(No Model.)

W. MANGELS.

ROUNDABOUT.

No. 452,227. Patented May 12, 1891.

Fig 1.

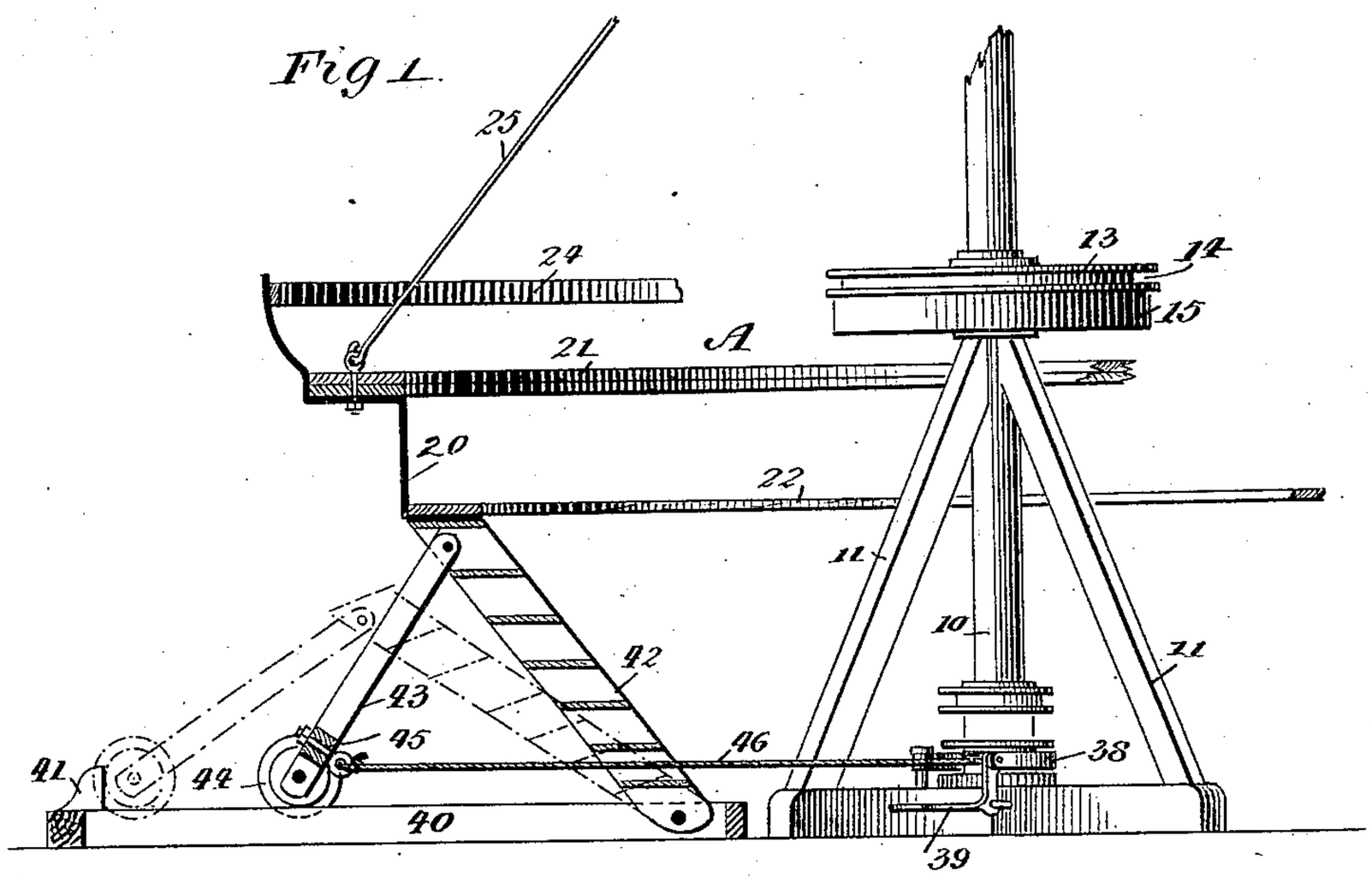
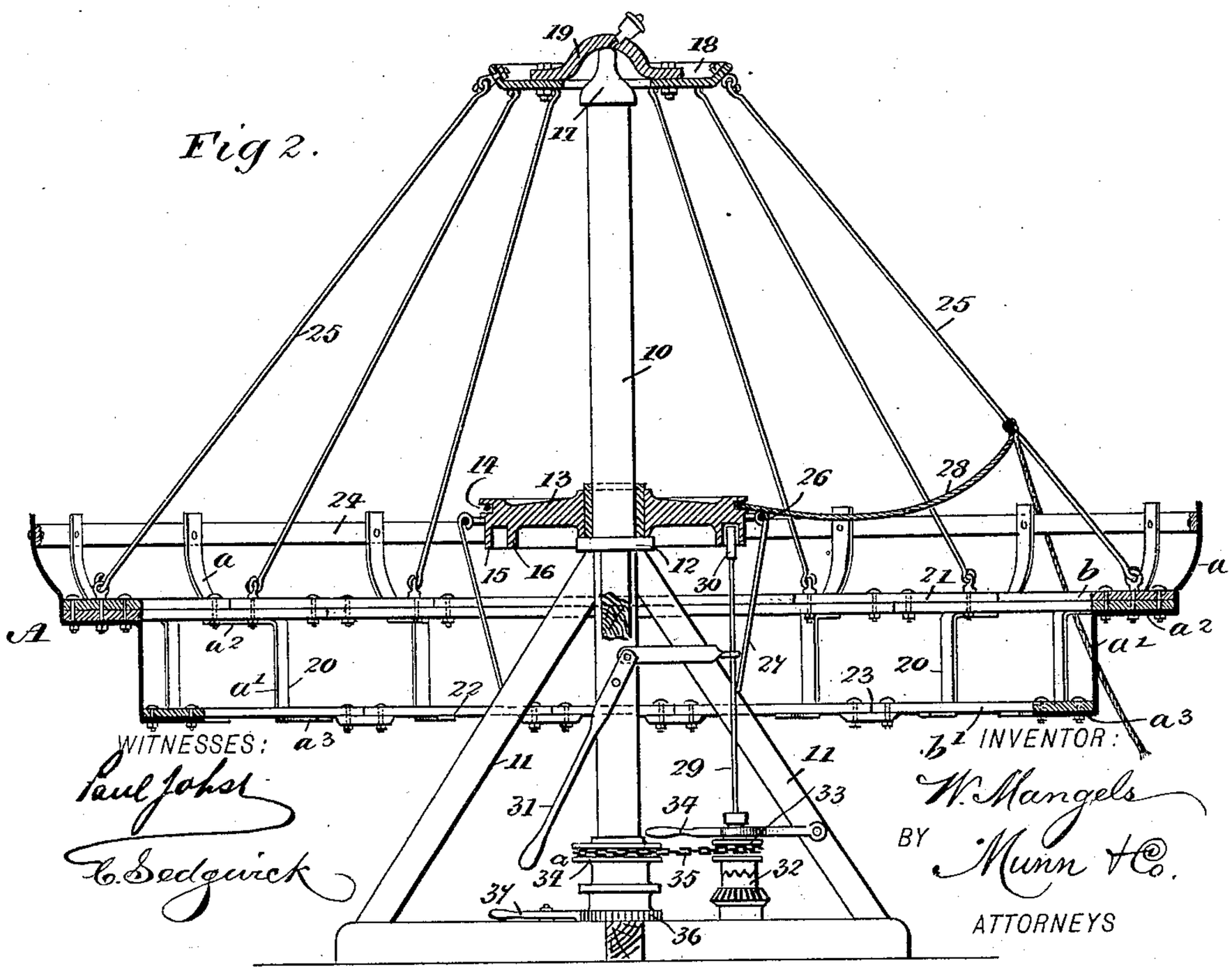


Fig 2.



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ROUNDABOUT.

SPECIFICATION forming part of Letters Patent No. 452,227, dated May 12, 1891.

Application filed December 18, 1890. Serial No. 375,072. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MANGELS, of New York city, in the county and State of New York, have invented a new and useful Improvement in Swings, of which the following is a full, clear and exact description.

My invention relates to an improvement in swings having a combined rotary and reciprocating movement and commonly known as the "razzle-dazzle."

The object of the invention is to so construct the swing that it may be manipulated by steam-power or a motor of any description and to provide a means whereby the movements of the swing, when such power is applied, will be under complete control of the operator.

A further object of the invention is to construct the swing in such manner that it will be exceedingly strong, and whereby the several parts may be quickly disconnected and packed for transportation and readily set up again.

Another object of the invention is to provide steps for ascending to or descending from the swing and operated from the driving mechanism in such manner that they may be drawn up beneath and in engagement with the swing to steady the same or be folded down out of the way.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in both the views.

Figure 1 is a partial side elevation and partial sectional view of the swing, and Fig. 2 is a central vertical section through the same.

A central pole or upright 10 is secured to any suitable foundation and braced usually by bars or beams 11, extending from a point at or near the center downward to the foundation. Above the upper ends of the braces 11 a collar 12 is secured upon the pole, and above the collar a pulley 13 revolves. The pulley is horizontal and provided with a peripheral groove 14 and two flanges 15 and 16, projected downward from its under face near the periphery. Upon the top of the pole a cap 17 is screwed, preferably conical in shape, and a pivot-plate 18 is loosely placed upon the cap, the said plate being provided with a central depression 19, in the center of which the upper end of the cap 17 has a bearing. The contacting surfaces of the pivoted plate and the cap may be oiled by means of any suitable appliance, an oil-cup being illustrated as attached to the plate in the drawings.

The carriage A is circular and is constructed upon a series of angle-irons 20, which angle-irons comprise an upper curved member a, a vertical member a', a horizontal member a^2, connecting the vertical and the curved members, and a second horizontal member a^3, extending outward from the bottom of the vertical member, as is best shown in Fig. 2. The seat 21 rests upon and is bolted or otherwise attached to the intermediate horizontal members a^2 of the angle-brackets 20, and the seat is constructed of a series of semicircular sections b, arranged in two layers and in such manner as to break joints, the sections of the layers being connected by bolts or their equivalents. Upon the lower horizontal members a^3 of the brackets a foot-rest 22 is supported. The foot-rest usually consists of a number of semicircular sections b', arranged in a single layer, the said sections being connected by battens 23, bolted thereto. The upper curved members a of the brackets are connected by a rail, which constitutes the back for a seat.

The carriage is located around the pole, the pole being in the center thereof, and is connected by a series of links or cables 25 with the pivot-plate 18. Near the curved periphery of the pulley 13 a circular guard-rail 26 is usually located, supported from the braces 11 by rods 27. In the groove 14 of the pulley one end of a rope or chain 28 is secured, the other end of which rope or chain is attached to one of the links or cables 25 or to a bar fastened to two or more of the links, the point of attachment of the rope or chain to the links being preferably in a plane with the groove of the pulley. The pulley is revolved through the medium of an upright drive-shaft 29, geared or otherwise connected with a suitable motor. The upper end of the shaft has attached thereto a friction-pulley 30, which extends

upward between the flanges 15 and 16 of the horizontal pulley 13, and the normal position of the shaft is such that the friction-pulley 30 is out of engagement with each of the flanges 15 and 16. It is thrown in engagement, however, with either of the flanges, as may be desired, by means of a lever 31, fulcrumed upon a convenient support and connected with the drive-shaft.

The drive-shaft 29 is adapted to revolve continuously. A clutch-collar 32 is fast upon the lower end of the shaft, with which collar a drum 33, having a clutch-face, may be thrown into engagement whenever desirable, which is accomplished through the medium of a shifting-lever 34, the said drum being loosely mounted upon the drive-shaft.

A drum 34^a is held to revolve loosely upon the lower end of the pole and is connected with the drum 33 of the drive-shaft by a belt 35. The lower edge of the drum 34^a is provided with a ratchet-surface 36, and a pawl 37, pivoted upon the base or foundation of the swing, is adapted for engagement with the ratchet. The lower surface of the drum 34^a is partially encircled by a strap-brake 38, which brake may be thrown in frictional contact with the drum at any time by pressure upon a foot-lever 39, fulcrumed upon the base or foundation, as is best shown in Fig. 1.

Heretofore it has been very difficult to provide a safe means whereby persons could ascend to or descend from the carriage A, as said carriage is elevated some distance from the ground. Ladders have been employed for the purpose, which ladders, when required, have been pushed under the carriage; but the ladders have always been so short that quite a space would intervene between the top step and the bottom of the carriage, thus permitting the ladder to vibrate to such a degree as to render the persons ascending or descending liable to injury. This difficulty I overcome by placing skeleton base-frames 40 at proper intervals beneath the carriage, which frames extend some distance outside of the circle of the latter. Each frame at its outer end is provided with two stops or buffers 41, located one at each side, and the lower ends of a ladder 42 are pivotally attached to the side pieces of each frame, the attachment being effected, preferably, upon the inner faces of the frames. Each ladder is provided with the usual legs 43, pivoted to the back thereof at or near the top, and each leg has pivoted thereto a wheel 44, the said wheels being adapted to travel upon a track or in grooves produced in the plates upon the upper edges of the sides of the frame. The cross-bars 45, connecting the legs 43 of the ladders, have attached to each of them a cable 46, and each of the cables is wound around the drum 34^a.

In operation the friction-pulley 30 is brought in engagement with one of the flanges of the pulley 13—the flange 15, for instance—and the said pulley is revolved, whereupon a circular motion is imparted to the carriage, and by reason of the attachment of the pulley-cable to one of the cables of the carriage a reciprocating movement is also imparted, whereby the carriage is tilted at the same time that it is revolved. When this movement has been sufficiently continued, the friction-pulley is made to engage with the other flange, and the movement of the pulley 13 is thereby reversed, whereupon the cable 28 is unwound and the carriage will by gravity endeavor to assume a horizontal position, and just before such position can be assumed the pulley 13 is again revolved to exert tension upon the cables 25.

When it is desired to enter the carriage or to depart therefrom, the shifting-lever 34 is manipulated to throw the drum 33 in clutch engagement with the drive-shaft, whereupon the drum 34^a is revolved, and the cables 46, attached to the ladders, are wound up, and the ladders are raised until the upper step thereof comes in contact with the under surface of the foot-rest 22 of the carriage. By this means the carriage is held perfectly steady, and parties may enter or depart therefrom with perfect safety.

The ladders are held in their upright position by causing the pawl 37 to engage with the ratchet 36 of the drum 34^a and disconnecting the drum 33 from the drive-shaft. When the ladders are not required, the pawl 37 is disengaged from the ratchet-surface 36, and the cables are permitted to unwind, whereupon the ladders will drop to such an extent that they will be some distance below the carriage, and their wheels 44 will be in engagement with the buffers 41 of the ladder-frames.

In order that the ladders may not be injured when folding down, the brake 38 is applied.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a swing, the combination, with a pole or standard, a plate pivoted upon the pole, and a circular carriage suspended from said plate, of a pulley held to revolve horizontally upon the pole, provided with a peripheral groove and with spaced annular flanges upon its under face, a cable secured at one end in the groove of the pulley and having its other end attached to the carriage, and a drive-shaft provided with a friction-pulley capable of engaging with either of the flanges of the grooved pulley, as and for the purpose specified.

2. In a swing, the combination, with a carriage and a drive-shaft for operating the carriage, of ladders pivoted beneath the carriage, legs provided with wheels pivoted to the ladder-frame, a drum, a clutch device connected with the drive-shaft, a connection between the clutch device and the drum, and a cable connection between the legs of the ladder and the drum, as and for the purpose set forth.

3. The combination, with a carriage and a stationary frame located beneath the same, of a ladder pivoted to the stationary frame,

legs pivoted to the ladder, and friction-wheels journaled upon the legs and adapted to travel upon the fixed frame, substantially as shown and described, whereby the ladder may be raised upward beneath and in engagement with the carriage or be folded down out of engagement therewith, as and for the purpose specified.

4. In a swing of the character described, the combination, with an upright, a circular carriage, a plate pivoted upon the upright, and a connection between the plate and the carriage, of a horizontal pulley held to revolve upon the upright, provided with a peripheral groove and with annular spaced flanges upon its under face, a cable attached in the groove of the horizontal pulley and connected with the carriage, a drive-shaft provided with a friction-pulley at its upper end adapted to enter the space between the flanges of the horizontal pulley, and a shifting-lever whereby the friction-pulley is made to engage with one or the other of the flanges, as and for the purpose specified.

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