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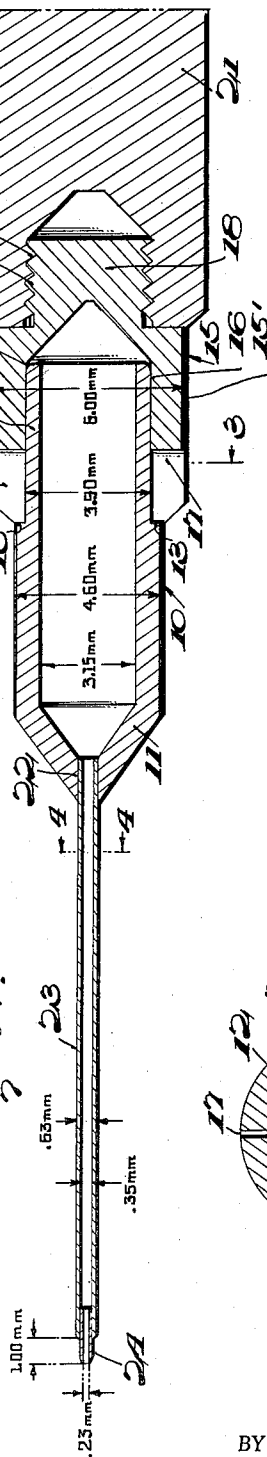
WATCH OILER

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FIG. 1.



FIG. 2.



UNITED STATES PATENT OFFICE

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WATCH OILER

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1 Claim. (Cl. 222—117)

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My invention relates to an oiler for lubricating watches and other small work.

An important object of the invention is to provide an oiler of the above mentioned character, which feeds the oil by capillary action and has an end sufficiently small to enter the oil cup of jewel bearings of small bracelet watches.

A further object of the invention is to provide an oiler of the above mentioned character, having a reservoir for holding a small amount of oil, and the parts which contact with the oil being separable from the handle and from each other so that they may be cleaned in a watch cleaning machine.

A further object of the invention is to provide an oiler of the above mentioned character which will protect the oil from the action of light and which is of simplified construction.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this application and in which like numerals are employed to designate like parts throughout same,

Figure 1 is a side elevation, actual size, of a watch oiler embodying my invention,

Figure 2 is a central vertical longitudinal section, upon a greatly enlarged scale, through the oiler, the handle being broken away,

Figure 3 is a transverse section taken on line 3—3 of Figure 2,

Figure 4 is a transverse section taken on line 4—4 of Figure 2, and,

Figure 5 is a central longitudinal section through a modified form of the capillary tube, and reservoir, upon an enlarged scale, the reservoir being partly broken away.

In the drawings, which illustrates a preferred embodiment of my invention, the numeral 10 designates a cylindrical reservoir, having its forward end covered by a tapered head 11, formed integral therewith. The rear end of the reservoir is open and has a reduced portion 12, forming a shoulder 13. This reservoir is preferably formed of stainless steel or any other metal or material which will properly hold the oil and will not corrode. The reservoir 10 has its periphery milled or roughened, as shown at 14.

The numeral 15 designates a tubular coupling, which is preferably formed of stainless steel although it may be formed of nickel, brass or other materials. The tubular coupling has a cylindrical bore 16 to receive the reduced portion 12 of the reservoir 10 and this reduced portion has a close

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sliding fit in the bore 16, to form a dust-proof joint. The coupling has its free end provided with longitudinal slots 17, whereby the free end of the coupling is somewhat resilient and the resilient free end may be bent inwardly slightly. The free end of the reduced portion 12 is beveled or inclined at 12', so that the reduced portion may be readily led into the free end of the coupling 15. The reduced portion 12 has sufficient frictional engagement with the coupling so that it remains within the coupling during the use of the implement but the reservoir and coupling may be readily separated when they are to be introduced into the watch cleaning machine. The coupling 15 is provided upon its periphery with a milled portion 15'. The coupling 15 has a stem 18 formed integral therewith, and this stem has screw-threads 19 to engage within the screw-threaded axial opening 20, of a handle 21. The handle 21 may be formed of plastic material or the like. The coupling is detachably secured to the handle and is separated from the handle when the oil holding parts are to be cleaned.

The tapered head 11 is provided with a central axial opening 22, receiving a capillary tube 23. The tube is preferably permanently secured to the head 11 and is held within the opening 22 by a press-fit or by any other means. The numeral 24 designates a capillary tube of smaller diameter than the tube 23 and adapted for insertion within the forward end of the capillary tube 23. The tube 24 preferably has a press-fit within the tube 23 and is preferably permanently secured thereto.

The first form of oiler, Figures 1 to 4 inclusive, is adapted for use with heavy watch oil, and for this reason the capillary tube 23 has a somewhat larger diameter than would be needed for the handling of light watch oil. The inside diameter of the tube 23 is .35 mm. and the exterior diameter of the tube may be .63 mm. The capillary tube 23 has an exterior diameter too large to enter the oil cups of the jewel bearings of bracelet watches. To overcome this difficulty, I provide the smaller diameter tube 24, which may be readily inserted into such oil cups. The smaller diameter capillary tube 24 has an inside diameter of .23 mm. and an outside diameter of the proper size to fit snugly within the bore of the tube 23.

In Figure 5, I have shown a modification of the oiler, wherein a tube 23' is used instead of the two tubes 23 and 24, and the capillary tube 23' has the overall length of the tubes 23 and 24. The tube 23' has the same small exterior diameter as the tube 24 and an inside diameter

of .23 mm. The tube 23' is sufficiently small to enter the oil cups of the jeweled bearings in bracelet watches. However, the bore of the tube 23' is too fine for the handling of most heavy oils and this capillary tube 23' is more suitable for handling light watch oils. The tube 23' is secured to the head 11, by being inserted into the opening 22, and this opening is formed of a suitable size to receive the tube 23' and form a press-fit therewith.

It is desired that the reservoir 10 be relatively small for holding a small amount of oil, such as from three to six drops, which is a sufficient amount of oil to last the average watchmaker a week. It is highly desirable that a watch oiler be cleaned at least once a week, as dust and other impurities work into the oil when used for a considerable length of time. My watch oiler may therefore be cleaned about once a week, without undue waste of oil. I have found that satisfactory results are obtained by forming the reservoir 10 with an inside diameter of 3.15 mm. and an outside diameter of 4.6 mm. The reservoir 10 may have a length of 9.00 mm. from the shoulder 13 to the forward end of the head 11, and the coupling 15 may have a length of 6.00 mm. from its rear end to its forward end or to the shoulder 13. The reservoir will therefore have a length of approximately 14 mm. The dimensions of certain parts of the device have been given, so that the operation and advantages of such device will be more readily understood. It is to be understood that the invention is not restricted to the precise dimensions given.

To introduce the oil into the reservoir 10, the reduced extension 12 may be removed from the tubular coupling 15 without separating the coupling from the handle. The reservoir 10 is ordinarily held vertical with this open end uppermost and the watch oil is introduced into the reservoir, by any suitable means such as by the use of a wire, a dropper or the like. As stated, satisfactory results are obtainable by having the reservoir 10 of a size to hold from three to six drops of oil. Care must be taken that the oil does not contact with the hand or other parts which are greasy or dirty. As soon as the oil enters the reservoir 10, it is acted upon by capillary action of the reservoir and is conducted to the tube 23 and fills the tube 23 and enters the smaller tube 24. If the reservoir were inverted with its end open, the oil would not come out of the reservoir. The reduced portion 12 of the reservoir is now inserted into the tubular coupling 15. The handle 21 is held by the operator and the small tube 24 introduced into the oil cup of the jeweled bearing of a bracelet watch or the like. The tube 24 may be used to lubricate small parts of watches or other fine work. It will be found that as soon as the tube 24 contacts with the part, the watch oil will be fed by capillary action to the part to be lubricated. The watch oiler should be cleaned at least once a week, and when it is desired to clean the oiler, the tubular

coupling 15 is separated from the handle and the reservoir 10 separated from the tubular coupling 15. The separated tubular coupling and reservoir 10 carrying the capillary tubes 23 and 24 are now placed in a conventional watch cleaning machine, and they are subjected to the action of the cleaning fluid of the machine. This cleaning fluid will thoroughly clean the interior of the parts 15, 10, 23 and 24. These parts of the oiler are small and may be conveniently introduced into the watch cleaning machine along with the watch parts which are to be cleaned at the same time.

When the reservoir is equipped with the capillary tube 23', Figure 5, all other parts of the device remain identical with the first form of the invention and the same use or operation is had.

It is to be understood that the forms of my invention herewith shown and described are to be taken as a preferred example of the same, and that various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of my invention or the scope of the subjoined claim.

Having thus described my invention, I claim:

A watch oiler comprising, a reservoir which is approximately 14 mm. long and having an internal diameter of approximately 3 mm., said reservoir having one end open and including a removable coupling which closes the open end, said reservoir being of a size to receive and hold from three to six drops of oil only, a handle detachably connected with the coupling, a relatively long tube connected with the end of the reservoir remote from the coupling, said tube having a bore, the diameter of the bore being substantially .35 mm., the diameter of the bore being such that heavy watch oil may be fed through the tube by capillary action alone, the tube having an exterior diameter too large to permit the tube being inserted within the oil cups of jewel bearings of bracelet watches, and a relatively short tube carried by the forward end of the long tube and projecting beyond the same to receive the oil therefrom, said relatively short tube having an exterior diameter sufficiently small for insertion within the oil cups of such jewel bearings, the relatively short tube not materially interfering with the feeding of the heavy oil through the long tube due to the capillary action.

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