April 16, 1929. C. C. MILLIKAN 1,709,273

ROTARY SWING

Filed May 12, 1926 3 Sheets-Sheet 1

Fig. 1.

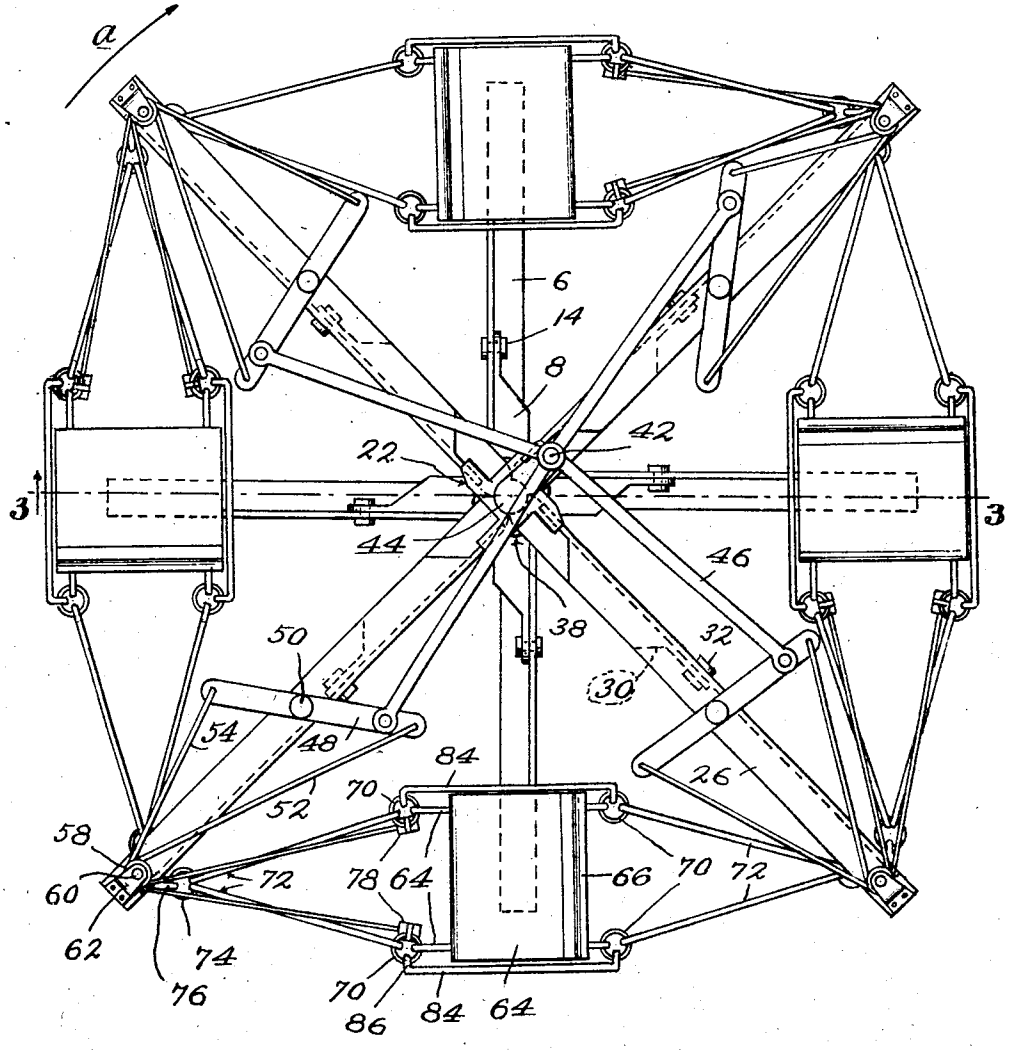

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FIG. 2.

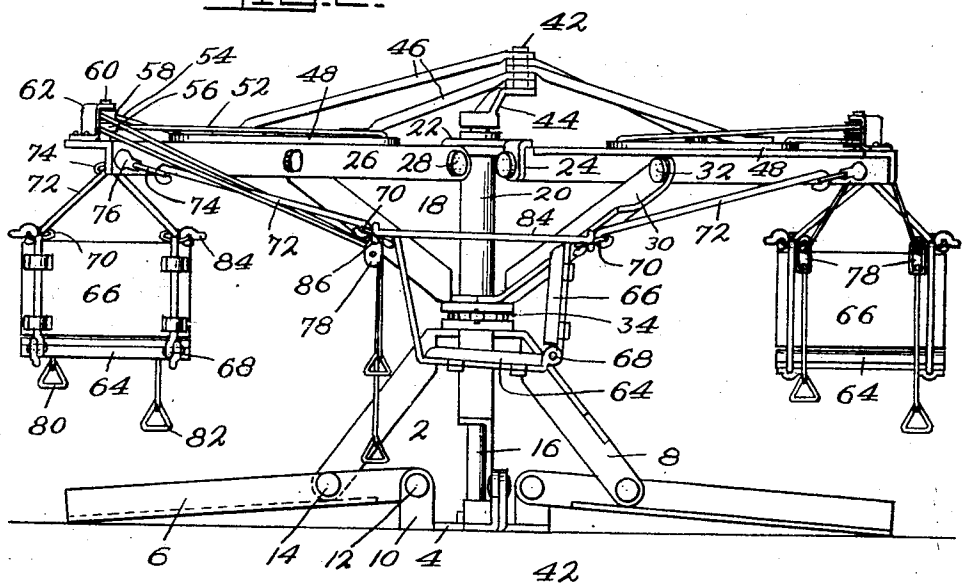
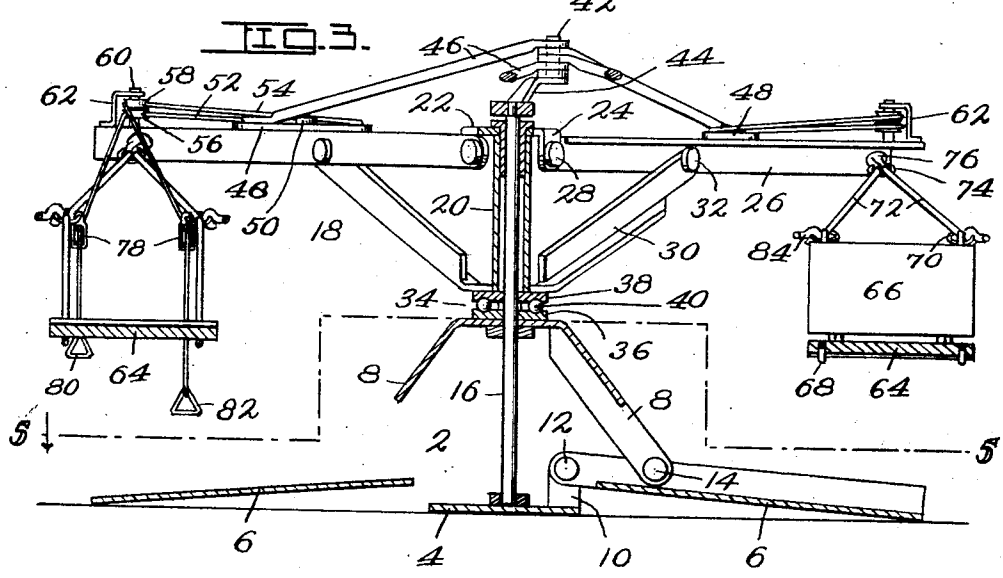


FIG. 3.



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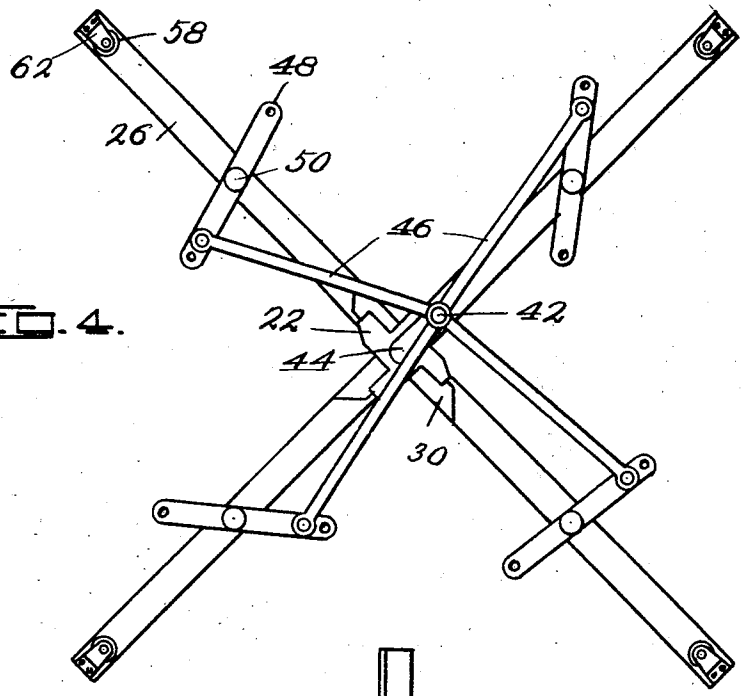

Fig. 4.

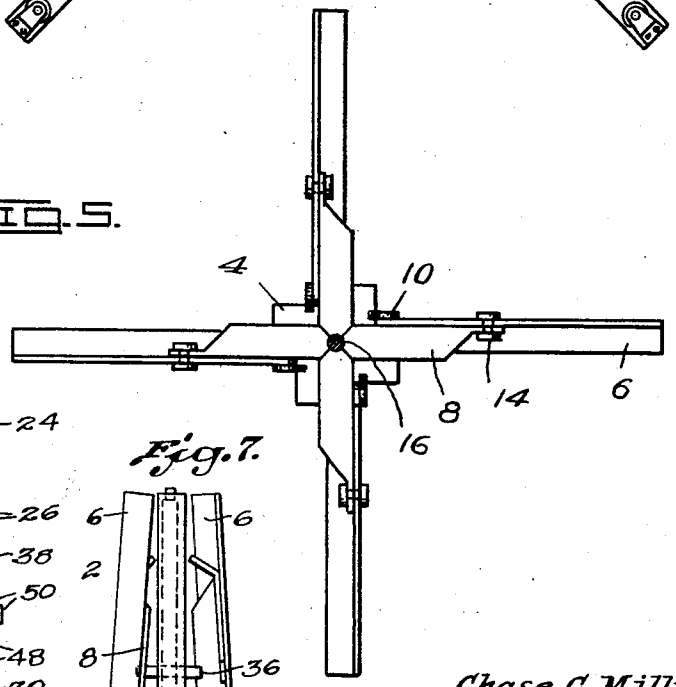

Fig. 5.

Fig. 6.

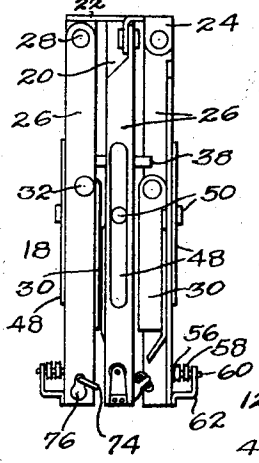

Fig. 7.

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Patented Apr. 16, 1929. 1,709,273

UNITED STATES PATENT OFFICE.

CHASE C. MILLIKAN, OF KANSAS CITY, KANSAS.

ROTARY SWING.

Application filed May 12, 1926. Serial No. 108,585.

My invention relates in general to amusement apparatus, and pertains more particularly to rotary swings, and one object is to provide novel power transmission mechanism whereby the swing can be manually propelled at relatively high speed with comparative ease by the occupants of the seats with which said swing is equipped.

A further object is to provide a swing which can be folded into compact form for storage or shipment.

Other objects will hereinafter appear, and in order that the invention may be fully understood, reference will now be had to the accompanying drawings, in which:

Fig. 1 is a plan view of the apparatus.

Fig. 2 is a side elevation of the apparatus.

Fig. 3 is a vertical cross section on line 3—3 of Fig. 1.

Fig. 4 is a plan view of certain parts of the upper portion of the apparatus.

Fig. 5 is an irregular horizontal section on line 5—5 of Fig. 3.

Fig. 6 is a section of a portion of the machine in folded position. Fig. 7 is a section of another part of the machine.

In carrying out the invention I employ a lower frame 2 consisting of a base plate 4, radial supporting members 6, and braces 8. The base plate 4 has upwardly projecting lugs 10 to which the supporting members 6 are foldably connected by pivots 12. The braces 8 are foldably connected at their lower ends to the supporting members 6 by pivots 14 and are arranged to bear at their upper ends against a stationary shaft 16 projecting vertically from the base plate 4, to which it is rigidly connected.

18 designates an upper frame consisting of a tubular shaft 20, a plate 22 fixed to the upper portion of said tubular shaft 20 and provided with depending lugs 24, radial arms 26 foldably connected to the lugs 24 by pivots 28, and braces 30 foldably connected to the arms 26 by pivots 32.

The tubular shaft 20 is mounted upon the stationary shaft 16 and a step-bearing 34, which latter consists of a plate 36 fixed to the stationary shaft 16, a plate 38 fixed to the lower end of the tubular shaft 20, and ball-bearings 40 arranged in raceways in the adjacent sides of the plates 36 and 38. An eccentric pin 42 is secured to a stationary crank 44, which is fixed to the upper end of the stationary shaft 16.

46 designates a plurality of connecting rods rotatably mounted at their inner ends upon the eccentric pin 42 and pivotally connected at their outer ends to oscillatory levers 48 mounted intermediate their ends upon fulcrums 50 carried by the radial arms 26.

The levers 48 are oscillated by cables 52 and 54 secured to the opposite ends of said levers 48 and running around sheaves 56 and 58, respectively, mounted upon spindles 60 projecting upwardly from the outer ends of the radial arms 26 and supported at their upper ends by brackets 62.

64 designates seats having backs 66 foldably mounted upon hinges 68, the upper ends of which are looped around rings 70 suspended by rods 72, which in turn are suspended by rings 74 connected to eye-bolts 76 secured to the outer ends of the radial arms 26.

The forward rings 70 are equipped with blocks 78 over which the cables 52 and 54 run, said cables being provided at their lower ends with handles or stirrups 80 and 82, respectively, arranged within convenient reach of the occupants of the seats 64.

The backs 66 of the seats are held in raised position by arms 84 connected to the rings 70, the forward end of each outer arm being formed into a hook 86 which may be disengaged from its respective ring 70 to permit a person to readily gain access to or leave the seat.

With the parts arranged as shown and described, it is apparent that passengers occupying the seats 64 can impart a rotary motion to the upper frame by alternately pulling upon the stirrups 80, 82, with the hands or by pushing upon said stirrups with the feet, the power thus applied being exerted to rotate the upper frame in the direction of the arrow *a*, Fig. 1, by being transmitted through the intermediary of the cables 52 and 54, the levers 48 and the connecting rods 46.

When not in use the apparatus can be folded into compact form for storage or transportation by removing the connecting rods 46, the crank 44, and the rods 72, and slipping the tubular shaft 20 from the stationary shaft 16, after which the braces 30 may be folded outwardly against the under sides of the arms 26, which latter are then folded against the tubular shaft 20, as shown by Fig. 6. After the upper frame has been folded as stated, the lower frame 2 may be

folded by folding the braces 8 downwardly upon the supporting members 6 and folding the latter upwardly against the lower plate 36 of the step-bearing 34.

From the foregoing description it is apparent that I have provided an apparatus whereby the arms and legs of children and others may be developed by healthful exercise, and while I have shown and described the preferred construction, combination and arrangement of parts, I reserve the right to all such modifications as properly fall within the spirit and scope of the invention as claimed.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is:

1. In an apparatus of the character described, a plurality of seats, radial arms for supporting said seats, a plate to which said arms are pivotally connected at their upper ends, a tubular shaft to which said plate is connected, a step bearing upon which said tubular shaft is mounted, inclined braces pivotally connected to the radial arms and adapted to rest upon said step bearing and abut said tubular shaft, a stationary shaft upon which the tubular shaft is rotatably mounted, a member arranged eccentrically to the axis of the stationary shaft, and power transmission mechanism connected to said eccentric member and controllable from the seats.

2. In an amusement apparatus, a base plate, a vertically disposed shaft fixed to said base plate, radial supporting members pivotally connected to said base plate, braces pivotally connected at their lower ends to said radial supporting members and adapted to abut at their upper ends against the shaft, a rotary frame mounted upon the shaft, seats suspended from said frame, a pin eccentrically connected to the shaft, and power transmission mechanism connected to said pin and operable from the seats.

3. In an amusement device, a plurality of radial supports, a stationary shaft mounted upon said supports, a rotary tubular shaft mounted upon said stationary shaft, radial arms extending from the upper portion of said tubular shaft, seats arranged between and suspended from said arms, oscillatory levers fulcrumed upon said arms, cables connected to opposite ends of said levers and terminating adjacent to the respective seats, sheaves mounted upon the arms for guiding said cables to the seats, a pin eccentrically connected to the stationary shaft, and connecting rods pivotally secured to said pin and the oscillatory levers.

In testimony whereof I affix my signature.

CHASE C. MILLIKAN.