No. 855,132.

PATENTED MAY 28, 1907.

F. PULMAN & W. I. LEATHERLAND.

AMUSEMENT DEVICE.

APPLICATION FILED NOV. 8, 1906.

5 SHEETS—SHEET 1.

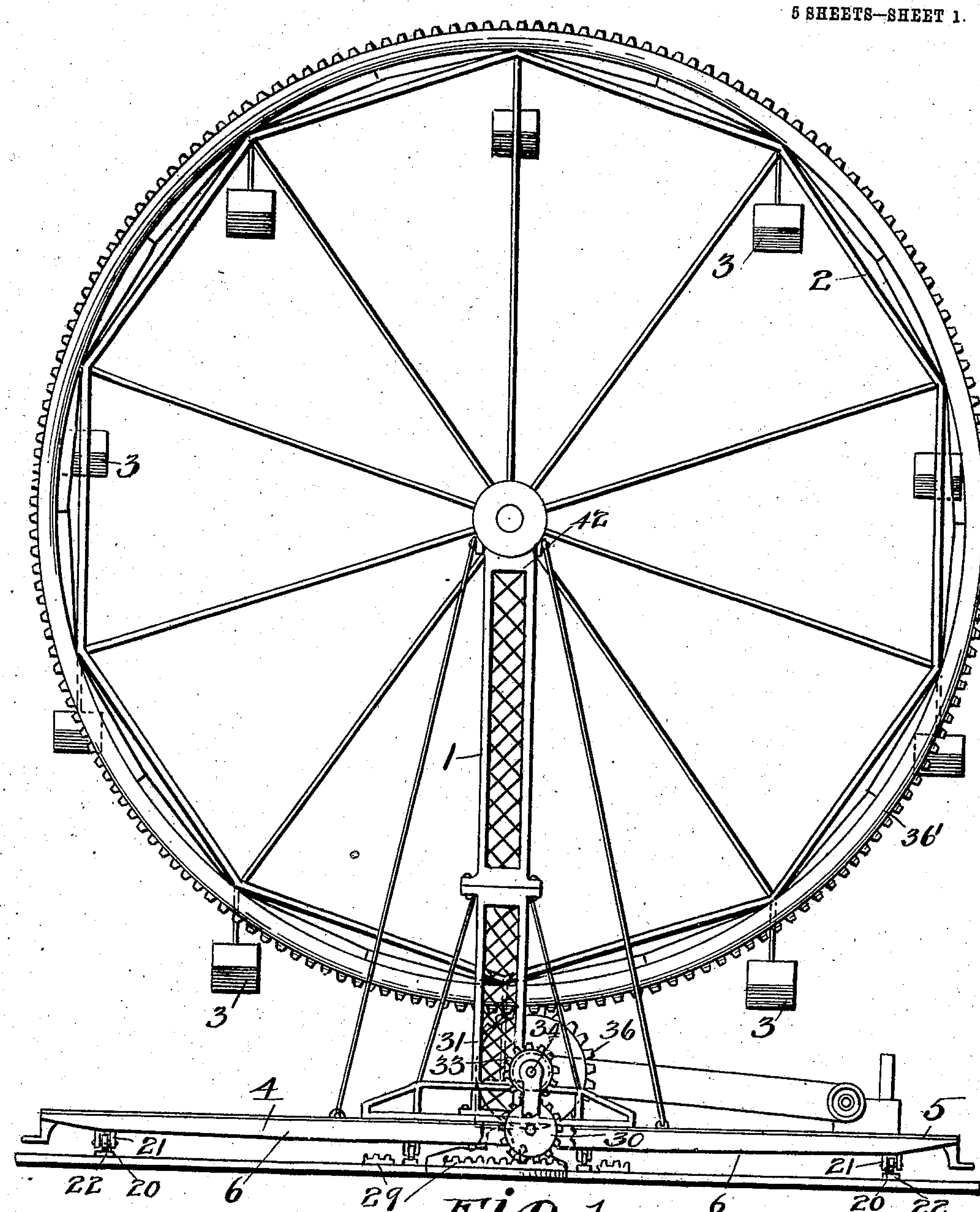

Fig. 1.

Witnesses

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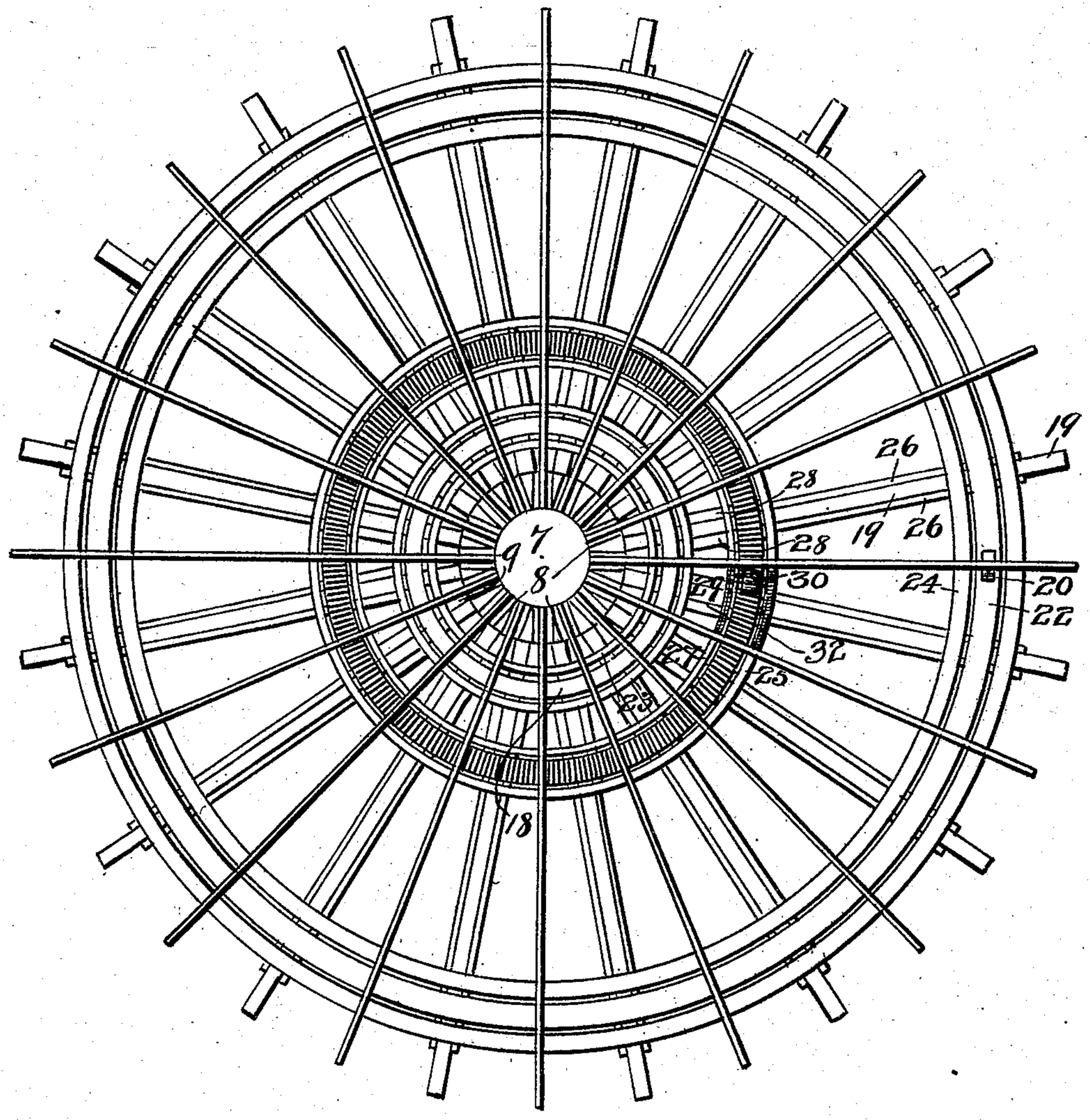
5 SHEETS—SHEET 2.

Fig. 2.



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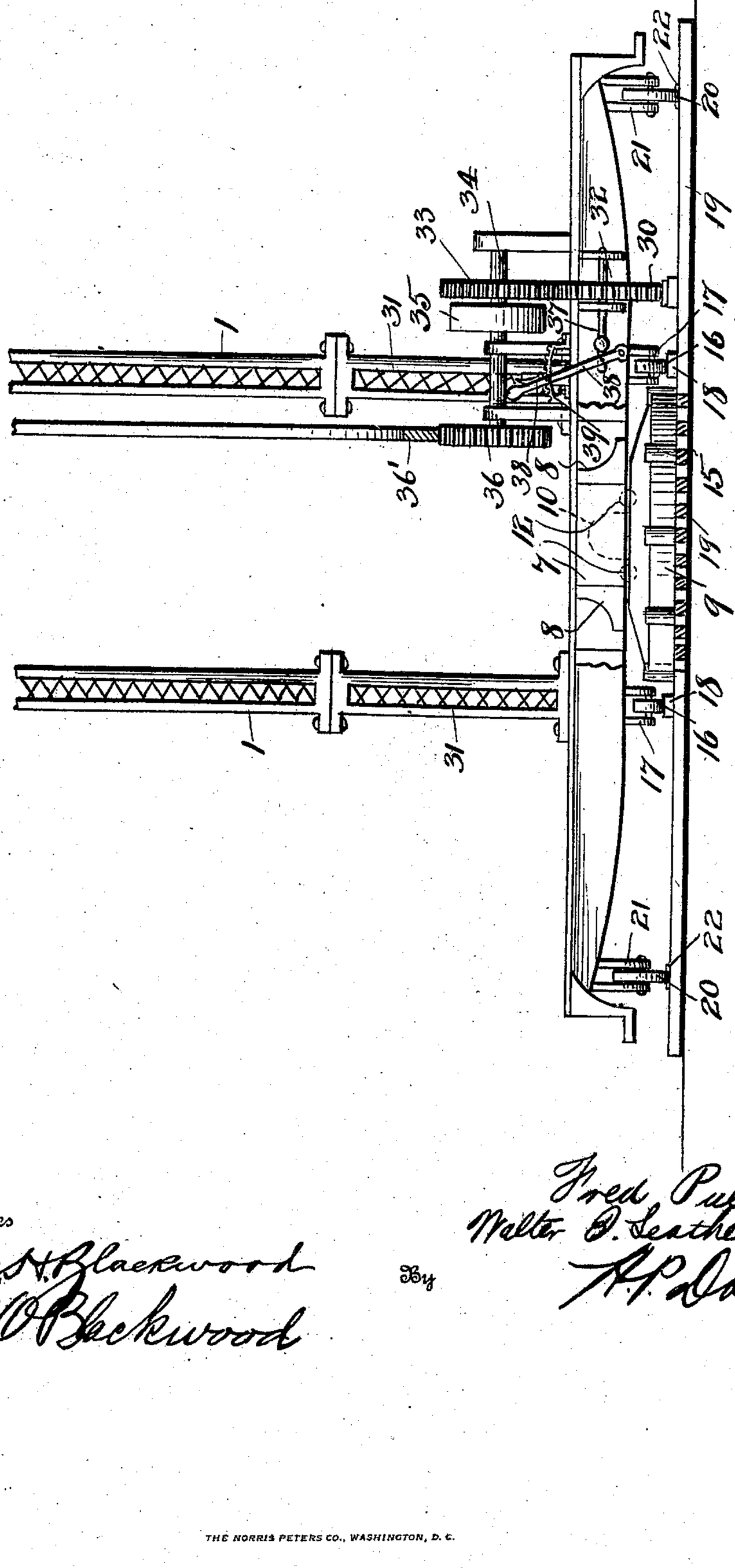
5 SHEETS—SHEET 3.

Fig. 3.



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6 SHEETS—SHEET 4.

Fig. 4.

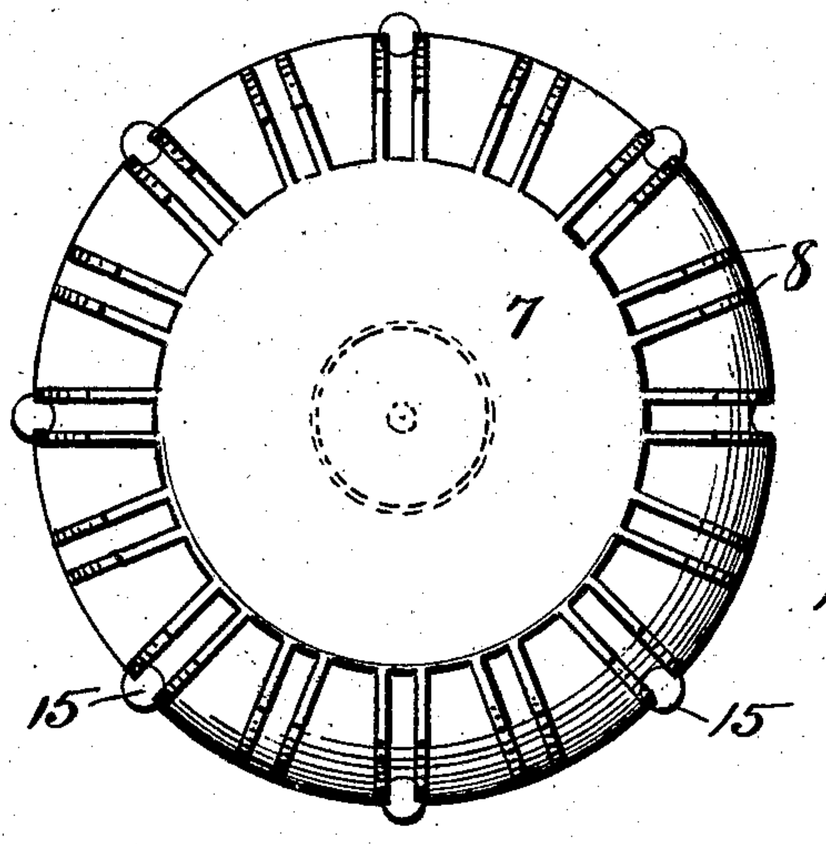


Fig. 5.

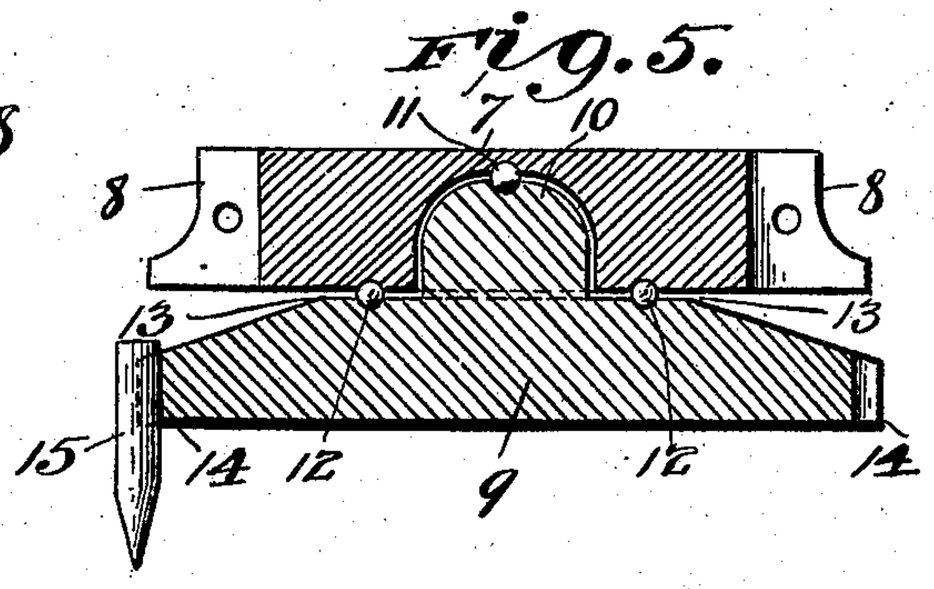


Fig. 6.

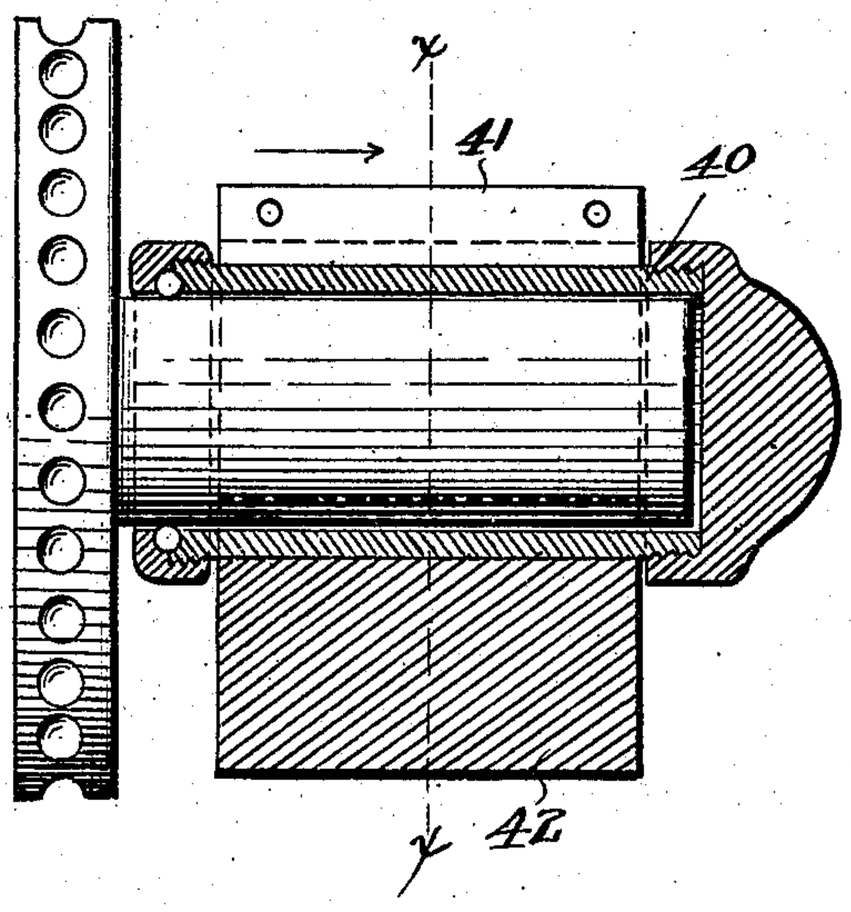
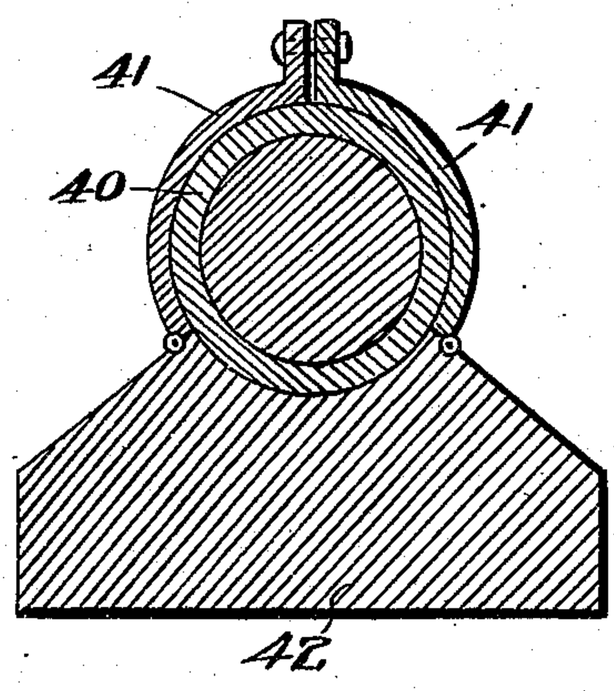


Fig. 7.



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5 SHEETS—SHEET 5.

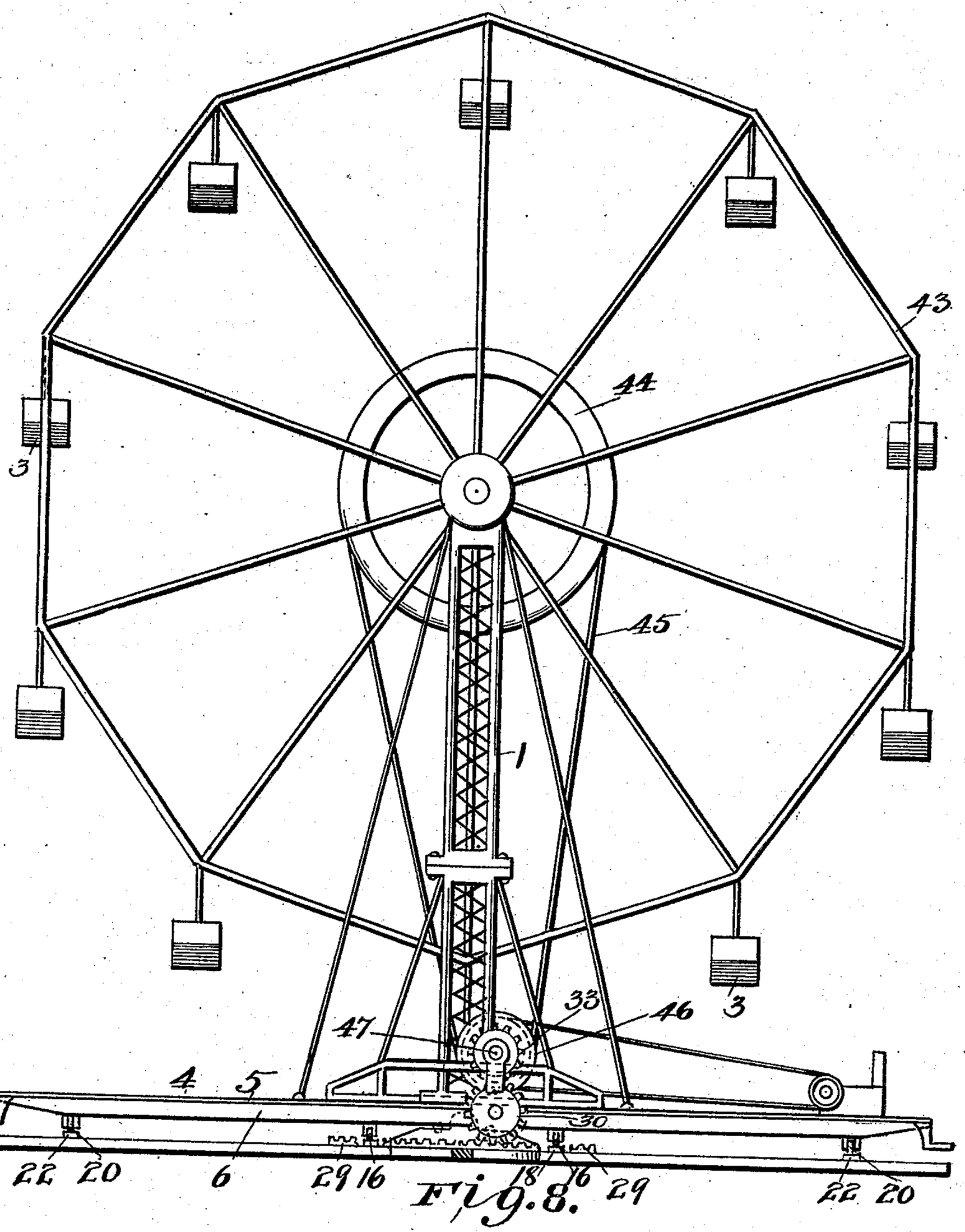

Fig. 8.

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UNITED STATES PATENT OFFICE.

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AMUSEMENT DEVICE.

No. 855,132. Specification of Letters Patent. Patented May 28, 1907.

Application filed November 8, 1906. Serial No. 342,559.

To all whom it may concern:

Be it known that we, FRED PULMAN and WALTER I. LEATHERLAND, citizens of the United States, residing at Alexandria, in the county of Alexandria and State of Virginia, have invented certain new and useful Improvements in Amusement Devices, of which the following is a specification.

Our invention relates to amusement devices and particularly to an apparatus of the Ferris wheel type having a rotation of the passenger carrying wheel on its own horizontal axis and also a movement around the vertical axis of a platform on which the wheel and its support are mounted and the object of the invention is to provide in such an apparatus, a strong construction of rotating platform adapted to readily carry a high tower on which the carrier wheel is mounted and to provide means whereby the carrier wheel and the platform may be driven by a minimum expenditure of power and by simple mechanism, and generally to improve the construction of the parts of such a device.

To these ends our invention is set forth in the device hereinafter described and illustrated in the accompanying drawings.

In these drawings, Figure 1 is a view in elevation of the apparatus; Fig. 2, a plan view of the driving mechanism and platform showing the floor of the platform removed; Fig. 3, a detail elevation partly in section showing the driving mechanism; Fig. 4 a plan view of the central bearing pedestal and head; Fig. 5 a vertical section through head and pedestal; Fig. 6, a detail elevation of the wheel axle journal; Fig. 7, a section of said part; Fig. 8 a view in elevation of a modified form of device showing a cable in place of the rack for driving the wheel.

Referring to the drawings, 1 is a tower of the usual form employed as a support for Ferris wheels. This tower carries a rotatable wheel 2 on which are pivotally hung passenger carriers 3.

The tower is rigidly mounted on a rotatable platform 4, adapted to turn on a vertical axis. This platform comprises a floor 5 from which the passengers may enter the cars and long heavy beams 6 set on edge and extending from the center out to the circumference of the platform. These beams are firmly secured to a central, rotatable metal head 7, between shoulders 8 formed on said head. This capstan is mounted on a cast iron pedestal 9, adapted to rest on the ground and forming the main support for the apparatus. The pedestal has a central crown 10, provided with a ball bearing 11, and on this ball bearing and on the series of balls 12, mounted in a shoulder 13, of the pedestal, the head 7 is supported and thereby enabled to rotate freely and without friction on said pedestal.

In the outer edge of the pedestal are formed slots or recesses 14, with which engage posts or stakes 15, driven firmly into the ground and providing simple but effective means of insuring against any twisting or radial movement of the pedestal.

A short distance beyond the circumference of the pedestal, each beam is provided with a roller 16, journaled in a hanger 17 and bearing on a circular track 18, which is supported and maintained in position by sleepers 19, resting on the ground and extending radially from the pedestal. Near their outer ends, the beams are also provided with bearing rollers 20, journaled in hangers 21, and adapted to run on a track 22, also secured to said sleepers. Circular stringers 23, 24, surrounding said tracks 18 and 22, respectively, serve to tie said sleepers rigidly in place. Extending between the stringers 24, and an intermediate circular stringer 25, are braces 26, and between a stringer 27, adjacent to the stringer 25, and the inner stringers 23, are braces 28.

Between the stringers 25, 27, is mounted a fixed rack plate or cogged track 29. On this cog track is adapted to travel a cog wheel 30, journaled in the frame of the platform and adapted to carry around the platform in a rotary movement when the cog is forced to traverse the track.

The main uprights 31 of the tower 1, are mounted on the platform directly over the inner row of supporting rollers 16, and the weight of the tower is thus supported centrally, at the strongest point of the platform structure, and since the said rollers 16 and the other rollers 20, together with the pedestal head, are adapted to receive the weight of the platform, the driving cog and its track are relieved of pressure and undue friction.

It will be seen that the arrangement of the central head, rigid base pedestal receiving the head and the long rigid beams extending from the head and provided with supporting rollers, dispenses with the necessity for a cen-

tral upright pole or post, rising from the platform to support the carriers, enabling the large centrally mounted wheel and high tower to be employed, gives a rotating-platform frame of great stiffness and strength and provides a strong supporting bearing at the point of greatest weight, and prevents strain on the driving cog and track.

The cog wheel 30, is journaled in a hanger 32 in the platform and projects above the platform. It meshes with a driving gear wheel 33, fixed on a shaft 34, which carries a driving pulley 35, adapted to be connected to any suitable source of motive power, preferably consisting of an engine or motor mounted on the platform. At its inner end the shaft 34 is provided with a gear wheel 36, meshing with a large circular rack 36′, fixed on the passenger carrying wheel, whereby said wheel is adapted to be driven on its own axis. This form of driving mechanism for the Ferris wheel, affords a long leverage and requires the expenditure of a minimum amount of power to drive the wheel. It also facilitates the use of a driving means common to both the wheel and the platform which is a distinctive idea in these devices that employ a high tower and large central Ferris wheel.

Controlling the gear wheel 30 is a shifting arm 37, connected to an operating lever 38, engaging toothed bar 39, and the wheel 30 is so mounted as to be capable of movement longitudinally of its shaft whereby upon actuation of the lever 38, the cog wheel 30, may be thrown out of engagement with the cog track 29, when it is not desired to rotate the platform but merely the wheel alone.

The particular construction and arrangement of the driving mechanism and the driven parts, as shown and described, with the large rack extending down so as to engage the cog wheel mounted on the platform and the platform also carrying on the same shaft the gear whereby the said platform may be rotated, provide a mechanism of a simple and effective character whereby a single engine or motor and driving mechanism common to both the platform and wheel may be employed.

The horizontal axle of the Ferris wheel is mounted in ball-bearing journals 40, which are preferably mounted removably on the uprights of the tower 1, and are held in position by means of plates 41, hinged to the journal bed 42 of the tower.

In Fig. 8, a modified form of driving means for operating the wheel is illustrated. In this form, the carrying wheel 43, has a large pulley 44 mounted on its axle and over this pulley runs a cable 45, which is driven by pulley 46 on shaft 47, which is provided with a driving pulley and platform rotating gear similar to that shown in the previously described arrangemnt. The cable may be used instead of the rack and is designed as a cheaper substitute for the rack, to be employed when considered desirable and when conditions warrant such substitution.

The operation of the device is obvious and need not be again described, and such operation will result in carrying the pivoted passenger carriers around with the wheel between the uprights of the tower and carrying the wheel, tower and platform around the vertical axis of the platform on the pedestal and roller tracks.

It is clear that various changes in the details of the device herein illustrated and described, may be made without departing from the principle of our invention.

Having thus described our invention, what we claim is:

1. In an amusement device, in combination with a rotating platform, a tower thereon, a single central rotating wheel hung on said tower, and common means for rotating both said platform and said wheel, substantially as described.

2. In an amusement device, in combination with a single rotating wheel, a rotating platform on which said wheel is centrally mounted, a suitable source of driving power, a driving shaft, said shaft having at one end means for driving the platform and at the other end means for driving the wheel, substantially as described.

3. In an amusement device, in combination with a rotatable platform, a tower centrally mounted thereon, a rotatable passenger carrying wheel journaled in the upper end of said tower, a suitable source of motive power, a cog wheel mounted on the platform, a fixed cog track with which said cog wheel engages, means for driving said carrier-wheel, and common mechanism intermediate the source of power and the said wheel driving means and cog wheel, substantially as described.

4. In an amusement device, in combination with a rotatable platform, a rotatable passenger carrying wheel centrally mounted thereon, said wheel having a circular rack, a cog wheel on said platform engaging said rack, a fixed cog track, a cog wheel on said platform engaging said track, and common means for driving said cog wheels, substantially as described.

5. In an amusement device, in combination with a rotatable platform, a fixed cog track beneath said platform, a cog wheel engaging said track and mounted on said platform whereby the rotation of said platform is effected by the traverse of the cog wheel on the track, a passenger-carrying wheel mounted on said platform and having a circular rack, a driving shaft mounted on said platform, a driving pulley thereon connected to a suitable source of motive power, a gear wheel on said shaft engaging said platform rotating cog wheel and a gear wheel

thereon engaging said rack, substantially as described.

6. In an amusement device, in combination with a rotating passenger carrying wheel, a rotating platform on which the wheel is mounted, a cog track, a cog wheel on the platform engaging said track, said passenger carrying wheel provided with means whereby it may be driven, common motive means for said cog wheel and passenger wheel driving means and a shifting device for throwing said cog wheel out of engagement with said cog track, substantially as described.

7. In an amusement device, in combination with a rotatable passenger carrying wheel, a tower in which said wheel is centrally hung, a rotatable platform on which said tower is centrally mounted, said platform having a central head fixed thereto over which the passenger wheel moves, and a fixed pedestal on which the head is rotatably mounted, substantially as described.

8. In an amusement device, in combination with a rotatable passenger carrying wheel a rotatable platform on which said wheel is mounted, said platform having fixed thereto, a central head, a pedestal on which the head is mounted, anti-friction bearings between said head and pedestal, a frame extending from said head, rollers mounted on said frame and tracks on which said rollers move, substantially as described.

9. In an amusement device, in combination with a rotatable platform, a rotatable passenger carrying wheel centrally mounted thereon, said platform having a central head, and having radial beams extending from said head, a pedestal on which said head is rotatably supported, and rolling bearings supporting the outer parts of said beams, substantially as described.

10. In an amusement device, in combination with a rotatable platform, a rotatable passenger wheel carried thereby, said platform having a central head, radial beams set on edge extending from said head, a fixed pedestal resting on the ground and supporting said head, radial sleepers extending from said pedestal, tracks mounted on said sleepers, and rollers carried by said platform beams and bearing on said tracks, substantially as described.

11. In an amusement device, in combination with a rotatable passenger carrying wheel, a rotatable platform on which said wheel is centrally mounted, said platform having a central head over which said wheel moves, a fixed pedestal resting on the ground on which said head is rotatably mounted, a cog-track below said platform, a cog wheel on said platform engaging said track whereby the platform is rotated, an inner and an outer series of rollers on said beams and fixed tracks on which they move, said rollers and head adapted to receive the weight of said platform and thus prevent undue pressure on the platform driving cog wheel, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

FRED PULMAN.
WALTER I. LEATHERLAND.

Witnesses:
Jos. H. Blackwood,
M. Emory Jones, Jr.