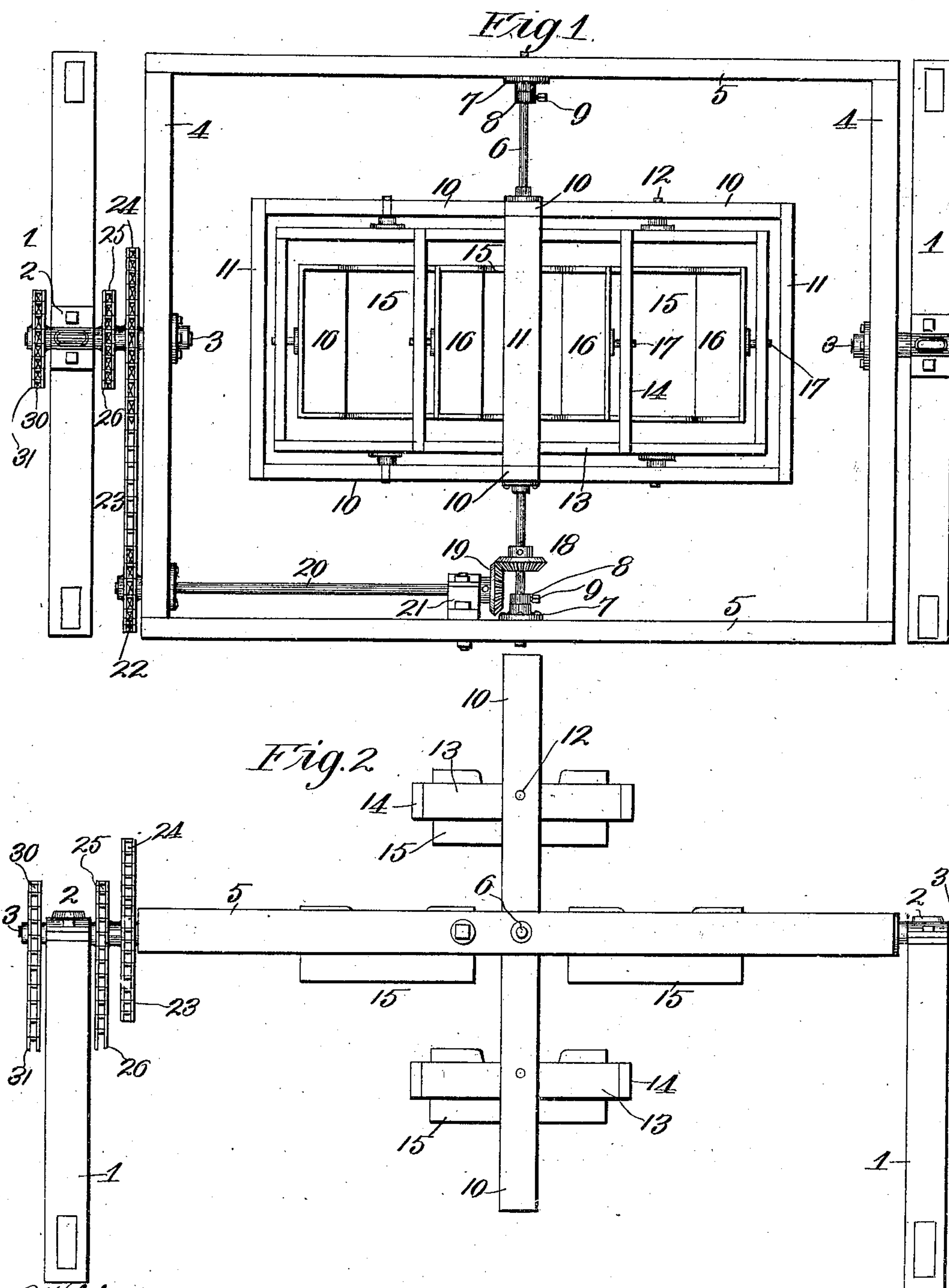


No. 846,925.

PATENTED MAR. 12, 1907.

G. KRAMER.
AMUSEMENT DEVICE.
APPLICATION FILED AUG. 9, 1906.

3 SHEETS—SHEET 1.



Witnesses
Frank R. Glover.
H. C. Rodgers.

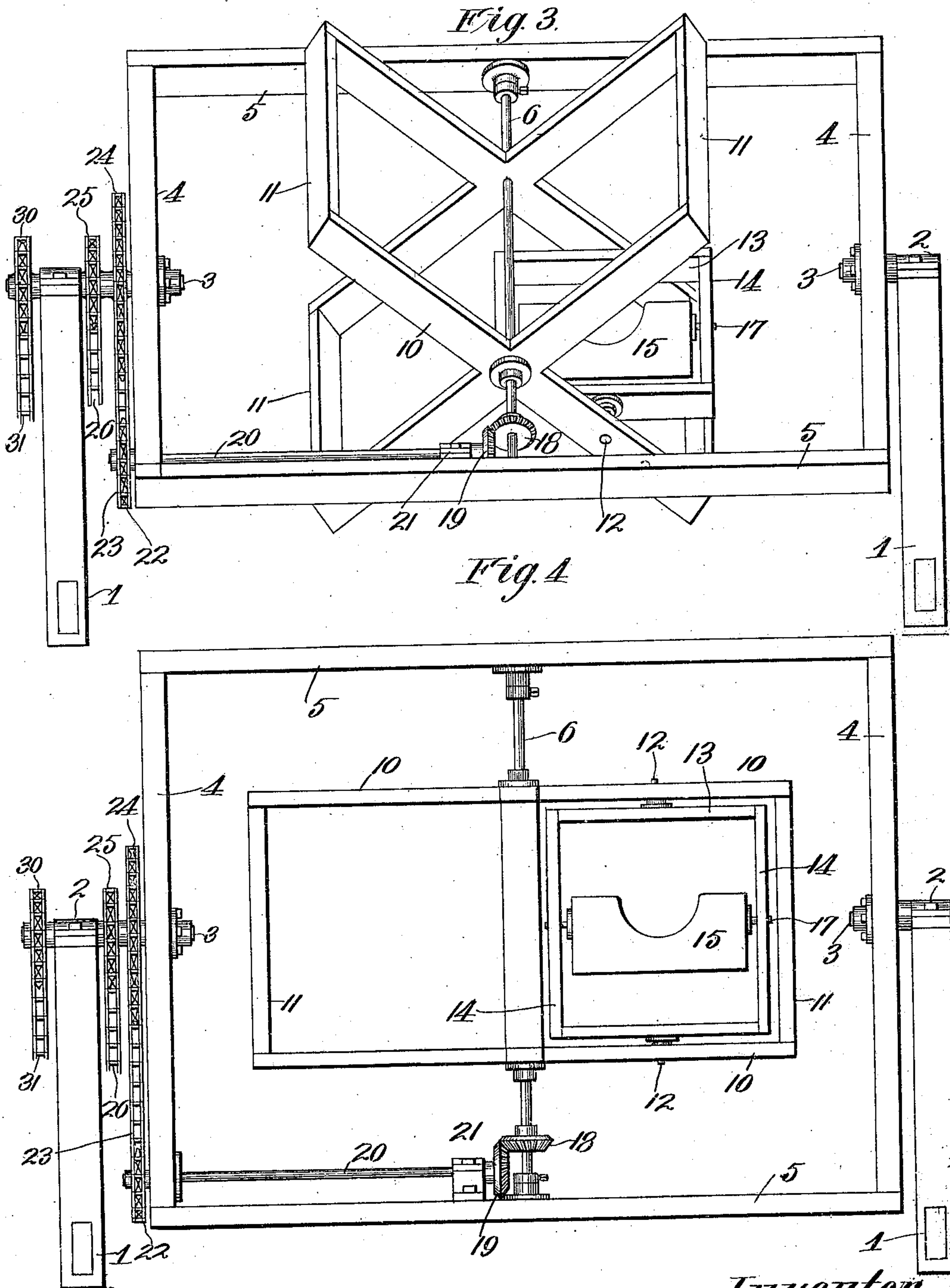
Inventor
George Kramer
By George F. Rupp, Atty.

No. 846,925.

PATENTED MAR. 12, 1907.

G. KRAMER.
AMUSEMENT DEVICE.
APPLICATION FILED AUG. 9, 1906.

3 SHEETS—SHEET 2.



Witnesses
Frank R. Gore
H. C. Rodgers.

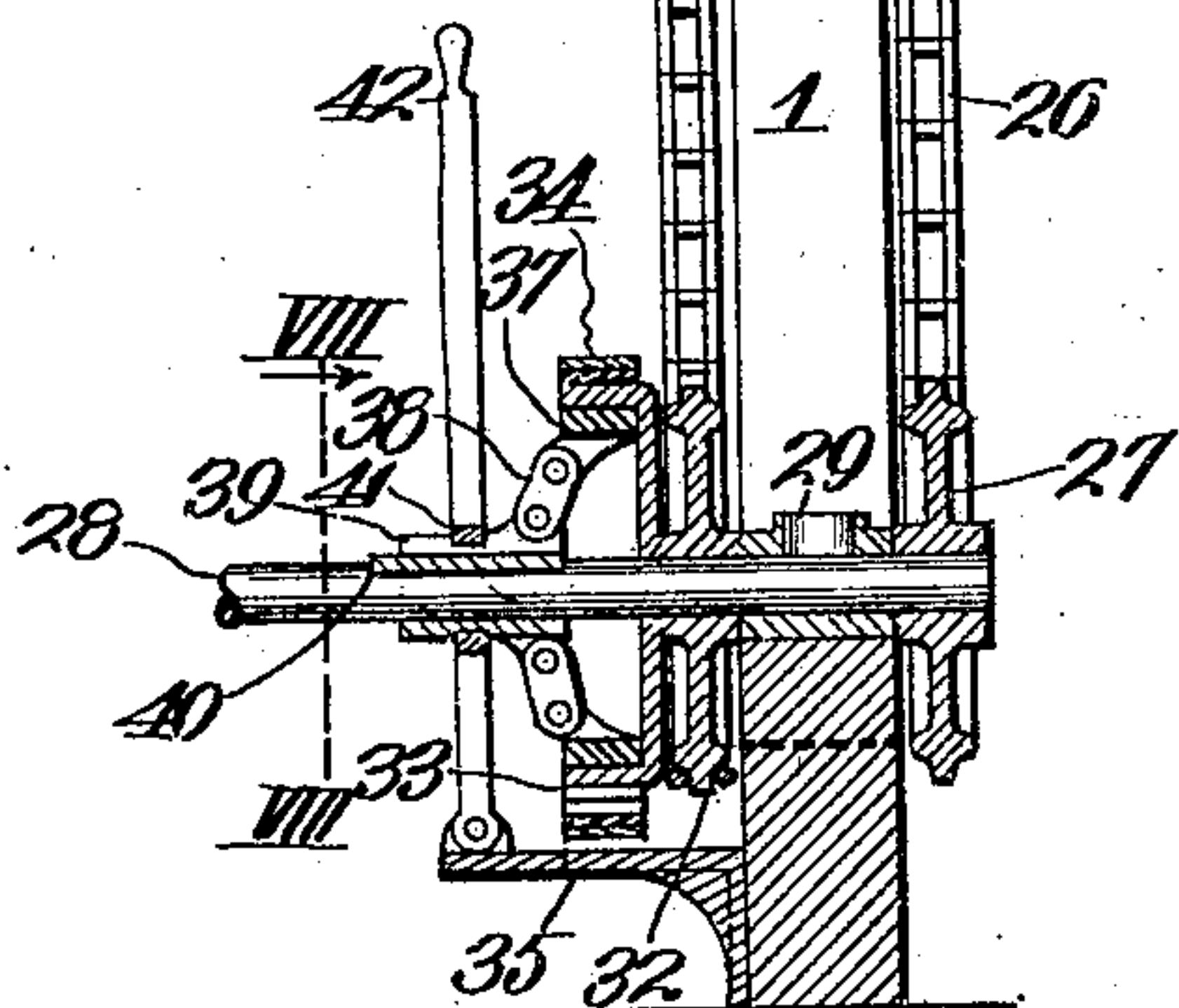
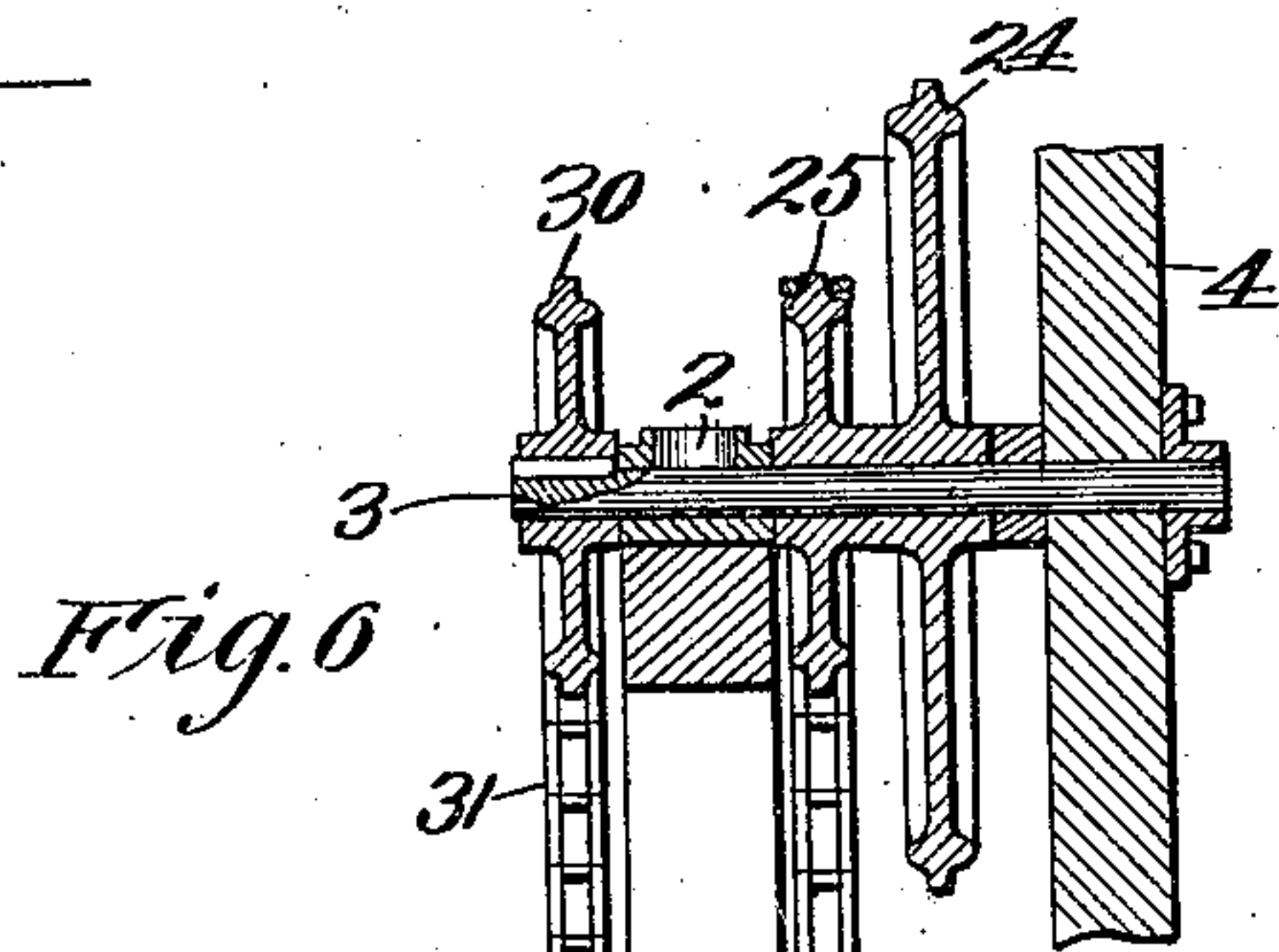
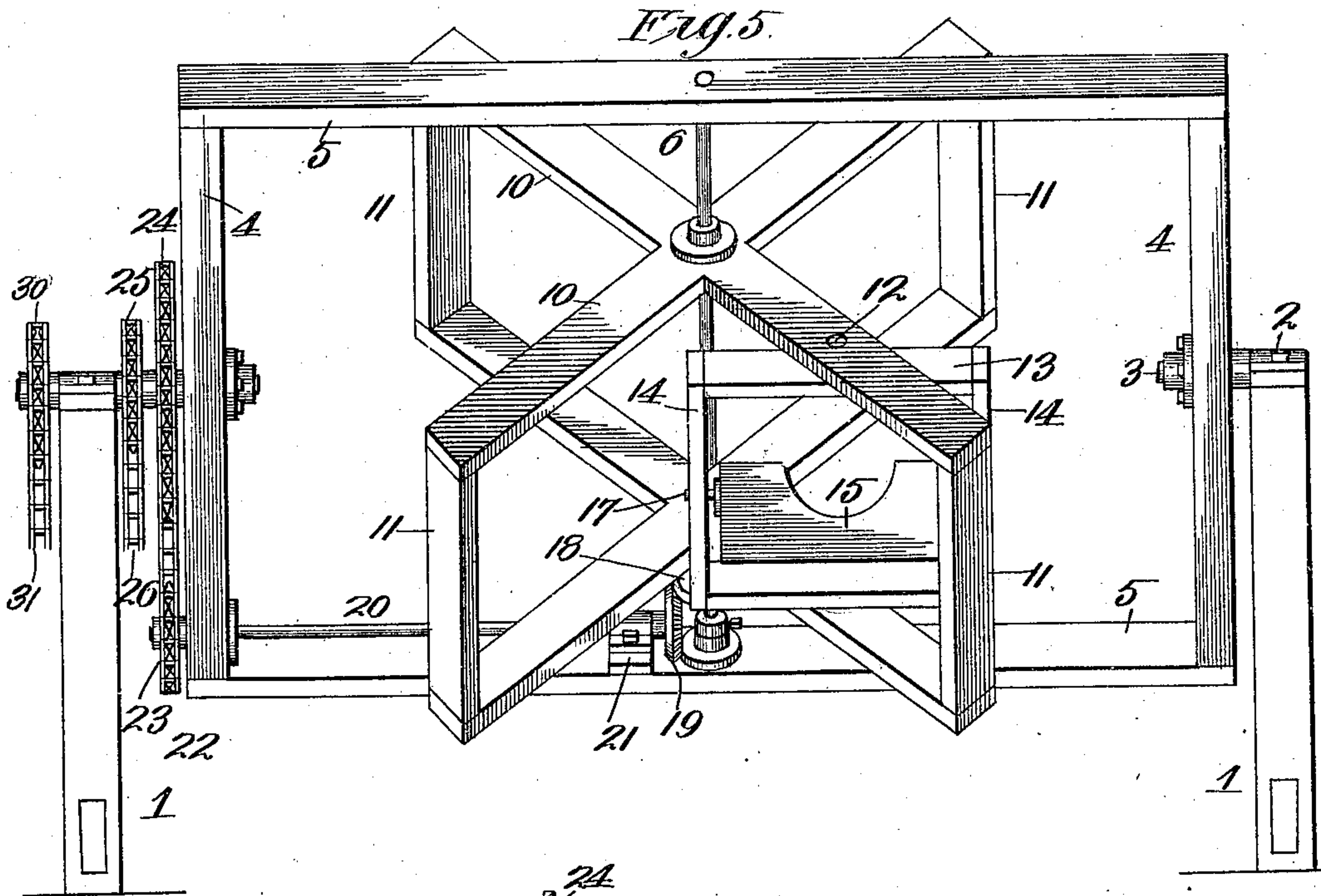
Inventor
George Kramer
By *George F. Gorpe* Atty.

No. 846,925.

PATENTED MAR. 12, 1907.

G. KRAMER.
AMUSEMENT DEVICE.
APPLICATION FILED AUG. 9, 1906.

3 SHEETS—SHEET 3.



Witnesses
Frank R. Gore
H. C. Rodgers

Inventor
George Kramer
By George F. Choate Atty.

UNITED STATES PATENT OFFICE.

GEORGE KRAMER, OF KANSAS CITY, MISSOURI.

AMUSEMENT DEVICE.

No. 846,925.

Specification of Letters Patent.

Patented March 12, 1907.

Application filed August 9, 1906. Serial No. 329,842.

To all whom it may concern:

Be it known that I, GEORGE KRAMER, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Amusement Devices, of which the following is a specification.

This invention relates to amusement devices; and my object is to produce a device which can be caused to convey all of the passengers in a circular direction vertically, horizontally, or obliquely, which can be utilized to give certain of the passengers a ride in a circular direction without disturbing the other passengers, and which can be caused to convey the passengers in a path approximating the contour of a bent figure 8.

With this general object in view and others, as hereinafter appear, the invention consists in certain novel and peculiar features of construction and organization, as hereinafter described and claimed, and in order that it may be fully understood reference is to be had to the accompanying drawings, in which—

Figure 1 is a top plan view of an amusement device embodying my invention arranged in its initial position. Fig. 2 is a side view of the device with the parts disposed as shown in Fig. 1. Fig. 3 is a side view showing the parts in the positions they occupy after the main and secondary frames have been revolved one-eighth of a circle. Fig. 4 is a similar view showing the parts in the positions they assume when the main and secondary frames have completed a quarter-revolution. Fig. 5 is a side elevation showing the parts in the positions they occupy after the main and secondary frames have completed three-eighths of a revolution. Fig. 6 is a central vertical section to show the power transmitting and controlling mechanism between the driving-shaft and the main and secondary rotary frames. Fig. 7 is a section on the line VIII VIII of Fig. 6.

In the said drawings, 1 indicates suitable standards erected upon the ground or any suitable platform.

2 are bearings secured to the standards, and 3 short alined shafts journaled in the bearings and forming trunnions for a rectangular frame consisting of end bars 4, from which the trunnions project, and side bars 5, connecting the end bars.

6 is a shaft extending across the main rotary frame described and journaled at its

ends in and centrally of the sides of the said frame, said sides being equipped with hard bearing-plates 7 for the shaft 6. Collars 8 are secured rigidly upon the shaft by set-screws 9 at the inner sides of bearings 7 to guard against endwise movement of the shaft. A secondary rotary frame consists of a series of substantially rectangular frames mounted on and arranged radially of shaft 6, said frames consisting of side bars 10 and end bars 11.

Journaled in the side bars 10 of the secondary frames at a suitable distance from the end bars 11 thereof and paralleling shaft 6 are the trunnions 12 of a series of rectangular frames consisting of side bars 13, from which said trunnions project, and end bars 14, said frames being of proper size to revolve freely between shaft 6 and end bars 11. When properly proportioned to carry passengers, the trunnion-equipped frames will be disposed near the outer ends of frames 10, and thus provide for the use of a greater number of radial secondary frames.

15 indicates cars provided with seats 16 and with alined end trunnions 17 journaled in and centrally of the end bars 14 of the trunnion-equipped frames.

18 indicates a bevel-gear rigidly secured on shaft 6 and meshing with a bevel-gear 19 on shaft 20, extending longitudinally of and within the main frame and journaled in a bearing 21, carried by the contiguous side bar, and in one of the end bars of said frame and secured rigidly on the outer end of said shaft is a sprocket-wheel 22, connected by chain 23 to a sprocket-wheel 24, journaled on the contiguous shaft 3. Cast integral with or secured rigidly to sprocket-wheel 24 is a sprocket-wheel 25, connected by sprocket-chain 26 to a sprocket-wheel 27, secured rigidly to one end of a driven shaft 28, journaled in a bearing 29, secured to the base portion or sill of one of the standards 1.

30 indicates a sprocket-wheel rigidly secured on shaft 3, last referred to, and connected by a chain 31 with a sprocket-wheel 32, journaled on shaft 28, and rigidly secured to the said sprocket-wheel is a wheel 33, adapted for peripheral engagement by a flexible brake-strap 34, secured at one end to a bracket 35 and at its opposite end to a lever 36 carried by said bracket. The wheel is also adapted to be engaged at the inner side of its rim by clutch-shoes 37, connected by links 38 to a collar 39, slidingly mounted

on the driven shaft and prevented from rotary movement thereon by a key 40.

41 is a collar mounted to rotate but not slide on the collar 39, and 42 a lever pivotally connected to collar 41 for the purpose of throwing the clutch-shoes into or out of engagement with the said wheel, it being understood that a suitable catch mechanism (not shown or described in detail because of common and well-known construction) may be employed to lock the lever with the clutch-shoes in or out of engagement with said wheel, though ordinarily no catch mechanism will be needed, as the operator can hold the clutch-shoes into engagement with the wheel for the short period the device will be in operation.

To enable the passengers to enter the cars, the device will occupy the position shown in Figs. 1 and 2, though in practice the undermost car will be sufficiently near the ground or platform to permit the passengers to step into the car and seat themselves. The shaft 28 will then be caused to revolve and through the medium of sprocket-wheels 27, 25, 24, and 22 and chains 26 and 23 rotate shaft 20, and thereby the secondary radially-armed frames, until one car has been brought to a position vertically under shaft 6 to permit passengers to enter such car. This operation of the radially-armed frame is repeated until all of the cars are loaded, it being understood that the operator holds the main rotary frame stationary by drawing the strap-brake tightly against wheel 33 by means of the lever 36.

After the cars are loaded they can be revolved in the same direction at any desired speed, and thus give the passengers a ride similar to that enjoyed on the type of wheels known as "Ferris wheels." If desired, the operator can release the pressure of the strap-brake slightly and operate lever 42 and cause the clutch-shoes to lightly engage wheel 33, and thus through the medium of wheel 32, chain 31, and wheel 30 throw the main rotary frame to a vertical position, and hence dispose shaft 6 in the same position. The strap-brake can then be applied and the clutch-shoes withdrawn to permit the radial frames to revolve in a horizontal plane. Again, if desired, the main frame can be set at an angle, as shown in Fig. 3, and as a result the passengers can be carried in a circle which is pitched at any desired angle.

When it is desired to impart revolution to the main rotary frame and the secondary frames simultaneously, and thus give the passengers a ride over a course which it is difficult to follow with the eye, though readily traced from the drawings—viz., a course approximating the figure 8, with the ends of the loops of the 8 bent backward—the operator releases the brake and throws the clutch-shoes heavily against wheel 33. The result

of this action is the revolution of shaft 3 and wheel 24, the latter, however, because equipped with twice as many teeth as wheel 22, acting as a fulcrum for the purpose of turning wheel 22, it being apparent that if wheels 24 and 22 were equipped with the same number of teeth shaft 20 would not be revolved at all. If said wheels were of the same diameter, the same effect could be produced—viz., the simultaneous revolution of the main and secondary frames by applying the clutch-shoes lightly against wheel 33, so that they would slide thereon and impart movement thereto at half the speed of the driving-shaft 28. In this latter event, however, the experience of the person handling the levers would be a material factor in effecting the rotation of the main frame at the same speed as the secondary frames.

In the various operations described the pivotally-suspended cars always maintain their upright positions by gravity, the frames from which the cars are pivotally suspended automatically adapting themselves to the rotation of the secondary frames to which they are pivoted.

When the parts are as shown in Figs. 1 and 2, the rotation of shaft 6 results in conveying the passengers in a circular path and in a vertical plane. If frame 5 is secured in the position shown in Fig. 4, the independent rotation of shaft 6 conveys the passengers in a circular path in a horizontal plane. If the main frame is secured at any desired angle to the vertical or horizontal positions shown in Figs. 2 and 4, as in Figs. 3 and 5, the independent rotation of shaft 6 will result in giving the passengers a ride in a circular direction, but in an inclined plane, the plane of the circle being determined by the vertical adjustment of the main frame. If it is desired when the parts are in the position shown in Figs. 1 and 2 to give the passengers above and below the plane of shaft 6 a ride in a circular direction, shaft 6 is held stationary and the main frame revolved, and in this action the cars in the horizontal plane of shaft 6 will remain upright and practically stationary because the pivoted frames carrying them will simply revolve on their pivots 17, as will be readily understood by reference to Fig. 4, it being understood that the cars in the horizontal plane of shaft 6 may rock or have swivel action during the circular travel of the remaining cars, it being further understood that when there are a greater number of cars than four, as shown in the drawings, the more remote the cars from the vertical plane of shaft 6 the smaller the circles will be which they describe.

Assuming that the parts are in the positions shown in Figs. 1 and 2 and that the main and secondary frames are arranged to rotate simultaneously, it will be apparent that the cars must travel spirally with respect to

the axis of the main frame and around shaft 6. In tracing this movement it was deemed best to show only a single car in Figs. 3, 4, and 5, which car is the undermost one illustrated in Fig. 2. Now if the direction of motion is such that the side of the main frame toward the observer moves downward the parts will have moved from the position shown in Fig. 2 to the position shown in Fig. 3 at the end of the first eighth of a revolution, in which position it will be noticed that the car is horizontal and the sides of the frame carrying the car also horizontal with the ends pitched at an angle, which is also one-eighth of a revolution from the horizontal position in which they started. The continued operation of the mechanism disposes the parts in the position shown in Fig. 4 at the end of the first quarter-revolution, where it will be noticed the main frame is vertical, the secondary frames horizontal, the car horizontal, and the frame carrying the car vertical, it being understood that the frame carrying the car, because its trunnions are free to swivel in the secondary frame, may occupy such position that its end bars are not vertically under the side bars of the secondary frame. The movement continuing, the parts will assume the position shown in Fig. 5 at the end of the third eighth of the revolution. At the end of the half-revolution the parts will again occupy the positions shown in Fig. 2, such car in the movements described having traveled spirally outward, upward, and forward around the axis of the main frame at the rear side of said axis to the position shown in Fig. 4 and then spirally forward, downward, and inward and so around the front side of said axis to its original position. In the next half-revolution the car will follow a similar course except that it will move spirally upward, outward, and forward at the rear side of the axis of the main frame at the opposite side of the shaft 6 until it again assumes a position in the longitudinal plane of such axis and then move forward, downward, and inward in front of said axis until it attains its original position, as shown in Fig. 2. All succeeding operations are repetitions of those described, though such actions can be reversed by reversing the direction of rotation of the main frame, as will be readily understood.

From the above description it will be apparent that I have produced an amusement device possessing the features of advantage enumerated as desirable, and I wish it to be understood that I do not desire to be restricted to the exact details of construction shown and described, as obvious modifications will suggest themselves to one skilled in the art.

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

65 1. An amusement device, comprising a ro-

tary frame, a shaft journaled in said frame and extending at right angles to the axis of the rotary frame, secondary frames rigidly secured to said shaft, frames pivoted to the secondary frames with their axes of motion paralleling said shaft, and cars pivotally suspended from the last-named frames and extending parallel with the axis of the main frame.

2. An amusement device comprising a rotary frame, a shaft journaled in said frame and extending at right angles to and intersecting the plane of the axis of the rotary frame, secondary frames rigidly secured to said shaft, frames pivoted to the secondary frames with their axes of motion paralleling said shaft, cars pivotally suspended from the last-named frames and extending parallel with the axis of the main frame, and means to simultaneously rotate said main and secondary frames.

3. An amusement device, comprising a rotary frame, a shaft journaled in said frame and extending at right angles to and intersecting the plane of the axis of the rotary frame, secondary frames rigidly secured to said shaft, frames pivoted to the secondary frames with their axis of motion paralleling said shaft cars pivotally suspended from the last-named frames and extending parallel with the axis of the main frame, means to secure the main rotary frame in any desired position, and means to rotate the secondary frames while the main frame is stationary.

4. An amusement device, comprising a rotary frame, a shaft journaled in said frame and extending at right angles to and intersecting the plane of the axis of the rotary frame, secondary frames rigidly secured to said shaft, frames pivoted to the secondary frames with their axes of motion paralleling said shaft, cars pivotally suspended from the last-named frames and extending parallel with the axis of the main rotary frame, and means to rotate the main frame without rotating the shaft carried thereby on its own axis, and consequently without rotating the secondary frames around the axis of said shaft.

5. In an amusement device, suitable longitudinally-alined bearings, a frame arranged between said bearings and provided with rigid longitudinally-alined trunnions projecting centrally from its end bars, a shaft intersecting the axis of said trunnions and extending at right angles thereto and journaled in the side bars of said frame, secondary frames secured rigidly on and rotatable with said shaft within the main frame, frames pivoted to the sides of the secondary frames and having the axes of said pivots paralleling said shaft, cars pivotally suspended within the last-named frames, with the axis of said pivotal points paralleling the axis of the main frame, a shaft journaled in the main frame

and paralleling its axis and geared to the shaft of the secondary frame, and a wheel journaled on one of the trunnions of the main frame and geared to the shaft carried
5 by said frame.

6. In an amusement device, suitable longitudinally-alined bearings, a frame arranged between said bearings and provided with rigid longitudinally-alined trunnions projecting centrally from its end bars, a shaft intersecting the axis of said trunnions and extending at right angles thereto and journaled in the side bars of the frame, secondary frames secured rigidly on and rotatable with said
10 shaft within the main frame, frames pivoted to the sides of the secondary frames and having the axes of said pivots paralleling said shaft, cars pivotally suspended within the

last-named frames with the axes of said pivotal points paralleling the axis of the main
20 frame, a shaft journaled in the main frame and paralleling its axis and geared to the shaft of the secondary frame, a wheel journaled on one of the trunnions of the main frame and geared to the shaft carried by said
25 frame, and means whereby said trunnions and last-named shaft may be turned simultaneously so as to revolve the main frame and the secondary frames at the same speed.

In testimony whereof I affix my signature
30 in the presence of two witnesses.

GEORGE KRAMER.

Witnesses:

G. Y. THORPE,
JOHN KRAMER.