

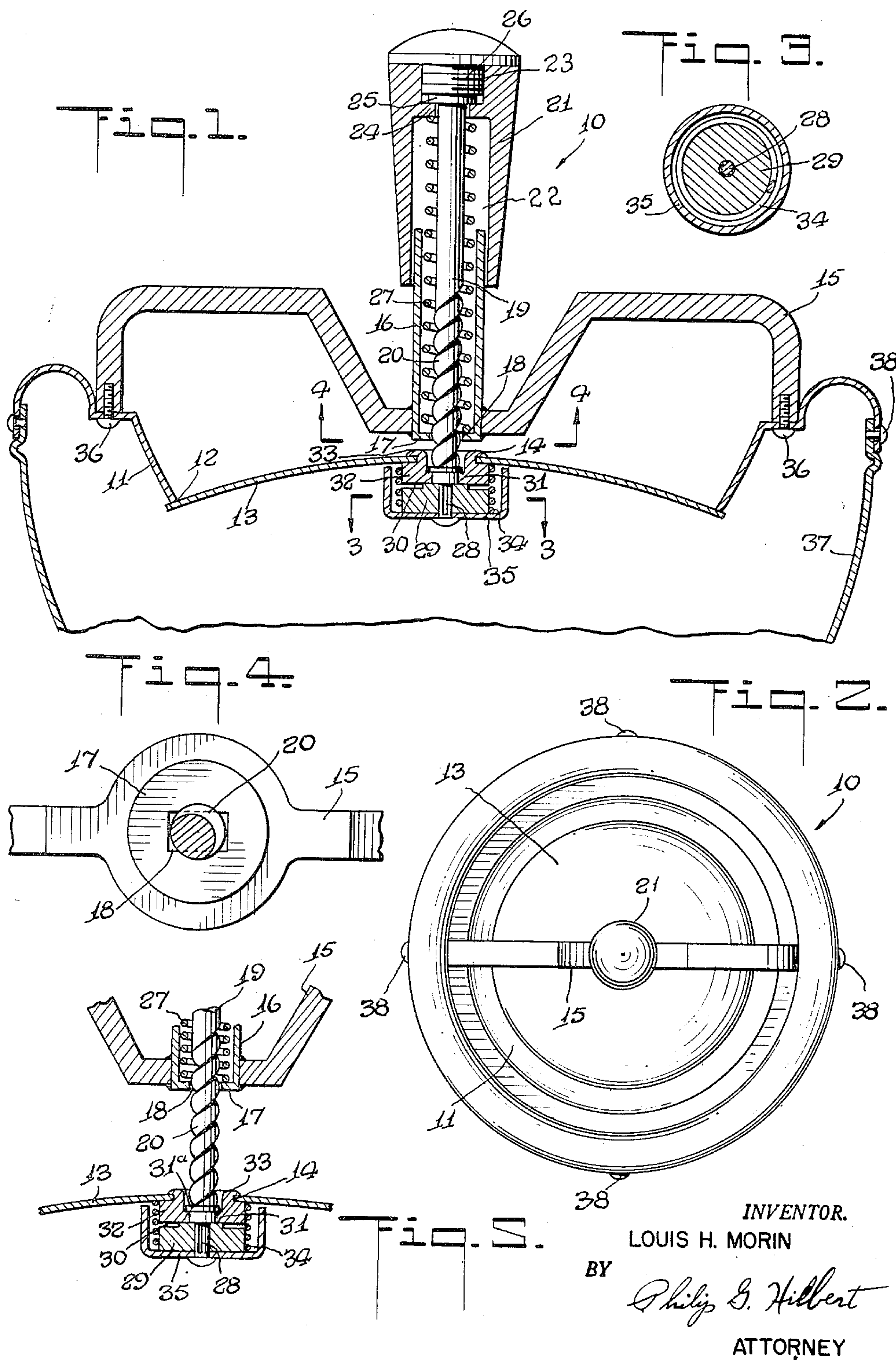
Nov. 17, 1953

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2,659,513

ASH TRAY WITH SPINNING CLOSURE

Filed Oct. 1, 1951



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2,659,513

ASH TRAY WITH SPINNING CLOSURE

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Application October 1, 1951, Serial No. 249,149

3 Claims. (Cl. 220—20.5)

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This invention relates to ash trays of the type having an open bottom bowl shaped member with a closure disc for the opening which may be simultaneously moved away from the opening and given a spinning movement.

Ash trays of the type described have been proposed wherein the spinning movement is attained through the use of a miniature clutch which includes loose friction elements or ball bearings. Such devices require special assembly operations and have a tendency to be erratic in operation over a period of time.

Accordingly, an object of this invention is to provide an improved device of the character described, which includes a simple, non-movable coupling element which is operative to impart spinning movement to the closure disc of the ash tray.

Another object of this invention is to provide coupling means for a pair of coaxial members in the form of a coiled spring which engages one of the members and is adapted to first engage and then disengage the other of the members.

A further object of this invention is to provide in a device of the character described, manually operated means for imparting combined axial and rotary movement to a closure disc, wherein said disc is free to continue rotation after movement of the manually operated means has ceased.

Still another object of this invention is to provide in a device of the character described, coupling means which is silent in operation, instantaneous in effect, has a minimum number of parts, develops a minimum amount of wear and requires no lubrication.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists of the combination of elements and arrangement of parts which will be exemplified in the construction hereinafter described, and of which the scope of invention is indicated in the claims following.

In the accompanying drawing;

Fig. 1 is a vertical sectional view of a device embodying the invention;

Fig. 2 is a top plan view thereof;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1;

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 1; and

Fig. 5 is a vertical sectional view of a portion of the operating means of the device embodying the invention.

Referring in detail to the drawing, 10 design-

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ates an ash tray assembly embodying the invention. The same comprises a part bowl shaped member 11 having a circular opening 12 at the bottom thereof. A circular closure disc 13 of convexo-concavo cross section and including a central opening 14, is arranged to close the opening 12 in member 11 and is further adapted to be moved to expose the opening 12 while being given a spinning or rotary motion.

To this end there is provided a bracket 15 on a mid portion of which is mounted an upstanding tubular member 16 having an end wall 17 formed with a rectangular opening 18 therein. A stem 19 is mounted in the member 16 and is formed with a spiral portion 20 which extends through opening 18 and having the relation of a nut and screw. A knob 21 is formed with a bore 22 and threaded counterbore 23 and a radial flange 24 between the bores. The upper portion of stem 19 is positioned in bore 22 of the knob with the head 25 of the stem positioned in the counterbore 23. A threaded cap 26 screwed into counterbore 23 limits axial movement of the stem relative to the knob, while being rotatable relative thereto. A spiral spring 27 is mounted on the upper portion of stem 19, with its upper end engaging the flange 24 and its lower end engaging the end wall 17. The spring 27 raises the stem 19 to an elevated position relative to member 16 which is receivable in bore 22 of the knob 21.

The stem 19 includes a reduced lower end portion 28 to which is fixed a cylindrical member 29. Member 29 is formed with an annular recess 30 on its upper surface, for the purpose hereinafter described. The stem 19 further includes an enlarged bearing portion 31 immediately above portion 28. On the portion 31 is loosely mounted a cylindrical member 32 of limited axial extent and of substantially the same diameter as member 29. The member 32 is formed with an axially extending annular lip 33 on its upper face which passes through opening 14 in disc 13 and is spun over to fix the disc to member 32. A further enlarged collar portion 31a of stem 19 above portion 31 limits axial movement of the member 32.

Means is provided for coupling the members 29, 32 together. To this end there is provided a coiled member 34 such as a spiral spring which engages the circumferential portions of the members. The lower portion of spring 34 tightly engages member 29 while the upper portion of the spring frictionally engages member 32 to a somewhat lesser extent. A cup shaped member 35 encloses the members 29, 32 and spring 34 and is riveted to the end of stem 19.

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The opposite ends of bracket 15 are fixed to rim portions of member 11 by screws 36 to provide an assembly which may be removably attached to an ash receiver body 37 through bayonet connections 38 on the peripheral portions of the body and assembly.

In operating the device, the knob 21 is depressed against the action of spring 27, thereby causing the stem 19 to rotate through the screw action of spiral portion 20 relative to the sides of opening 18. This results in a movement of closure disc 13 away from opening 12 in member 11. At the same time, the member 29 is rotated, which has the effect of tightening the coils of spring 34, thereby causing member 32 and the disc 13 fixed thereto, to rotate. When the stem 19 has been depressed to its lower limit as determined by the stop action of flange 24 engaging the upper end of member 16, member 29 will cease to rotate but member 32 will continue to rotate, due to a slight unwinding of spring 34. Accordingly, disc 13 is adapted to spin freely under its own momentum. When the knob 21 is released, spring 27 will raise stem 19 to its normal, elevated position, the spiral portion 20 causing reverse rotation of the stem as the same is elevated.

It will be apparent that a simple clutching arrangement of the annular members 29, 32 has been provided, which gives a silent and quickly responsive ratchet effect. Such arrangement exhibits substantially no wear and requires no lubrication.

The closure disc 13 is adapted to seat against the edge of opening 12 in member 11 to provide a continuous smoke seal, through the action of spring 27. With the shallow member 32 loosely rotating about stem portion 31, disc 13 may be free to wobble during rotation and to seat properly against the edge of opening 12 in member 11, even though member 16 or stem 19 fail to have proper alignment. The annular recess 30 on member 29 reduces the surface areas of members 29, 32, which are in actual bearing contact, thus reducing friction.

It is understood that spring 34 is wound in the proper direction, in accordance with the direction of the spiral portion 20 of stem 19, to insure proper tightening and loosening action of the spring when stem 19 is rotated.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawing, is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I desire to protect by Letters Patent:

1. In an ash tray comprising an open bottom bowl shaped member and a closure therefor, means for moving the closure member downwardly away from the opening in said bowl member and simultaneously rotating said closure member comprising a member fixedly mounted across the top of said bowl shaped member and formed with a rectangular opening located centrally and above the opening in said bowl shaped member, a stem having a spiral portion passing through

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and operatively engaging the sides of said opening, a knob on the top end of said stem, a cylindrical member mounted on the other end of said stem a bearing member of limited axial extent on said stem, a second cylindrical member freely mounted on said bearing member for rotation relative thereto, said closure member being mounted on said second cylindrical member, and a coiled member coaxially related to said annular members and frictionally engaging the circumferential portions of said cylindrical members whereby rotation of said first mentioned cylindrical member through operation of said stem, will cause rotation of said second cylindrical member.

2. In an ash tray as in claim 1, wherein said coiled member includes an axial portion frictionally engaging a circumferential portion of the first mentioned cylindrical member and a second axial portion adapted to frictionally engage a circumferential portion of said second cylindrical member when said first cylindrical member is rotated.

3. In an ash tray comprising a bowl and a closure for the opening in the bottom of said bowl, means for moving the closure downwardly away from the bowl opening and simultaneously imparting spinning movement to the closure comprising a bracket on the bowl above said closure, an upstanding tubular member open at the upper end thereof mounted centrally of said bracket, said member having an end wall at the lower end thereof formed with a rectangular opening, an elongated stem mounted in said tubular member and including a spiral portion passing through and engaging the sides of said end wall opening and arranged for combined axial and rotary movement, the upper end of said stem projecting above the open end of said tubular member, a knob on the upper end of said stem and means depending from said knob and concealing the upper portion of said tubular member, spring means within said tubular member and said depending means for returning said stem to an elevated position after said knob has been depressed, means coupling said closure to said stem comprising a pair of coaxial cylindrical members, a bearing member of limited axial extent on said stem, one of said coaxial members being fixed on said stem below said bearing member, the other of said coaxial members rotating on said bearing member and being secured to said closure, a coil spring having successive axial portions respectively frictionally engaging circumferential portions of said coaxial members for imparting spinning movement to said closure upon rotation of said stem.

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