

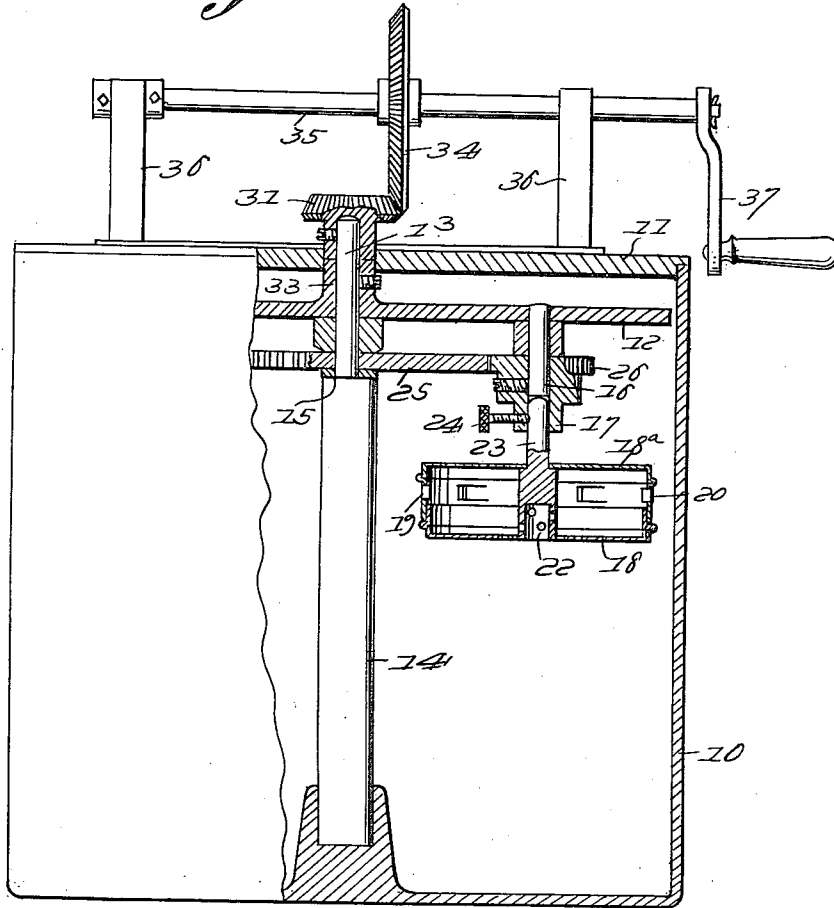
Jan. 30, 1923.

J. H. REATHERFORD.  
WATCH CLEANING APPARATUS.  
FILED AUG. 23, 1921.

1,443,803.

2 SHEETS—SHEET 1.

*Fig. 1.*



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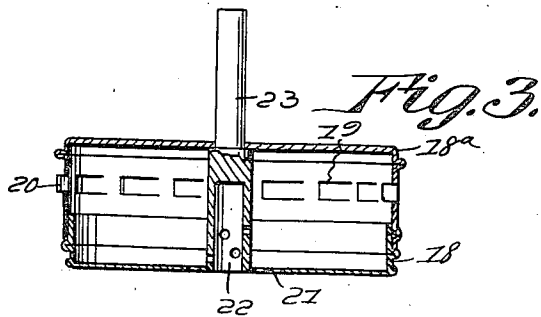
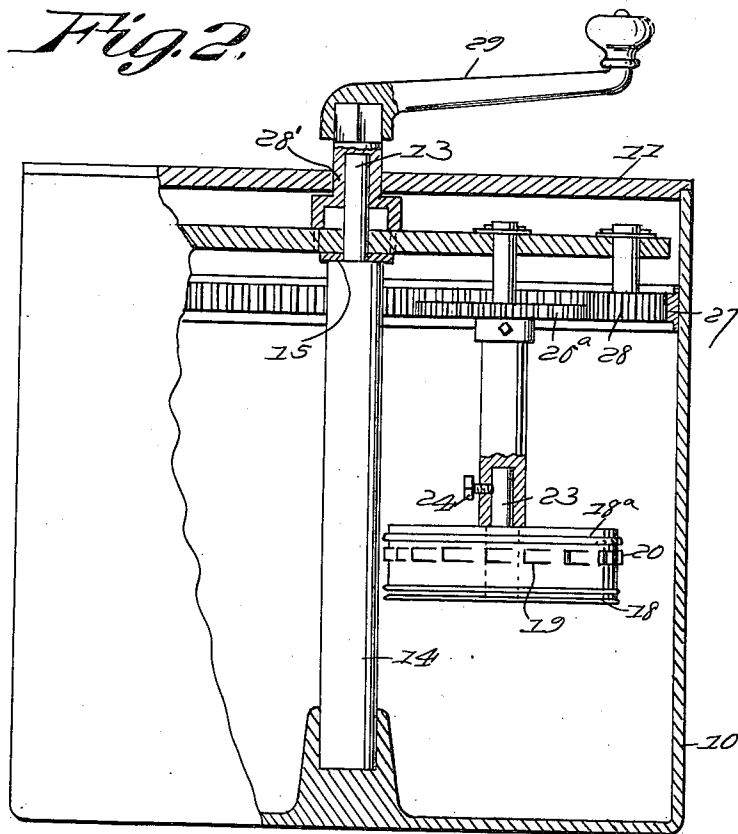
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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

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## WATCH-CLEANING APPARATUS.

Application filed August 23, 1921. Serial No. 494,607.

*To all whom it may concern:*

Be it known that JOSEPH H. REATHERFORD, a citizen of the United States of America, residing at Huntington, in the county of Cabell and State of West Virginia, has invented new and useful Improvements in Watch-Cleaning Apparatus, of which the following is a specification.

The object of the invention is to provide simple and efficient means for cleaning and washing watch movements under conditions serving to remove accumulations of dirt, gum, oil and like deposits therefrom while protecting the mechanism from injury; and in this connection to provide a mechanism wherein a plurality of watch movements of different sizes and types may be simultaneously subjected to the cleansing operation without the possibility of interference; and with these objects in view the invention consists in a construction and combination of parts of which a preferred embodiment is shown in the accompanying drawings, wherein:—

Figure 1 is a side view partly broken away of an apparatus embodying the invention.

Figure 2 is a similar view of a modified construction.

Figure 3 is a sectional view of one of the movement containing boxes.

The apparatus consists essentially of a receptacle 10 which by preference is of cylindrical form with a removable cover or head 11, a rotary carrier 12 consisting in the construction illustrated of a disk which is mounted upon a spindle 13 formed in the construction illustrated as a part of a post 14 disposed axially in the receptacle, said spindle forming a reduced extension of the post and having a shoulder 15 fitted with a washer as a support for the carrier disk.

Supported by the carrier are hanger spindles 16 upon which are mounted rotary sleeves 17 adapted to receive rotary motion with relation to the disk and also adapted to be carried in an orbital path by the disk around the axis of the receptacle. These sleeves which constitute shaft elements are adapted to support boxes 18 in which watch movements may be housed so that in the operation of the device the boxes are rotated upon their own axes and also are carried bodily through the contents of the recepta-

cle for the purpose of exposing the watch movements contained therein to the action of the cleansing agent.

In practice this cleansing agent may be water or any similar liquid supplied with detergent ingredients or otherwise as required and the boxes which are of cylindrical form are provided in their cylindrical walls with openings 19 adjacent to which are located deflecting wings 20 serving by reason of the actual rotation of the boxes to cause a circulation of water through the boxes. Each box is provided with a removable cap or cover 18<sup>a</sup> having an interlocking engagement with the body of the box so that when attached to the hanger shaft the enclosed watch movement may not be exposed to injury by the possibility of the parts of the box becoming detached, and in addition to the side or parallel openings having adjacent deflecting wings access may be had to the interior of the box by perforations 21 in the bottom thereof and in a socket 22 formed by the hollowed lower end of the stem 23 by which the box is secured to the sleeve 17, said sleeve constituting a socket for the reception of the reduced end of the stem and carrying a set-screw 24 for locking the stem in place therein. Water with any cleansing agent carried thereby which may be forced into the box through the side openings and by reason of the tangentially disposed deflecting wings, and due to the axial rotation of the box may find an outlet through the perforations into the central socket of the box and also through the perforations in the bottom of the box, so that accumulations of grease and other foreign matter on the parts of the watch movement may be detached and carried out of the box in the cleansing operation.

In the construction of apparatus illustrated in Figure 1 the central post 17 carries a master gear 25 with which meshes a pinion 26 on the sleeve 17 so that as the carrier disk is rotated on its axis represented by the spindle 13 a rapid rotary motion is communicated to the boxes carried by the several hanger spindles in addition to the orbital movement which corresponds with the rotation of the disk.

In the construction illustrated in Figure 2, the substantial movement resides in the fact that the master gear 27 is applied to

the inner surface of the side wall of the receptacle and an intermediate or transmission pinion 28 carried by the carrier disk communicates motion to the pinion 26<sup>a</sup> on the rotary sleeve by which the movement containing box is supported.

In the construction illustrated in Figure 2 rotary motion is communicated to the carrier disk by a hub 28' with which a crank handle 29 is connected, whereas in the form shown in Figure 1 rotary motion is communicated to the carrier disk by a pinion 31 attached to the spindle 13, the pinion being attached to the spindle 13, as is the hub 33 of the carrier 12, and being driven by a gear 34 carried by a transverse spindle 35 mounted in bearings on uprights 36 rising from the top or cover of the receptacle, said spindle being fitted with an operating crank or handle 37.

Obviously there are other forms of means whereby the necessary motion may be communicated to the boxes in which the watch movements are fitted and secured for protection against surrounding objects while being exposed to a rapid and more or less vigorous circulation of cleansing liquid forcibly injected thereinto, the main consideration being the mounting of said housings or boxes in such a way as to cause them to traverse orbital paths and at the same time rotate rapidly upon their own axes or centers so that the liquid forcibly injected thereinto in their passage through the contents of the receptacle is violently agitated and moved in all directions to penetrate the minute recesses and spaces between the parts of the watch mechanism to efficiently remove accumulations of dirt and grease which have been deposited therein.

Having described the invention, what is claimed as new and useful is:—

1. A watch cleaning apparatus having in connection with a receptacle for containing a cleansing liquid, a rotary carrier disk and means for operating the same, shaft members carried by the disk and means for imparting rotary movement thereto with relation to the disk, and boxes for containing watch movements supported by said shaft members, said boxes having axial stems and peripheral deflector wings, and said stems being provided with sockets perforated in communication with the interior of the boxes.

2. A watch cleaning apparatus having in connection with a receptacle for containing a cleaning fluid, a rotary carrier disk and means for operating the same, movement containing boxes, means for suspending the same from the carrier disk, means for imparting rotary movement to said boxes with respect to the carrier disk, and stems included in said suspending means and provided with sockets having perforations in communication with the interior of the boxes.

3. A watch cleaning apparatus having in connection with a receptacle for containing a cleaning fluid, a rotary carrier disk and means for rotating the same, movement containing boxes suspended from the carrier disk and mounted for rotary movement with respect to the same, pinions operatively connected with the suspending means for said boxes, and a fixed master gear in mesh with said pinions.

In testimony whereof he affixes his signature.

JOSEPH H. REATHERFORD.