June 9, 1931. J. J. McGERRY ET AL 1,808,901

ROTARY AUTOMATIC CONTROL MEANS

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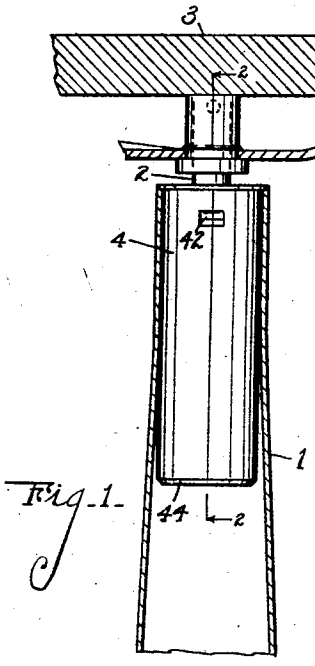


Fig. 1.

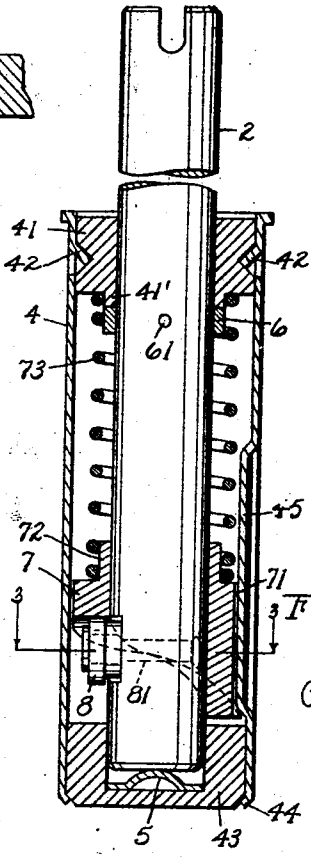


Fig. 2.

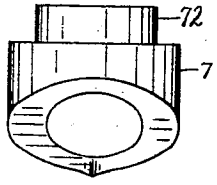


Fig. 4.

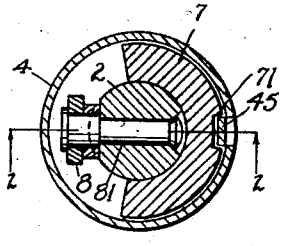


Fig. 3.

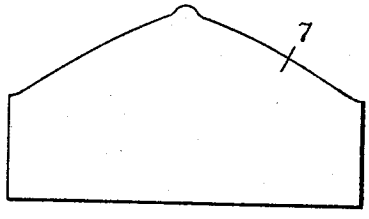


Fig. 5.

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ROTARY AUTOMATIC CONTROL MEANS

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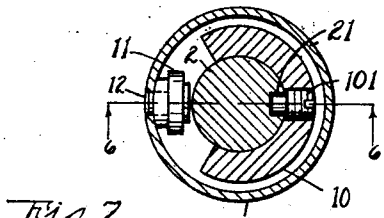


Fig. 7.

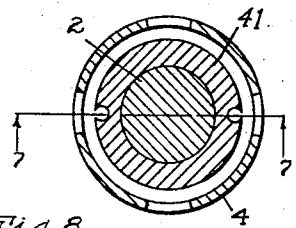


Fig. 8.

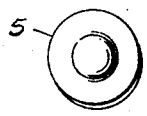


Fig. 9.

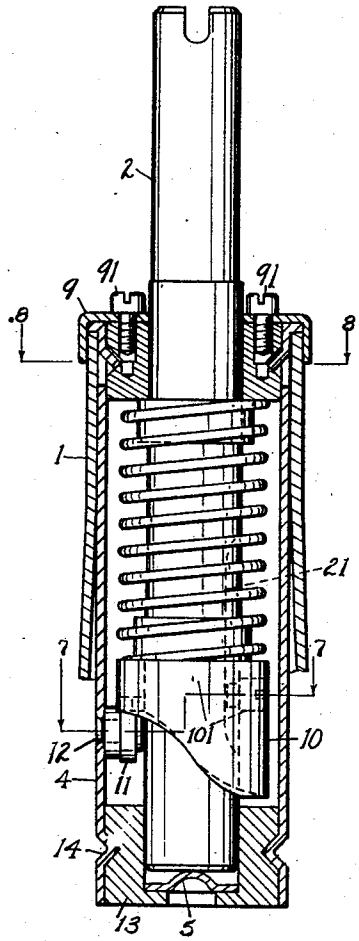


Fig. 6.

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UNITED STATES PATENT OFFICE

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ROTARY AUTOMATIC CONTROL MEANS

Application filed August 4, 1930. Serial No. 473,106.

The objects of the invention are:

First, to provide an improved reciprocating cam for controlling automatically a rotary or revolving device, such as a revolving chair or revolving door or gate, or a self-closing door or gate.

Second, to provide an improved concentrically constructed device of the kind.

Third, to provide improved casing or housing means for such a structure.

Objects pertaining to details and economies of construction will appear from the description to follow. A preferred embodiment of our invention is illustrated in the accompanying drawings, in which:

Fig. 1 is a detail elevation view of our improved structure as it appears when incorporated into the pedestal of a revolving chair, a fragment of such a chair being shown diagrammatically.

Fig. 2 is an enlarged detail vertical central sectional elevation taken on section line 2—2 of Fig. 1, the central shaft and cam roller being shown in full lines.

Fig. 3 is an enlarged detail transverse sectional plan view taken on line 3—3 of Fig. 2.

Fig. 4 is an elevation of the cam, detached, taken from the left hand of Fig. 2.

Fig. 5 is a diagrammatic development of the said cam.

Fig. 6 is an enlarged detail vertical sectional view of a modification or species, the view corresponding to the view as seen in Fig. 2 and being taken on line 6—6 of Figs. 7 and 8.

Fig. 7 is a detail transverse sectional view on the irregular line 7—7 of Fig. 6.

Fig. 8 is an enlarged detail sectional view on line 8—8 of Fig. 6.

Fig. 9 is a detail of the thrust bearing button disposed in the bottom of the casing to carry the revolving shaft.

The parts will be identified by their numerals of reference which are the same in all the views.

1 is the upper end of a suitable pedestal shown here formed of sheet metal. 2 is the revolving shaft spindle which supports the chair or other revolving structure. 3 is a diagrammatic view of a fragment of a revolving chair, or it might be a revolving door or a self-closing door or gate.

4 is the outer shell or housing of our improved control mechanism. This is a sheet metal drum having a head 41 journaled at the center for the revolving shaft 2. This head 41 is retained by inwardly struck lugs or fingers 42, see Fig. 2.

The casing is provided with a bottom 43 which in the preferred construction in Fig. 2 is shown retained in position by the inwardly spun lower edge 44 of the casing. A vertical guide rib 45 is struck at one side to engage and guide the reciprocating cam. A thrust bearing member 5 is provided for the lower end of the shaft 2. A thrust collar 6 is provided on the shaft retained by pin 61 disposed to engage the bearing surface on the under side of the head 41. The head 41 is provided with a downwardly projecting hub 41′ to receive the said collar and also afford a locating seat for the coiled actuating spring.

A cam 7 reciprocates vertically on the shaft 2 and is held against rotation by the guiding rib 45 engaging the vertical slide groove 71. The upper end of the cam is provided with a projecting hub 72. The cam is urged downwardly by the coiled spring 73 which surrounds the shaft 2, engages the hub part 41′ on the under side of the head 41 and the hub 72 on the top of the cam 7. The cam roller 8 is supported on a suitable cross pin 81 in the lower part of the shaft 2.

It will thus be seen that when the shaft 2 is rotated to one side or the other, the cam roller 8 will react upon the cam 7 and cause the same to be raised against the thrust of the spring 73. Whenever the chair or other revolving part is released, the spring 73 forces the cam down which reacts against the roller 8 and returns the shaft to the central or initial position.

The shaft is thus free to revolve, but whenever the parts are released they return automatically to the normal position.

Figs. 6, 7 and 8 show modifications. I have added a cap 9 that embraces the upper end of the pedestal part being retained in place by screws 91. The cam 10 corresponds to cam 7. This cam however revolves with the shaft

2 and the shaft contains a vertical groove 21 which is engaged by guide pin 101 carried by the cam, see Fig. 7. A cam roller 11 is supported on a suitable pin 12 which is secured to the casing 4. The casing bottom 13 is here secured by inwardly spun depression 14.

In this modified structure it will be noted that as the cam revolves with the shaft 2, it will be reciprocated up and down by its reaction against the cam roller and while the parts can revolve whenever they are released, the cam acting against the roller will return the same to the normal position.

This structure provides a large space for a heavy coiled spring and makes a device capable of handling heavy revolving doors or swinging doors, gates, or any heavy revolving or pivoted structure requiring control.

Having thus described our invention what we claim as new and desire to secure by Letters Patent is:

1. The combination of a revoluble supporting shaft, a casing having a head journaled on the said shaft and having a thrust bearing therefor, a stop collar on the said shaft within the casing, a face cam adapted to reciprocate within said casing on the said shaft, guide means therefor, a coiled spring surrounding the said shaft and disposed between the head of the casing and the said cam, and a cam roller supported on a cam pin transversely through the said shaft, whereby the shaft is free to revolve and yet will be returned to normal position when released by the reaction of the cam.

2. In a structure of the class described, the combination of a revoluble shaft, a casing journaled thereon having suitable thrust bearing, a sliding cam guided on the said shaft having a spring for actuating the same, and a cam roller carried on said casing cooperating with said cam to return the said shaft to normal position.

3. In a structure of the class described, the combination of a revoluble shaft, a casing having a head journaled on said shaft and having a suitable thrust bearing, a sliding cam on the said shaft, a spring for actuating the same and a cooperating cam roller, one of which is secured to the said shaft and the other of which is secured to the said casing.

In witness whereof we have hereunto set our hands.

JAMES J. McGERRY.
CHARLES H. WHITING.