

No. 709,764.

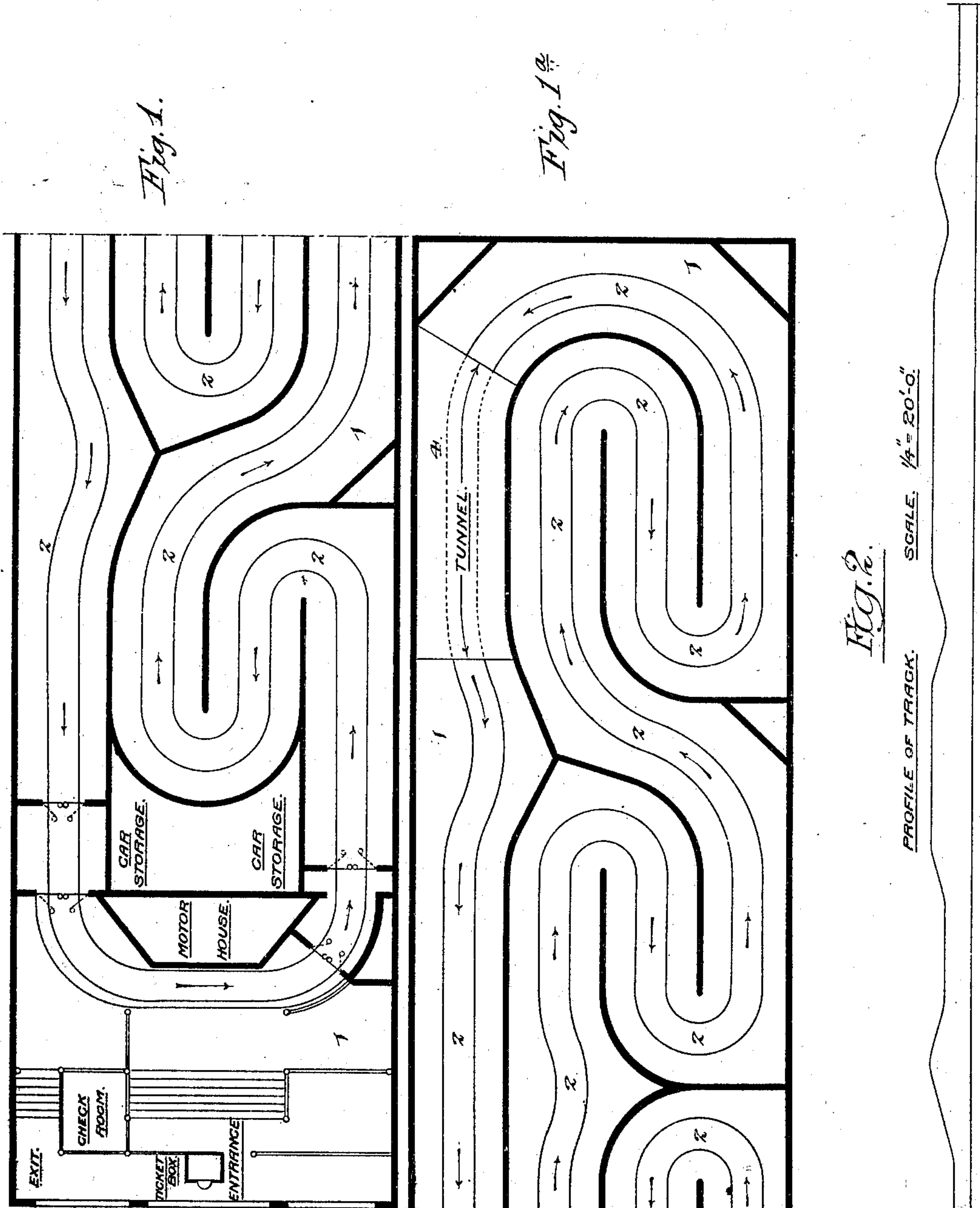
Patented Sept. 23, 1902.

W. L. HALL.
ILLUSION APPARATUS.

(Application filed Mar. 24, 1902.)

(No Model.)

6 Sheets—Sheet 1.



Witnesses:-

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Inventor:-

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No. 709,764.

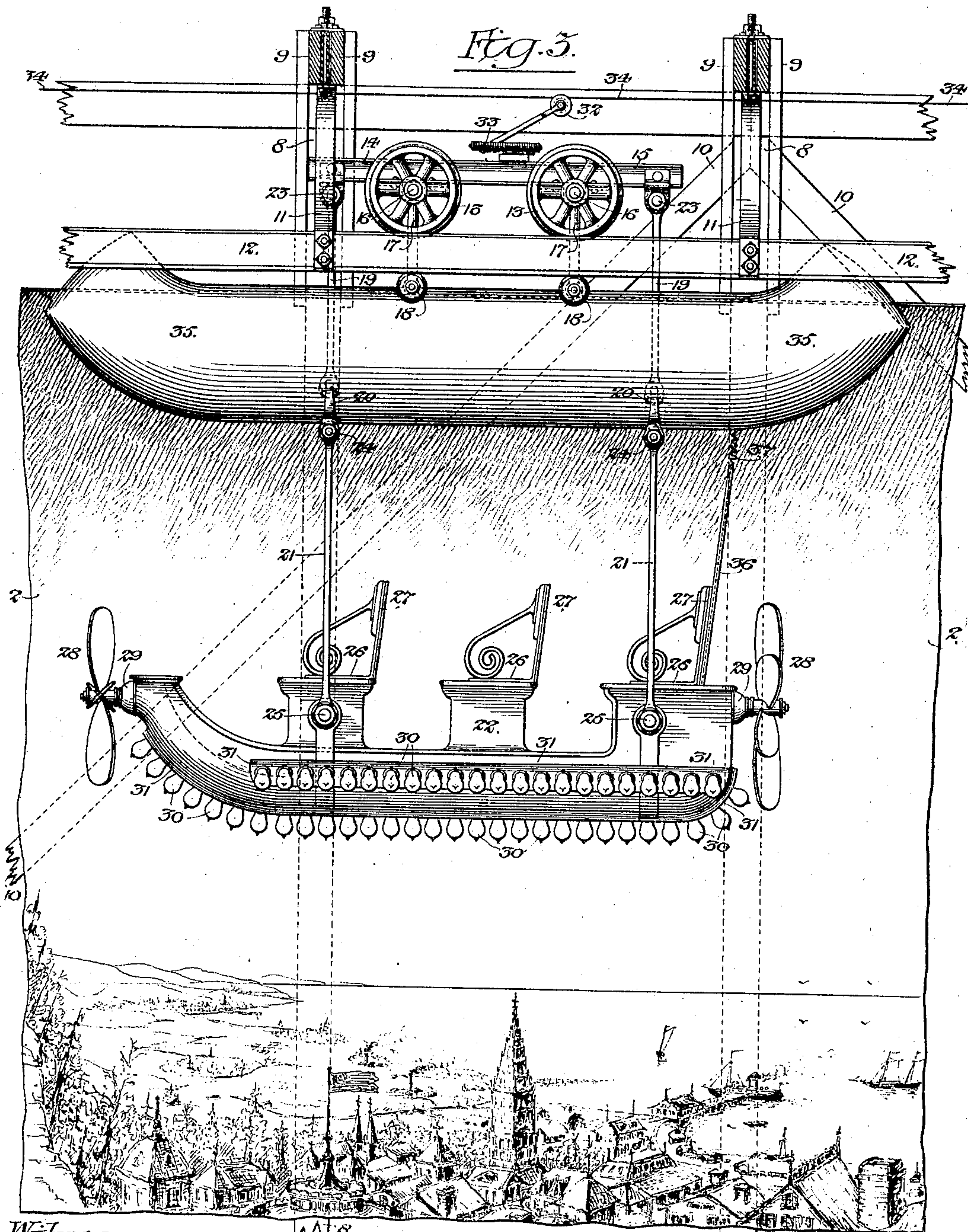
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6 Sheets—Sheet 2.



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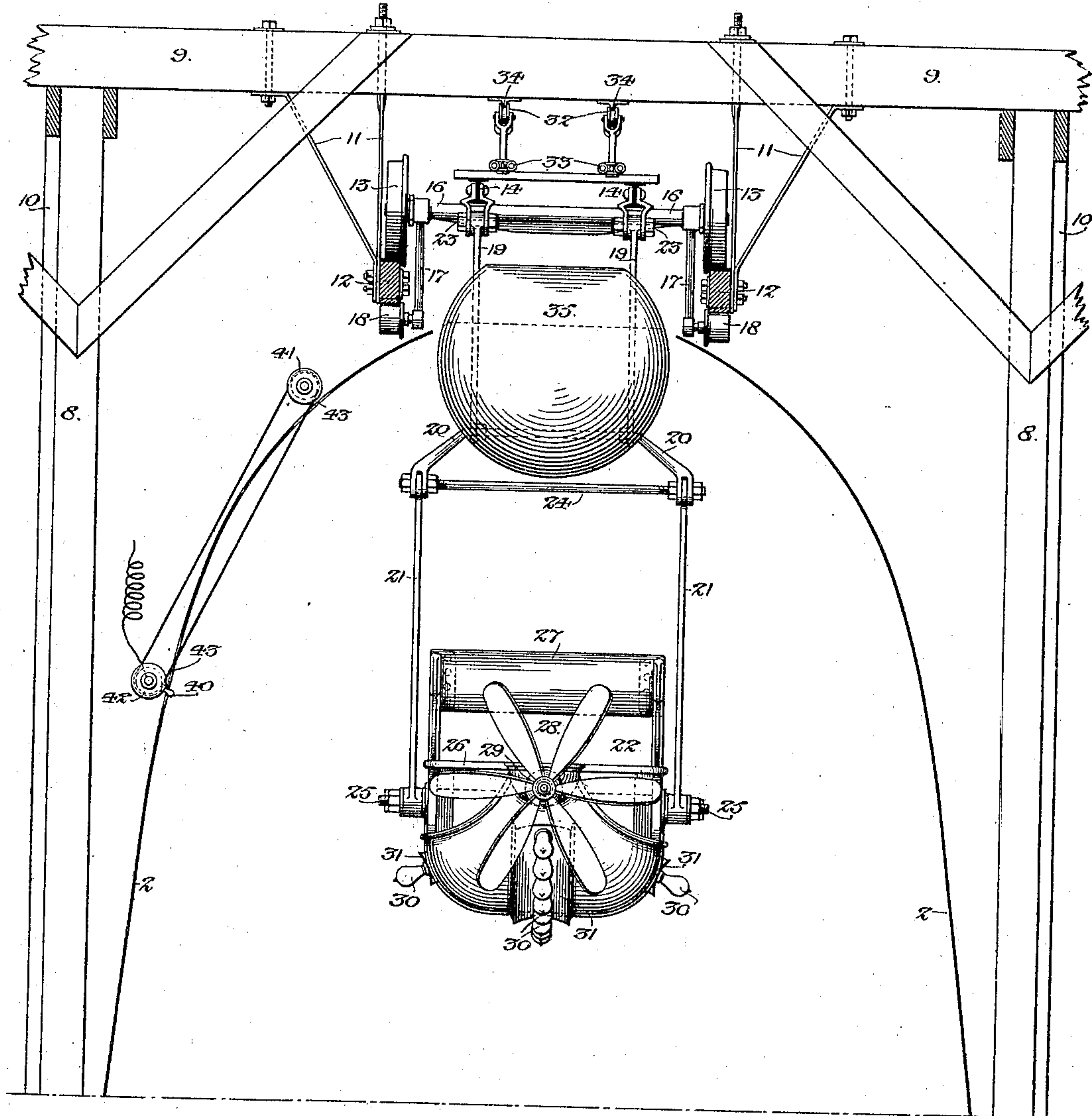
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6 Sheets—Sheet 3.

Fig. 4.



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Fig. 5.

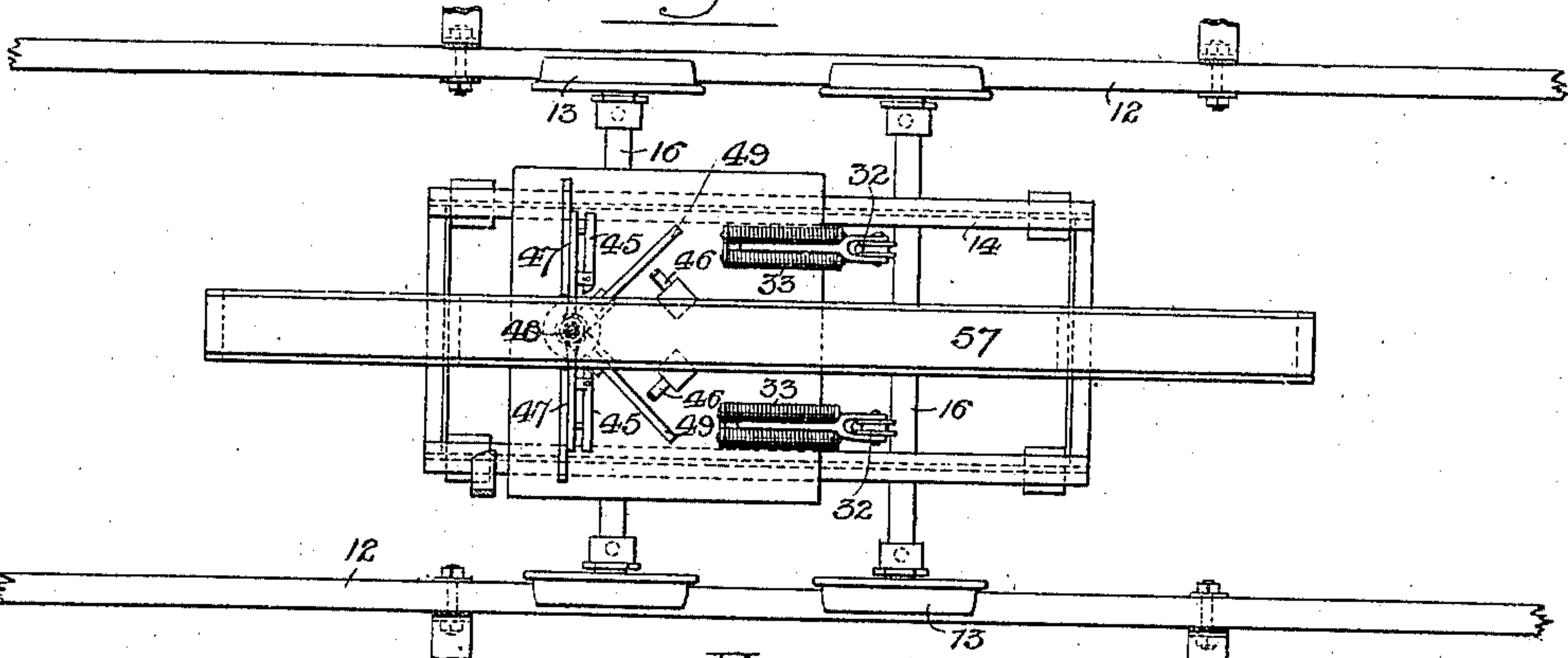


Fig. 6.

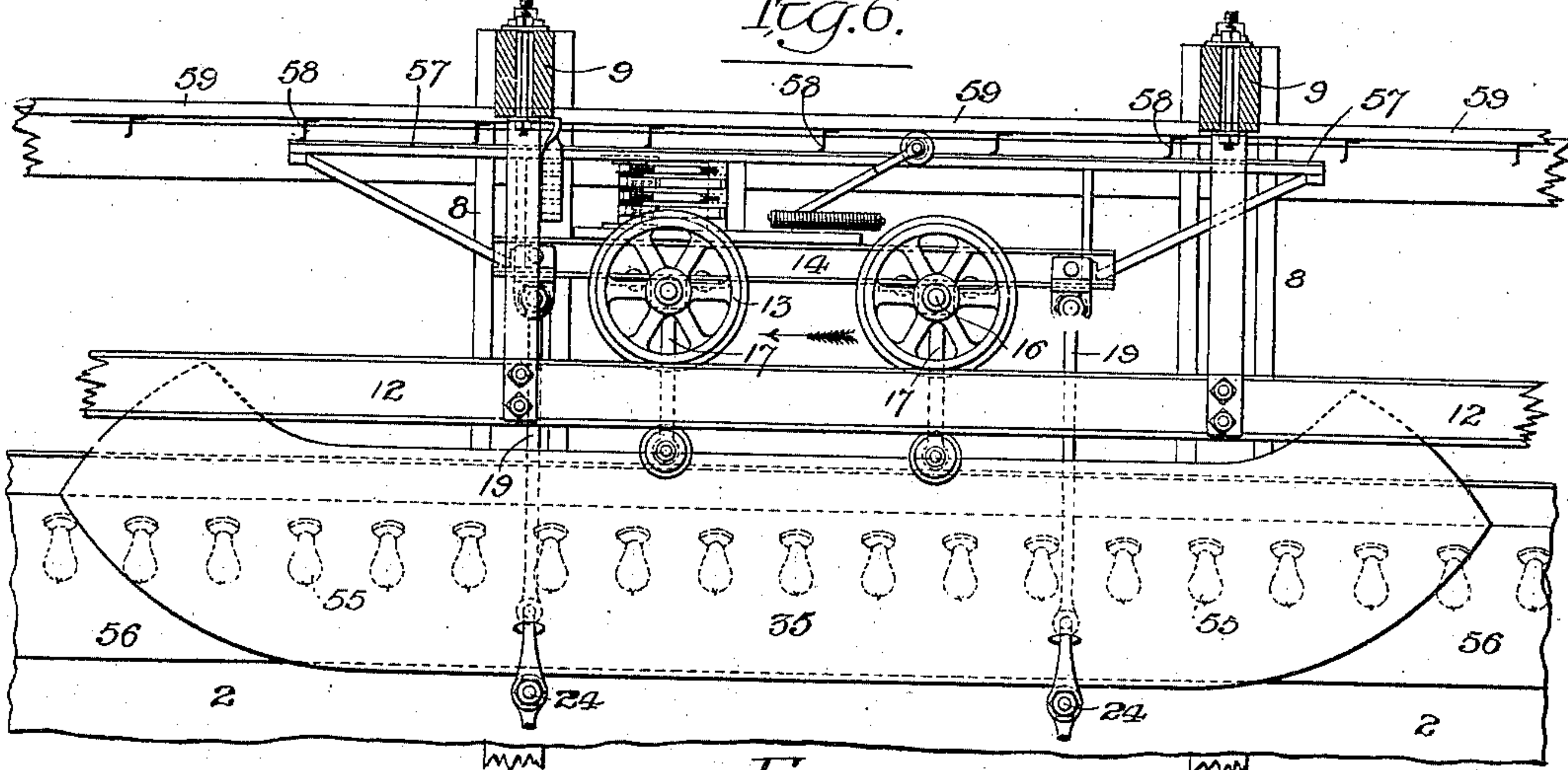
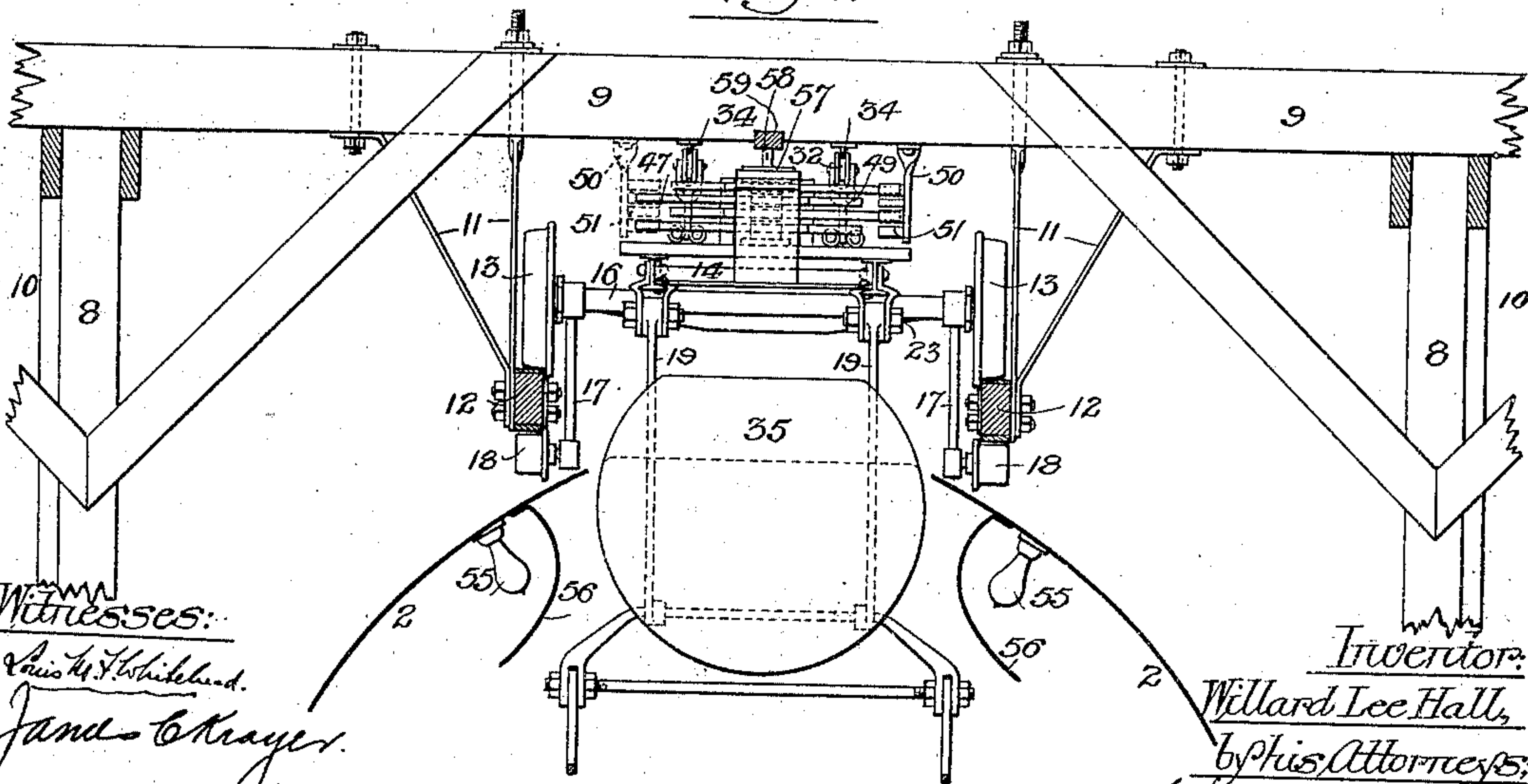


Fig. 7.



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(No Model.)

6 Sheets—Sheet 5.

Fig. 8.

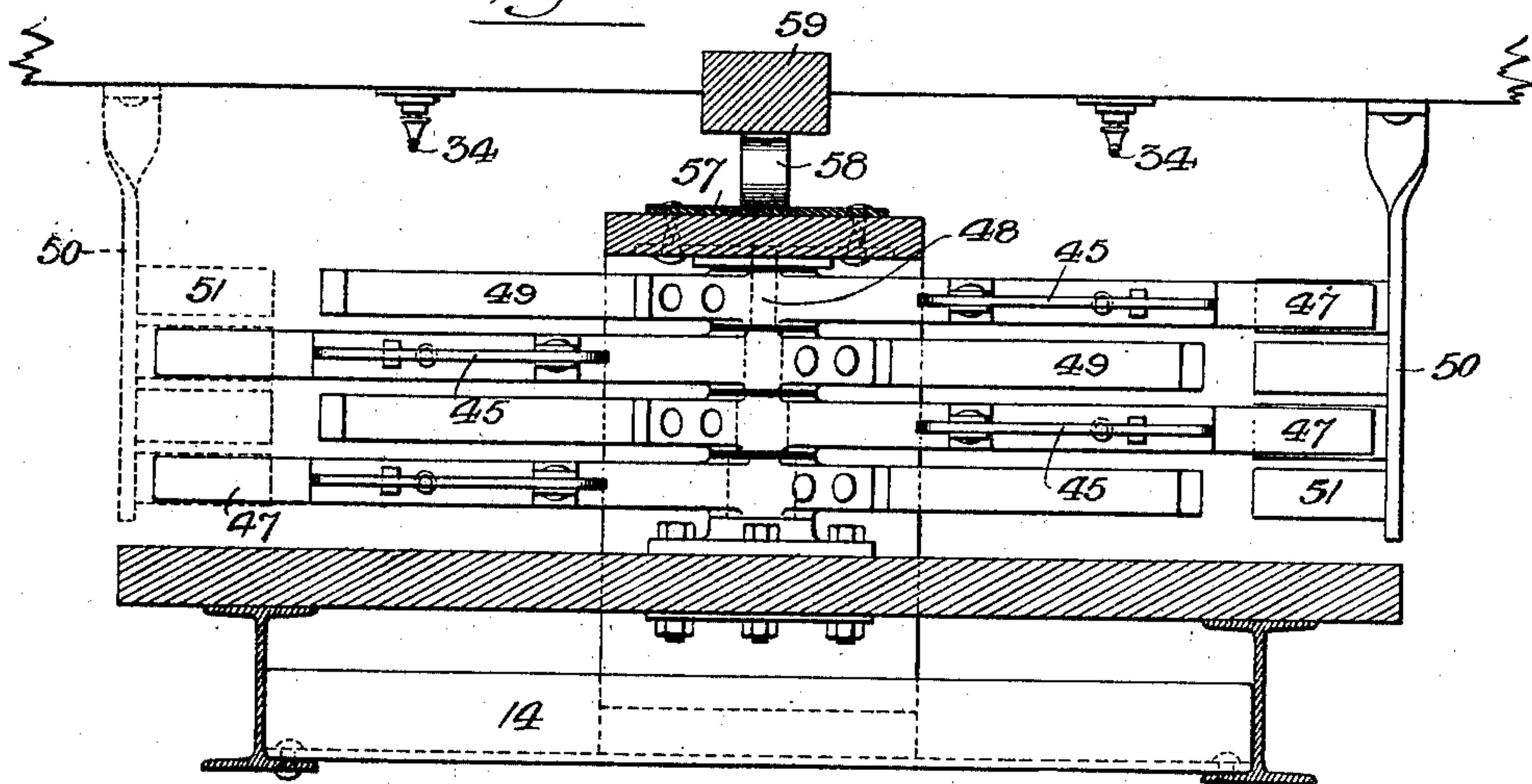
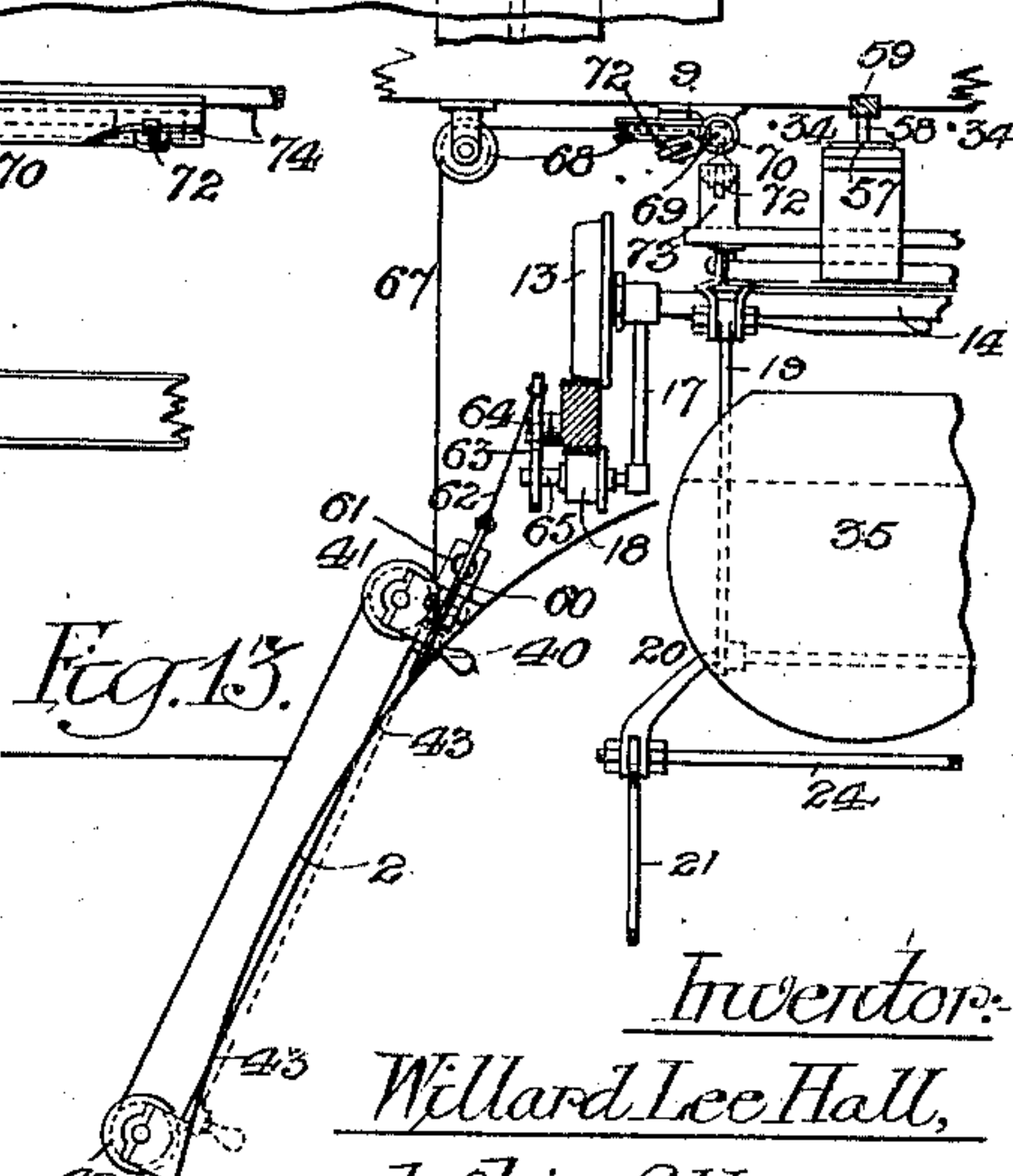
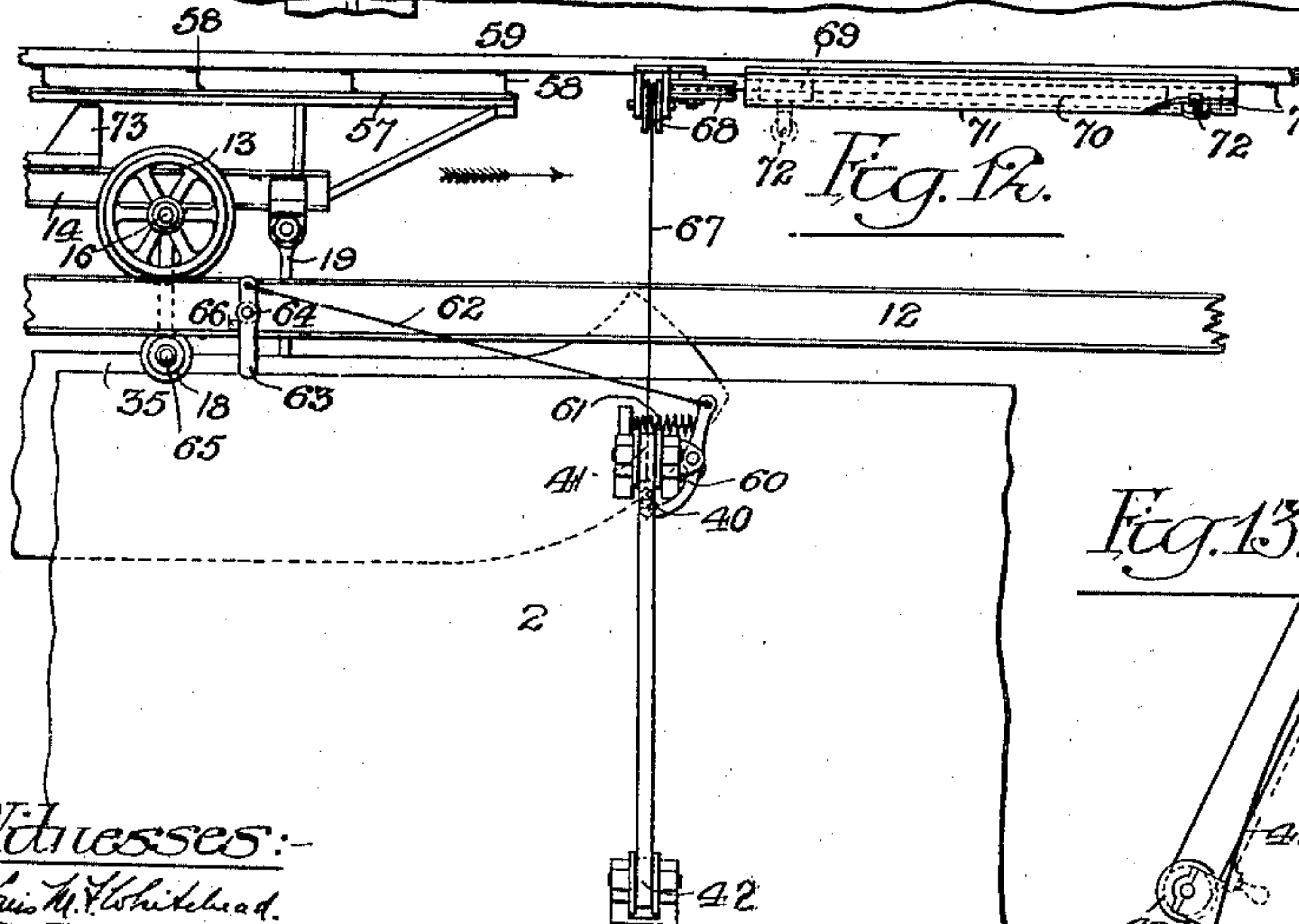
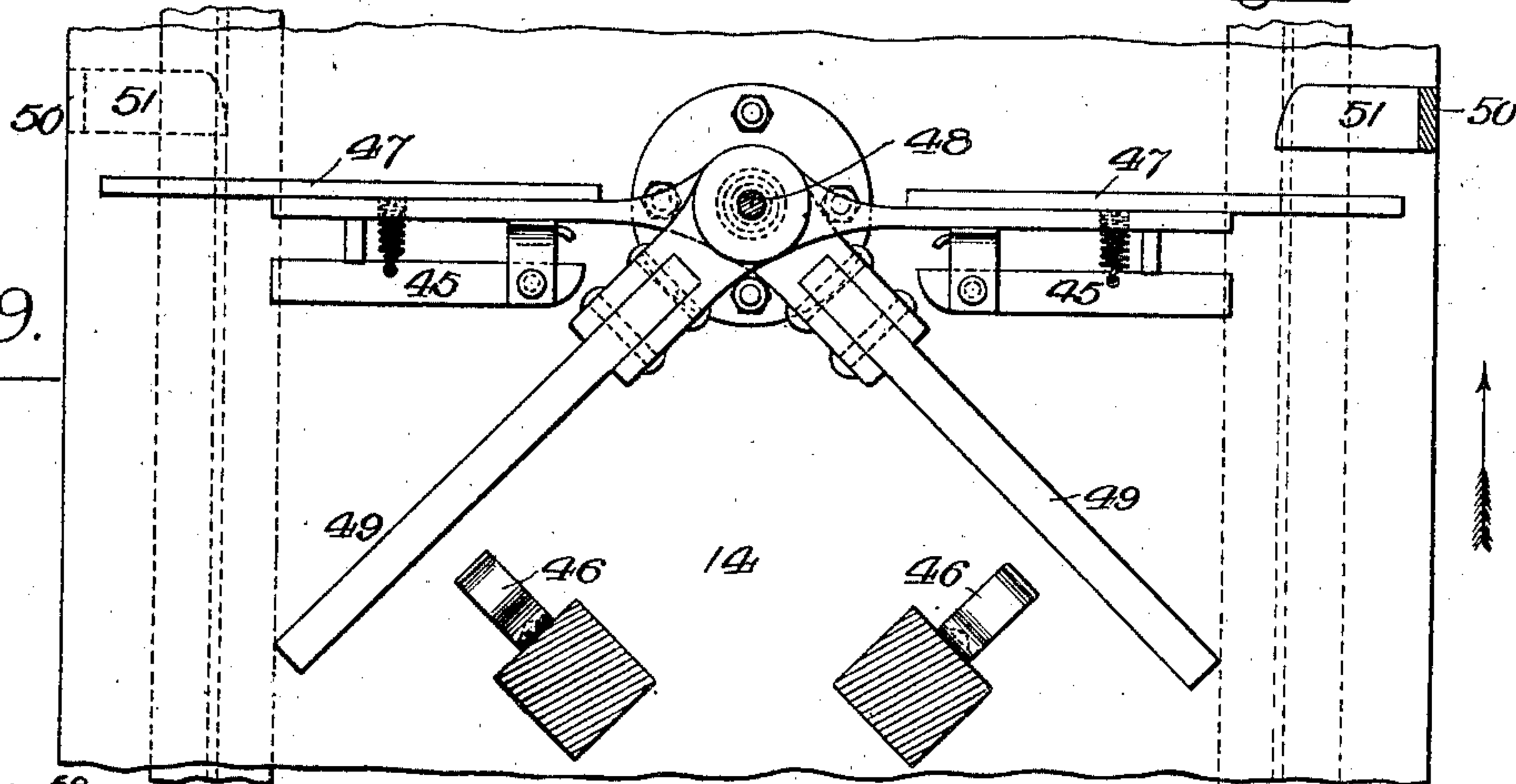


Fig. 9.



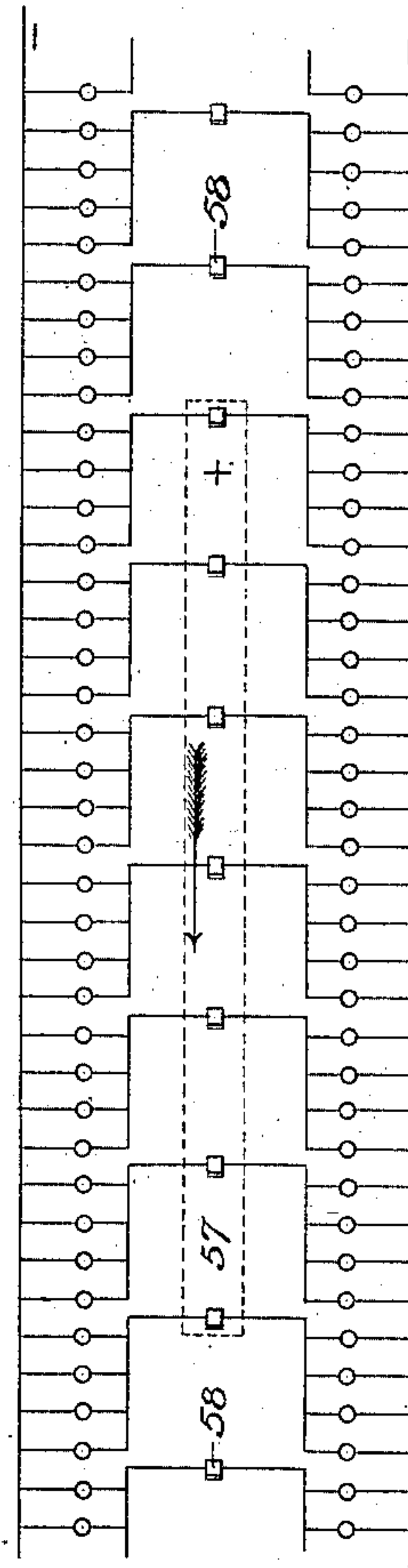
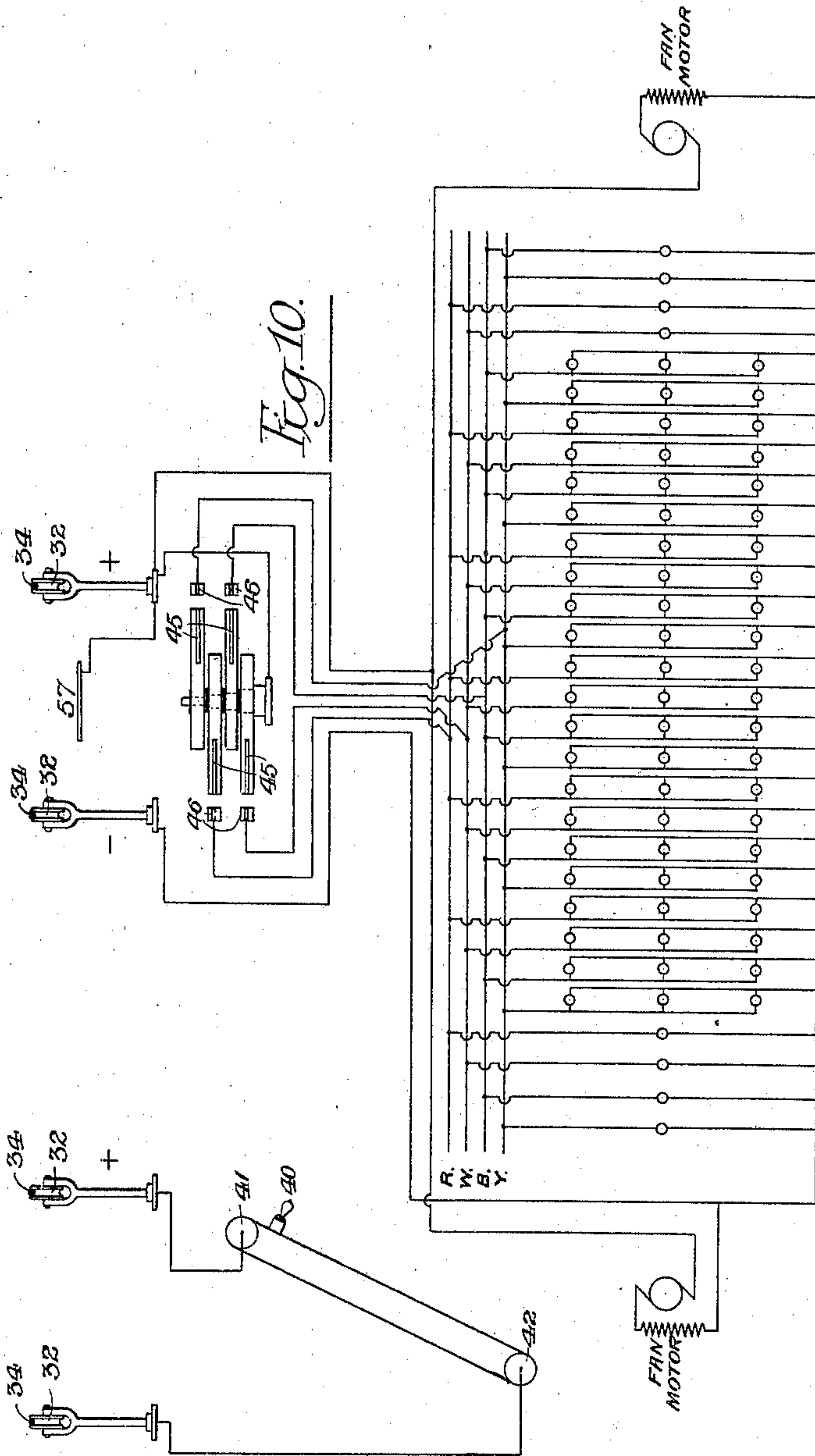
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W. L. HALL.
ILLUSION APPARATUS.
(Application filed Mar. 24, 1902.)

(No Model.)

6 Sheets—Sheet 6.



Witnesses:
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Fig. 17.

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UNITED STATES PATENT OFFICE.

WILLARD LEE HALL, OF PHILADELPHIA, PENNSYLVANIA.

ILLUSION APPARATUS.

SPECIFICATION forming part of Letters Patent No. 709,764, dated September 23, 1902.

Application filed March 24, 1902. Serial No. 99,727. (No model.)

To all whom it may concern:

Be it known that I, WILLARD LEE HALL, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Illusion Apparatus, of which the following is a specification.

My invention relates to that form of illusion apparatus known as an "aerial scenic railway;" and it consists of a certain novel structure which I have devised and which gives the illusion of passing through the air in a balloon or flying-machine. To heighten the illusion, certain other features incidental to the flight of such a machine are introduced, all of which will be pointed out hereinafter, reference being had to the accompanying drawings, in which—

Figures 1 and 1^a illustrate one form of inclosing structure and trackway which I may employ with the apparatus forming the subject of my invention, showing the curves of the track. Fig. 2 is a profile view of the track, showing the elevations and depressions in the same. Fig. 3 is a side elevation of one form of car which I may use in connection with my apparatus, showing also a portion of the tunnel scenery, and Fig. 4 is a sectional view of a portion of the tunnel, showing also an end elevation of the car and its supporting and propelling means. Fig. 5 is a plan view of one of the trucks, illustrating a detail of my invention. Fig. 6 is a side elevation, similar to Fig. 5, illustrating another detail of my invention. Fig. 7 is a sectional view similar to the upper part of Fig. 4, showing in end elevation the details of Figs. 5 and 6. Figs. 8 and 9 are enlarged views illustrating the details of my invention found in Figs. 5, 6, and 7. Fig. 10 is a diagram illustrating the lighting-circuits of the lamps carried by the cars. Fig. 11 is a diagram illustrating the lighting-circuits of the scenery-lamps. Figs. 12 and 13 are respectively side and end elevations of a detail of my invention and the means for operating the same, shown in Fig. 4; and Fig. 14 is a diagram of the lighting-circuit of the detail illustrated in Figs. 12 and 13.

In general my invention comprises a continuous scenic tunnel in which the panoramic scenery is so arranged that a person within a car which runs in said tunnel is given the

illusion of being at some distance above the surface of the earth. To heighten the illusion, the painted scenery is merged with built-up portions of scenery after the well-known system of stage and panorama effect. Traversing this scenic tunnel and mounted so as to be readily moved through the same, being driven by any suitable means, are a series of cars, which are suspended from overhead traveling trucks. In my description I will refer to a single car only, as it will be understood that a number of cars of similar pattern will be constantly in use. Interposed between each truck and its suspended car is a cigar-shaped balloon-like structure which serves to give the eye the effect of a flying-machine. The scenic tunnel is without light, and in order to illuminate the same and produce the desired illusion the car containing the passengers carries a series of rows of incandescent lights. These lights are so arranged that the scenery of the tunnel directly opposite the sides of the car and below the same will receive the greatest amount of illumination.

In Figs. 1 and 1^a of the accompanying drawings, 1 represents a building or other inclosing structure containing the scenic tunnel and the track upon which the trucks carrying the cars are run. As arranged in the accompanying drawings, the track is made serpentine in order that the length of travel of the car may be disposed within a contracted area. It will be understood, however, that I do not wish to limit myself to any special form of track. This house or inclosing structure contains the usual exit, entrance, check-room, and ticket-office and also power-house for driving the several cars, as well as a place for storing the same. In addition I have shown a tunnel portion 4 in the line of travel of the car, which will be entirely dark and through which the car is to run before completing its full transit through the inclosing structure. This will be more fully explained hereinafter.

In Figs. 3 and 4 of the drawings, 8 8 represent the vertical supporting-posts, suitably braced by cross-pieces 9 and angular struts 10, upon which cross-pieces are secured the hangers 11, supporting the rails 12, upon which the wheels 13 of the truck 14 are adapt-

ed to run. The truck 14 comprises simply a frame 15, carrying the axles 16, upon which are mounted the wheels 13, which axles also carry the depending arms 17, supporting the
 5 guide or guard rollers 18, adapted to the under side of the rails 12. Depending from the truck are the rods 19, carrying cross-bars 20, which in turn support depending rods 21, carrying the car 22, adapted to receive the
 10 passengers. The rods 19 are pivoted to the truck at 23, and the rods 21 are pivotally mounted at 24 on the cross-bars 20 and also at 25 on the car 22. Hence the latter will be permitted a forward and backward swinging
 15 movement as the truck passes over the inequalities of the track, thus increasing the illusion of riding through the air in a flying-machine.

The cars are provided with seats 26 for the
 20 passengers, the backs 27 of which seats may be arranged to swing, so that the cars may be run forward and backward without difficulty.

At the front and rear of the cars I mount
 25 electrically-driven rotary fans 28, which when the car is in motion will be rapidly rotated, producing a whirring sound and still further heightening the illusion that one is riding through the air in a flying-machine. These
 30 fans will be preferably driven by independent motors arranged at 29, as indicated in Fig. 3, or they may be driven by suitable gearing extending from the truck 14.

The car is provided with the banks of electric lamps 30, as shown in Figs. 2 and 3, preferably at the points noted, and to distribute the light from the same as far as possible reflectors 31 are disposed adjacent to the same. Other banks of lights may be distributed over
 40 the car and also, if desired, upon the balloon-like structure. I may also provide variously-colored lamps with independent connections so arranged that sets of any one color may be used for the purpose of producing different
 45 atmospheric effects.

In Figs. 5, 6, and 7 I have shown the independent means for controlling and operating the circuits of the lamps carried by the cars. The current of these lamps is supplied from
 50 the trolley-wires 34 in any usual and well-known manner, and the change in direction of the flow of current is accomplished by the following means: In the present instance I have provided four lamp-circuits having
 55 lamps in colors of red, white, blue, and yellow, the complete connections for these lamps being shown in Fig. 10. Each circuit or connection is provided with a switch comprising a knife-edge 45 and clips 46, the knife-
 60 edge being movable, while the clips are stationary, the whole being mounted on the upper portion of the truck. A bank of these switches is carried on top of the car-supporting truck, as clearly shown in the drawings, particularly in the enlarged views, Figs. 8 and
 65 9. The knife-edges 45 of the switches are carried by arms 47, which are pivoted at 48 and

have another arm 49, which projects at an angle to the arm 48. Arranged in the path of these arms are the depending members 50, 70 having projections 51, said members being carried by the supporting structure of the scenic tunnel and disposed throughout the same. When any one of these projections
 75 contacts with any one of the arms 47, such arm is moved and with it the knife-edge 45 of the switch, and by this means said knife-edge is thrown into engagement with its set of clips 46, and one of the lighting-circuits is
 80 cut in. To cut out this lighting-circuit, one of the projections 51, carried on the opposite side of the tunnel structure, contacts with the arm 49, which has been thrown into position by the movement of the arm 47 moving
 85 said arm 49 and causing the knife-edge to be carried out of engagement with its set of clips, such action returning the arm 47 into position to be engaged by one of the projections 51 when it is again desired to cut in
 90 the lighting-circuit. The depending members 51 may be disposed so as to turn all of the switches on at once, then turn them off one at a time, then turn them on one at a time, and then turn them off all together, and
 95 so on, as may be calculated to give the best effect. For the purpose of reference I have described one form of switch known as a "punch clip-switch," although it will be understood that I may use any suitable form of switch capable of being mounted and operated
 100 substantially in the manner shown and described.

Any form of driving mechanism may be employed to propel the truck 14; but in the drawings herewith I have shown such truck
 105 as being driven by electricity. On the top of the truck a pair of trolleys 32 are mounted, suitably supported by means of springs 33, such trolleys engaging the feed-wires 34. I do not wish, however, to limit myself to this
 110 special form of propelling means.

Interposed between the truck 14 and the passenger-car 22 is the cigar-shaped balloon-like structure 35. This serves the double
 115 purpose of hiding the truck and the operating mechanism from the occupants of the car and at the same time gives the illusion that the car is supported by said balloon-like structure. At the back of the car a guard-frame 36 is preferably arranged to prevent
 120 the passengers interfering with or becoming injured by the fan at the ends of the car, and when double-ended cars are employed each end will be provided with an adjustable back that may be raised and lowered at will, so
 125 that the front of the car will always be open. In the drawings herewith the back is provided with an insulated portion for the passage of the feed-wire 37 for the purpose of supplying current to the fan-motors carried
 130 by the car and the incandescent lights also carried thereby.

The track for the truck 14, as may be noted from Fig. 2, has raised and depressed por-

tions, so that the car is traveling at different levels at all times, and consequently the flexible mounting heretofore noted is necessary to enable the cars to pass the various inequalities of the track.

As I have noted, the scenic tunnel is to be illuminated only by the passing car, and hence only a small portion of the scenery may be viewed at any one time. The illumination, however, is such that the contracted view is perfectly clear and with the aid of the built-up portions of the scenery such view is very effective and highly interesting. Near the end of the run of the car I have arranged a tunnel portion to be entirely dark during the passage of the car, and this effect may be readily produced by cutting off the light-circuit as the car approaches said tunnel.

Instead of providing the lamps on the cars to effect the illumination of the scenic tunnel as said cars pass through the same the tunnel may have banks of fixed lights extending throughout the same, and the truck may be arranged to pass over contacts that will effect the lighting of the tunnel immediately adjacent to the moving cars as said cars pass. In Figs. 5, 6, and 7 I have shown an arrangement for effecting this result in which the banks of lights are disposed at 55 on each side of the scenic tunnel, and reflectors 56 are provided to throw the lights on the sides of said tunnel. These lights are arranged in circuits of four each, on each side of the tunnel, as clearly shown in the diagram Fig. 11.

Mounted on top of the truck 14 is a metallic plate 57, which is in electrical connection with one of the trolley-wires, as shown in Fig. 10. Engaging this plate as the truck is traversed through the tunnel are a series of contacts 58, each of which is connected with one of the light-circuits, and these contacts are secured in any suitable manner to a strip 59, carried by the cross-beams 9 of the tunnel structure. These tunnel-lights may also be of different colors to give the atmospheric conditions before alluded to. As will be noted upon reference to the diagram Fig. 11, the circuits and connections are so arranged that there will always be light ahead of the car. It is also possible by changing the wiring to have this illumination at any point ahead of the car.

To further heighten the illusory effect, especially in any portion of the scenic tunnel having a night scene which would be normally dark when the cars pass through the same or in the darkened tunnel portion which has been provided for, I provide a structure to simulate a shooting star. This is clearly shown in Fig. 4, while in Figs. 11 and 12 I have shown means for operating this star and in Fig. 14 the electrical connections with the trolley-wires for the same. The lamp is shown at 40, carried by a flexible band or cord passing over the pulleys 41 and 42, and apertures 43 are made in the scenic curtain for the pas-

sage of the lamp. The lamp is arranged to drop by gravity, and to effect this and also to raise the lamp or reset the same I provide the following means: The lamp may be held in the raised position by means of a catch 60, having a spring 61 to hold it in engagement with the lamp, and this catch is connected by a cord 62 with a lever 63, pivoted at 64 to the tunnel structure and disposed in such position that it may be struck by the extension 65 of the shaft of one of the guard-wheels 18, a stop 66 being provided to maintain this lever 63 in the normal position. Immediately the lever is engaged it exerts a pull on the cord and the catch 60 is released, permitting the lamp to fall rapidly and giving the illusion of a shooting or falling star. This lamp may be arranged to fall at an angle to the perpendicular in any direction and may be disposed at any suitable point in advance of the moving truck. To reset the lamp, the following means may be provided: Connected to the top of the support for the lamp is a cord 67, which passes over pulleys 68 to a movable piece 69, arranged within a tube or pipe 70, which is secured to the cross-beams 9 of the tunnel structure. This tube is slotted at 71, and carried by the movable piece 69 is an antifriction-roller 72, which passes through said slot and may be engaged by a projection 73 on top of the truck 14. As the truck moves on after the shooting star has fallen this projection engages the roller 72, and the movable piece carrying the same being connected by the cord 67 to the lamp the latter is raised as said movable piece is pushed along the tube. To disengage these parts, the slot of the tube is turned at 74 and the roller 72 simply moves into this portion, clearing the projection 73, carried by the truck. By this time the lamp has been raised to its full height and has pushed the spring-catch 60 away a sufficient distance to pass the same and then be caught and supported by it.

The passage through the scenic tunnel may be further diversified by the use of running water and waterfalls, although I do not wish to claim in this structure a scenic railway or a tunnel having running water or waterfalls.

It will be understood that numerous modifications may be made in the operating structure in the form of the trucks and suspended cars and in the form of the track structure and inclosing house without departing from my invention.

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

1. The combination in an illusion apparatus of the character described, of a scenic tunnel and an illuminated car arranged to be moved through said tunnel, said car carrying a series of exterior lights having independent circuits, said lights serving to illuminate only that portion of the tunnel directly adjacent to the car, and means for controlling the light-circuits.

2. The combination in an illusion apparatus of the character described, of the scenic tun-

nel, a track structure mounted therein and an illuminated car arranged to be moved on said track structure, said car carrying a series of exterior lights having independent circuits, 5 said lights serving to illuminate only that portion of the tunnel adjacent to the car, and means for controlling the light-circuits.

3. The combination in an illusion apparatus of the character described, of the scenic tunnel, a track structure mounted within said tunnel, an illuminated car suspended from said track structure and arranged to be moved through the tunnel, said car having a series of lights having independent circuits, 15 said lights serving to illuminate only that portion of the tunnel adjacent to the moving car, and means for controlling said light-circuits.

4. The combination in an illusion apparatus of the character described, of a continuous scenic tunnel, a car arranged to be moved through said tunnel, means for operating said car, means for illuminating the tunnel within the space occupied by the car as the latter is moved through the tunnel, said means comprising lamps carried by the car on the outside of the same, independent circuits for said lamps, and means for controlling said circuits. 25

5. The combination in an illusion apparatus of the character described, of the scenic tunnel, a trackway mounted therein, a suitable motor-truck adapted to said trackway, a suspended swinging car carried by said truck, and a balloon-like structure interposed between said swinging car and its supporting-truck. 35

6. In an illusion apparatus of the character described, the combination of the scenic tunnel, a track arranged within said tunnel, a motor car or truck mounted on said track, 40 means for traversing said car or truck, a passenger-car suspended from said truck and arranged to have a forward and rearward swinging motion, and a balloon-like structure carried by the supporting-rods for the car and interposed between said car and its supporting-truck. 45

7. The combination in an illusion apparatus of the character described, of the scenic tunnel, a trackway mounted within said tunnel, 50 a car adapted to traverse the trackway, said car being illuminated and lighting up the tunnel at the portion occupied by the moving car, and a darkened portion through which said car passes, with means for extinguishing the lights carried by the car as it approaches the darkened tunnel and turning the same on automatically after said car leaves the darkened tunnel, substantially as described. 55

8. The combination in an apparatus of the character described, of the scenic tunnel, a trackway adapted to the same, a suitable supporting structure having suspension-rods for carrying said trackway, a truck mounted on the track, guard-wheels carried by said truck, 60 guard-rails carried by the main track structure to which the guard-wheels are adapted, depending swinging arms carried by said

truck, cross-arms supported thereby, depending swinging arms carried by said cross-arms, and a passenger-car pivotally hung to said latter swinging arms. 70

9. The combination in an apparatus of the character described, of the scenic tunnel, a trackway adapted to the same, a suitable supporting structure having suspension-rods for carrying said trackway, a truck mounted on the track, guard-wheels carried by said truck, guard-rails carried by the main track structure to which the guard-wheels are adapted, depending swinging arms carried by said truck, cross-arms supported thereby, depending swinging arms carried by said cross-arms, a passenger-car pivotally hung to said latter swinging arms, and a balloon-like structure interposed between the passenger-car and the supporting-truck and serving to hide the operating mechanism from the passengers in the car, as well as heighten the illusion of riding in a flying-machine. 85

10. In an illusion apparatus of the character described, a suspended passenger-car arranged to swing forwardly and rearwardly, fans mounted at the front and rear of said car, means for driving said fans, means for suspending said car from a suitable trackway, and means for driving the car, said fans being operated only when the car is in motion. 90

11. In an illusion apparatus of the character described, a suspended passenger-car arranged to swing, means for suspending said car from a suitable trackway, rotary fans mounted at the front and rear of said car, means for driving said fans, said latter means being only operated when the car is in motion, a series of electric lights carried by said car and having independent circuits, and means for controlling said lamp-circuits. 105

12. In an illusion apparatus of the character described, the combination of the scenic tunnel, a trackway, a suspended car, a series of lamps carried by said car and having independent circuits, said lamps serving to illuminate the scenic tunnel only at the point adjacent to the car, means for suspending the car from the trackway, means for driving the car and means for controlling the lamp-circuits. 110

13. In an illusion apparatus of the character described, a suspended car, a series of lamps carried by said car, said lamps being of various colors and having independent circuits, means for suspending said car from a suitable trackway, and means for driving the car. 115

14. In an illusion apparatus of the character described, a suspended car, a series of lamps carried by said car, said lamps being of various colors and having independent circuits, means for suspending said car from a suitable trackway, means for driving the car and means for controlling the lamp-circuits independently. 125

15. In an illusion apparatus of the charac-

ter described, the combination of the scenic tunnel, a car adapted to pass through said tunnel, and a movable lamp structure carried by the tunnel-wall.

5 16. In an illusion apparatus of the character described, the combination of the scenic tunnel, a car adapted to pass through said tunnel, a movable lamp structure carried by the tunnel-wall, means for moving said lamp
10 across the face of the scenery, and means for controlling the movement of the lamp by the moving car.

15 17. In an illusion apparatus of the character described, the combination of the scenic tunnel, a car adapted to pass through said tunnel, a movable lamp arranged adjacent to the tunnel-wall, an endless belt or chain carrying said lamp, a connection from the main feed-wire to said lamp, means for operating
20 the chain or belt to move the lamp across the face of the scenery, and means for controlling such movement by the moving car.

25 18. In an illusion apparatus of the character described, the combination of the continuous scenic tunnel, a continuous undulatory trackway arranged within said tunnel, a car suspended from said trackway and adapted to be swung as it traverses said undulatory trackway, lights carried by said car to illuminate the scenic tunnel as it passes through
30 the same, independent circuits for said lights, and means for controlling said circuits.

35 19. In an illusion apparatus of the character described, the combination of the continuous scenic tunnel arranged in a serpentine course, a continuous trackway arranged in said tunnel, a car adapted to said trackway, said car being illuminated on its exterior by a series of lights, independent circuits for said
40 lights, and means for controlling said circuits.

45 20. In an illusion apparatus of the character described, the combination of the continuous scenic tunnel arranged in a serpentine course, a continuous undulatory trackway arranged in said tunnel, and a swinging car adapted to be moved along said trackway, the swinging movement of the car being imparted

by the track, said car being illuminated on its exterior, substantially as and for the purpose set forth.

50 21. The combination in an illusion apparatus of the character described, of a scenic tunnel, a car arranged to be moved through said tunnel, a series of lights arranged on the under portion of said car, said lights serving to
55 illuminate only that portion of the tunnel directly adjacent to and below the car, independent circuits for said lights, and means for controlling said circuits.

60 22. The combination in an illusion apparatus of the character described, of a scenic tunnel, a moving structure adapted to be traversed through said tunnel, means for operating the moving structure, a series of lights with independent circuits arranged to illuminate the scenic tunnel within the space occupied by the moving structure as the latter
65 traverses said tunnel, coacting means carried by the moving structure and the tunnel structure for controlling said circuits, and a shield or deflector disposed to cut off the light rays from the moving structure and reflect them
70 onto the scenery of the tunnel.

75 23. The combination in an illusion apparatus of the character described, of a scenic tunnel, a trackway mounted therein, a motor-truck mounted on said trackway, means for operating said truck, a car carried thereby, a series of lights with independent circuits arranged to illuminate the scenic tunnel within
80 the space occupied by the car as the truck traverses said tunnel, coacting means carried by the truck and the tunnel structure for controlling said circuits, and a shield or deflector disposed to cut off the light rays from the car
85 and reflect them onto the scenery of the tunnel.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLARD LEE HALL.

Witnesses:

MURRAY C. BOYER,
JOS. H. KLEIN.