March 12, 1929. H. J. FAIRWEATHER 1,704,914

MECHANICAL ROCKER

Filed April 18, 1925 2 Sheets-Sheet 1

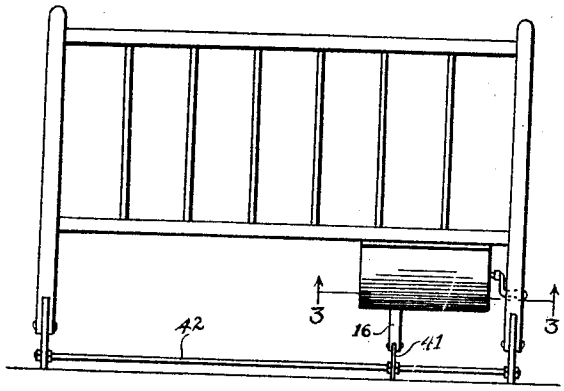


Fig. 1.

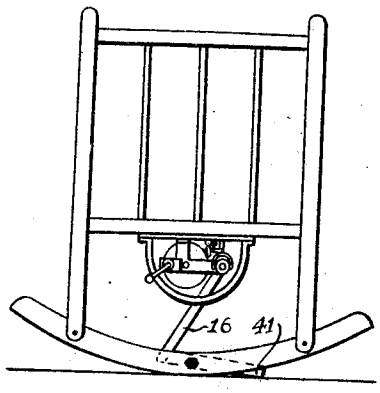


Fig. 2.

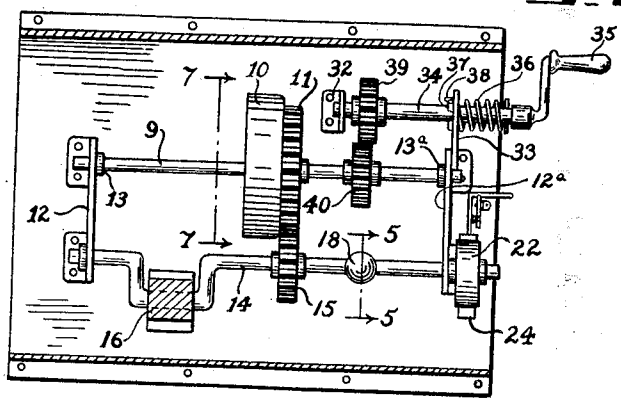


Fig. 3.

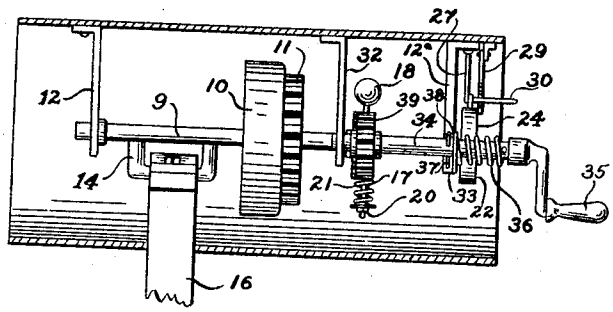


Fig. 4.

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March 12, 1929. H. J. FAIRWEATHER 1,704,914

MECHANICAL ROCKER

Filed April 18, 1925 2 Sheets-Sheet 2

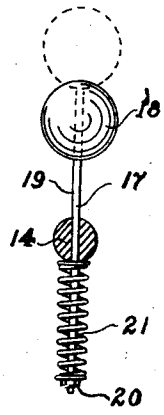


Fig. 5.

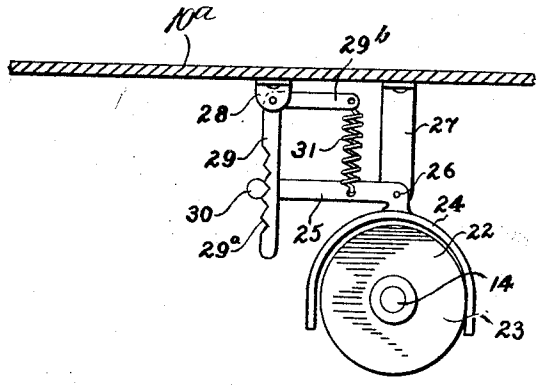


Fig. 6.

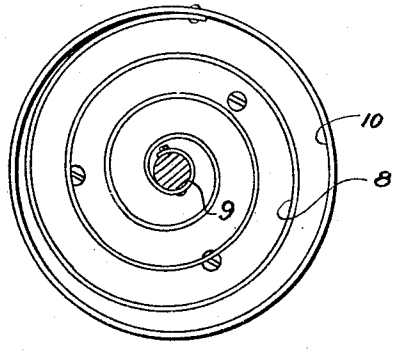


Fig. 7.

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UNITED STATES PATENT OFFICE.

HILYARD JOSEPH FAIRWEATHER, OF CHIPMAN, NEW BRUNSWICK, CANADA.

MECHANICAL ROCKER.

Application filed April 18, 1925. Serial No. 24,159.

My present invention relates to improvements in a mechanical rocker appertaining particularly to a spring powered means for rocking cradles, churns, grain separators and the like.

The principal object of the invention is to provide an improved and novel spring powered drive for a pitman; a crank wind, a friction clutch, a governor and a simplified casing therefor.

A further object is the provision of a mechanical rocker that will be smooth in motion, flexible in action and easily operated.

A still further object is to provide a device of the character described wherein the number of parts are few, the construction simple and the cost of production relatively low.

To the accomplishment of these and related objects that will become apparent as the description proceeds, the invention resides in the construction, combination and arrangement of parts as shall be hereinafter more fully described, illustrated in the accompanying drawings and pointed out in the claim hereunto appended.

In the drawings forming a part of this disclosure and wherein like characters indicate like parts throughout the several views;

Fig. 1 is an elevation of a baby's cradle with my improved rocker applied;

Fig. 2 is an end elevation thereof;

Fig. 3 is a plan of the mechanical motor as on the line 3—3 of Fig. 1, the casing therefor bing shown in section;

Fig. 4 is an elevation thereof, the casing being shown in section;

Figs. 5, 6 and 7 are details of the governor, the friction brakes and the drive spring respectively.

In carrying out my invention a spring 8 is mounted on a rotatable shaft 9 and housed in a casing 10 that is free on the shaft, the outer end of the spring 8 being fixed to the said casing. A gear 11 that also rides free on the shaft 9 is bolted to the spring casing 10.

A pair of brackets 12 and 12ª suitably mounted on the base board 10ª support the ends of shaft 9, collars 13 and 13ª being keyed to the shaft interior of the said brackets. A crank shaft 14 is also carried by the brackets 12 and 12ª and is spaced from the shaft 9. A gear pinion 15 keyed to said crank shaft 14 meshes with the gear 11 fixed to the drive spring casing 10 and intermediate said pinion 15 and the bracket 12, a pitman arm 16, extending through a fixed supporting casing, is mounted on the crank shaft. On the axially aligned portion of crank shaft 14, on the remote side of the pinion 15, intermediate said pinion and the bracket 12ª, a centrifugal ball governor 17 is carried. This governor comprises a weight ball 18 on an end of rod 19 that passes through a perforation in the shaft 14 and is provided with a retaining nut 20 applied to the threaded portion on the end remote from said ball. A coil spring 21 compressed against the said nut and shaft retains the weight in normally retracted position from which it is thrown on the rotation of the shaft.

On the shaft 14 exterior of bracket 12ª, a friction brake 22 is provided. This is composed of a disk 23 keyed to the crank shaft and a yoked shoe 24 that straddles the disk. A tangential arm 25 is formed integral with the brake shoe, having a perforation therethrough at the point of contact. A pintle 26 passing through the perforation in said brake shoe arm pivotally connects the member to a supporting bracket 27 that is carried by the base board 10ª. A small angle hanger 28 pivotally carries a bell crank 29, a racked arm 29ª of which is urged into contact with the laterally projecting end 30 of the brake shoe arm 25 by a spring 31 connecting the other arm 29ᵇ of the bell crank with the brake shoe arm. In normal position the arms of the yoked brake shoe 24 clear the rotatable disk 23 but the raising or lowering of arm 25 brings one side or the other of the shoe into frictional contact—the arm is held in any set position by the seating of the arm end 30 in a notch in the spring urged bell crank rack 29ª.

A bracket 32 together with an extension 33 from the bracket 12ª supports a short shaft 34 that slides longitudinally and to the end of which, exterior of the extension support 33, a crank handle 35 is applied. A coil spring 36 is mounted about the shaft 35 on which it is compressed between the extension 33 and the crank handle 35. A wedge pin 37 passes through a shaft 34 interior of the extension 33 and acts as a stop against the action of spring 36, said pin in normal position also contacts with an abutment or boss 38 carried by the said extension. Near the inner bracket 32, a gear wheel 39 is

keyed on shaft 34 and meshes with a pinion 40 keyed to the main shaft 9.

When applied to a baby's cradle the motor carrying casing above described is preferably mounted centrally on the under side of the body near an end, and the end of the pitman 16 remote from the rotatable crank is hinged to a lever arm 41 that fulcrums between its ends on a rod 42 that connects the centres of the cradle rockers, this lever arm 41 being designed to engage the floor lightly when the pitman arm 16 is midway in its stroke.

In operation, the drive spring 8 is wound by shoving in the crank handle shaft 34 until the shaft carried wedge pin 37 is freed from the boss 38 and then turning the crank handle 35. This turns the shaft 34 and the gear 39 that meshing with the pinion 40 rotates the main shaft 9 thereby winding the spring 8 which is attached thereto. During this operation the brake 22 will have been in operation thus preventing the turning of the crank shaft 14 to which the pinion 15 is keyed. As this pinion 15 meshes with the gear 11 fixed to the spring casing 10, the latter will have been held against rotation during the winding of the spring.

On the completion of this operation the crank handle is released and the spring 36 brings the pin 37 back against the inner side of the extension 33 and incidentally into contact with the stop 38 which obviously locks shaft 34 against rotation and through the medium of the still meshing gear wheels 39 and 40 prevents the main shaft 9 from turning.

The brake 22 may now be released and the rocking set up, the same being effected by the unwinding of the spring causing the rotation of the casing 10 to which the outer end of the spring is fixed and to which the gear 11 is bolted. The crank shaft 14 is thus rotated, by the action of the pinion 15 meshing with the wheel 11, and the pitman 16 operated thereby works the treadle lever 41 that slowly and smoothly rocks the cradle, the motion being rendered of uniform rate by the action of the governor 17.

From the foregoing description taken in connection with the accompanying drawings, it will be manifest that a mechanical rocker is provided which will fulfill all the necessary requirements of such a device, but as many changes could be made in the above description and many apparently widely different embodiments of my invention constructed within the scope of the appended claim without departing from the spirit or scope thereof, it is intended that all matters contained in the said accompanying specification and drawings shall be interpreted as illustrative and not in a limited sense.

What I claim as new and desire to secure by Letters Patent is,—

A mechanical rocker including a casing; stationary supporting brackets within said casing; a shaft rotatably mounted in said brackets; a spiral spring mounted by one end on said shaft; a drum loose on said shaft and enclosing said spring; said spring being secured by its remaining end to said drum; a large gear loose on said shaft and secured to said drum; a small gear keyed to said shaft; a spring winding shaft parallel with the first mentioned shaft; a driving gear carried on said spring winding shaft and meshing with the small gear on the said first mentioned shaft; means for normally holding said spring winding shaft against rotation; a crank shaft parallel with said first mentioned shaft and rotatable in said brackets; a small gear keyed on said crank shaft and meshing with said large gear to be driven thereby; a friction brake on said crank shaft; a governor on said crank shaft; a rocker member; and an operating crank arm for said rocker member extending from the crank portion of said crank shaft.

In testimony whereof I hereunto affix my signature.

HILYARD JOSEPH FAIRWEATHER.