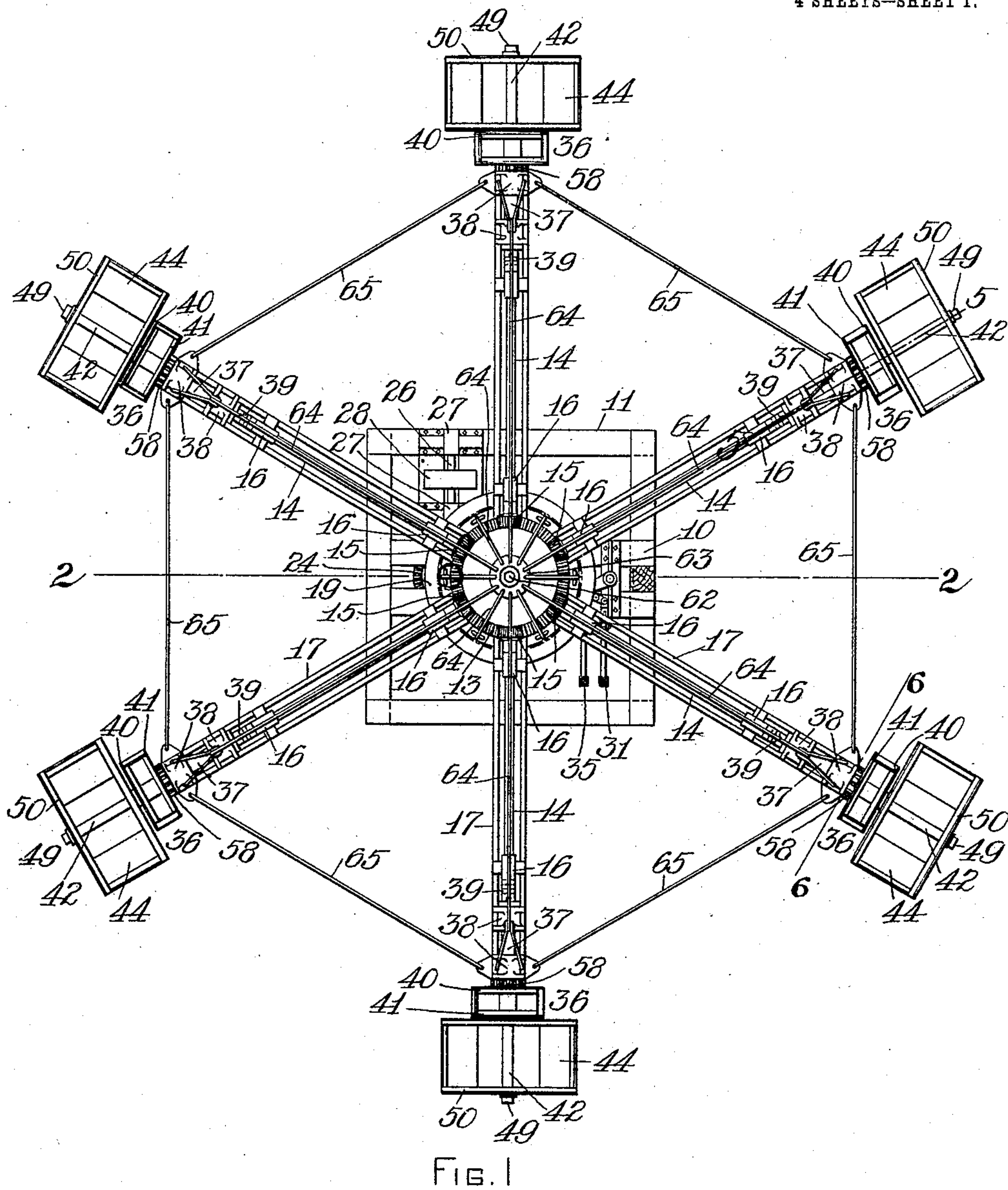


No. 841,783.

PATENTED JAN. 22, 1907.

L. A. JONES.
AMUSEMENT APPARATUS.
APPLICATION FILED FEB. 10, 1906.

4 SHEETS—SHEET 1.



WITNESSES

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By his attorney, Charles J. Fording

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4 SHEETS—SHEET 2.

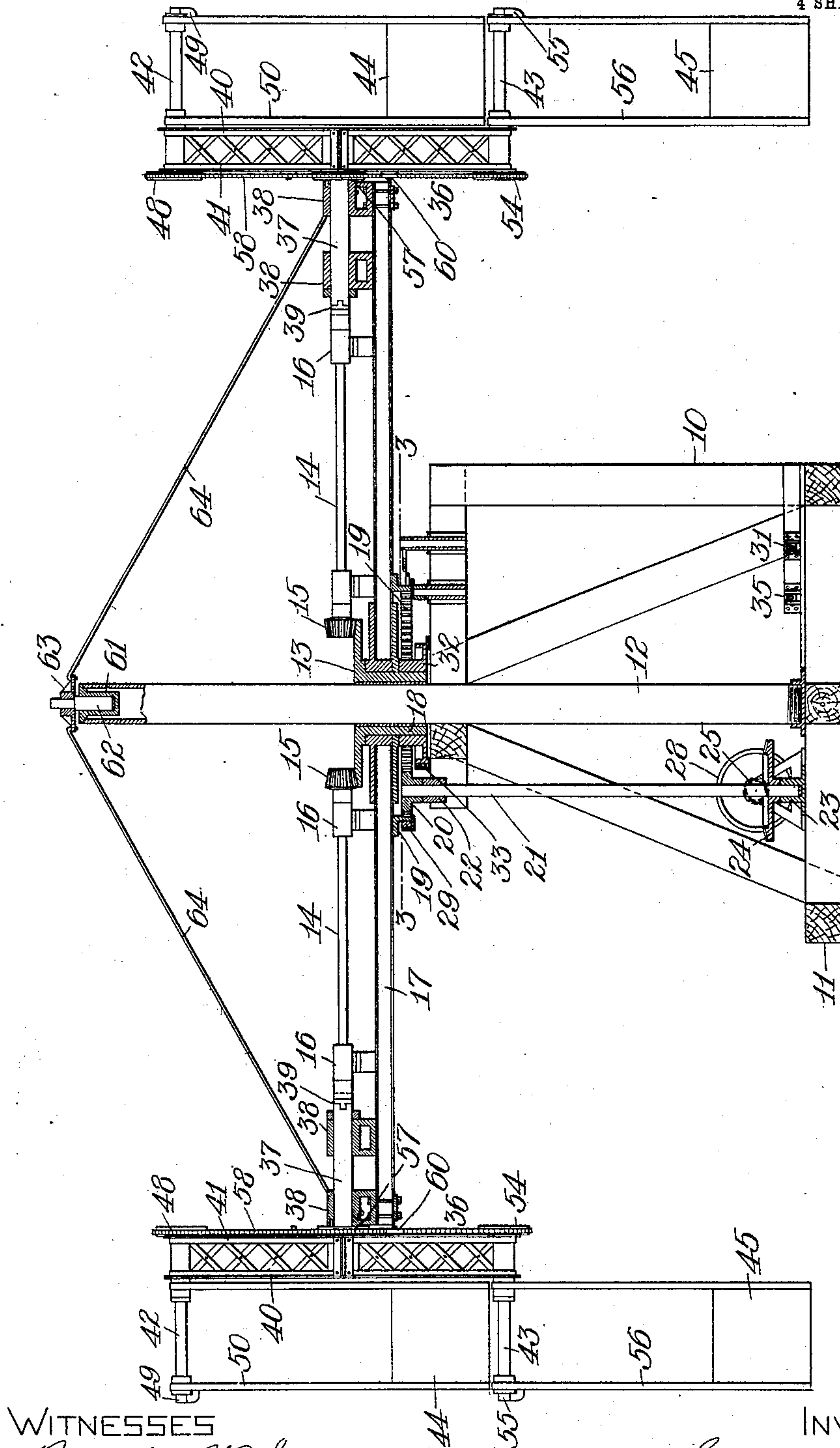


FIG. 2

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4 SHEETS—SHEET 3.

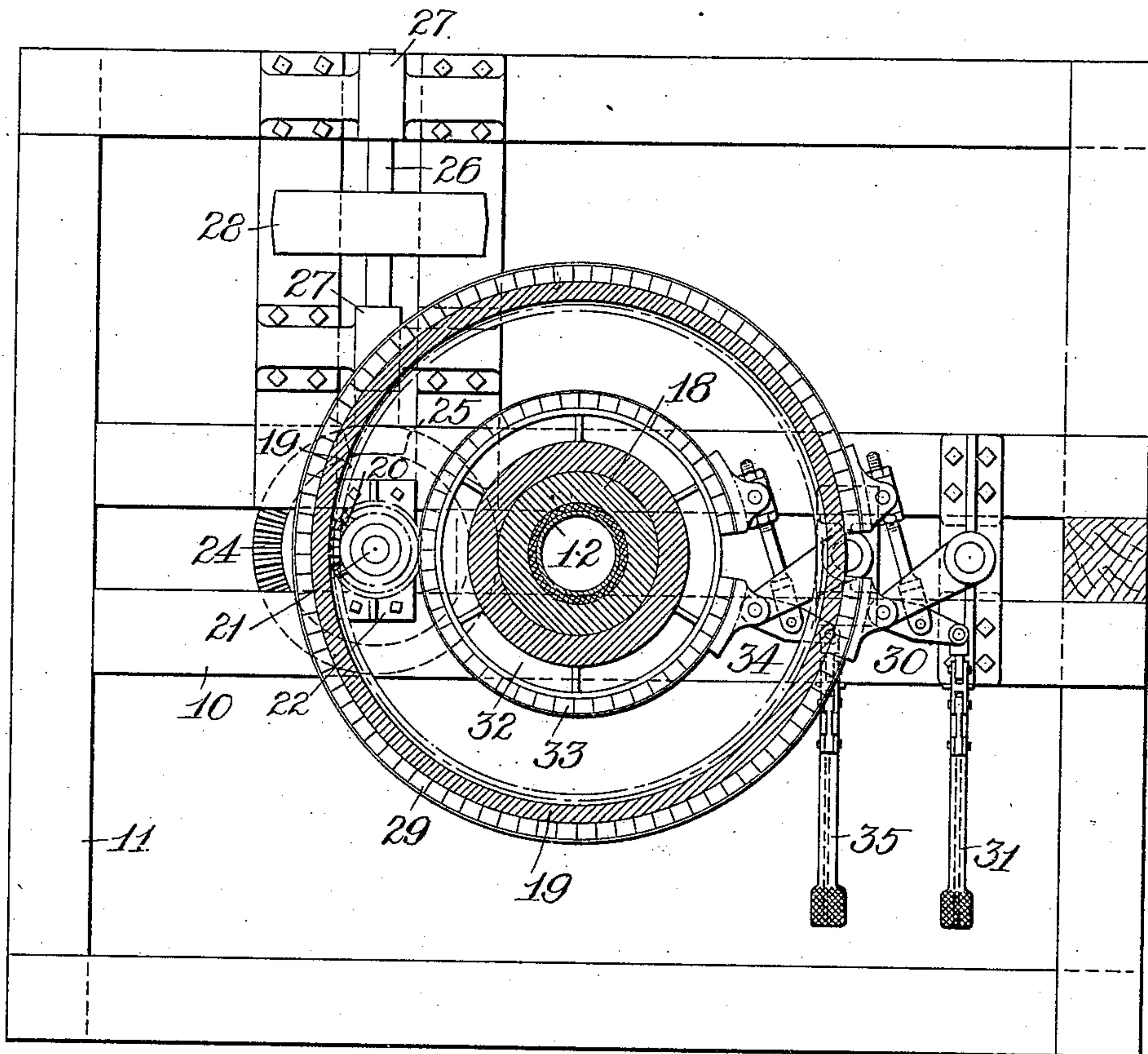


FIG. 3

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4 SHEETS—SHEET 4.

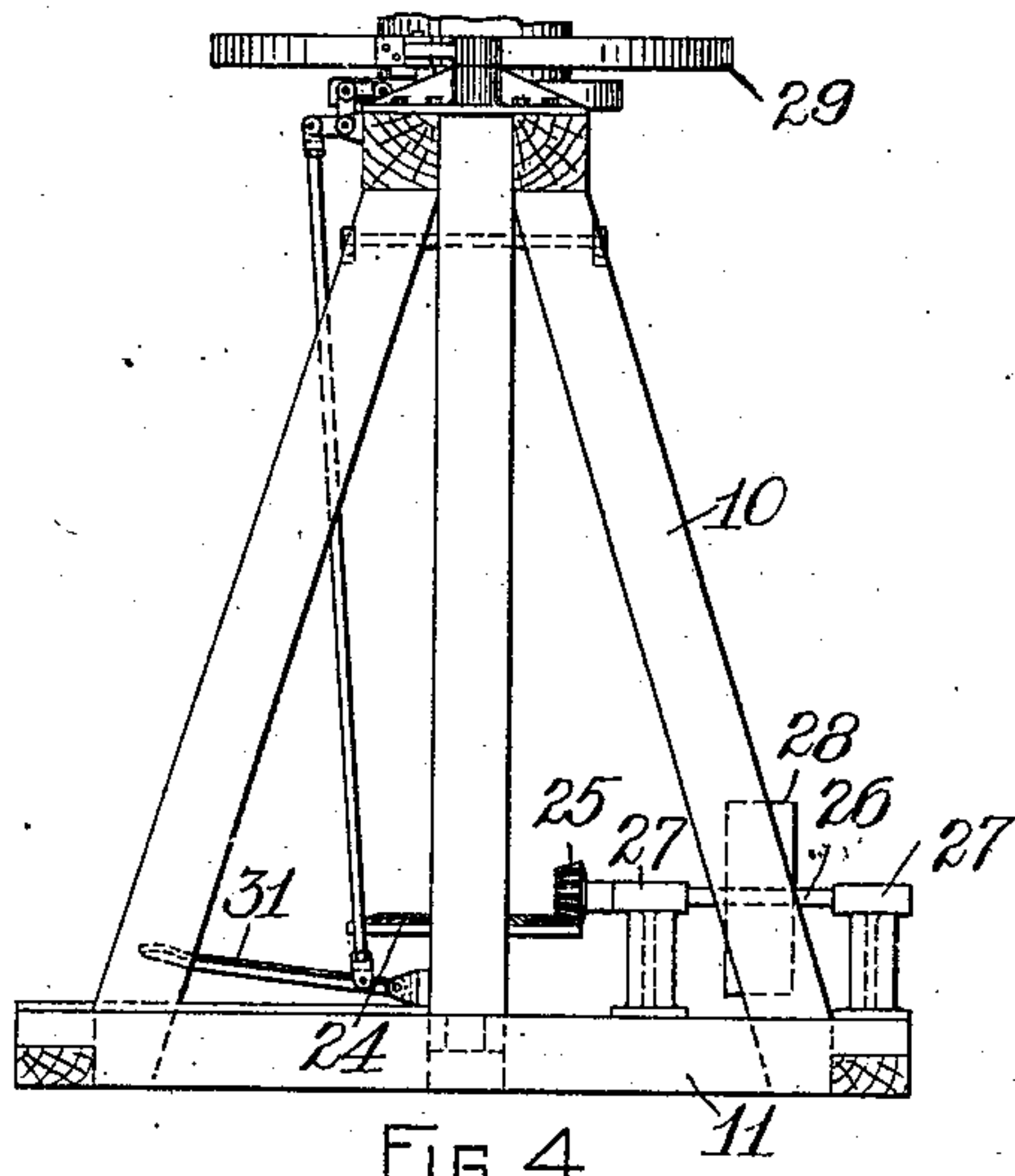


FIG. 4

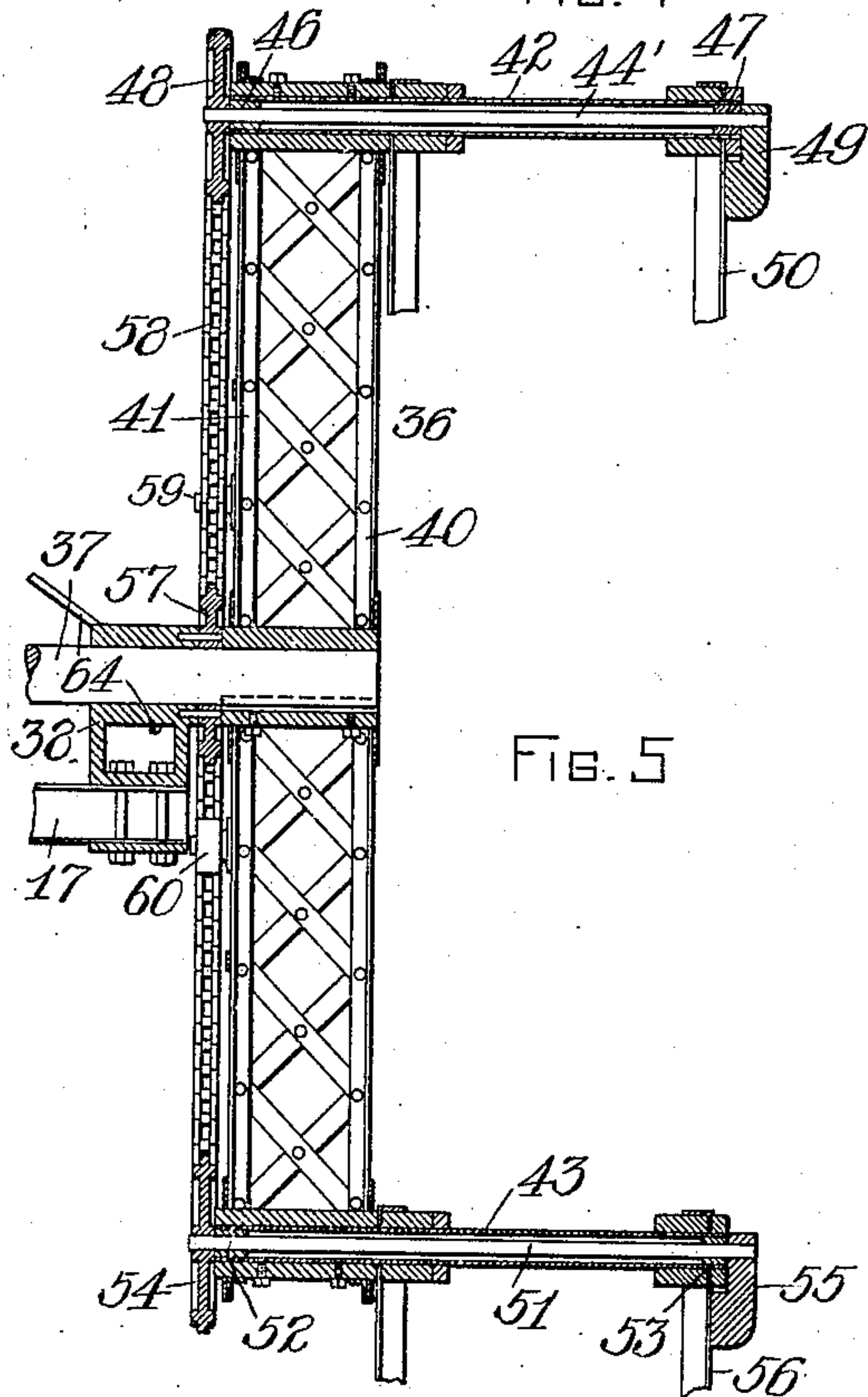


FIG. 5

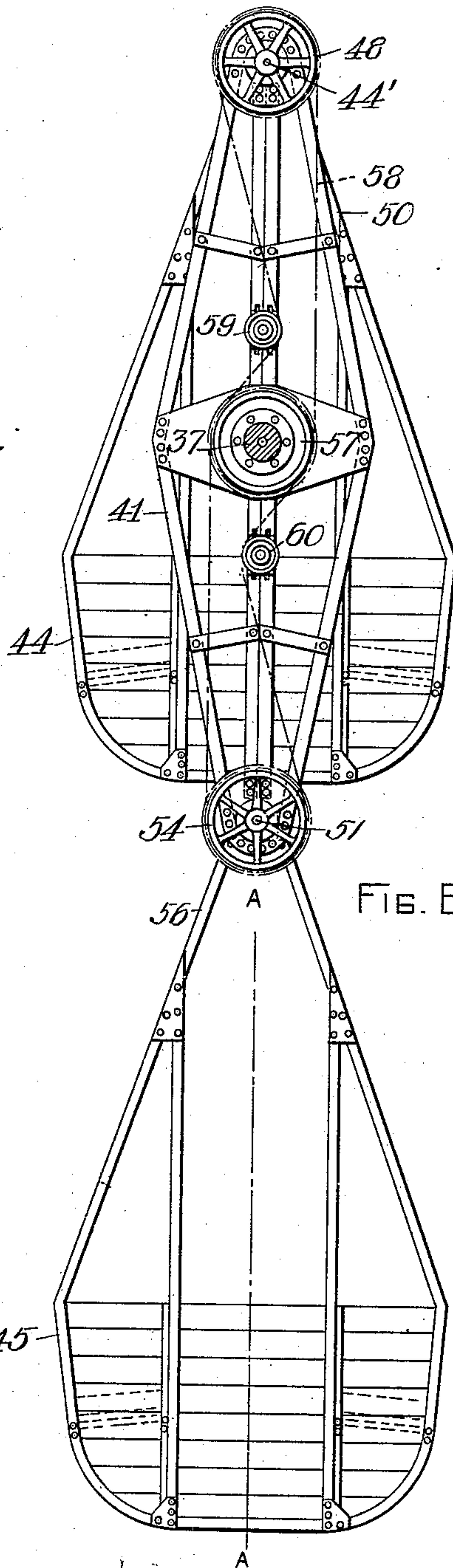


FIG. 6

WITNESSES

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UNITED STATES PATENT OFFICE.

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AMUSEMENT APPARATUS.

No. 841,783.

Specification of Letters Patent.

Patented Jan. 22, 1907.

Application filed February 10, 1906. Serial No. 300,366.

To all whom it may concern:

Be it known that I, LOUIS A. JONES, a citizen of the United States, residing at Cambridge, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Amusement Apparatus, of which the following is a specification.

This invention relates to an apparatus of that class in which a plurality of cars are moved in an undulatory path about a vertical shaft, said path being concentric with said shaft.

The objects of this invention are, first, to provide an apparatus of the character described in which the cars may be moved about a vertical shaft in a path parallel to a substantially horizontal plane, said path being concentric with said shaft, or said cars may be moved in an undulatory path about said vertical shaft, said path being concentric with said shaft, either of these movements being changed at will to the other and both of said movements being obtained by the use of one motor; second, to hold the lateral median line of each of the cars in a substantially vertical plane—that is, to prevent oscillatory movement of said cars; third, to provide a shaft for revolving said cars about the axis of said shaft, said shaft being formed in two parts, so constructed and arranged that the strains resulting from misalignment of said two parts shall not be transmitted from one to the other of said two parts.

The invention consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims thereof.

Referring to the drawings, Figure 1 is a plan of my improved amusement apparatus. Fig. 2 is a detail vertical section, partly in elevation, on line 2 2 of Fig. 1, but with the rotary frame moved a portion of a rotation from the position shown in Fig. 1. Fig. 3 is a plan section, on an enlarged scale, on line 3 3 of Fig. 2. Fig. 4 is a detail elevation of a portion of Fig. 2, partly broken away, viewed from the right of said Fig. 2. Fig. 5 is a section, partly in elevation, on line 5 5 of Fig. 1 looking upwardly in said Fig. 1. Fig. 6 is a section, partly in elevation, on line 6 6 of Fig. 1 looking toward the right in said figure.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 10 is a stationary frame whose base 11 rests upon the ground. A stationary vertical shaft 12 is mounted on the frame 10 and has journaled thereon a bevel-gear 13. A plurality of radial shafts 14 are arranged with their axes in a substantially horizontal plane, said radial shafts provided with bevel-pinions 15 fast thereto, respectively, said bevel-pinions meshing into said bevel-gear 13. The radial shafts 14 are journaled to rotate in bearings 16 16, said bearings mounted on a rotary frame 17, said frame being journaled to rotate on the hub 18 of the bevel-gear 13. An internal spur-gear 19 is fast to the rotary frame 17 and is driven by a spur-pinion 20. The pinion 20 is fast to a rotary vertical shaft 21, said shaft journaled in bearings 22 and 23 on the frame 10. A bevel-gear 24, fast to the shaft 21, is driven by a bevel-pinion 25, fast to a horizontal shaft 26, said shaft 26 journaled in bearings 27 27 on the base 11 of the frame 10. A pulley 28 is fast to the shaft 26 and may be driven by means of a belt. (Not shown.)

Around the exterior periphery of the internal gear 19 is a brake-band 29, connected by a brake-operating mechanism 30 to a foot-treadle 31. The brake-band 29 may be caused to grip the periphery of the internal gear 19 by downward pressure upon the foot-treadle 31. A brake-drum 32 is fast to the hub 18 of the bevel-gear 13, and the periphery of said brake-drum is surrounded by a brake-band 33, connected by a brake-operating mechanism 34 to a foot-treadle 35. The brake-band 33 may be caused to grip the periphery of the brake-drum 32 by downward pressure upon the foot-treadle 35.

A plurality of crank-arms 36, provided with shafts 37 fast thereto, respectively, are journaled to rotate in bearings 38 38 on the rotary frame 17. The shafts 37 are preferably of greater diameter than the shafts 14 and are connected to said shafts by suitable couplings 39, said couplings being of well-known construction and commonly called "Oldham" couplings. Said shafts 37 are made large in diameter in order that they may resist without bending the bending strain due to the overhanging loads upon

their outer ends. The couplings 39 transmit the rotary movement of the shafts 14 to the shafts 37 without transmitting from one of said shafts to the other of said shafts any strains due to misalignment of said shafts.

The crank-arms 36 are all identical in construction, and it will be understood that the following description applies to them all. The crank-arm 36 is made up of two rhombus-shaped frames 40 and 41, said frames arranged in parallel planes and preferably formed of angle-iron. Hollow crank-pins 42 and 43 pass through the extremities of the frames 40 and 41. A car 44, provided with suitable seats, is suspended from the crank-pin 42, and a car 45, identical with the car 44, is suspended from the crank-pin 43. A shaft 44' is journaled in bearings 46 and 47, said bearings located in the extremities of the hollow crank-pin 42. A sprocket-wheel 48 is fast to one end of the shaft 44', while a bracket 49 is fast to the other end of said shaft, said bracket being also fast to the frame 50 of the car 44.

A shaft 51 is journaled in bearings 52 and 53 in the extremities of the hollow crank-pin 43. A sprocket-wheel 54 is fast to one end of the shaft 51, and a bracket 55 is fast to the other end of said shaft, said bracket being also fast to the frame 56 of the car 45.

A sprocket-wheel 57 is fast to the bearing 38. A chain 58 passes around the sprocket-wheels 48 and 54 and engages the sprocket-wheel 57. The tension of said chain is maintained by adjustable chain-tighteners 59 and 60. When the crank-arm 36 is rotated about its axis, the chain 58 acts to move the cars 44 and 45 in unison and to maintain the lateral median lines A A of said cars in substantially vertical planes—that is, the cars 44 and 45 are prevented from being oscillated on their respective crank-pins by various causes—such, for instance, as movement of persons in said cars.

The vertical shaft 12 is provided at its upper extremity with a bearing 61, in which a shaft 62 is journaled to rotate. A plate 63 is fast to the shaft 62 and is connected by rods 64 to the frame 17. It will thus be seen that the entire weight of the frame 17, together with the parts carried thereby, is sustained by the lower extremity of the shaft 62. Tie-rods 65, connected to the radial portions of the frame 17, brace said frame and relieve the radial shafts 14 of strains due to the rotary movement of said frame.

The operation is as follows: The cars 44 and 45 may be loaded with passengers in any suitable manner, either from the ground or from platforms concentric with the path of movement of said cars, said platforms not being shown. Should it be desired to rotate the frame 17 without rotating the crank-arms 36 upon their respective axes, the operator starts the motor or other suitable source of

power connected to the pulley 28, which drives said frame through the internal gear 19, the pinion 20, and the mechanism hereinbefore described connecting said pinion with said pulley. Both of the brake-bands 29 and 33 are at this time loose about the peripheries of their respective drums. It will be seen that as the frame 17 is rotated the bevel-gear 13, meshing into the bevel-pinions 15, causes said bevel-gear to be rotated with said frame. Should it now be desired to impart to the crank-arms 36 a rotary movement about their respective axes, the operator depresses the foot-treadle 35, thus causing the brake-band 33 to grip the brake-drum 32 and stop the rotation of the bevel-gear 13, whereupon the bevel-pinions 15 will run around said bevel-gear, rotating in unison and with the same direction of rotation, and will impart a rotary movement to their respective shafts 14 and to the crank-arms 36, operatively connected therewith. Should it be desired to stop the rotary movement of the frame 17, the operator depresses the foot-treadle 31, and thereby causes the brake-band 29 to grip the exterior periphery of the internal gear 19.

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

1. In an amusement apparatus a vertical shaft, a plurality of radial shafts arranged with their axes in a substantially horizontal plane, mechanism for rotating said radial shafts in unison, a rotary frame on which said radial shafts are journaled to rotate, a motor, mechanism operatively connecting said motor and said frame, a plurality of crank-arms provided with crank-pins, said crank-arms journaled on said frame and operatively connected to said horizontal shafts respectively, a plurality of cars suspended from said crank-pins respectively, and means for holding each of said cars with its lateral median line in a substantially vertical plane.

2. In an amusement apparatus, a vertical shaft, a plurality of radial shafts arranged with their axes in a substantially horizontal plane, a rotary frame on which said radial shafts are journaled to rotate, a plurality of crank-arms provided with crank-pins, said crank-arms journaled to rotate on said frame and operatively connected to said radial shafts, respectively, a plurality of cars suspended from said crank-pins, respectively, a motor operatively connected to said rotary frame, means for rotating said radial shafts, and means for holding each of said cars with its lateral median line in a substantially vertical plane.

3. In an amusement apparatus, a rotary frame arranged with its axis of rotation substantially vertical, a substantially horizontal shaft journaled to rotate on said frame, a second horizontal shaft of relatively larger

diameter arranged with its axis substantially coincident with the axis of said first-named horizontal shaft, a coupling connecting said first-named and said second-named horizontal shafts together, a crank-arm fast to said second-named shaft, a plurality of crank-pins fast to said crank-arm, and a plurality of cars suspended from said crank-pins, respectively.

10 4. In an amusement apparatus, a stationary vertical shaft, a plurality of radial shafts arranged with their axes in a substantially horizontal plane, a rotary frame on which said radial shafts are journaled to rotate, a
15 plurality of bevel-pinions fast to said radial shafts, respectively, a bevel-gear meshing into said bevel-pinions, said gear journaled to rotate on said vertical shaft, a plurality of crank-arms provided with crank-pins, said
20 crank-arms journaled to rotate on said frame and operatively connected to said radial shafts, respectively, a plurality of cars suspended from said crank-pins, and means for holding each of said cars with its lateral
25 median line in a substantially vertical plane.

5. In an amusement apparatus a rotary frame arranged with its axis of rotation substantially vertical, a substantially horizontal shaft journaled to rotate on said frame, a
30 motor, mechanism for rotating said frame and shaft about their respective axes, said mechanism operatively connected to said motor, a crank-arm journaled on said frame operatively connected to said horizontal
35 shaft, a plurality of crank-pins fast to said crank-arm, a plurality of cars suspended from said crank-pins, respectively, and means for preventing oscillatory movement of said cars on said crank-pins.

40 6. In an amusement apparatus, a stationary vertical shaft, a bevel-gear journaled to rotate on said shaft, a plurality of radial shafts arranged with their axes in a substantially horizontal plane, a plurality of bevel-
45 pinions fast to said radial shafts, respectively, said pinions meshing into said gear, a brake-drum fast to said bevel-gear, a brake-band surrounding said brake-drum, mechanism for operating said brake-band, a
50 frame on which said radial shafts are journaled to rotate, a motor, mechanism operatively connecting said motor and said

frame, a plurality of crank-arms provided with crank-pins, said crank-arms journaled on said frame and operatively connected to
55 said radial shafts, respectively, and a plurality of cars suspended from said crank-pins, respectively.

7. In an amusement apparatus, a stationary vertical shaft, a bevel-gear journaled to
60 rotate on said shaft, means for holding said gear stationary, a frame journaled to rotate on the hub of said bevel-gear, a motor operatively connected to said frame, a plurality
65 of horizontal shafts journaled on said frame radial to said vertical shaft, a plurality of crank-arms provided with crank-pins, said crank-arms journaled to rotate on said frame and operatively connected to said radial
70 shafts, respectively, a plurality of cars suspended from said crank-pins, respectively, and a plurality of bevel-pinions fast to said horizontal shafts, respectively, said bevel-pinions meshing into said bevel-gear.

8. In an amusement apparatus, a vertical
75 shaft, a plurality of cars, mechanism for moving said cars in an undulatory path about said vertical shaft, said path concentric with said shaft, and means for holding each of said cars with its lateral median line
80 in a substantially vertical plane.

9. In an amusement apparatus a rotary frame arranged with its axis of rotation substantially vertical, a substantially horizontal shaft journaled to rotate on said frame, a motor, mechanism for rotating said frame and
85 shaft about their respective axes, said mechanism operatively connected to said motor, a crank-arm journaled on said frame operatively connected to said horizontal shaft, a plurality of crank-pins fast to said crank-arm, a plurality of cars suspended from said crank-pins, respectively, a sprocket-wheel fast to said frame, a plurality of sprocket-wheels fast to said cars, respectively, and a
90 chain operatively connecting all of said sprocket-wheels together.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

LOUIS A. JONES.

Witnesses:

CHARLES G. GOODING,
ANNIE J. DAILEY.