

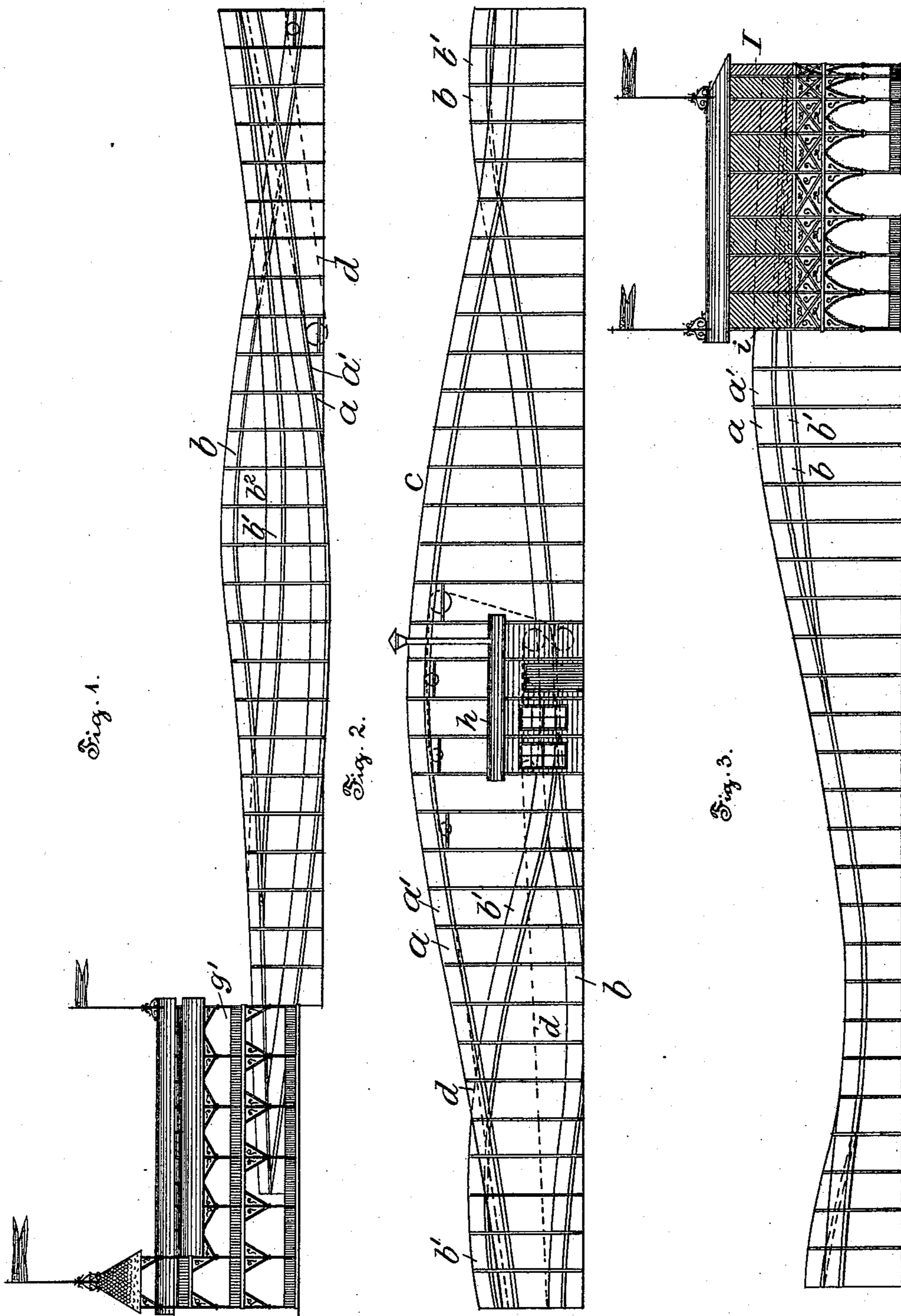
(No Model.)

3 Sheets—Sheet 1.

LA MARCUS A. THOMPSON.  
PLEASURE RAILWAY AND CAR THEREFOR.

No. 470,220.

Patented Mar. 8, 1892.



Witnesses:  
Hermann Bormann.  
Thomas M. Smith.

Inventor:  
La Marcus A. Thompson  
by J. Walter Douglas.  
Att'y.

(No Model.)

3 Sheets—Sheet 2.

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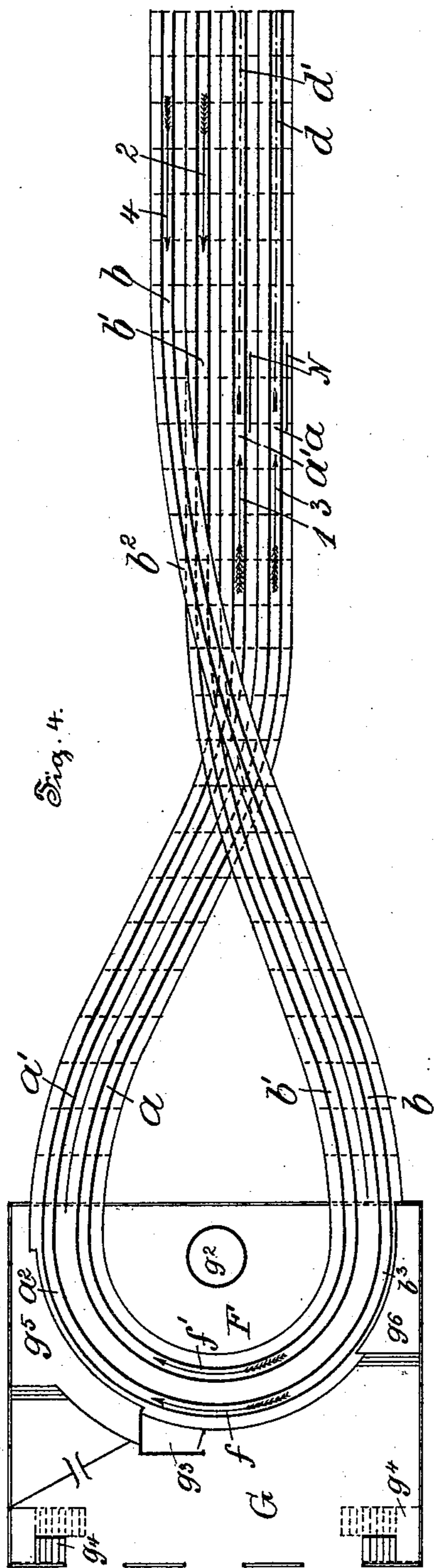


Fig. 4.

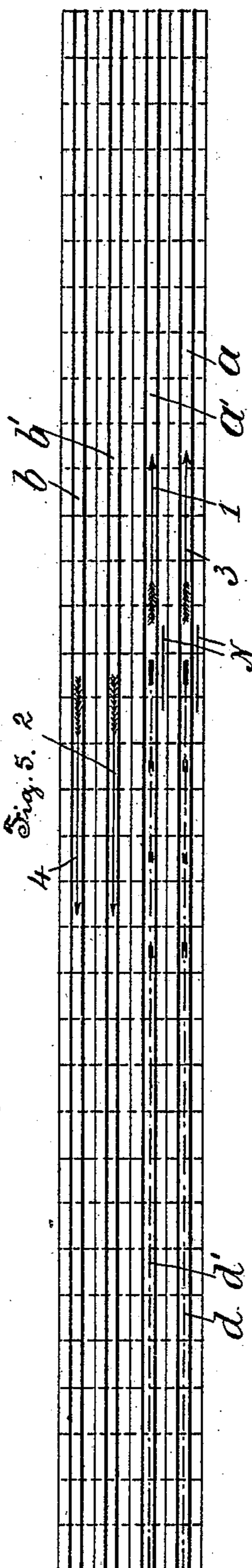


Fig. 5.

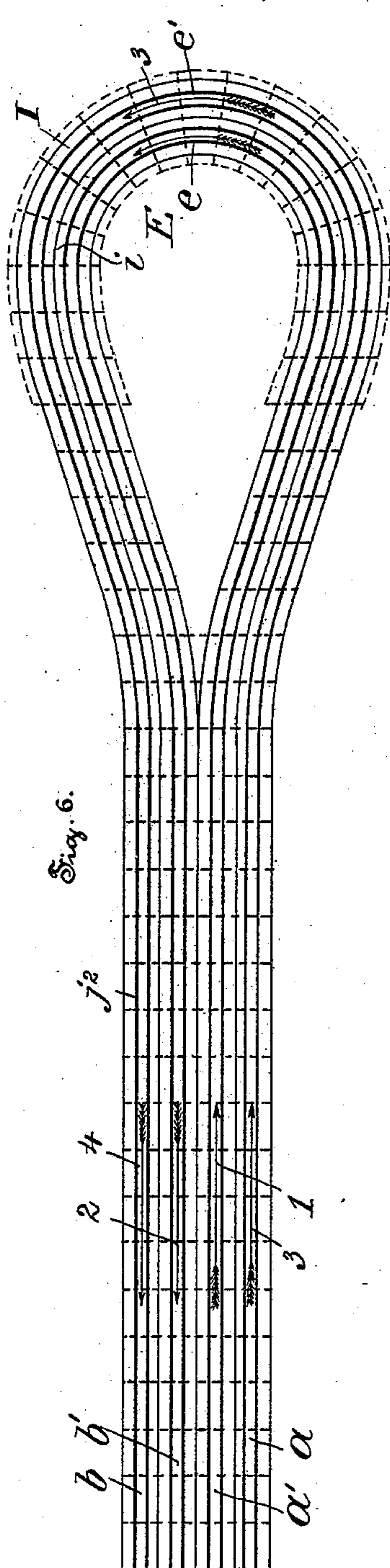


Fig. 6.

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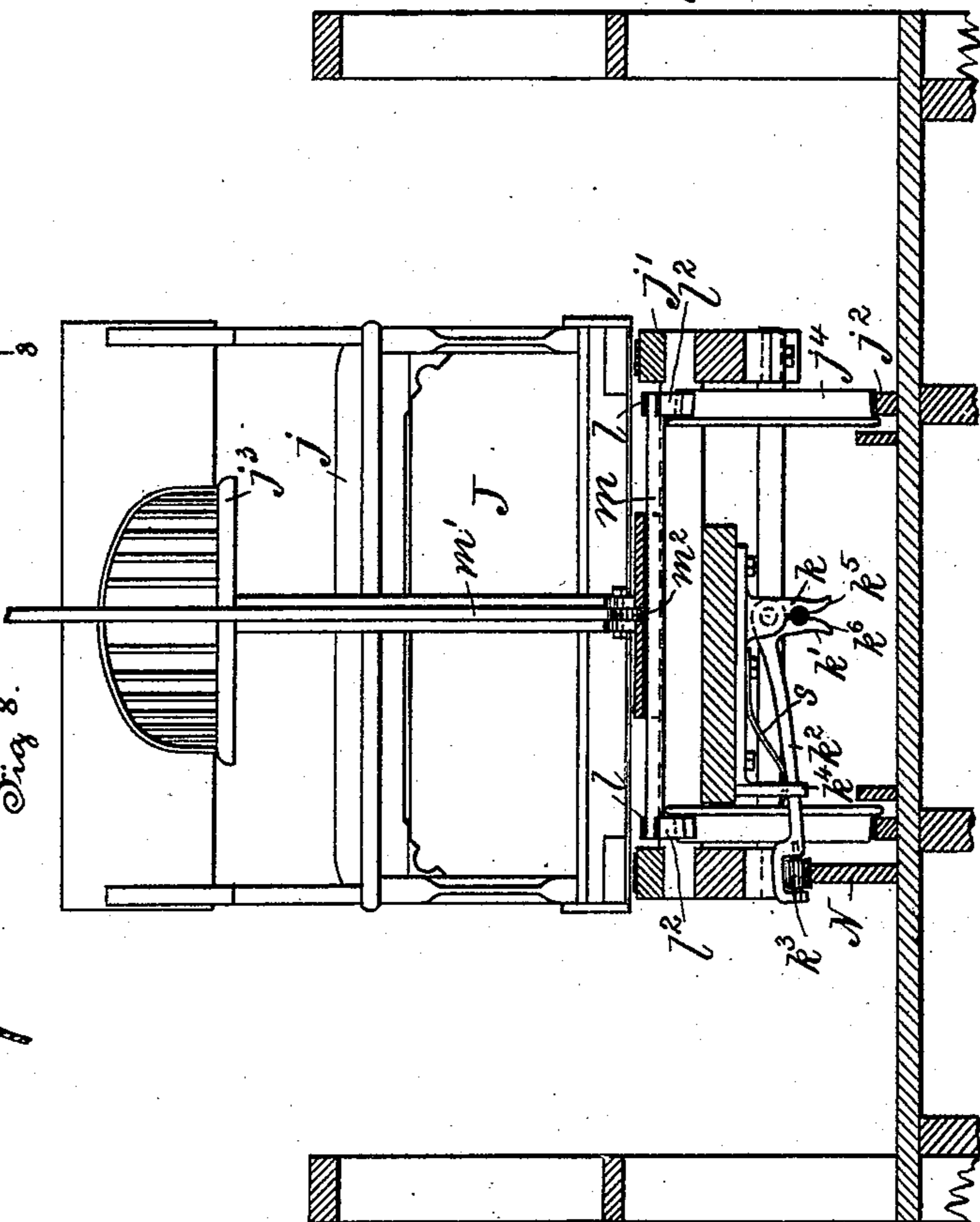
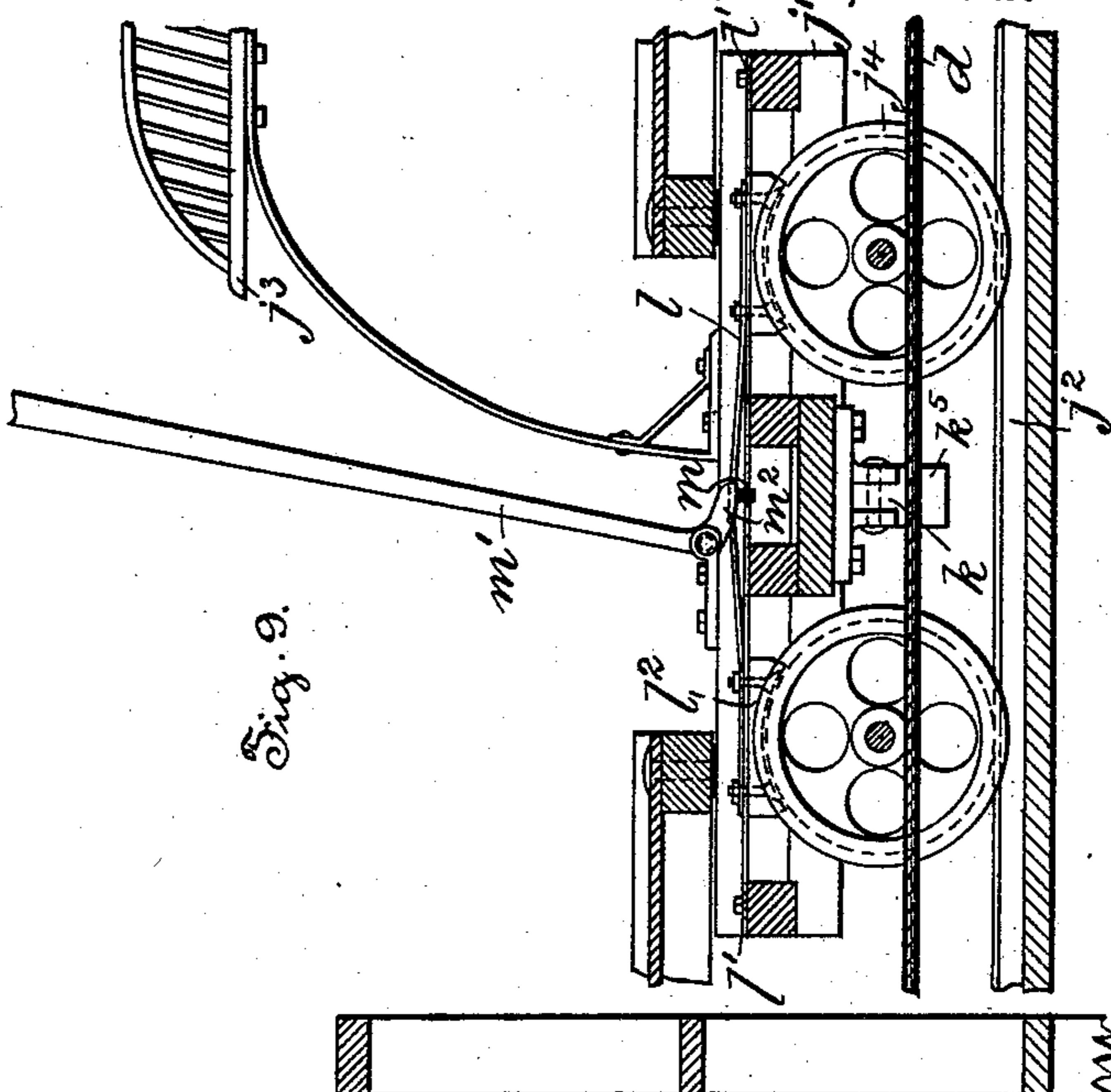
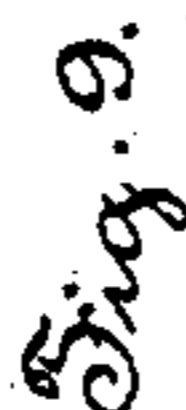
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3 Sheets—Sheet 3.

No. 470,220.

Patented Mar. 8, 1892.



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# UNITED STATES PATENT OFFICE.

LA MARCUS A. THOMPSON, OF PHILADELPHIA, PENNSYLVANIA.

## PLEASURE-RAILWAY AND CAR THEREFOR.

SPECIFICATION forming part of Letters Patent No. 470,220, dated March 8, 1892.

Application filed September 8, 1891. Serial No. 405,118. (No model.)

*To all whom it may concern:*

Be it known that I, LA MARCUS A. THOMPSON, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have  
5 invented certain new and useful Improvements in Pleasure-Railways and Cars Therefor, of which the following is a specification.

My invention relates in general to that type  
10 of pleasure-railways in which cars or coaches, either singly or coupled together in train, are propelled to the highest portions of the courses by means of a cable or other suitable motor power and are then permitted to travel over  
15 the descending and undulating portions of the courses by gravity; and it relates more particularly, first, to certain improvements in the form of the structure and to the disposition and arrangement of the courses thereof;  
20 second, to the construction and arrangement of the gripping mechanism attached to the cars and adapted to automatically engage and release a positively-driven cable, and, third, to improvements in the construction  
25 and arrangement of the parts comprising the brake mechanism for permitting the attendant in charge of the cars to check and otherwise control the motion and speed thereof.

The principal objects of my present invention are, first, to provide a pleasure-railway  
30 structure which shall have a maximum length of course or roadway and which shall occupy a minimum amount of ground or floor space; second, to simplify the construction and improve the operation of the automatic gripping mechanism attached to the respective  
35 cars and adapted to engage and disengage a positively-driven cable; third, to provide simple, durable, and efficient brake mechanism adapted to be operated by the attendant in  
40 charge of the cars or coaches for checking and otherwise controlling the motion and speed thereof; fourth, to afford the patrons of a pleasure-railway a longer and more entertaining and varied ride than has heretofore been  
45 possible with this class of structures, and, fifth, to so improve the form and details of construction of a pleasure-railway and its accessories as that the same may be operated  
50 with greater safety and with more freedom

from liability to accident than has heretofore been possible.

My invention consists of a pleasure-railway structure comprising two straight parallel and undulating outgoing courses, two straight  
55 parallel and undulating incoming courses crossing said outgoing courses, loops comprising two concentric courses connecting the adjacent extremities of the outgoing and incoming courses, and said incoming courses  
60 being crossed near the crossing of the outgoing and incoming courses to form a continuous course, having the starting and terminal points thereof located in one of the courses of one of said loops, whereby safe access may  
65 be had to the cars for loading and unloading the same.

My invention further consists of a pleasure-railway structure comprising two straight  
70 parallel and undulating outgoing courses, two straight parallel and undulating incoming courses crossing said outgoing courses, a starting-pavilion at one end of said courses, an auxiliary pavilion at the other end thereof, said auxiliary pavilion being provided with  
75 two concentric courses connecting the adjacent extremities of the two outgoing and incoming courses at one end of the structure, and said starting-pavilion being provided with  
80 two concentric courses connecting the outgoing and incoming courses at the other end of the structure, and said incoming courses being crossed near the starting-pavilion to form a continuous course having the starting and terminal points thereof located in one of the  
85 concentric courses appertaining to the starting-pavilion, whereby safe and convenient access may be had to the cars for loading and unloading the same.

My invention further consists of a pleasure-  
90 railway course provided at or near the highest parts thereof with a positively-driven cable and having cars or coaches adapted to travel either singly or in train over said course and provided, respectively, with automatic grip-  
95 ping mechanism comprising a fixed jaw having a cheek, a movable jaw provided with a cheek and pivoted to the fixed jaw, an operating-lever attached to said movable jaw, a suitable fork or stirrup for guiding said lever, 100

and a spring interposed between said lever and car for normally closing said jaws; and my invention further consists of the improvements in pleasure-railways hereinafter described and claimed.

The nature and objects of my present invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, and in which—

Figure 1 is an elevation of a portion of the superstructure of a pleasure-railway embodying features of my invention, showing the starting-pavilion and portions of the outgoing and incoming undulating courses. Fig. 2 is a continuation at the right-hand side of Fig. 1, showing the central portion of the superstructure and also showing a building for containing the boiler and engine or other prime mover used for actuating the cables. Fig. 3 is a continuation at the right hand of Fig. 2, showing the auxiliary pavilion and also portions of the undulating courses of the structure. Fig. 4 is a plan view of Fig. 1, showing the two incoming courses crossed over the two outgoing courses in different planes, and also a connecting-loop comprising two concentric courses, and also illustrating the manner in which the incoming courses are crossed over each other in different planes in order to permit the cars or coaches to start from and return to the outer course of the loop. Fig. 5 is a top or plan view of Fig. 2, showing portions of the two straight outgoing courses provided, respectively, with cables and arranged adjacent to and parallel with each other and with the two incoming courses. Fig. 6 is a top or plan view of Fig. 3, showing a loop comprising two concentric courses connecting the outgoing courses with the incoming courses. Fig. 7 is an elevation on an enlarged scale, showing two cars coupled together by means of a truck provided with automatic gripping mechanism for engaging and disengaging the positively-driven cables and with brake mechanism for permitting the attendant in charge of the train to check or otherwise control the motion of the same. Fig. 8 is a transverse section on an enlarged scale, taken on the line 8 8 of Fig. 7, showing a bridge piece or board attached to the superstructure and adapted to contact with and automatically release the gripping mechanism; and Fig. 9 is a central section of Fig. 8.

In the accompanying drawings,  $a$  and  $a'$  are outgoing courses and  $b$  and  $b'$  are incoming courses. Each of these courses is supported upon suitable trestle-work or other form of superstructure and is provided with one or more undulations, as at  $c$ .

The cars or coaches, either singly or coupled together in train, are automatically connected with and drawn by means of one or more positively-driven cables  $d$  and  $d'$  to the highest portions of the outgoing courses and are then automatically released and permitted to travel

by gravity over the descending and undulating portions of the outgoing courses and over the incoming courses.

The outgoing courses  $a$  and  $a'$  are preferably straight and are disposed side by side and the incoming courses  $b$  and  $b'$  are arranged in a similar manner, so that the pair of outgoing courses  $a$  and  $a'$  are located adjacent to and parallel with the pair of incoming courses  $b$  and  $b'$  throughout the greater part of the length of the courses of the superstructure.

The ends of the outgoing straight parallel courses  $a$  and  $a'$  are united, respectively, to the ends of the incoming courses  $b$  and  $b'$  at one end of the structure by means of a loop  $E$ , comprising two concentric courses  $e$  and  $e'$ . Near the starting and terminal points—that is, at the other end of the structure—the outgoing courses  $a$  and  $a'$  cross the incoming courses  $b$  and  $b'$  in different planes, and one of the incoming courses  $b$  crosses over and above the other incoming course  $b'$ , as is shown at  $b^2$  in Figs. 1 and 4, and the outgoing and incoming courses  $a$  and  $b'$  are connected together by the inner course  $f'$ , appertaining to a loop  $F$ , and the outgoing and incoming courses  $a'$  and  $b$  are connected together by means of the outer course  $f$  of the loop  $F$ .

The object in causing the outgoing and incoming courses to cross each other in the manner above described is to avoid grade crossings and to cause both the starting and terminal points of the continuous course to lie in one of the concentric courses of the loop  $F$ , so that passengers may board and leave the cars without crossing any of the courses, whereby danger from accidents is obviated.

In the present instance the starting and terminal points both lie in the course  $f$ ; but, if preferred, they may be caused to lie in the course  $f'$ . Moreover, the above-described arrangement of the various courses affords the passengers a longer and more varied ride than was heretofore possible, because each car or train of cars during one trip traverses the course four times, as is indicated by the arrows.

Referring now more particularly to Figs. 1 and 4,  $G$  is a starting-pavilion built over and around the loop  $F$ , and inclosing a portion of the concentric courses  $f$  and  $f'$ . This pavilion  $G$  may be constructed in any desired manner, and is preferably provided with the usual accessories of an amusement center—such as a dancing-floor or apartment  $g^1$ , a music or band stand  $g^2$ , a ticket-office  $g^3$ , and suitable stairways and platforms  $g^4$  for the accommodation of patrons and spectators.

$g^5$  is a platform adjacent to the outgoing course  $a'$ , and arranged so as to permit the passengers to board the cars at the starting-point  $a^2$  located upon the course  $f$ .

$g^6$  is a platform disposed adjacent to the incoming course  $b$ , and so arranged as to permit the passengers to alight from the cars at

a point  $b^3$ , located upon the course  $f$  in rear of the starting-point.

$h$  is an engine-house disposed at any suitable point of the course, and adapted to contain machinery for operating or driving the cables with a positive motion.

$I$  is a pavilion built around the concentric courses  $e$  and  $e'$ , and wholly or partially enclosed or boarded up so as to form a tunnel  $i$ , through which the cars or coaches pass in traversing the course.

$J$  are cars preferably coupled together in pairs by means of a truck  $j'$  and adapted to traverse suitable rails  $j^2$ , attached to the respective courses of the structure. These cars are provided with seats  $j$  for the accommodation of passengers, and also with a seat  $j^3$  for the attendant in charge. To the under side of the truck  $j'$  is bolted or otherwise secured a gripping device comprising a fixed jaw  $k$ , a movable jaw  $k'$ , pivoted to the fixed jaw  $k$ , an operating-lever  $k^2$ , connected with the movable jaw and provided with a roller  $k^3$ , ranging transversely of the car, a fork or stirrup  $k^4$  for guiding the operating-lever  $k^2$ , and a spring  $s$ , interposed between the under side of the truck and the operating-lever, and adapted to normally force the jaws  $k$  and  $k'$  into contact with each other.

$N$  is a bridge-piece or board extending upward from the structure and provided with sloping extremities  $n$ . This bridge-piece contacts with the roller  $k^3$  and trips and elevates the extremity of the operating-lever  $k^2$ , whereby the jaws  $k$  and  $k'$  are automatically forced apart into position for receiving or releasing the cable.

$k^5$  and  $k^6$  are cheeks depending from the jaws  $k$  and  $k'$ , and adapted to guide the cable into position between the gripping-surfaces of the jaws  $k$  and  $k'$ .

In operation the advance motion of the car causes the operating-lever  $k^2$  to be tripped by the bridge-piece  $N$ , and the motion of the operating-lever opens the jaws for receiving or releasing the cable. As soon as the operating-lever  $k^2$  has passed the bridge-piece  $N$ , the spring  $s$  again forces the operating-lever downward, whereby the jaws are brought together into position for gripping the cable.

$l$  are spring-strips attached to the extremities of the frame-work of the truck  $j'$  by means of slotted connections  $l'$  and disposed above the wheels  $j^4$  of the truck. Each of these spring-strips is provided with brake-shoes  $l^2$ , adapted to contact with the wheels of the truck.  $m$  is a beam ranging transversely of the truck and connected at or near its respective extremities with the spring-strips  $l$ .

$m'$  is a hand-lever pivotally connected with the upper portion of the truck  $j'$  and having an arm  $m^2$  in contact with the transversely-ranging beam. It being understood that when the hand-lever  $m'$  is shifted in the direction indicated by the arrow in Fig. 7, the arm  $m^2$  thereof depresses the transversely-

ranging beam  $m$ , and this motion of the transversely-ranging beam depresses the spring-strips  $l$  and thus forces the brake-shoes  $l^2$  into contact with the wheels  $j^4$  of the truck  $j'$ , and checks the velocity or motion of the train. Whenever the hand-lever  $m'$  is released, the resiliency of the spring-strips  $l$  shifts the brake-shoes  $l^2$  out of contact with the wheels  $j^4$  of the truck and also automatically returns the various parts of the brake mechanism to their normal position.

Cars or coaches may be employed singly or coupled together in train. However, it may be remarked that excellent results have been attained in practice by employing them in train, comprising two cars provided at one of their respective extremities with swivel-trucks  $J'$ , and having the other extremities thereof pivotally connected with a center truck  $j'$ , because such an arrangement permits the train to traverse the curved portions of the course with an easy gliding motion and without shock or jar.

The mode of operation of the hereinabove-described pleasure-railway is as follows: A train of cars—for example, such a train as is illustrated in Fig. 7—is brought opposite the platform  $g^5$ , and the passengers are permitted to board the same, whereupon the train of cars is released and descends by gravity in the direction indicated by the arrows 1, over the courses  $f$  to the course  $a'$ , whereupon the gripping mechanism automatically engages the cable  $d'$ , located at a suitable point in the course  $a'$ , and the motion of the cable elevates the train of cars or coaches to the highest portion of the outgoing course, whereupon the gripping device is automatically released by means of a suitable bridge-piece  $N$ , located at the summit of the grade and the train of cars or coaches is permitted to descend by gravity. After traversing the course  $a'$ , partly by gravity and partly by cable, the train of cars or coaches runs by gravity over and around the course  $e$ , which reverses the direction of motion of the train, so that it proceeds by gravity toward the starting-pavilion  $G$  in the direction indicated by the arrows 2 over the course  $b'$ , and around the loop-shaped course  $f'$ , and then the train proceeds by gravity and cable away from the starting-pavilion  $G$ , over the outgoing course  $a$ , and then by gravity around the loop-shaped course  $e'$  in the direction indicated by the arrows 3, and finally, over the incoming course  $b$  back to the starting-pavilion in the direction indicated by the arrows 4. It being understood that the first outgoing and the last incoming courses  $a'$  and  $b$  are so arranged that the train of cars starts from the starting-point  $a^2$  on the course  $f$  and returns to the terminal point  $b^3$ , which is also located on the course  $f$  slightly in rear of the starting-point. When the train has reached the course  $f$  after having traversed the courses  $a', e, b', f', a, e', b$ , and  $f$  of the structure, in the manner hereinabove set forth, it may be stopped opposite the platform  $g^6$  by

the attendant in charge through the instrumentality of the brake mechanism hereinbefore described, in order to permit the passengers to alight. After the passengers have alighted from the train of cars or coaches the latter may be permitted to proceed forward by gravity to the starting-point and reloaded for another trip.

It will be understood that two or more trains of cars or coaches may be employed instead of one. In such cases one of the trains may be loaded while the others are traversing the courses of the superstructure.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A pleasure-railway structure comprising two undulating outgoing courses, two undulating incoming courses crossing said outgoing courses, and loops comprising two curved courses connecting the adjacent extremities of the outgoing and incoming courses and said incoming courses being crossed, substantially as and for the purposes set forth.

2. A pleasure-railway structure comprising two straight undulating and parallel outgoing courses, two straight undulating and parallel incoming courses crossing said outgoing courses at different planes, and loops comprising two concentric courses connecting the adjacent extremities of the outgoing and incoming courses and said incoming courses being crossed the one over the other in different planes, substantially as and for the purposes set forth.

3. A pleasure-railway structure comprising two straight and undulating outgoing courses, two straight and undulating incoming courses crossing said outgoing courses, a starting-pavilion at one end of said courses, and a terminal pavilion at the other end thereof, said terminal pavilion being provided with two concentric courses connecting the adjacent extremities of the outgoing and incoming courses, said starting pavilion being provided with two concentric courses connecting the other extremities of the two outgoing and incoming courses and said incoming courses being crossed near the starting-pavilion to cause the starting and terminal points to lie in one

of the concentric courses, substantially as and for the purposes set forth.

4. The combination of a pleasure-railway course provided with positively-driven cables extending from the bottom to the top of the highest slopes thereof, cars or coaches provided at one of their respective extremities with swivel-trucks and pivotally connected at the other extremities thereof with a center truck, and automatic gripping mechanism connected with said center truck and comprising a fixed jaw having a cheek, a movable jaw having a cheek and pivoted to the fixed jaw, an operating-lever attached to said movable jaw, a stirrup for guiding said lever, a spring interposed between said lever and center truck, and means for actuating said operating-lever, substantially as and for the purposes set forth.

5. The combination of a pleasure-railway course provided with positively-driven cables extending from the bottom to the top of the highest slopes thereof, and a car provided with a gripping device comprising a fixed jaw having a cheek, a movable jaw having a cheek and pivoted to the fixed jaw, an operating-lever connected with said movable jaw, a fork for guiding said lever, and a spring interposed between said lever and car for normally closing said jaws, substantially as and for the purposes set forth.

6. The combination of a pleasure-railway course provided with positively-driven cables extending from the bottom to the top of the highest slopes thereof, and a car provided with automatic gripping devices comprising a fixed jaw, a movable jaw pivoted to the fixed jaw, an operating-lever connected with said movable jaw, a fork for guiding said lever, a spring interposed between said lever and car, and a bridge-piece connected with the structure and adapted to contact with said operating-lever, substantially as and for the purposes set forth.

In witness whereof I have hereunto set my signature in the presence of two subscribing witnesses.

LA MARCUS A. THOMPSON.

Witnesses:

J. WALTER DOUGLASS,  
THOMAS M. SMITH.