(No Model.) 3 Sheets—Sheet 1.

C. SHOETTLE.

MERRY-GO-ROUND AND MECHANICAL RACE TRACK.

No. 598,750. Patented Feb. 8, 1898.

Fig. 1.

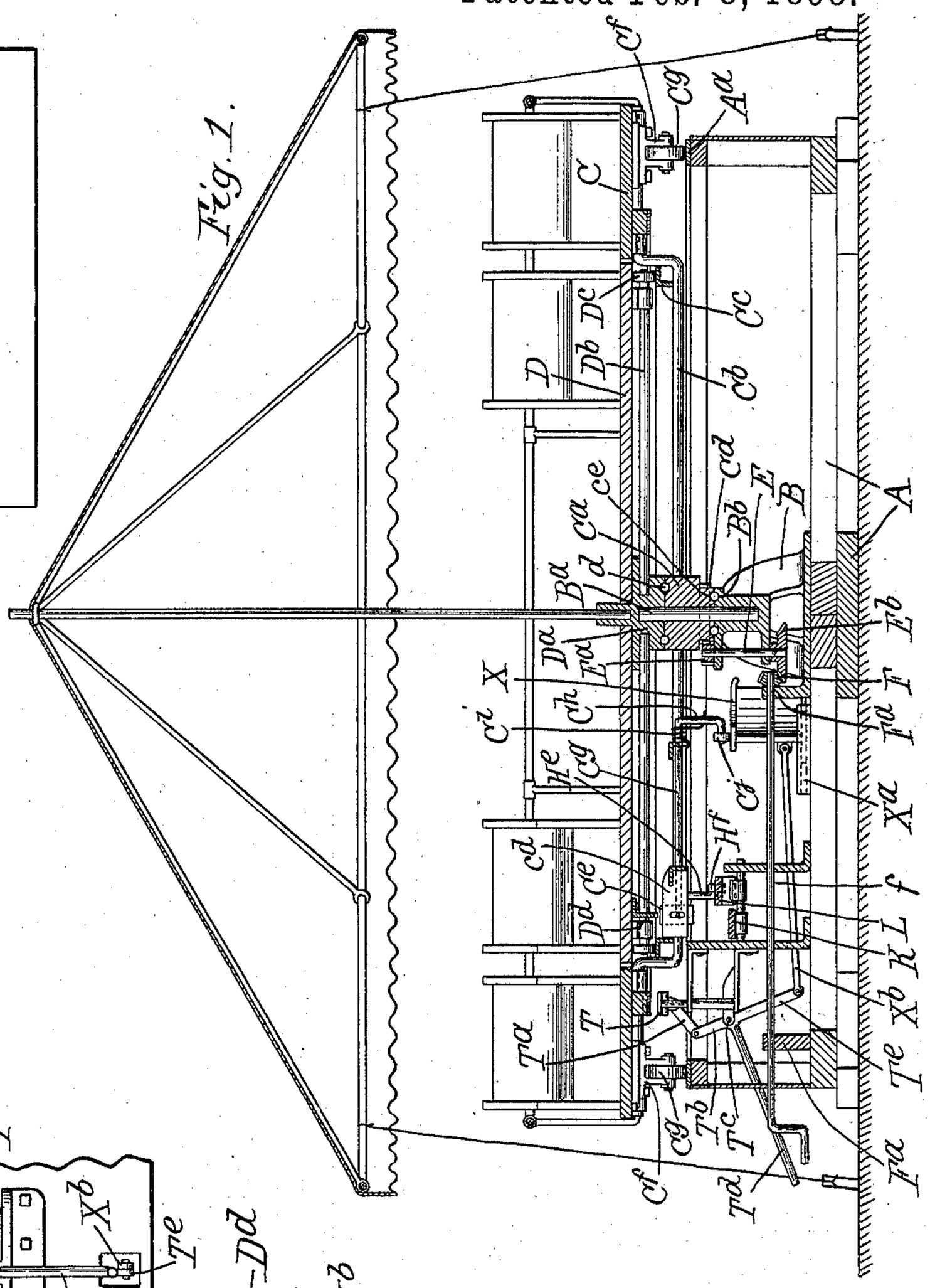


Fig. 7.

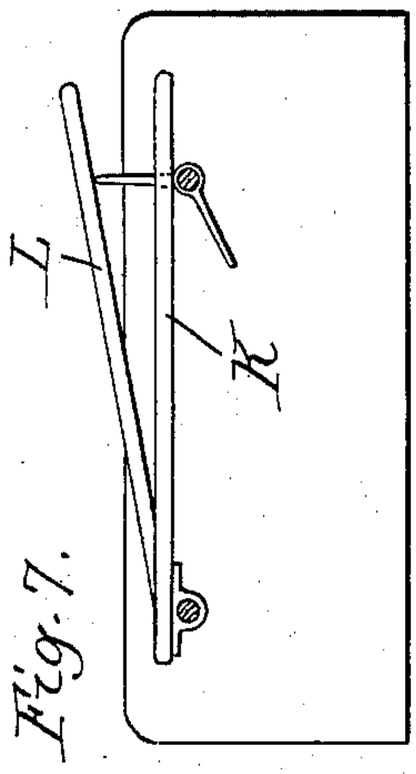


Fig. 6.

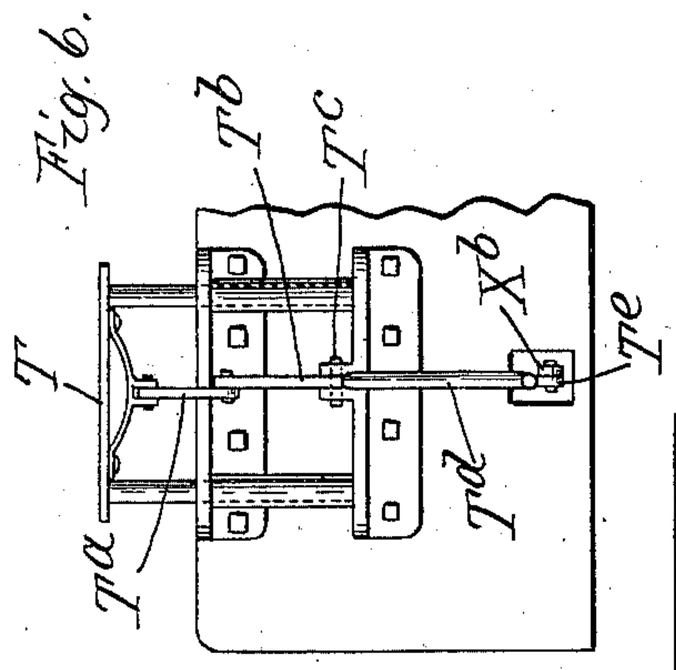
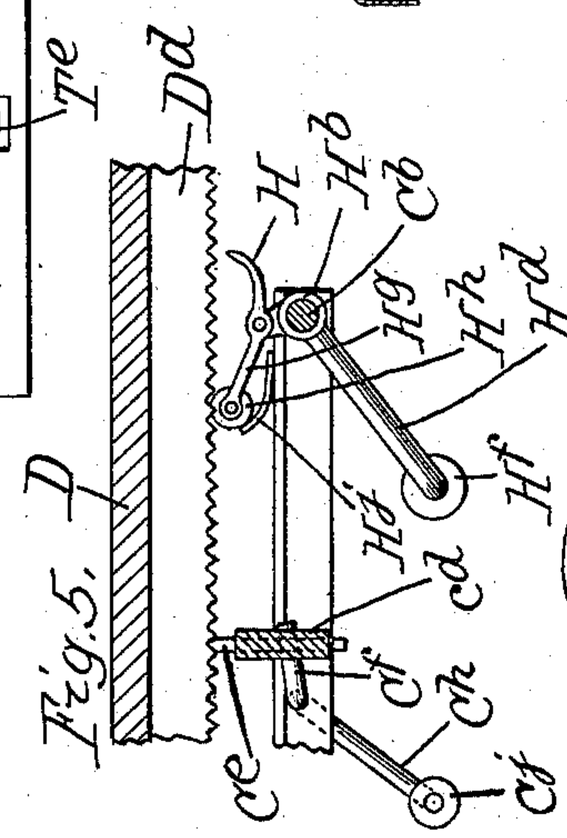


Fig. 5.



Witnesses.
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Jas. Elliott

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his attys

(No Model.) 3 Sheets—Sheet 2.

C. SHOETTLE.

MERRY-GO-ROUND AND MECHANICAL RACE TRACK.

No. 598,750. Patented Feb. 8, 1898.

Fig. 2.

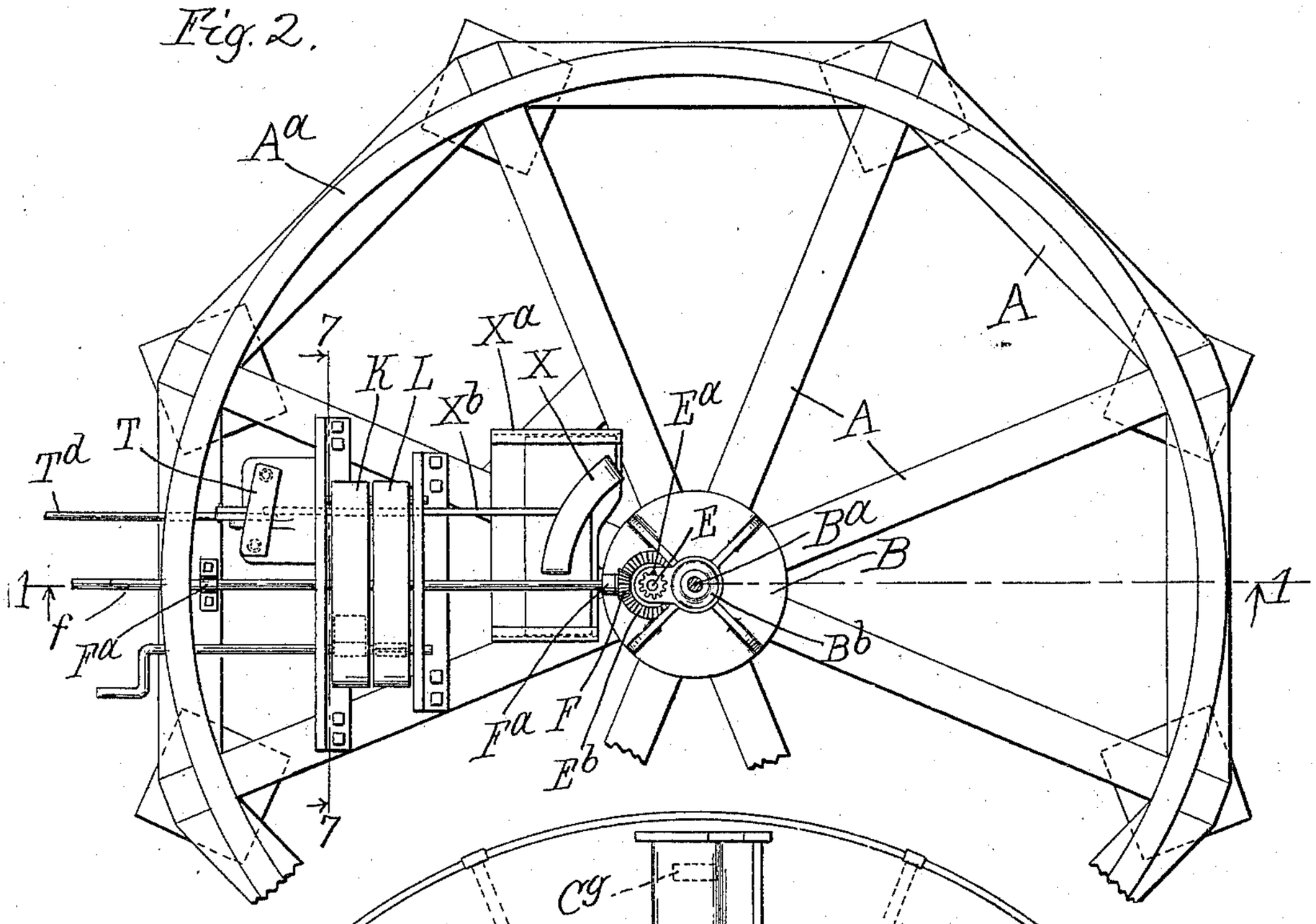

Fig. 3.

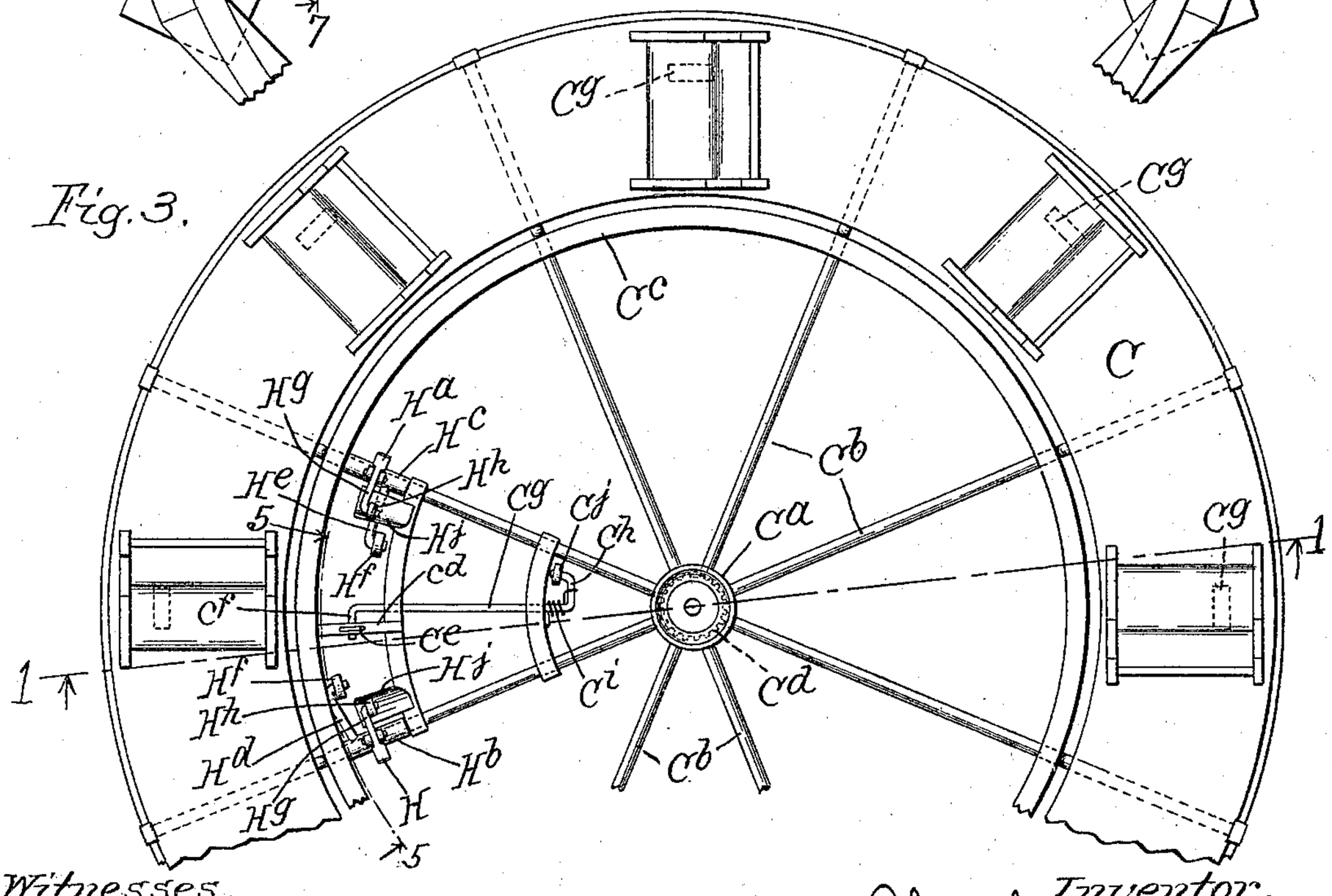

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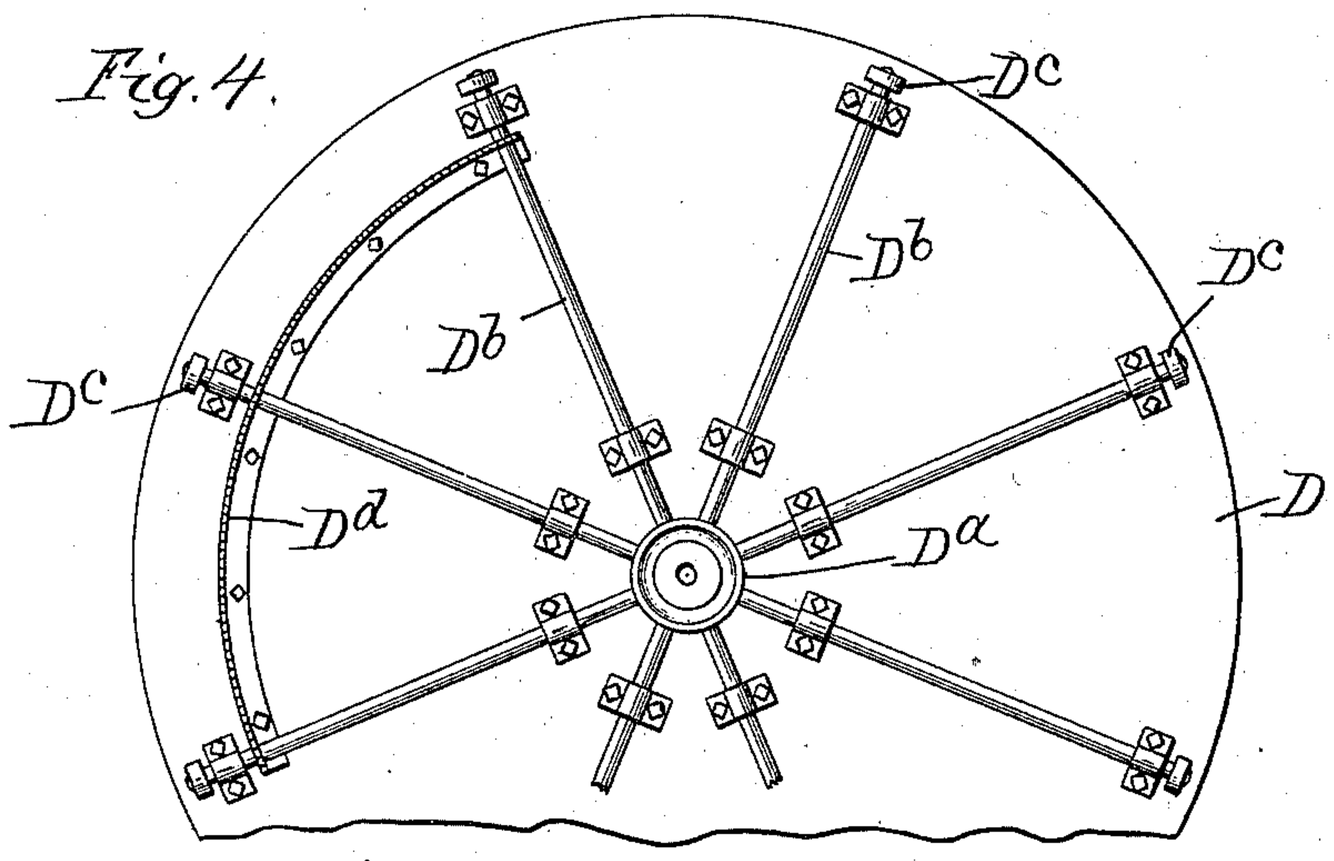
Fig. 4.



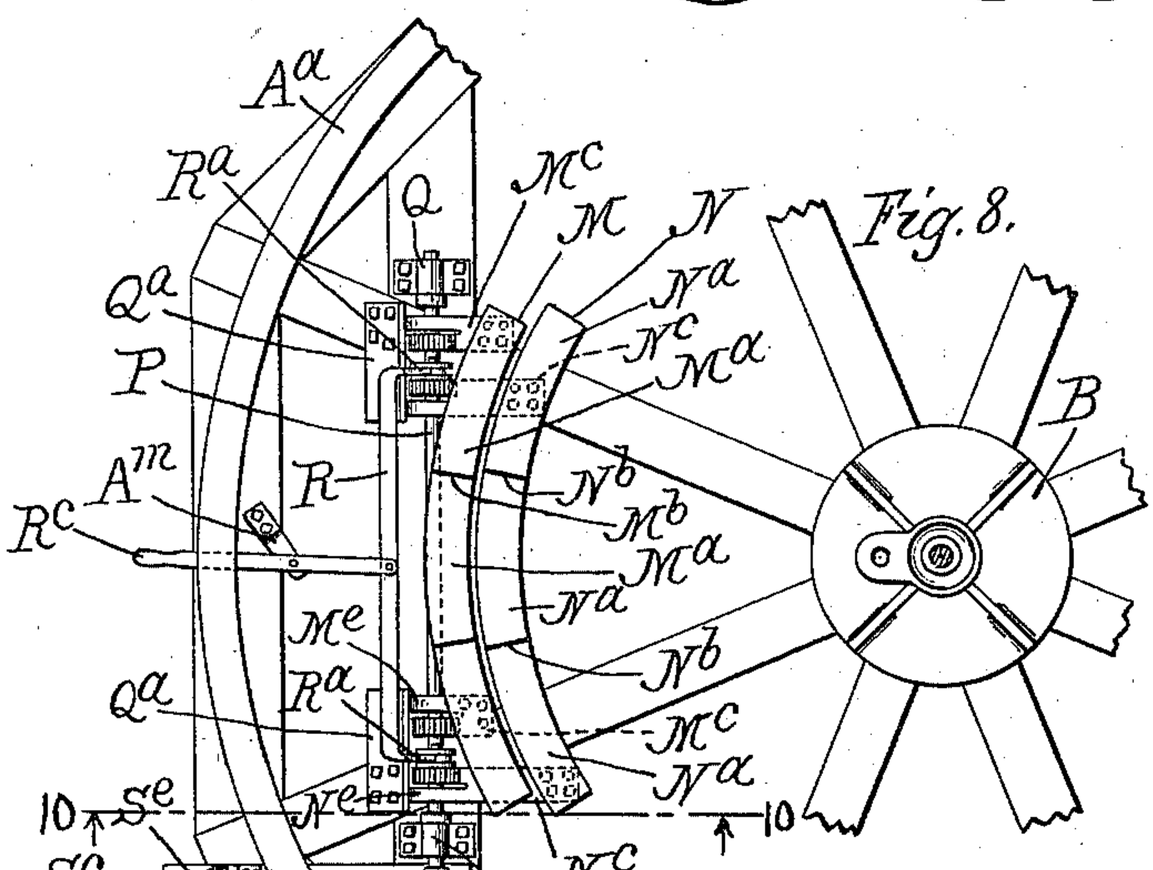


Fig. 8.

Fig. 10.

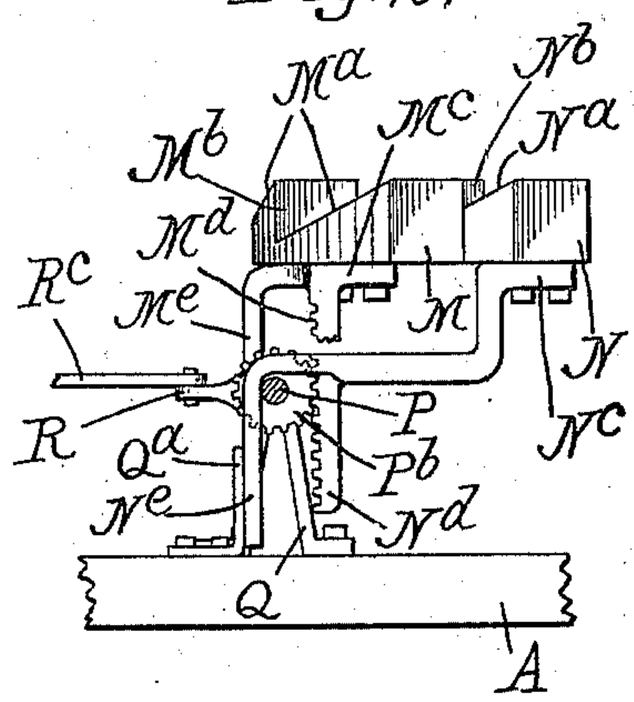
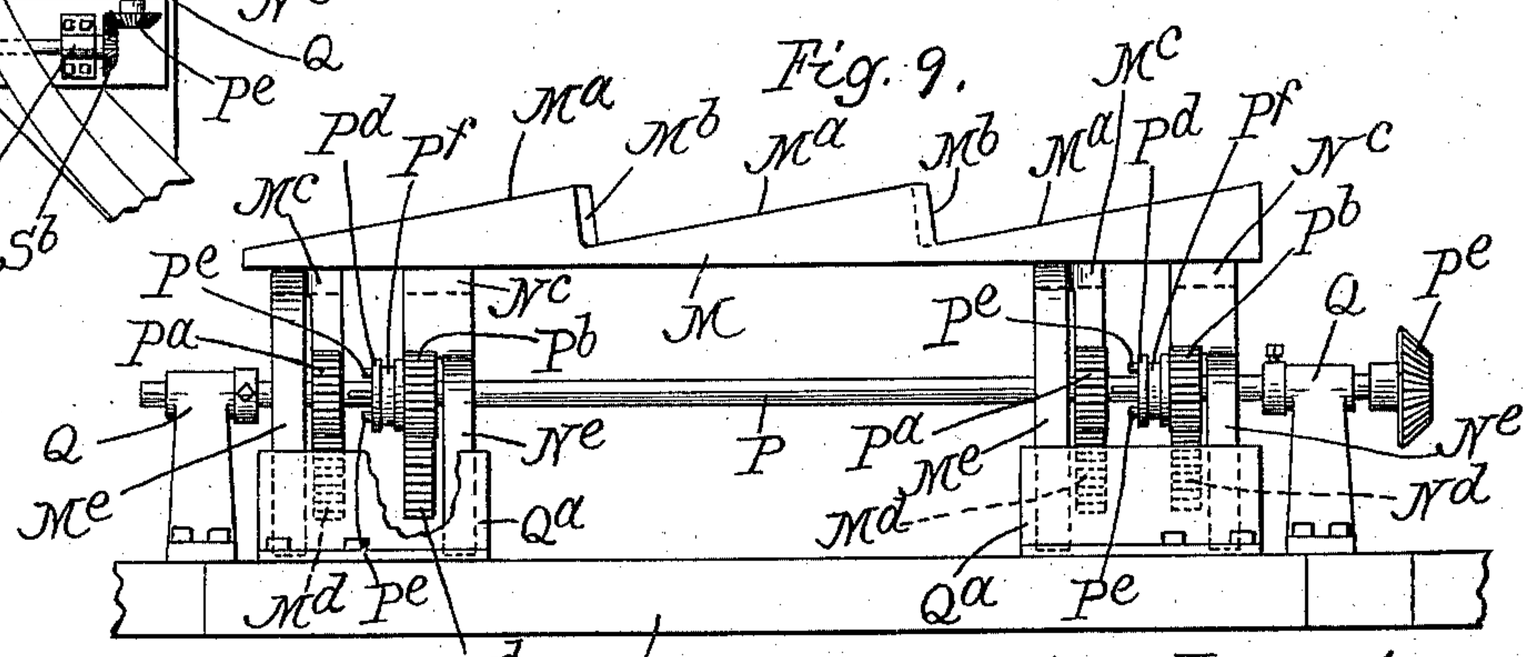


Fig. 9.



Witnesses.
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UNITED STATES PATENT OFFICE.

CHARLES SHOETTLE, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO JAMES P. PIPER, OF SAME PLACE.

MERRY-GO-ROUND AND MECHANICAL RACE-TRACK.

SPECIFICATION forming part of Letters Patent No. 598,750, dated February 8, 1898.

Application filed June 16, 1897. Serial No. 641,001. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SHOETTLE, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Merry-Go-Rounds and Mechanical Race-Tracks, which are fully set forth in the following specification, reference being had to the accompanying drawings, forming a part thereof.

In the drawings, Figure 1 is an axial section through a structure embodying my invention, section being made at the line 1 1 on Figs. 2 and 3. Fig. 2 is a plan of the supporting-framework, showing the mechanism mounted thereon, both rotating platforms or racing-tracks being removed. Fig. 3 is a plan of the outer platform or racing-track, showing the mechanism mounted thereon. Fig. 4 is an inverted plan view of the central platform or racing-track. Fig. 5 is a detail section at the line 5 5 on Fig. 3. Fig. 6 is a detail elevation of a braking device. Fig. 7 is a detail section at the line 7 7 on Fig. 2. Fig. 8 is a plan view of a portion of the supporting-framework, showing a modification of the mechanism used for changing the speed of the racing-tables. Fig. 9 is a front elevation of said mechanism, the shifting-lever being removed. Fig. 10 is a section at the line 10 10 on Fig. 8.

A is a fixed framework upon which the mechanism and racing-platforms are mounted and sustained.

B is a gearing frame or standard at the center of the fixed frame A, having a central spindle B^a, on which both the rotating platforms or racing-tracks C and D are vertically journaled and having concentric with said spindle a horizontal ball-track B^b, forming one part of the ball-bearing between said standard B and the spider, hereinafter described, which constitutes the outer framework of the platform or racing-track D. In the standard B there is journaled the vertical shaft E, at the upper end of which there is a pinion E^a, which drives the outer racing-track C, as hereinafter more particularly described. At the lower end of the shaft E is a beveled crowned gear-wheel E^b, with which a bevel-pinion F on the horizontal shaft *f* meshes to drive said beveled gear and the vertical shaft E. The shaft *f* is journaled in proper standards or brackets F^a F^a on the base-frame A, said shaft being substantially radial with respect to the spindle B^a and extending out beyond a track hereinafter described, on which the wheels of the outer platform travel.

The outer platform or racing-track C is annular; but it is secured to a spider or rigid frame composed of the central hub C^a and radial arms C^b C^b, said hub being depressed below the plane of the platform C and the radial arms extending at such depressed level nearly to the inner circumference of the annular platform C and having mounted upon and secured to them the circular track C^c, on which the supporting-wheels of the central platform D may travel. Outside said track the radial arms C^b are bent up to the under side of the platform C and secured thereto. Rigidly secured to the hub C^a, at the under side, is the spur gear-wheel C^d, with which pinion E^a meshes, and in the under side of said spur gear-wheel is a counterpart c^e of the ball-track, which is formed at B^b on the standard B. Suitably journaled in brackets C^f, depending from the platform or racing-track C, are wheels C^g C^g, &c., and supported on the base-frame A is a track A^a, on which the wheels C^g travel, thus relieving the racing-track C and its framework of strain and distributing the weight between the ball-bearing track provided on the standard B at the center and the track A^a. The central platform D is mounted upon a spider which comprises a central hub D^a, the radial arms D^b D^b, &c. In the under side of the central hub D^a and the upper side of the hub C^a of the spider which pertains to the track C are formed counterpart ball-tracks for ball-bearings, (shown at *d*,) and on the ends of the spider-arms D^b are rollers D^c, which travel on the track C^c. The weight of this inner racing-track or platform is thus distributed between the ball-bearings about the center and the track C^c, the whole weight being, of course, transferred to and carried by the outer platform and in turn transferred by it to the central standard B and outer track A^a.

Secured to the under side of the platform D is a segmental notched ring or ratchet D^d,

and mounted so as to operate vertically at c^d in the spider-frame of the platform C is a locking-bolt C^e, adapted to engage the teeth of said ratchet-flange and lock the two platforms together. The bolt C^e is connected to the lever-arm C^f of the rock-shaft C^g, which has at the inner end a lever-arm C^h, to which is attached a spring C^i, operating to rock the shaft in a direction to cause its lever-arm C^e to hold the bolt C^d upward to engage the ratchet-flange on the platform D. The end of the lever-arm C^h carries a roll C^j, and in the path of rotation of the roll as the platform revolves there is located a shoe X, mounted on the base-frame A, which engages the roll-bearing end of the lever-arm as the platform revolves and causes the shaft to rock as the arm runs up onto the shoe and thereby disengages the bolt and holds it out of engagement while the roller-bearing end of the arm is traveling over the shoe, the extent of the shoe being sufficient to keep the bolt disengaged during the entire time during which it is desired to cause the devices, hereinafter described, to actuate the platform D relatively to the platform C in either direction.

Mounted on the spider-arms of the platform C are two pawls H and H^a. These pawls are in position to engage the ratchet-flange D^d, the pawl H being adapted to feed it in the opposite direction. These pawls are secured to sleeves H^b and H^c, respectively, which are mounted on one of the radial arms of the spider of the platform C and have lever-arms H^d and H^e, respectively, each carrying at the end a roller H^f, which operates also as a weight added to said lever-arms to cause the sleeves to rock on the radial arms of the spider on which they are mounted in a direction to retract the pawls over the ratchet-disk. Each pawl has a tail H^g, provided with an anti-friction-roller H^h, for which a shoe or track H^j is provided, mounted upon the spider-frame of the platform C and shaped as shown, with the purpose and effect of causing the pawls, as the lever-arms of their respective sleeves are lifted, to protrude their ratchet-engaging noses upward into engagement with the ratchet, the weight of their tails and the rollers thereon giving them this movement, which is controlled and modified by the shape of the track afforded for the rollers on the shoes, said track being shaped so that as the lever-arms of the sleeves of the pawls fall and the sleeves are rocked on their bearings the pawls are drawn almost directly out of engagement with the ratchet and are held out of engagement, as stated, by the weight of the lever-arm H^g and the rollers thereon. It will be evident that if, in the rotation of the platforms, they should be disengaged by the withdrawing of the bolt from the ratchet and while thus disengaged one of the pawls should be actuated by having the lever-arm of its sleeve lifted, the pawl being carried into engagement with the ratchet-wheel would be protruded after such engagement and would move the central platform D relatively to the outer platform C. If the pawl H should be thus operated, it would advance the platform D in the direction of rotation relatively to the platform C, while if the pawl H^a should be thus actuated it would retract or retard the platform D or cause it to retreat relatively to the platform C. For the purpose of thus actuating the pawls to cause one platform or the other to gain in rotary motion I provide the shoes K and L, mounted within the track A^a, the shoe K being under the path of the lever-arm of the sleeve of the pawl H, and the shoe L being under the path of the lever-arm of the sleeve of the pawl H^a. These shoes are adapted to be raised and lowered at will or by accidental means, and while raised to be in position to lift the lever-arms and actuate the pawls as said lever-arms pass over them in the rotation of the platform C. Preferably the shoes, when elevated, afford an inclined track for the rollers at the end of the lever-arms, so that the action produced thereby is not an instantaneous, but a gradual, action, which causes the central platform to be retarded or advanced gradually while the lever-arm is running over the shoe. I have shown these shoes in two forms. In the form shown in Figs. 1, 2, and 4 they are simply plates hinged at one end and adapted to be uplifted at the other end by any suitable means, the level of the hinged end being below the path of the rollers on the lever-arms which actuate the pawls, the entire shoe when out of action being below that level, the devices which uplift the free ends being adapted to lift them more or less to give them more or less inclination and cause them to act upon the lever-arms to a greater or less extent.

In Figs. 7, 8, and 9 I have shown a modified substitute for the shoes K and L, consisting of the annular sectoral tracks M and N, each consisting of a plurality of inclines M^a and N^a, with intervening abrupt shoulders M^b and N^b, giving to said tracks M and N a ratchet-like form, said tracks being located under the paths of the lever-arms pertaining to the pawls H and H^a, respectively, and adapted to be depressed entirely out of said paths or to be elevated thereinto. In the former case the pawls would not be actuated and in the latter case they would be actuated precisely in the same manner as when the corresponding shoes K and L are elevated, with the difference that the pawls would be actuated repeatedly as many times as there were inclines M^a and N^a on the tracks M and N, instead of once only, as in the case of the pivoted shoes K and L. Any suitable means may be provided for lifting and upholding the tracks M and N at will. I have provided for this purpose bracket-arms M^c M^c, supporting the track M, and N^c N^c, supporting the track N, the brackets M^c being extended outwardly underneath the track C and having at the

outer end the vertical racks M^d M^d, with which pinions P^a P^a on the shaft P are adapted to engage, said shaft being journaled on the standards Q Q, mounted on the fixed base-frame A and extending past the inner edge of the vertical guard-arms M^e M^e, which are provided as part of said brackets, said arms being rigid with and parallel to the racks M^d M^d, respectively. The outer edges of the guard-arms M^e M^e are also parallel with the racks and are stopped against abutments Q^a Q^a, rigid with the frame, and thereby rigid with the standards Q, and stopping the guard-arms at points lower than the bearings of the standards Q. By the coöperation of the shaft and the abutments Q^a, it will be seen, the brackets are adapted to hold the track M. The brackets N^c are similar to the brackets M^c, except as to their extent, the former being necessarily long enough to extend under the track M as well as under the track N, and said brackets N^c have racks N^d, similar to the racks M^d and adjacent thereto, respectively. They have also the guard-arms N^e, similar to the guard-arms M^e and extending in the same plane, parallel to the shaft P, as said arms M^e. These guard-arms N^e are also similarly stopped against the abutments Q^a Q^a. The shaft P carries pinions P^b P^b, similar to the pinions P^a P^a and meshing with the racks N^d N^d, respectively. All the pinions P^a P^a and P^b P^b are loose on the shaft P, and between each pinion P^a and the corresponding pinion P^b there is feathered on the shaft P a collar P^d, having laterally-projecting studs P^e P^e, adapted to engage the faces of the pinions P^a and P^b, respectively, the pinions being suitably apertured for that purpose, said projections, however, being of such length only that the collar may stand between the pinions without engagement with either. R is a bar having at its ends forks R^a R^a, which engage peripheral slots P^f P^f in the collar P^d, respectively, and said bar is thereby adapted to shift the two collars simultaneously out of engagement with one pair of pinions which actuates the racks pertaining to one of the tracks M and into engagement with the pinions which actuate the racks of the other track. A lever R^c, fulcrumed upon any fixed support, as upon the bracket A^m, is connected to the bar R and serves to shift it at the will of the operator. The shaft P has at one end a beveled pinion P^e, and upon the shaft S, journaled in the brackets S^a S^a, there is a beveled pinion S^b, meshing with and driving the pinion P^b and thereby the shaft P. The shaft has a crank-handle S^c, by which it may be rotated by the operator, and carries a ratchet S^d, for which a pawl S^e is provided, so that the operator may at will, by rotating the shaft S and suitably setting the bar R to hold the collars P^c in engagement with one or the other pair of pinions, raise or lower either of the tracks M or N. The pawl-and-ratchet device S serves to lock such track in elevated position until it is released and lowered.

T is a brake-shoe adapted to bear against the under surface of the platform C. It is actuated by a link T^a, attached to it and pivotally connected to the arm T^b of a lever fulcrumed at T^c, which may be operated by means of a handle T^d. When the brake is set, since it acts only upon the outer platform it is essential that in order that both platforms may be checked the locking device which connects them should not be disengaged, and for the purpose of preventing such disengagement, which is effected, as described, by means of the shoe X tripping the lever-arm C^h as the inner platform rotates, I mount said shoe on the slide-bearings X^a on the fixed frame A, so that it may be moved out of the path of the lever-arm C^h, and I connect said shoe by a link X^b to an arm T^e of the lever T^b, so that when that shaft is rocked to set the brake it simultaneously moves the shoe X out of the path of the lever-arm C^h and prevents the disengagement of the locking-bolt, which would otherwise occur.

I claim—

1. In combination with concentric racing-tracks, means for rotating one of them, and means for locking the other thereto, devices carried by the former for actuating the latter relatively to the former, said devices being normally out of engagement, and means for bringing them into engagement adapted to be operated at will.

2. In combination with the concentric racing-tracks, means for rotating one of them and means for locking the other thereto, devices carried by the former and adapted to be actuated by the latter relatively to the former; means adapted to be operated at will for bringing said devices into action, and means actuated simultaneously to disengage the locking devices.

3. In combination with the concentric platforms, a central post upon which they are pivoted; a radial shaft; a pinion on said shaft and a gear on one of the platforms intermeshing with the pinion, whereby said platform may be rotated; a track on said rotated platform and wheels on the other platform adapted to travel on said track, and devices mounted on one of said platforms and devices upon the other adapted to be engaged thereby, said devices being calculated to produce rotary movement relatively to each other, and means adapted to be operated at will for effecting engagement of said devices.

4. In combination with the concentric platforms adapted to be rotated about their common center, means for rotating one of the platforms and for locking the other to it; pawls on the rotating platform and a segment-rack adapted to be engaged by the pawls on the other platform, said pawls having lever-arms which protrude below the plane of rotation of the platform, and tripping devices mounted below the path of rotation of said lever-arms and adapted to be elevated into said path and to actuate said lever-arms to

cause the pawls to be actuated as the platform rotates.

5. In combination with the concentric platforms adapted to be rotated about their common center, means for communicating rotary motion from one of the platforms, the other being carried by the first; pawls on said actuated platform and a rack on the second platform with which pawls are adapted to engage, one pawl being adapted to feed the rack-bearing platform in the other direction and the other pawl being adapted to feed it in the opposite direction, said pawls having depending lever-arms and independent tripping devices mounted below the paths of rotation of said lever-arms respectively, and adapted to be elevated into said paths, and means for elevating said tripping devices at will, whereby the rotation of the first platform may be made to rotate the second platform relatively to the first in either direction at will.

6. In combination with the concentric platforms, means for positively actuating the one and for locking the other thereto to cause both to travel together; the pawls and the tripping devices adapted to actuate them; means for elevating the tripping devices into position to actuate the pawls and connections from said elevating means to the locking devices, whereby the actuation of the former disengages the latter.

7. In combination with the concentric platforms, means for positively actuating one of them, and means for locking the other of them to cause it to be rotated by the first; a brake adapted to be applied to one of the platforms at will and connections from said brake to the locking devices, substantially as set forth.

8. In combination with the two concentric platforms and means for positively actuating one of them, means for locking the other thereto to cause it to derive movement therefrom; devices attached to the positively-actuated platform, and tripping devices located in the path of rotation thereof to cause them to actuate the second platform relatively to the first at some point in rotation; a tripping device which disengages the locking simultaneous with actuation of said movement-communicating devices; a brake adapted to be applied to the positively-actuated platform, and connections therefrom to the tripping device to take it out of action when the brake is in action.

9. In combination with the platform C, pawls adapted to act in opposite directions; sleeves to which said pawls are pivoted, said sleeves having the tails and tripping devices adapted to engage said tails as the platform rotates; the shoes, which control the movement of the pawls when the sleeves are rocked by the tripping devices, and the rack on the platform B with which the pawls are engaged to actuate the platform in opposite directions respectively.

In testimony whereof I have hereunto set my hand, in the presence of two witnesses, at Chicago, Illinois, this 28th day of May, 1897.

CHARLES SHOETTLE.

Witnesses:

JOHN WESTPHEEL.

GRACE M. MICHAND.