April 26, 1927. 1,626,420

M. B. MILLS

TOY RACE COURSE

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Fig. 1.

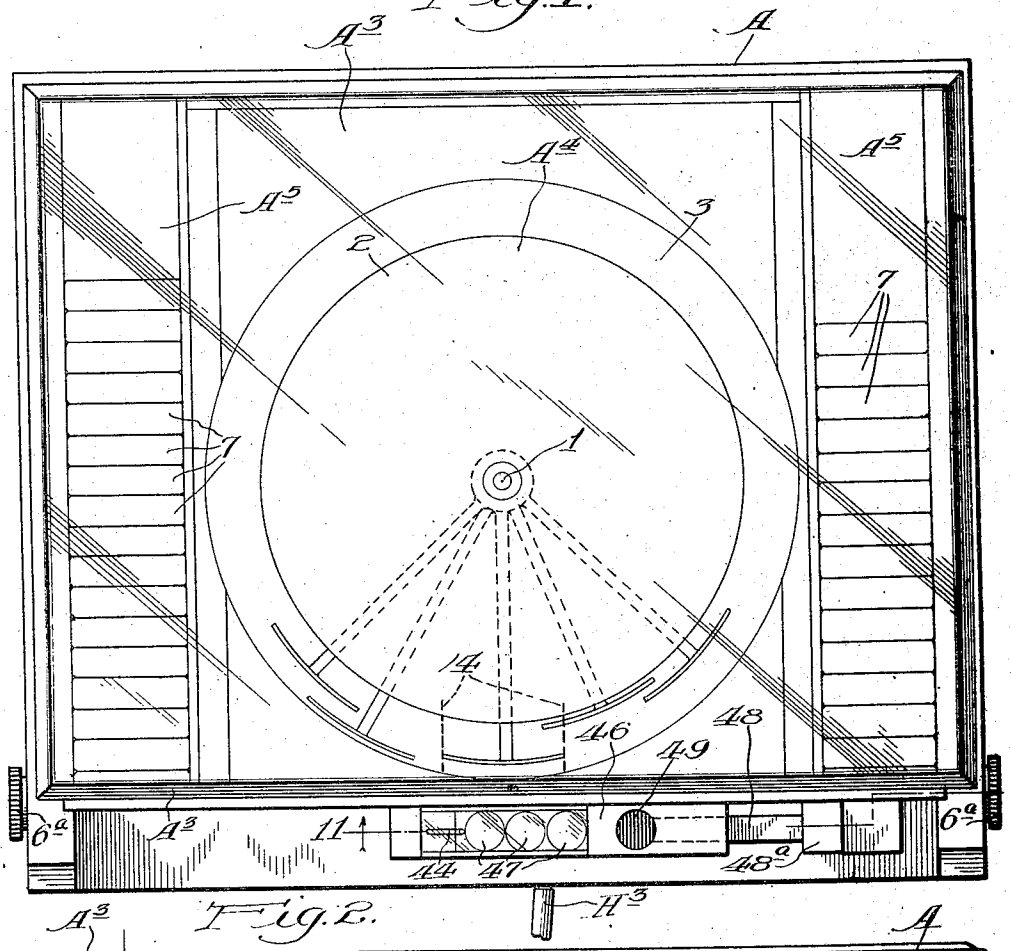
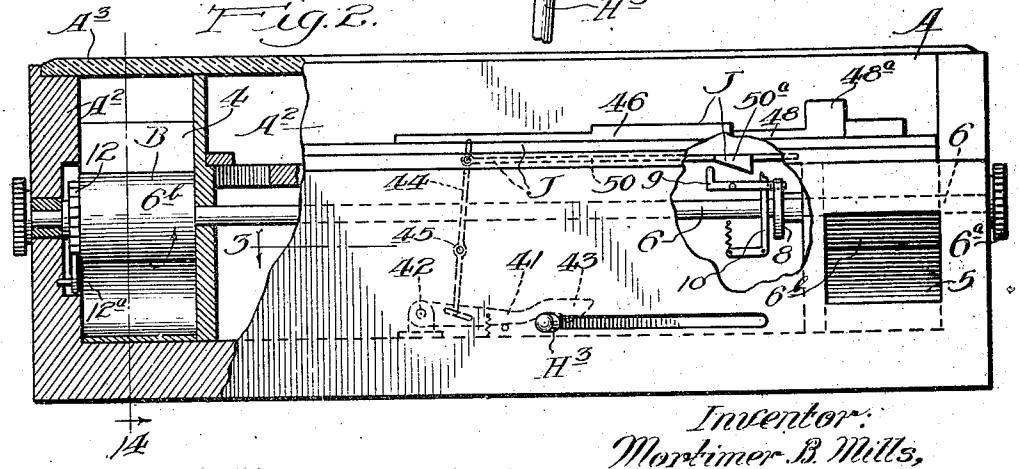


Fig. 2.



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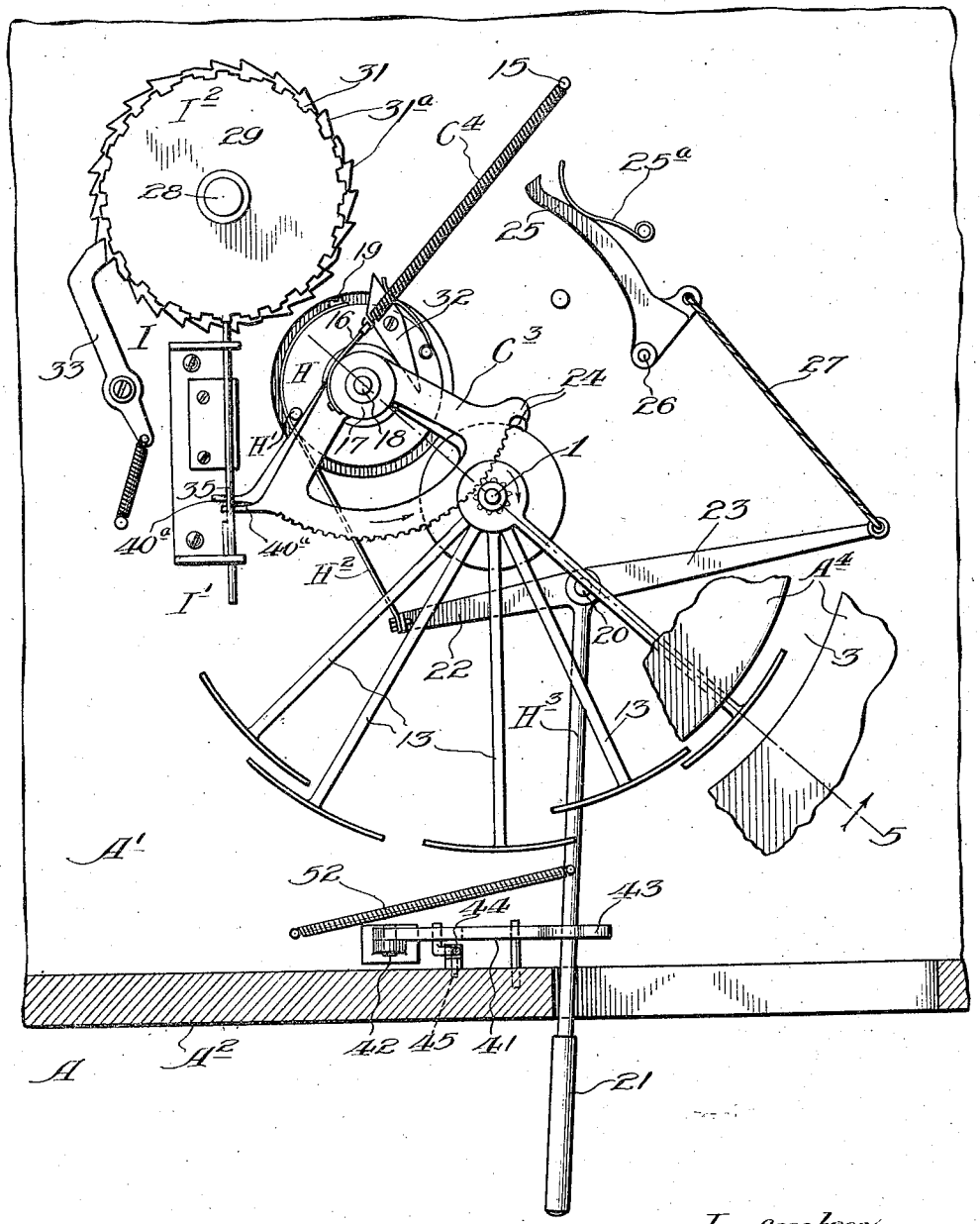
April 26, 1927. 1,626,420

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TOY RACE COURSE

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Fig. 3.



Inventor:
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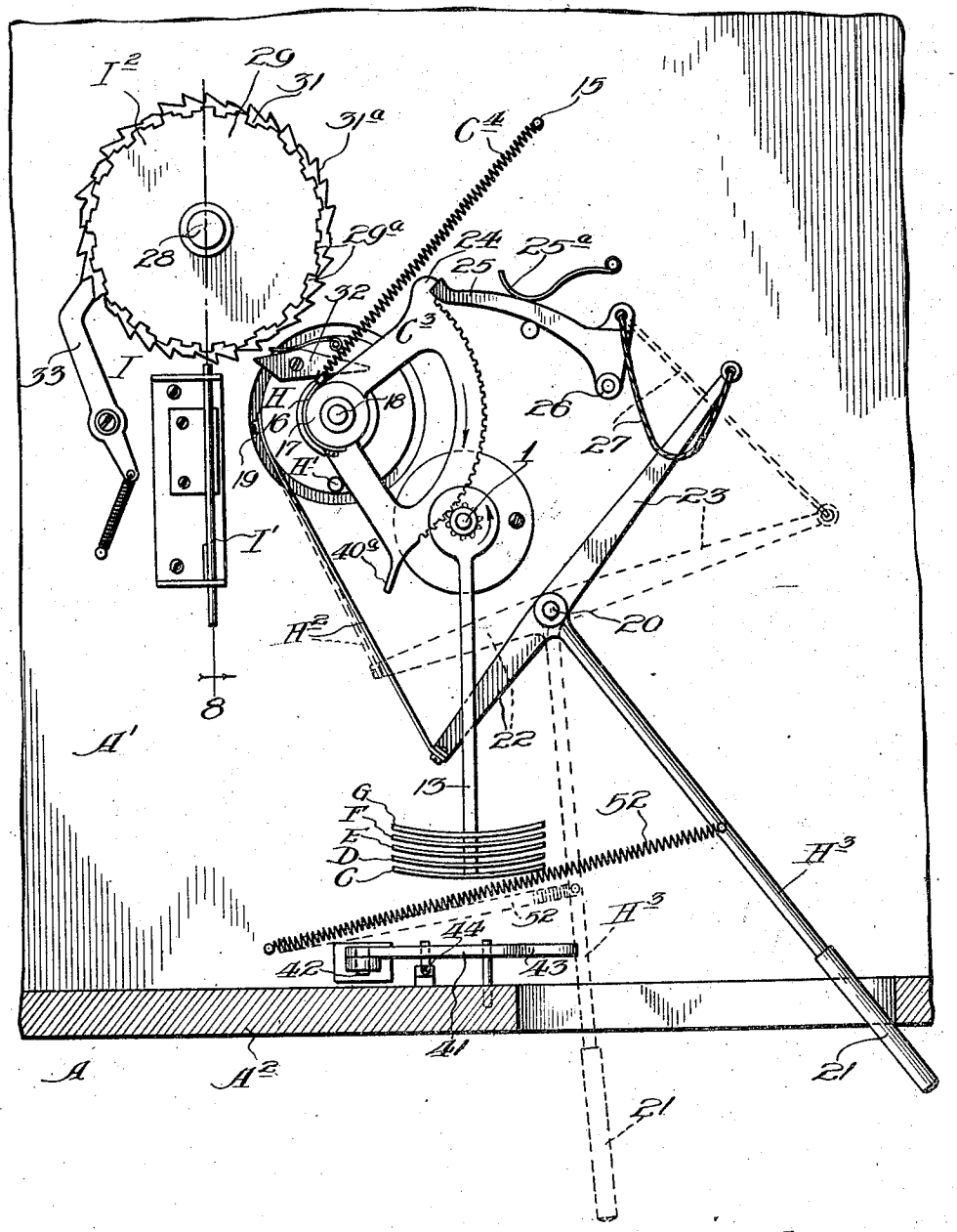
April 26, 1927. 1,626,420

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Fig. 4.



Inventor:
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TOY RACE COURSE

Filed April 14, 1926 7 Sheets-Sheet 4

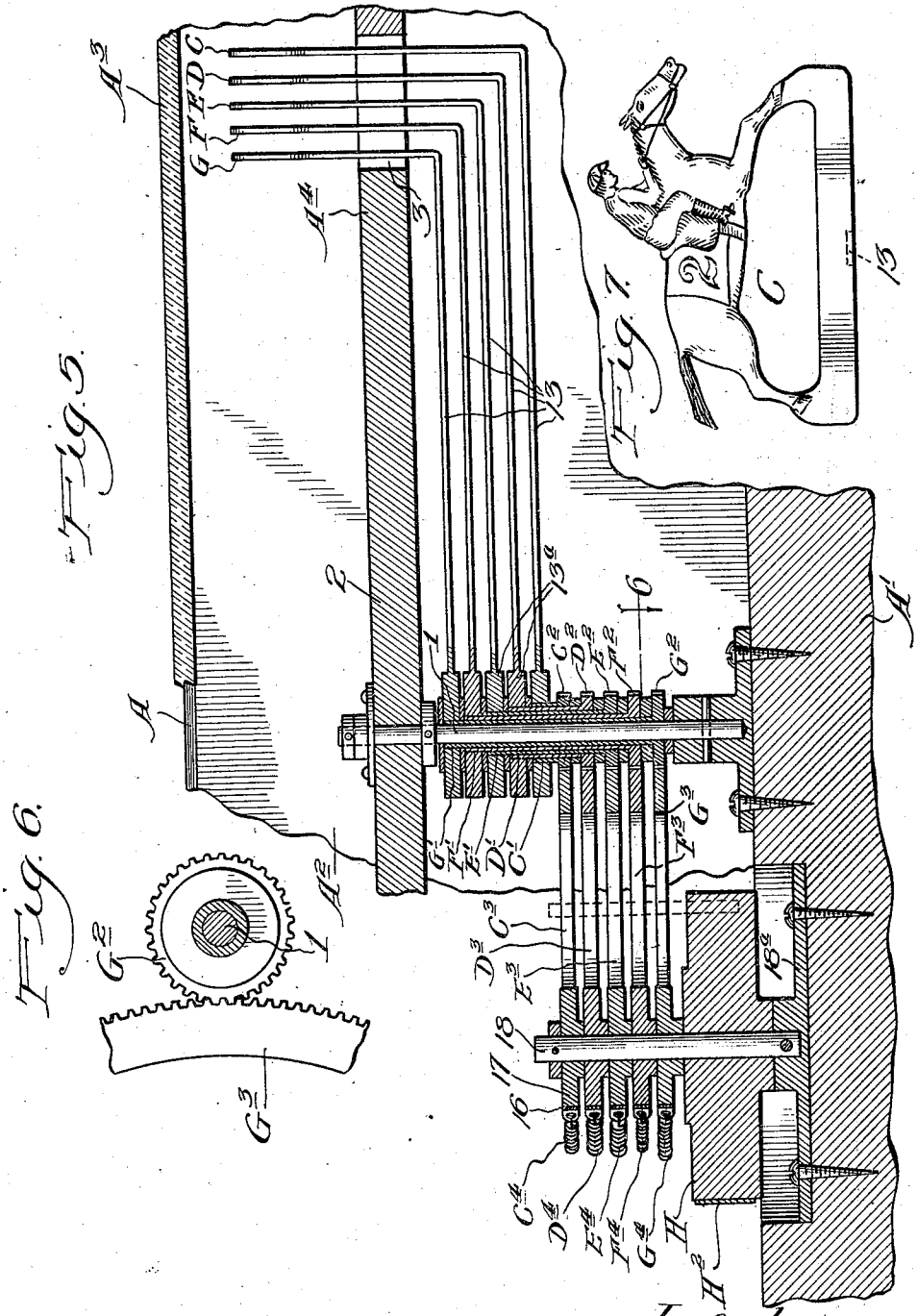


Fig. 5.

Fig. 7.

Fig. 6.

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April 26, 1927.

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M. B. MILLS

TOY RACE COURSE

Filed April 14, 1926

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Fig. 8.

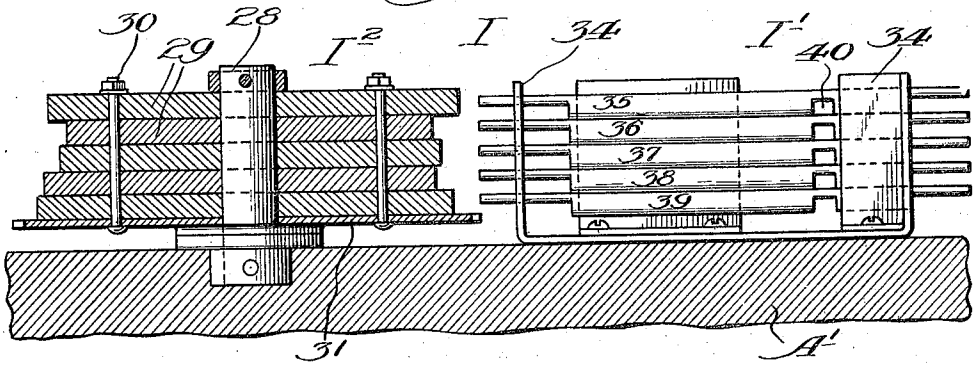
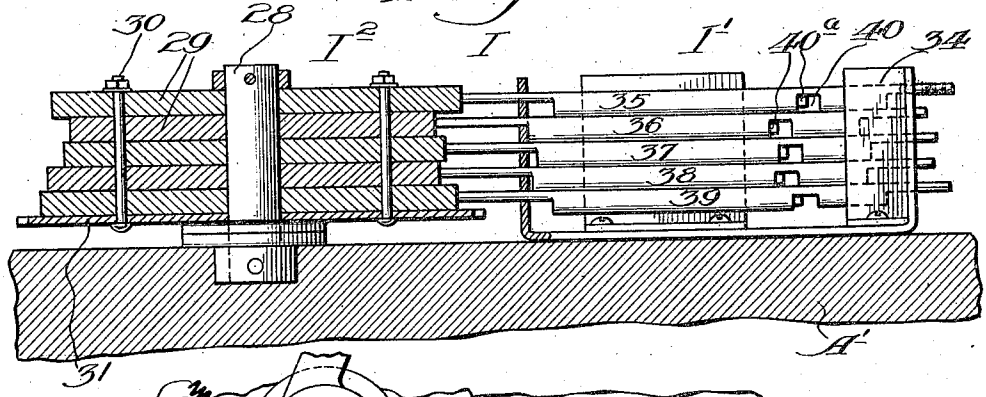


Fig. 9.



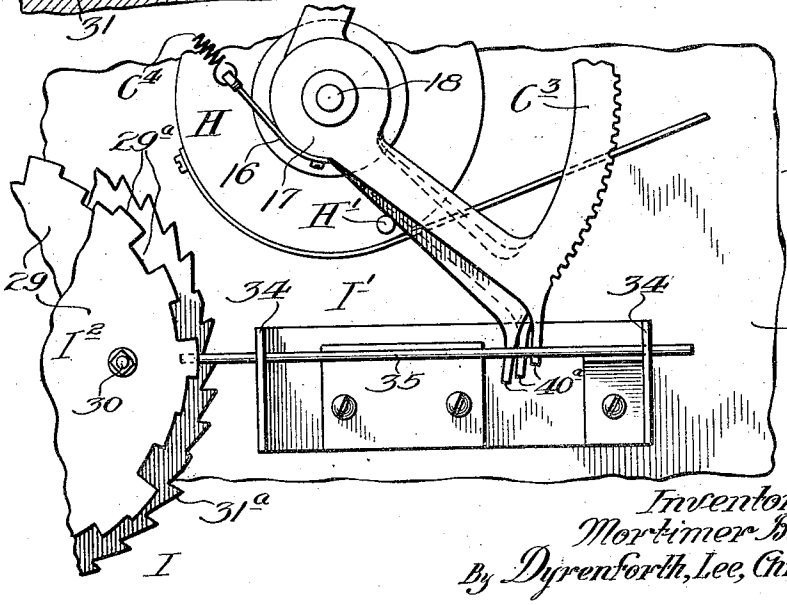


Fig. 10.

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Fig. 11.

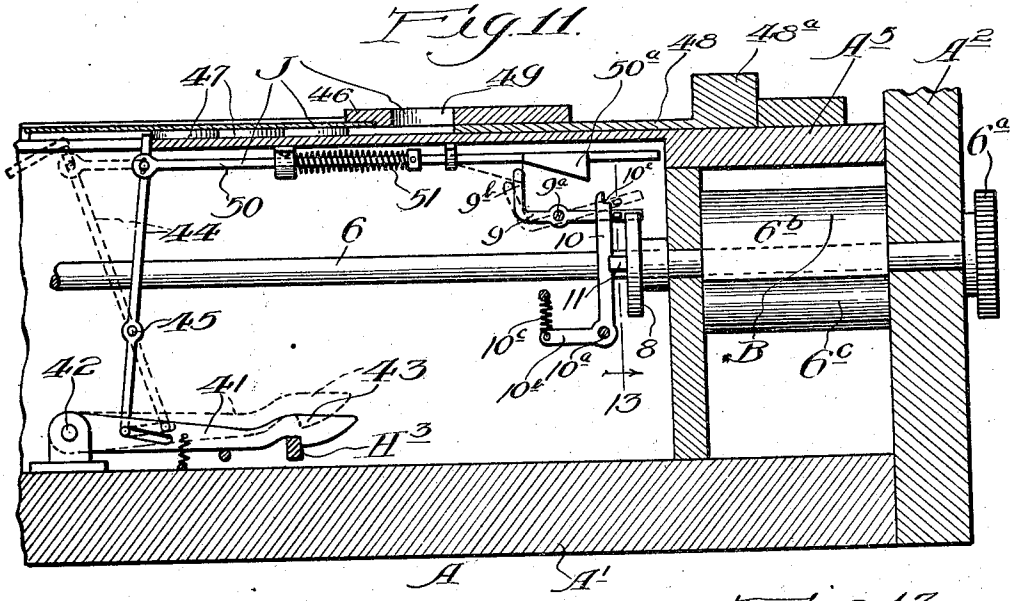


Fig. 12.

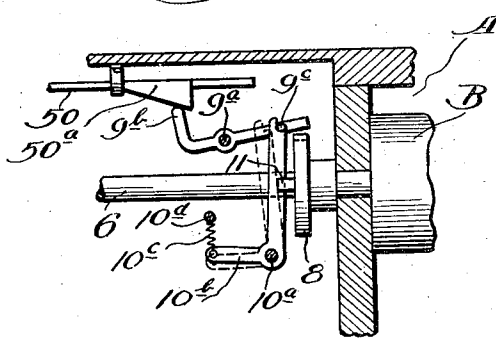


Fig. 13.

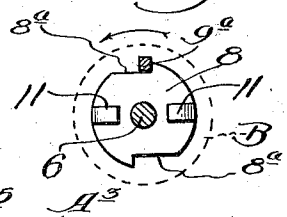


Fig. 14

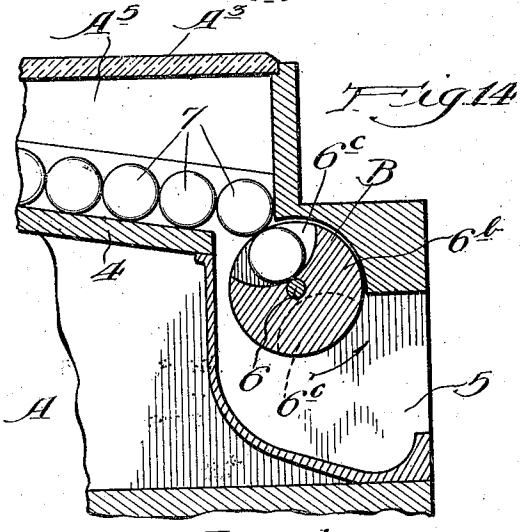
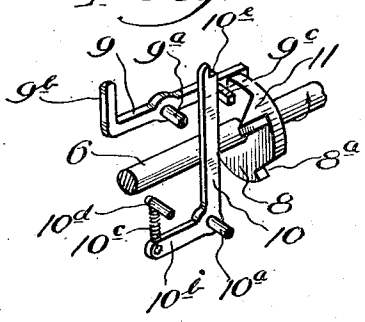


Fig. 15.



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M. B. MILLS

TOY RACE COURSE

Filed April 14, 1926 7 Sheets-Sheet 7

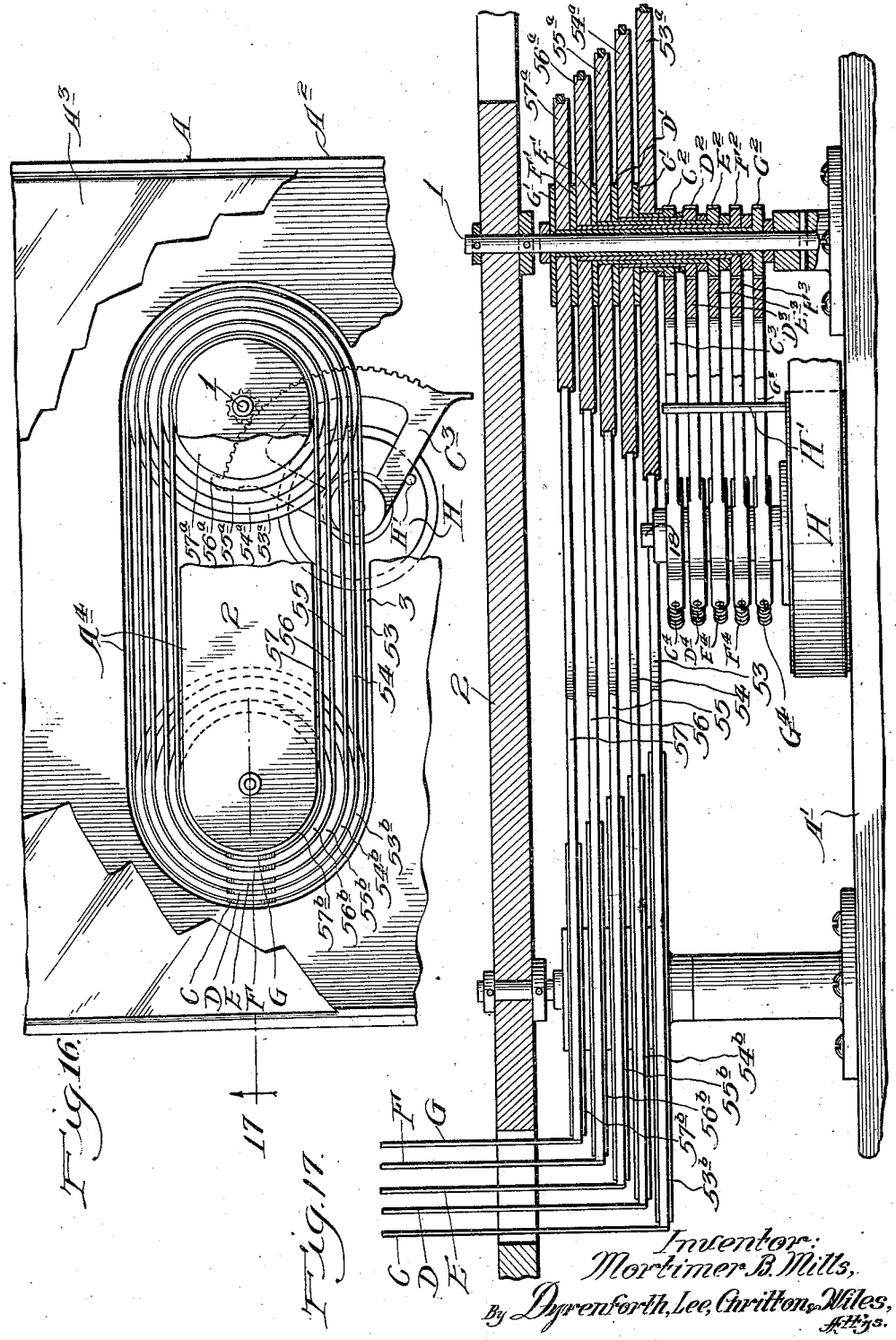


Fig. 16.

Fig. 17.

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Patented Apr. 26, 1927. 1,626,420

UNITED STATES PATENT OFFICE.

MORTIMER B. MILLS, OF CHICAGO, ILLINOIS.

TOY RACE COURSE.

Application filed April 14, 1926. Serial No. 101,935.

This invention relates particularly to a toy race course in which a plurality of racers are employed.

The primary object of the invention is to provide a toy race course which is capable of simulating closely an actual race, which is provided with simple means for effectively varying, or changing, the winner, such means preferably acting automatically, and which is of simple construction and capable of being manufactured at moderate cost.

The invention may be embodied, if desired, in a vending machine, in which case it will be useful in attracting custom. On the other hand, the toy race course may be employed independently and serve as a means for amusement.

A preferred embodiment of the invention is illustrated in the accompanying drawings. In accordance with such embodiment, the race course is combined with a coin-controlled vending machine in such manner that the racers may be actuated in operating the vending machine.

In the drawings—

Fig. 1 represents a plan view of a machine embodying the invention, the operating handle being shown brokenly; Fig. 2, a front elevational view, partly in section, of the same; Fig. 3, a broken plan sectional view taken as indicated at line 3 of Fig. 2, a portion of an internal housing plate disposed above the section plane being shown brokenly; Fig. 4, a view similar to Fig. 3, but showing the position of the parts after the actuating lever has been moved from the normal position shown in Fig. 3 to a position which serves to return the racers to a common starting point; Fig. 5, an enlarged broken vertical sectional view taken as indicated at line 5 of Fig. 3, the racers being assumed to be abreast of each other in this view; Fig. 6, an enlarged broken sectional view taken as indicated at line 6 of Fig. 5, this view illustrating the manner in which the tubular shafts employed are actuated; Fig. 7, an elevational view showing one of the racers; Fig. 8, an enlarged broken vertical sectional view taken as indicated at line 8 of Fig. 4, this view showing the relation of the stop-plungers with reference to a rotatable permutation stop-device employed; Fig. 9, a view similar to Fig. 8, but showing the stop-plungers in the position which they occupy at the end of a race; Fig. 10, a fragmentary view on an enlarged scale which corresponds with the view shown in Fig. 3 and also with the position of the parts shown in Fig. 9; Fig. 11, a broken vertical sectional view taken as indicated at line 11 of Fig. 1 and showing features of the coin-controlled mechanism; Fig. 12, a fragmentary view showing another position of certain parts shown in Fig. 11; Fig. 13, a vertical sectional view taken as indicated at line 13 of Fig. 11; Fig. 14, a broken vertical sectional view taken as indicated at line 14 of Fig. 2; Fig. 15, a perspective view illustrating the manner in which the actuation of the rotary ejector of the vending mechanism is controlled; Fig. 16, a broken plan view showing a modification of the invention, the racers being mounted on endless belts in this modification; and Fig. 17, an enlarged broken vertical sectional view taken approximately as indicated at line 17 of Fig. 16.

It may be stated preliminarily that in a preferred embodiment of the invention the racers are actuated through the medium of a plurality of nested tubular shafts equipped with pinions driven by spring actuated gear-segments, the tubular shafts being capable of making a plurality of revolutions at each actuation of the machine; and in such preferred construction the gear-segments are reversely turned against the force of their springs, as by means of a lever, during the initial portion of the operation of the machine, thereby returning the racers to a common starting point preparatory to the race, the springs then acting through the medium of gear devices to impel the racers during the racing portion of the operation. Also, there preferably is employed a permutation stop device which is automatically changed at each cycle of operations, such permutation stop device governing the stopping of the racers and the consequent position of the racers at the end of the race.

Referring to the construction illustrated in Figs. 1–15 inclusive, A designates a frame, or casing, which serves as a suitable support and housing for the operative parts, said casing comprising, in the illustration given, a base A', peripheral walls A^2, a top

plate A^3, and an inner housing plate A^4, the top plate A^3 being preferably of glass, or other transparent material; A^5, A^5, a pair of inclined commodity chambers forming a part of the casing at the lateral sides thereof; B, a rotatable ejector disposed in the front portion of the casing; C, D, E, F and G, a series of racers actuated through the medium of concentric tubular shafts C′ to G′ inclusive, said shafts being equipped, respectively, with actuating pinions C^2 to G^2 inclusive; C^3 to G^3 inclusive, gear-segments serving to actuate said pinions, said gear-segments being, in turn, actuated by springs C^4 to G^4 inclusive; H, a disk journalled beneath the hub-portions of the gear-segments and equipped with a stud H′ through the medium of which all of the gear-segments may be retracted against the force of their springs, the disk H having connected with its periphery a flexible member H^2 which is adapted to be actuated through the medium of a lever H^3; I, a permutation stop device controlling the stoppage and position of the racers at the end of the race; and J, coin-controlled mechanism which controls the actuation of the lever H^3 and the actuation of the commodity ejecting device B.

The casing A may be of any suitable form and construction. In the illustration given, it is shown as a rectangular box, the base A′ of which is equipped with a fixed vertical post 1, upon the upper end of which is secured the central portion 2 of the inner housing-plate A^4. This housing plate is provided, as appears from Figs. 1, 3 and 5, with an annular channel 3 through which the racers work.

The commodity vending mechanism of the machine may be of any desired form or construction. In the illustration given, the commodity chambers A^5 are disposed at the lateral sides of the casing and are in the form of inclined runways having forwardly and downwardly sloping bottoms 4 which lead to external orifices, or trays, 5, as will be best understood from Fig. 14.

The ejector B is shown as comprising a shaft 6 equipped at its ends with operating knobs 6^a, and equipped within the casing with segments 6^b, each of which is provided with a peripheral recess 6^c. These recesses are separated by an angle of 180° and are adapted to receive the articles 7, such as rolls of mints, which are to be vended. Each of the members 6^b will discharge an article during a full revolution of the ejector in the direction indicated by the arrow in Fig. 14. It follows that an article will be ejected at each half revolution of the shaft.

The shaft 6 is equipped with a ratchet-wheel 8 (Figs. 12, 13 and 15), which is provided with two notches, or teeth, 8^a placed 180° apart. The rotation of the shaft is controlled by a latch 9 which is adapted to be retracted through the medium of the coin-controlled mechanism J. The member 9 is supported on a pivot 9^a and is equipped with an upturned arm 9^b. An auxiliary latch 10 mounted on a pivot 10^a is employed for holding the latch 9 out of engagement with the ratchet-wheel until the ratchet-wheel has turned a sufficient distance to insure release from the latch 9. The member 10 is in the form of a bell-crank lever and is provided with a short arm 10^b which is connected through the medium of a spring 10^c with a fixed stud 10^d. The latch-member 9 is provided with a forwardly projecting lug 9^c which is adapted to engage a shoulder 10^e with which the auxiliary latch-member 10 is provided. When these parts are engaged, the latch 9 will be held out of engagement with the ratchet-wheel. The ratchet-wheel carries cams 11 which are adapted to engage and retract the auxiliary latch 10, thus permitting the latch 9 to drop again into engagement with the ratchet-wheel. As will be explained more in detail later, the ejector B is freed each time the coin-controlled mechanism J is actuated, thus permitting the ejector to be turned through the medium of the external knob 6^a.

The ejector B is further equipped (Fig. 2) with a ratchet-wheel 12 engaged by a pawl 12^a which serves to prevent the ejector from being turned, except in the direction indicated by the arrow in Fig. 14.

In the form of construction being described, the racers C—G inclusive are carried by radial arms 13 which extend from hubs 13^a which are rigidly mounted upon the upper ends of the tubular shafts C′—G′ inclusive. Thus, when the spinning of the shafts occurs, the racers are carried about in the annular course. The pinions C^2—G^2 inclusive are fixedly secured on the lower ends of the tubular shafts and mesh with the gear-segments in the manner more clearly illustrated in Fig. 6. When the gear-segments are turned in the direction indicated by the arrow in Fig. 3, this movement occurring when the lever H^3 is moved to the right from the position shown in Fig. 3, the racers will be turned clockwise. That is, they will be turned backwardly from the finishing position shown in Fig. 3 and returned to a common starting point, as, for example, to the position indicated between the dotted lines at 14 in Fig. 1. While the racers are being thus returned to the starting position, the springs C^4—G^4 inclusive will be placed under increased tension, and thus will be in readiness to actuate the racers counter-clockwise during the racing portion of the cycle of operations. The springs C^4—G^4 are attached at 15 to a stationary support. At their opposite ends, they are connected with metal straps 16 which wrap partially about and are secured

to the hubs 17 of the gear-segments. The hubs 17 of the gear-segments are journalled on a vertical shaft 18 which is rigidly secured to the base A′ as by means of an attaching plate 18ª. The restoring-disk H which serves to return the racers to their starting position is also journalled on the shaft 18 beneath the hub-portions of the gear-segments, and the stud H′ extends upwardly back of the gear-segments and serves to turn the gear-segments against the force of their springs when the lever H³ is actuated.

The flexible member H² may consist of a flexible steel band which wraps upon a portion of the periphery of disk H and is secured thereto by means of a stud 19 (Fig. 3).

The lever H³ is mounted on a pivot 20. It has a forwardly extending actuating arm equipped at its front end with a handle-portion 21. The rear portion of the lever is equipped with integral arms 22 and 23. The free extremity of the arm 22 is connected with the flexible member H².

The gear-segments are equipped with lugs 24 which are adapted to be engaged by a pawl 25 which is pivotally supported at 26. The pawl, or dog, 25, serves to latch the gear-segments in the position illustrated in Fig. 4, after the gear-segments have been actuated to return the racers to the starting position illustrated in Fig. 4. The dog holds the gear-segments in this position until the lever H³ nears the end of its traverse on the return stroke, when a flexible connection 27 between the arm 23 and the dog 25 serves to retract the dog against the force of its spring 25ª, thus releasing the gear-segments. This permits the gear-segments to return to their initial position illustrated in Fig. 3.

The permutation stop device I in the form illustrated comprises a pack of independently movable stop plungers I′ co-acting with the gear-segments C³—G³ and a pack I² of permutation disks journalled on a stud 28 mounted on the base of the casing. The device I² comprises a plurality of disks 29 which are provided at their peripheries with alternate teeth and notches 29ª. These disks may be duplicates, if desired. That is, they may have the same stepped arrangement at their peripheries, but in such case the disks are arranged in different angular positions. The disks are shown secured together by means of bolts 30. At the lower surface of the pack of disks is secured a ratchet-wheel 31 equipped with teeth 31ª which may vary in height. The device I² is adapted to be rotated through the medium of the ratchet-wheel by means of a pawl 32 mounted on the oscillating disk H. The movement of the disk H preferably is such as to carry the pawl past two or more of the ratchet-teeth 31ª at each actuation. Owing to the fact that some of the ratchet-teeth are shorter than others, however, the ratchet-wheel may be moved through a space of one tooth, or through a space of two teeth at each actuation of the disk H. The movement may vary, depending upon the location and spacing of the short teeth. A pawl 33 is employed to prevent retrograde movement of the ratchet.

The stop plungers of the pack I′ are disposed one above the other and are mounted in suitable guides 34. The plungers are designated from top to bottom, 35, 36, 37, 38 and 39, and co-act respectively with the gear-segments C³—G³. The plungers are recessed, as indicated at 40, these recesses co-acting with horns, or lugs, 40ª with which the several gear-segments are equipped. As will be understood from Figs. 3 and 9, the horns 40ª of the gear-segments engage the recesses 40 of the plungers when the gear-segments return to the position shown in Fig. 3. This occurs at the concluding portion of the race, and thus the extremities of the plungers are brought against the edge-portions of the permutation-disks 29 in the manner illustrated in Fig. 9. This leaves the racers C—G in separated, or fanned-out, relation at the end of the race, as shown in Fig. 1. This action occurs because, after the gear-segments engage the plungers, the gear-segments are permitted to move varying distances due to the fact that the stepped arrangement of the peripheral portions of the permutation-disks I² are engaged by the plungers in an irregular manner. Inasmuch as the permutation-disks are moved during each cycle of operations, the permutation changes each time. Owing to this fact and to the further fact that the permutation device is given varying angular movements, the sequence of the racers at the end of any race cannot be foretold.

In the illustration given, the actuation of the lever H³ is controlled by a latching-pawl 41 which is supported on a pivot 42, and which has a hook portion 43 adapted to ride over and engage the lever. The pawl is adapted to be released by means of a lever 44 supported on a pivot 45. The upper end of the lever 44 co-acts with the coin-controlled mechanism J. This mechanism comprises a horizontally disposed coin-chute 46 through which coins 47 may be pushed by means of a slide 48 equipped with a finger piece 48ª. The construction and arrangement are such that when the slide 48 is moved to the left from the position shown in Figs. 1 and 2, assuming a coin to have been inserted through the opening 49, the coins are shoved along and are caused to actuate the lever 44 and thus lift the pawl 41 and release the lever H³.

Attached to the lever 44 near its upper end is a slide 50 which is equipped with a

cam 50^a which is adapted to actuate the trip-lever 9, as will be understood from Figs. 2, 12 and 15. The trip-lever 9 will be operated to release the rotary ejector B when the slide 50 moves to the left from the position shown in Fig. 2. A suitable spring 51 (Fig. 11) may be employed to return the slide 50 to its normal position.

From the description given, the operation will be readily understood. A coin may be introduced through the passage 49 and the slide 48 may be moved to actuate the lever 44 through the medium of the coins. In this action, the pawl 41 is lifted to release the actuating lever H^3, and the slide 50 is moved to trip the ejecting device B, permitting the delivery of the vended article. When the lever H^3 is swung from the position shown in Fig. 3 to the position shown in Fig. 4, the disk H is rotated, and, through the medium of the stud H', moves all of the gear-sectors C^3—G^3 against the force of their springs. In this action, the racers are moved clockwise (a retrograde movement of the racers) through several revolutions. In the return stroke of the lever H^3 which is effected through the medium of a spring 52, the latching-pawl 25 is retracted. This permits the springs C^4—G^4 to actuate the gear-segments and spin the tubular shafts C'—G' and through the medium thereof the racers. The racers make several turns about the course while the gear-segments are returning to their normal position. As the gear-segments approach their normal position of rest, they engage the plungers of the permutation stop device and move them until they strike the stepped edge-portions of the permutation-disks 29. Thus, the racers are brought to a stop in staggered, or fanned, relation. While the gear-segments are moving from the position shown in Fig. 3 to the position shown in Fig. 4, the pawl 32 engages the ratchet-wheel 31 and turns it, thus effecting a fresh permutation of the stop device.

It will be understood that the racers are independently actuated during the racing portion of the cycle of operations; also that each racer is free to pass the other racers. This follows from the use of the nested tubular shafts and the manner in which said shafts are actuated.

It is preferred to make provision whereby some of the racers may move more rapidly than others under the action of the springs C^4—G^4. This may be accomplished by employing springs of different strength for the different racers, or it may be accomplished by varying frictions upon the gear-segments, or in any other suitable manner. It may be remarked that the disk H will be returned to its normal position by one of the gear-segments (the one that chances to be in the lead), during the racing movement.

In the modication illustrated in Figs. 16 and 17, the tubular shafts and gear mechanism are the same as in the first described construction, and the parts are designated by corresponding reference characters. In this modification, however, the racers C—G inclusive are mounted upon belts 53 to 57 inclusive. These belts are mounted on wheels, or pulleys, 53^a to 57^a inclusive at one end, and pulleys 53^b to 57^b inclusive at the other end. The pulleys 53^a to 57^a inclusive are mounted on the upper ends of the tubular shafts C' to G' inclusive. These pulleys, therefore, correspond with the racer-actuating arms 13 of the first described construction. By mounting the racers upon endless belts actuated in this manner, the racers may be carried through an oblong, or elliptical, course, as desired. Obviously, any suitable gear ratio between the pinions and the gear-sectors may be employed for the purpose of causing the racers to go one or more times about the course, as desired.

The improved race course, in either form of embodiment, is simple in construction and, nevertheless, permits the racers to pass each other in moving about the race course. Also, in each construction, each racer is actuated independently of the others during the racing portion of the cycle of operations. Also, in each construction, a permutation stop device of the character illustrated is available for governing the stoppage and relative positions of the racers at the end of the race. By means of the improved construction, it is possible to secure a certain freedom of action and liveliness of the racers which adds greatly to the charm of the race. By preference, the means for actuating the tubular shafts which, in turn, actuate the racers is of an oscillating character and is adapted to move the racers in a retrograde manner in bringing them to the starting position. Any desired mechanism for actuating the tubular shafts may be employed, however. Also, any suitable permutation stop device may be employed for governing the stoppage and positions of the racers at the end of the spinning operation.

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, but the appended claims should be construed as broadly as permissible, in view of the prior art.

What I regard as new, and desire to secure by Letters Patent, is:

1. In a toy race course, the combination of a plurality of concentric tubular shafts journaled one within another, racers actuated through the medium thereof, and spring-actuated means for actuating said shafts.

2. In a toy race course, the combination

of a plurality of concentric tubular shafts journaled one with another, racers actuated through the medium thereof, means for spinning said shafts in the racing operation, and means for reversely actuating said shafts to return the racers to a staring point.

3. In a toy race course, the combination of a plurality of concentric tubular shafts journaled one within another, racers actuated through the medium thereof, springs serving to actuate said shafts in the racing operation, and means for increasing the tension of said springs preparatory to the racing operation.

4. In a toy race course, the combination of a nested series of racer-actuating shafts, racers actuated thereby, gear-devices serving to actuate said shafts, springs serving to actuate said gear-devices in one direction, and means for actuating said gear-devices in the other direction to move the racers back to a starting position and increase the tension of said springs.

5. In a toy race course, the combination of a series of racers, spring-actuated racer-spinning devices, and a permutation stop device controlling the stopping of the racers at the conclusion of the race.

6. In a toy race course, the combination of a series of racers, spring-actuated racer-spinning devices, and a permutation stop device co-acting with and governing the stoppage of said racer-spinning devices at the conclusion of the race.

7. In a toy race course, the combination of a nested series of racer-actuating shafts, racers actuated thereby, gear-devices serving to actuate said shafts, springs serving to actuate said gear-devices in one direction, means for actuating said gear-devices in the other direction to move the racers back to a starting position, and a permutation stop device governing the relative stopping places of said racers.

8. In a toy race course, the combination of a series of racers, spring-actuated racer-spinning devices, and an automatically varied permutation stop device controlling the relative stopping places of said racers.

9. In a toy race course, the combination of a series of racers, spring-actuated racer-spinning devices, and a permutation stop device comprising a member equipped with a plurality of unequal recesses, and members actuated by the racer-spinning devices and co-acting with said recesses.

10. In a toy race course, the combination of a series of racers, spring-actuated racer-spinning devices, a permutation stop device controlling the stopping of the racers at the conclusion of the race, said permutation stop device comprising a rotatable device equipped peripherally with stepped shoulders, and a series of co-acting stop members actuated by the racer-spinning devices and controlling the stopping position thereof.

11. In a toy race course, the combination of a plurality of shafts, a plurality of racers actuated thereby, and spring-impelled relatively movable individual shaft-spinning devices capable of imparting a plurality of revolutions to said shafts.

12. In a toy race course, the combination of a plurality of shafts, a plurality of racers actuated thereby, individual shaft-spinning devices capable of imparting a plurality of revolutions to said shafts, and a permutation stop device co-acting with the shaft-spinning devices.

13. In a toy race course, the combination of a nested series of tubular shafts, racer-actuating means connected with said shafts at one end, pinions connected with said shafts at the other end, gear-segments meshing with said pinions, spring devices for actuating said gear-segments in one direction, and means for actuating the gear-segments in the opposite direction.

14. In a toy race course, the combination of a nested series of tubular shafts, racer-actuating means connected with said shafts at one end, pinions connected with said shafts at the other end, gear-segments meshing with said pinions, spring devices for actuating said gear-segments in one direction, means for actuating the gear-segments in the opposite direction, and a permutation stop device co-acting with said gear-segments and governing the stoppage thereof at the conclusion of the race.

15. In a toy race course, the combination of a plurality of telescoping tubular shafts, racer-actuating means connected with said shafts at one end thereof, pinions connected with said shafts at the other end thereof, gear-segments meshing with said pinions, and individual spring devices for actuating said gear-segments.

16. In a toy race course, the combination of a plurality of telescoping tubular shafts, racer-actuating means connected with said shafts at one end thereof, pinions connected with said shafts at the other end thereof, gear-segments meshing with said pinions, means for actuating said gear-segments, and a permutation stop device co-acting with said gear-segments.

17. In a toy race course, the combination of a plurality of telescoping tubular shafts, racer-actuating means connected with said shafts at one end thereof, pinions connected with said shafts at the other end thereof, gear-segments meshing with said pinions, means for actuating said gear-segments, a permutation stop device comprising plungers actuated by said gear-segments, and a permutation device equipped with stepped shoulders co-acting with said plungers.

18. In a toy race course, the combination of a plurality of telescoping tubular shafts, racer-actuating means connected with said shafts at one end thereof, pinions connected with said shafts at the other end thereof, gear-segments meshing with said pinions, means for actuating said gear-segments, a permutation stop device comprising plungers actuated by said gear-segments, and an automatically actuated rotary member equipped peripherally with stepped shoulders co-acting with said plungers.

19. In a toy race course, the combination of a plurality of racers, a racer-actuating device associated with each racer, a movable stop-member associated with each racer-actuating device, and a series of permutation disks co-acting with said stop-members.

20. In a top race course, the combination of a plurality of racers, a racer-actuating device associated with each racer, each of said devices being equipped with an actuating spring, means for retracting said devices against the force of their springs, means for latching said devices temporarily in retracted position, and means for effecting release of the latching means.

21. In a toy race course, the combination of a plurality of racers, a racer-actuating device associated with each racer, actuating springs for said devices, a member adapted to retract the racer-actuating devices against the force of their springs, and a lever connected with and serving to actuate said last-named member.

22. In a toy race course, the combination of a plurality of racers, a racer-actuating device associated with each racer, actuating springs for said devices, a member adapted to retract the racer-actuating devices against the force of their springs, a lever connected with and serving to actuate said last-named member, and a spring serving to retract said lever.

23. In a toy race course, the combination of a plurality of racers, a racer-actuating device associated with each racer, actuating springs for said devices, a member adapted to retract the racer-actuating devices against the force of their springs, a lever connected with and serving to actuate said last-named member, a spring serving to retract said lever, latching means for latching the racer-actuating devices in retracted position, and means connected with said lever for effecting release of said latching means during retraction of said lever.

24. In combination, a plurality of telescoping tubular shafts, racers actuated thereby, pinions on said shafts, gear-segments meshing with said pinions, springs connected with and serving to actuate said gear-segments, a rotatable member equipped with means for retracting said gear-segments against the force of their springs, a lever connected with and serving to actuate said member, and latching means co-acting with said gear-segments, said latching means having lost-motion connection with said lever.

25. In combination, a series of racer-spinning devices equipped with actuating springs, a rotatable member equipped with means for retracting said devices, means for actuating said rotatable member, a rotatable permutation device, means carried by said rotatable member and adapted to actuate said permutation device, and stop members associated with the racer-spinning devices and co-acting with said rotatable permutation device.

26. In combination, a plurality of telescopically related tubular shafts, racers actuated thereby, pinions mounted on said shafts, gear-segments meshing with said pinions, springs serving to actuate said gear-segments in one direction, a rotatable member having an axis concentric with the axes of said gear-segments and equipped with means for retracting all of the gear-segments, and means for actuating said rotatable member.

27. In combination, a plurality of racers, a plurality of independently actuated racer-actuating devices equipped with spring-actuating means, and a lever through the medium of which said racer-actuating devices may be retracted.

28. In combination, a plurality of concentric tubular shafts, arms mounted on said shafts and equipped with racers adapted to clear each other in the racing operation, pinions on said shafts, and spring-actuated gear-segments meshing with said pinions.

29. In combination, a plurality of concentric tubular shafts, arms mounted on said shafts and equipped with racers adapted to clear each other in the racing operation, pinions on said shafts, spring-actuated gear-segments meshing with said pinions, and means for retracting said gear-segments.

30. In combination, a plurality of telescopically related tubular shafts, wheels mounted thereon, companion wheels mounted at a distance from the first-mentioned wheels, endless belts connecting said wheels, racers mounted on said belts, and means for spinning said shafts.

31. In combination, a plurality of telescopically related tubular shafts, wheels mounted thereon, companion wheels mounted at a distance from the first-mentioned wheels, endless belts connecting said wheels, racers mounted on said belts, and individual spring-actuated devices associated with and serving to actuate said tubular shafts.

32. In combination, a plurality of racers, a plurality of spring-equipped racer-actuating devices capable of independent movement, means for retracting said devices, a permutation stop device, and co-acting means between said permutation stop device

and said retracting device adapted to effect a varied change in the permutation stop device.

33. In a toy race course, the combination of a plurality of telescoping tubular shafts, journaled one within another, the shafts being of successively increasing length from the outer shaft to the inner shaft, racers actuated through the medium of the upper portions of said tubular shafts, pinions connected with the lower portions of said tubular shafts, and spring-driven individual actuating means for said pinions.

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