

No. 814,156.

PATENTED MAR. 6, 1906.

W. R. McKNIGHT.
ROTARY SWING.

APPLICATION FILED SEPT. 6, 1904.

2 SHEETS—SHEET 1.

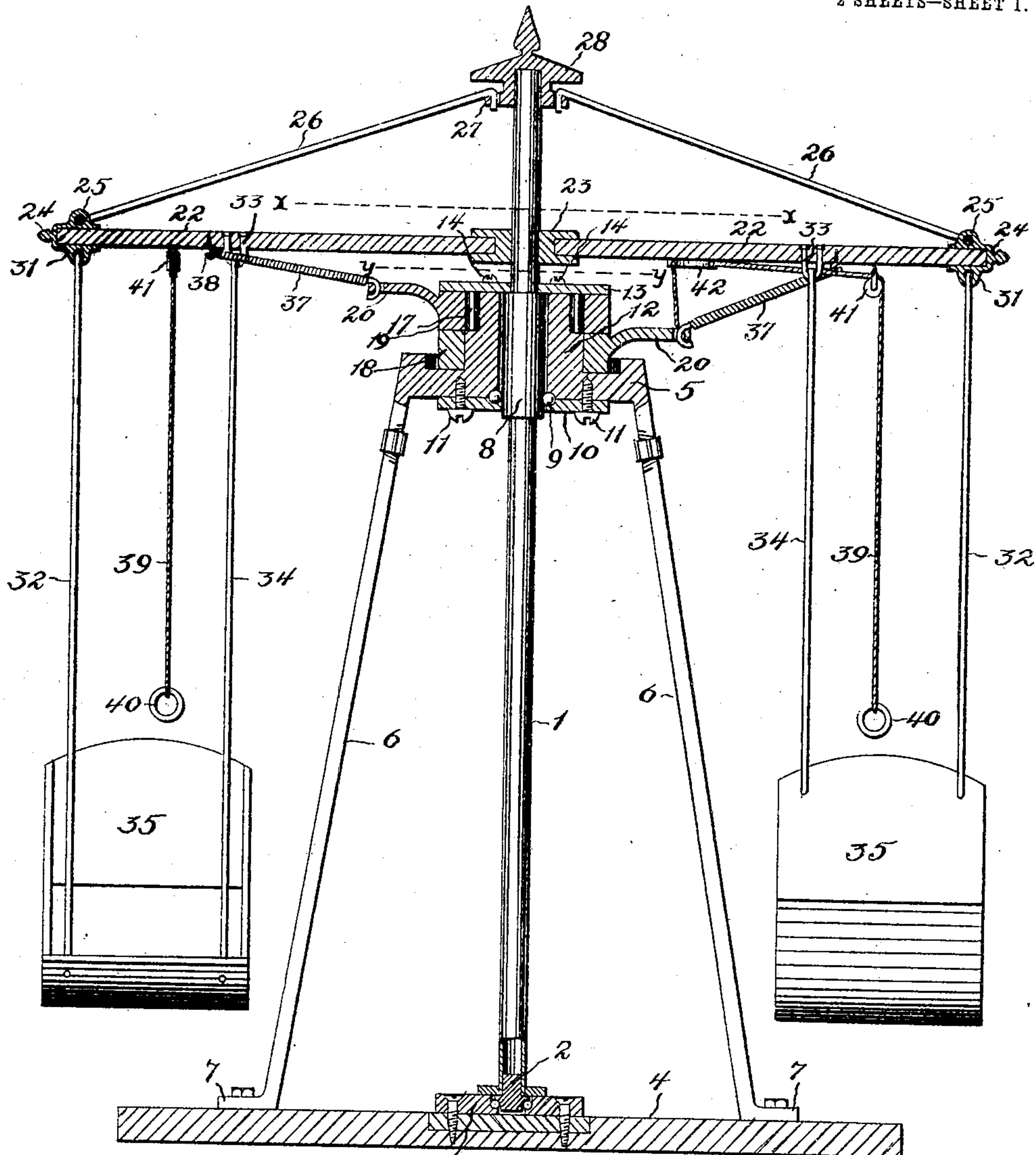


Fig. 1.

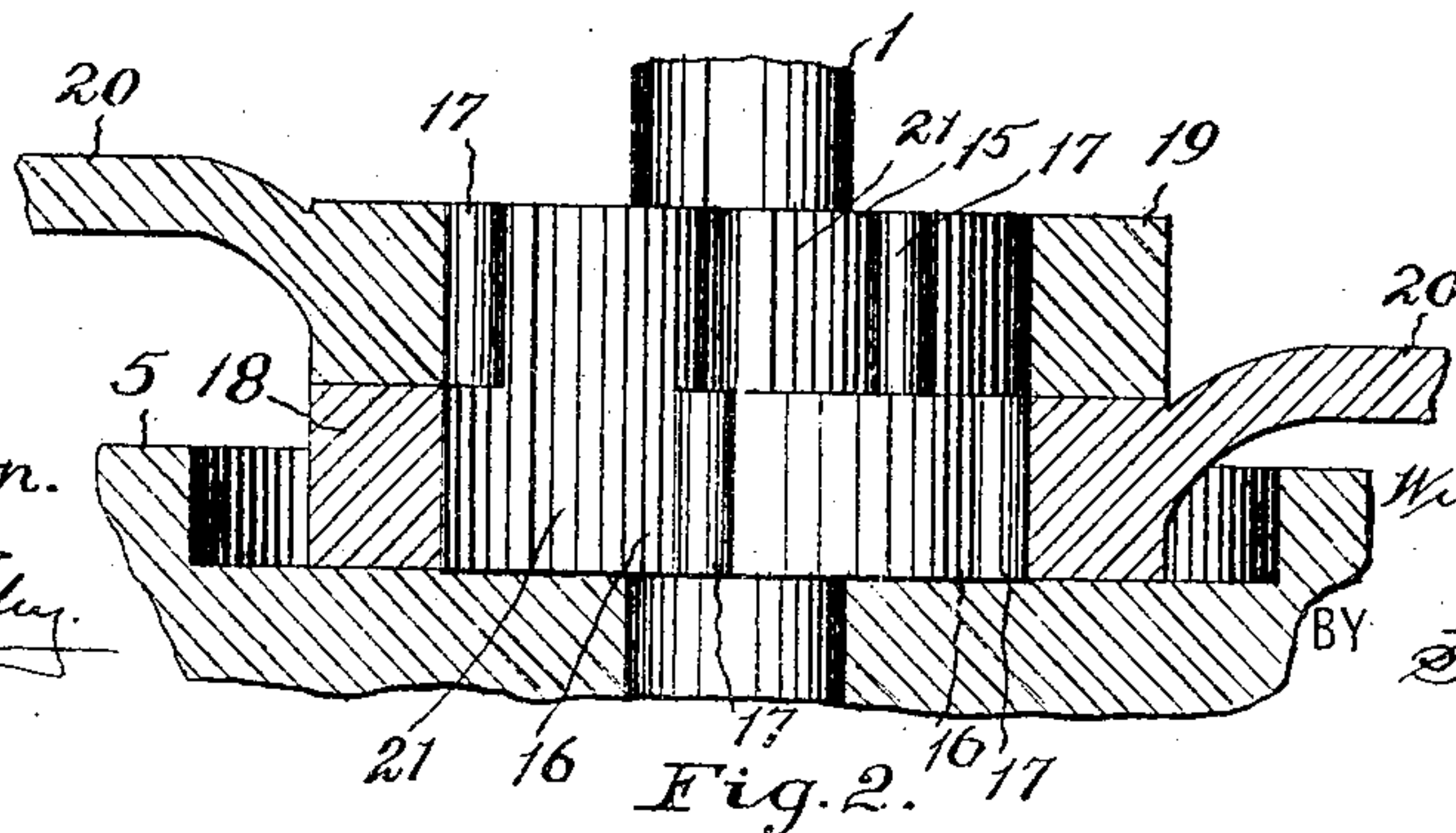


Fig. 2.

WITNESSES:
C. Stoughton.

M. D. Schley

INVENTOR

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ATTORNEYS.

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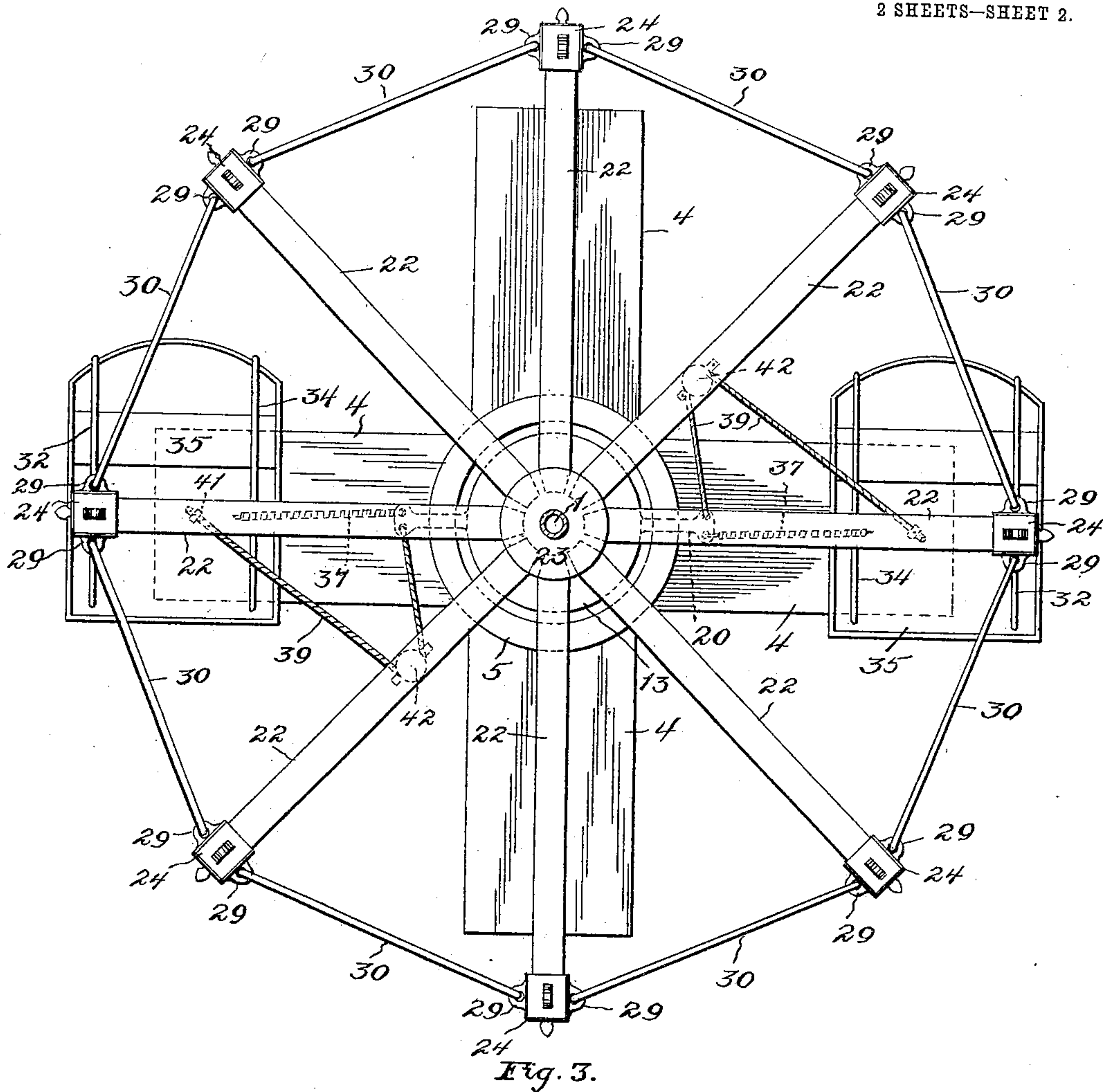


Fig. 3.

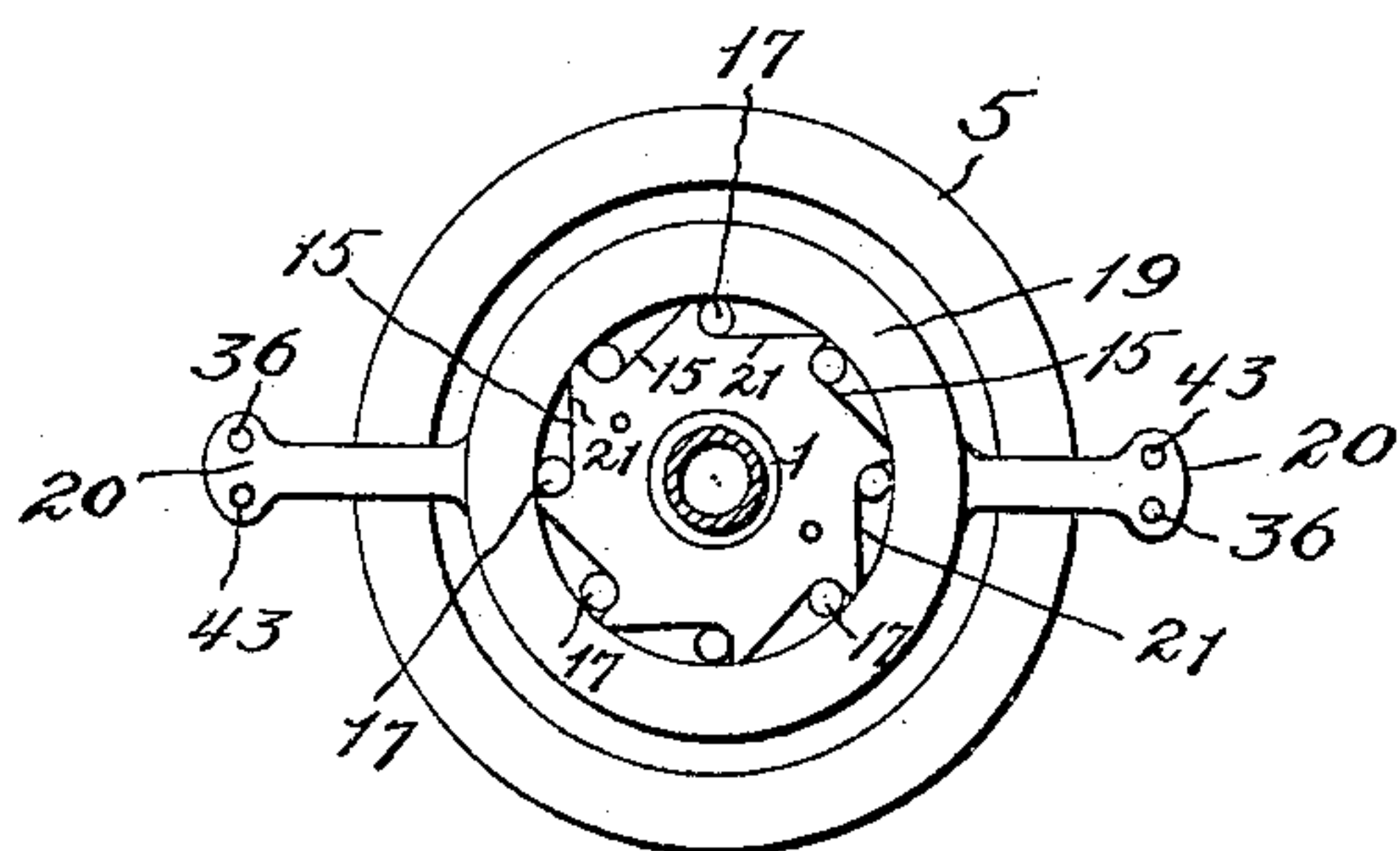


Fig. 4.

WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM R. McKNIGHT, OF COLUMBUS, OHIO.

ROTARY SWING.

No. 814,156.

Specification of Letters Patent.

Patented March 6, 1906.

Application filed September 6, 1904. Serial No. 223,315.

To all whom it may concern:

Be it known that I, WILLIAM R. McKNIGHT, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Rotary Swings, of which the following is a specification.

My invention relates to a new and useful improvement in rotary swings.

The object of the invention is to provide simple and efficient means whereby two persons riding in the swing may independently operate the same.

Finally, the object of the invention is to provide a device of the character described that will be strong, durable, and efficient and one which will be simple and comparatively inexpensive to build.

With the above and other objects in view the invention consists of the novel details of construction and operation, a preferable embodiment of which is described in the specification and illustrated in the drawings, wherein—

Figure 1 is a vertical sectional view showing the seats in elevation. Fig. 2 is a detail partial sectional view of the clutch-rings and the ring-plate, the clutch-collar and rollers being shown in elevation. Fig. 3 is a horizontal sectional view taken on line *x x* of Fig. 1; and Fig. 4 is a horizontal sectional view taken on the line *y y* of Fig. 1, the cover-plate being removed.

In the drawings the numeral 1 represents the shaft or center pole, which is preferably formed hollow throughout and rests at its lower end upon the spindle 2. A suitable ball-bearing construction 3 supports the spindle 2 and is itself suitably mounted upon the base 4. A ring-plate 5, supported upon the upper ends of inclined legs 6, encircles the shaft 1 near its upper end. The legs 6 are provided with laterally-extending feet 7, by which they are suitably secured to the base 4. An elongated sleeve 8, formed upon the shaft 1 and disposed within the ring-plate 5, presents a bearing-surface upon which a ring of balls 9 impinge. The balls are held in position in the ring-plate by means of a bearing-disk 10, fixed to the ring-plate by screws 11. Formed integral therewith and extending upwardly from the ring-plate is a double-faced clutch-collar 12, which surrounds the upper part of the elongated sleeve 8 and supports upon its upper end the cover-plate 13, suitably held in place by the screws 14. The

clutch-collar 12, as stated, is formed with a double face or an upper set 15 and a lower set 16 of inclined recesses adapted to receive roller-bearings 17. Fitting loosely about the collar 12 are clutch-rings 18 and 19, which are arranged one upon the other and each provided with a laterally-extending arm 20, the arm 20 of the ring 18 extending diametrically opposite from the arm 20 of the ring 19. It will be readily seen that when the rings are revolved in one direction they will pass over the rollers, holding the same in the deepest portions of the recesses, and thus not in any way affecting the collar 12; but when the rings are moved in the opposite direction the rollers 17 will be forced up the inclined faces 21 of the recesses, thus clutching or locking the rings and the collar together, the purpose of which will be hereinafter described.

Radial supporting-bars 22 project from a fixed collar 23, disposed about the shaft 1 a short distance above the cover-plate 13. Each of the bars 22 is provided at its outer end with a metallic cap 24, provided on their upper sides with eye-lugs 25, in which are engaged the brace-bars 26, which are supported at their inner ends in the flange 27 of the cap-piece 28. The caps 24 are formed on each side with laterally-extending eye-lugs 29, which are connected by space-bars 30. It will readily be seen that the bars 22 are securely supported and spaced apart and that a very stiff and steady construction is produced. Upon their under faces the caps 24 are provided with eye-lugs 31, in which are supported the outer seat-supporting rods 32, while suitable hooks or staples 33, projecting from the bars 22, support the inner seat-rods 34. The seat-rods 32 and 34 carry at their lower ends the seats 35. Two or more seats may be provided. In my drawings I have only illustrated two seats, which are thought to be ample for the purpose of description.

The outer ends of the arms 20 are provided with eyes 36, in which are engaged the hooked ends of the coiled springs 37, which are supported at their outer ends from the hook-screws 38, projecting from the under side of the supporting-bars 22. The purpose of these springs is to normally hold the arms 20 parallel to the supporting-bars 22, under which they project, and thus maintain the roller-bearings 17 in the deepest portions of the recesses 15 and 16, thereby allowing the rings to be carried around the collar 12 without clutching therewith.

Operating-ropes 39, provided with hand-grips 40, extend from a point over the seats, over pulleys 41, through sheaves 42, mounted on the bar 22 next in front of the bar 22 from which the seat is supported. Two of these ropes are provided, which after passing through the sheaves 42 are secured at their inner ends to the eyes 43 of the arms 20.

As before stated, the rings 18 and 19 are independent and each impinge separate roller-bearings 17, which operate in independent recesses 15 and 16. It will thus be seen that either of the rings may be moved without affecting the other, as the springs 37 will hold the ring not moved in its normal position. When the person in the seat 35 desires to operate the swing to cause the same to rotate, the handle 40 is grasped and the operating-rope 39 pulled downward, which causes the arm 20 to be moved forward. Its forward movement, however, is very slight, as the roller-bearings 17 are carried up the inclined faces 15 and the ring clutched with the collar 12, which latter is fixed and held against rotation. Therefore it is apparent that the continued pull on the rope 39 draws the bar 22, supporting the sheaves 42, up to the arm 20 of one of the rings, thus rotating the swing that distance. Pressure being relieved upon the rope 39 the spring 37 returns the parts to their normal positions, allowing the rings to be carried loosely around the collar 12 as the roller-bearings return to their normal positions. It is obvious that repeated pulls upon the rope 39 will cause the swing to rotate at a high rate of speed, and owing to the ball-bearing mounting of the same it will be understood that very little energy is required to accomplish the desired result.

One of the great advantages possessed by my construction is the independent operation of the rings 18 and 19, whereby persons in two swings may either simultaneously or independently pull the cords or ropes 39 without interfering one with the other.

I do not wish to limit myself to the exact details of construction herein set forth, as I

may make various changes in the same without departing from the spirit of the invention.

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

1. A rotary swing having a plurality of carriages mounted thereon and means for rotating the swing from any of the several carriages, said means comprising a ring-plate, a rotatable shaft passing therethrough, a clutch-collar supported on the ring-plate about the shaft and rings disposed about the collar adapted to be independently or simultaneously operated.

2. A rotary swing having a plurality of carriages mounted thereon, and means for rotating the swing independently or simultaneously from the several carriages, said means comprising a fixed ring-plate, a clutch-collar having alternately-disposed recesses, roller-bearings disposed in the recesses, rings disposed about the collar and adapted to independently engage with the roller-bearings of the alternate set of recesses, arms projecting from the rings, means for normally holding the rings in position connected with the arms and means connected with the arms for throwing the rings into clutch engagement with the collar.

3. A rotary swing having a plurality of arms with carriages mounted thereon, a fixed clutch-collar having formed about its periphery a plurality of series of recesses, the recesses of alternate series being alternately disposed, rollers disposed in the recesses, a plurality of rotatable rings disposed about the collar and each adjacent to a series of recesses, arms projecting from the rings and means connected with the said arms for throwing the rings into clutching engagement with the collar from each of the several carriages independently of any other.

WILLIAM R. McKNIGHT.

In presence of—

A. L. PHELPS,
M. B. SCHLEY.