleeve. Fig. 7 shows the ends of two bamboo canes connected by means of an aluminium sleeve. Fig. 8 shows the flexible connection, by means of cords, between the ends of two separate balloon-frames.

In the different figures similar letters and

numerals of reference denote corresponding parts.

A represents the posts supporting the railway-track. B represents metallic ties. C is the wire cable for electric current. D represents guide-cables. E is the wooden superstructure of the track. H represents the rails. J indicates the guiding apparatus. K represents guide-pulleys. L is a ring securing the traction-cable of the guiding apparatus. M represents the safety-cables of the balloons. N is the driving-carriage. O and O' are the balloons. P and P' are the cars, and Q Q' the traction-cables.

The train is composed of a plurality of suitably-shaped balloons O O'. In the accompanying drawings, Fig. 1, there are shown three, carefully constructed and made partly rigid by means of bamboo canes connected together with sleeves of aluminium, as presently described, so as to avoid the deformation of the balloons as much as possible and to reduce the resistance of the air to a minimum.

At the lower part and center of each balloon a cavity is arranged in which the car is suspended. The car P of the central balloon O is made for passengers and for this purpose has its sides and seats lined with inflated mattresses covered with cloth. The cars P' of the end balloons are smaller than the central one and contain only a winch for the safety-cable and some necessary accessories for the use of the aeronaut.

Posts of hard wood saturated with asphalt are driven into the ground and, if necessary, into stonework for the sake of firmness. These posts are placed close enough to one another to give a sufficient resistance to the track. Moreover, they protrude more or less out of the ground, according to the configuration of the land, Fig. 1, so that the track offers the least possible ascents and descents, at the same time coming to a level with the ground at its two ends. To each post A is rigidly secured a metallic tie, Fig. 2, having an insulator at its center, upon which the conductor C is attached. On the right and left end portions of the tie B planks E are secured, forming the structure of the track, and on which the rails H rest. Moreover,

under the said end portions are secured metallic cables D, upon which run the grooved pulleys K, the axles of which are supported by the vertical lateral branches of the guiding apparatus J.

Each balloon O O', Fig. 1, is provided with an apparatus J, with which it is connected by a safety-cable M, secured to the upper part of the apparatus J by means of rings, Fig. 2.

All the apparatuses J are connected with a common cable Q', having its end secured to the driving-car N, which is also provided with a guiding apparatus J and connected, on the other hand, with the balloons O O' by means of the traction-cables Q, Fig. 1.

The driving-car N carries a trolley and an electric motor, which by means of suitable gear wheels or pulleys works the wheels of the car, as with ordinary electric tram-cars.

The electric current reaches the car through the cable C and the trolley and after working the motor of the car returns to the generators along the rails H, which serve as return-conductors. The ordinary track when the railway-line is very steep may be substituted by a funicular or a rackway. The balloon shown in Fig. 3 is specially designed for passengers and excursions on ordinary roads and is towed by a motor-car actuated by petroleum, steam, electric motor, or the like.

In this case the guiding apparatuses J are necessarily suppressed, and the safety-cable M is secured to a winch carried by another motor-car N', which runs at the same rate of speed as the former.

In order that the balloons of the train may be connected with each other and prevented from being deformed or brought out of shape, each balloon is provided with a strong fabric band 1, Fig. 5, sewed or stitched to the balloon and running all around the same. Said bands 1 are provided with loops 2, made of cords or equivalents, secured thereto and serving to receive and maintain the connected bamboo cane forming the frames, as hereinafter described. Said frames are formed of bamboo-cane sections 3, Figs. 4 and 4<sup>a</sup>. The adjacent ends are connected with each other by means of sleeves 4, preferably made of aluminium. Before inserting the bamboo ends into the connecting-sleeves 4 said ends are encircled by means of suitable fine threads, as shown in Fig. 6, and then secured in the sleeves by means of bolts 5. The lateral bamboo canes are connected by means of straight sleeves, while the canes at the angles of the balloon-frames are connected by means of angle-sleeves, as clearly shown in Fig. 8. The lateral bamboo canes at the angles of two adjacent frame ends are provided with rings or equivalents 6, suitably secured thereto and having extensions 7, which are connected to each other by means of strong flexible cords 8. (See Fig. 8.) This flexible connection between the balloons of the train allows the latter to easily follow the curves

of the track. When the fabric bands 1 are secured to the balloons, the bamboo canes 3 are slipped into the loops 2 and connected by means of the aluminium sleeves. The balloons are inflated as usual.

These balloons are used as follows: The passengers, before getting into the car, get on an automatic weighing-machine. Their weights are added together, and a sufficient quantity of ballast is added, so as to allow the balloons only the necessary power for ascending. The ascension is then operated by means of a cable, which is slowly unwound from a winch. Then each of these cables is detached by the aeronaut and lowered by means of a cord which is again raised when the cable has reached the ground and been detached. The balloons O O', held by the safety-cables M, are put into motion by means of the drawing-cables Q, which are drawn by the driving-car N, the trolley of which slides along the cable C. On arriving at the station the aeronaut of each car lets down the just-mentioned cord, to which a cable is immediately hooked, the said cable being drawn up and secured to the balloon. At the given signal the descent is made, regulated by the draw-back cables, which wind slowly on the winch.

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

1. In a system of the character described, the combination with a balloon having a car attached thereto, and a framework of bamboo canes secured to and extending around the balloon, of a motor-car, a trackway upon which the motor-car is adapted to travel, guide-cables extending longitudinally of said trackway, a guiding device carried by the car, and engaging the guide-cables, a cable connecting the motor-car with the car of the balloon, a second cable extending from the latter car, and a guiding device carried by the latter cable and engaging the guide-cables.

2. In an electric-traction balloon, in combination with one or more balloons; an electric motor-car; guiding apparatuses and safety and traction cables; a railway-track comprising metallic ties secured to wooden or metal posts sunk in the ground; a conducting-wire cable attached on insulators secured to the metallic ties, to lead the electric current to the motor-car; a wooden superstructure arranged on the end portions of the metallic ties, metallic rails placed on the wooden superstructure of the track for the running of the motor-car and to serve as conductors for the return of the current; and cables secured under the metallic ties to guide the pulleys of the guiding apparatuses, substantially as described and for the purpose set forth.

3. In a system of the character described, the combination with a series of balloons flexibly connected together and each having a car attached thereto, of a motor-car, a trackway

upon which the motor-car is adapted to travel, guide-cables extending longitudinally of the trackway, a guiding device carried by the motor-car and engaging the guide-cables, a  
5 cable connecting each of the balloon-cars with the motor-car, a second cable having one end attached to each of the balloon-cars, and a

guiding device carried by the opposite end of each of the latter cables and engaging the guide-cables.

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