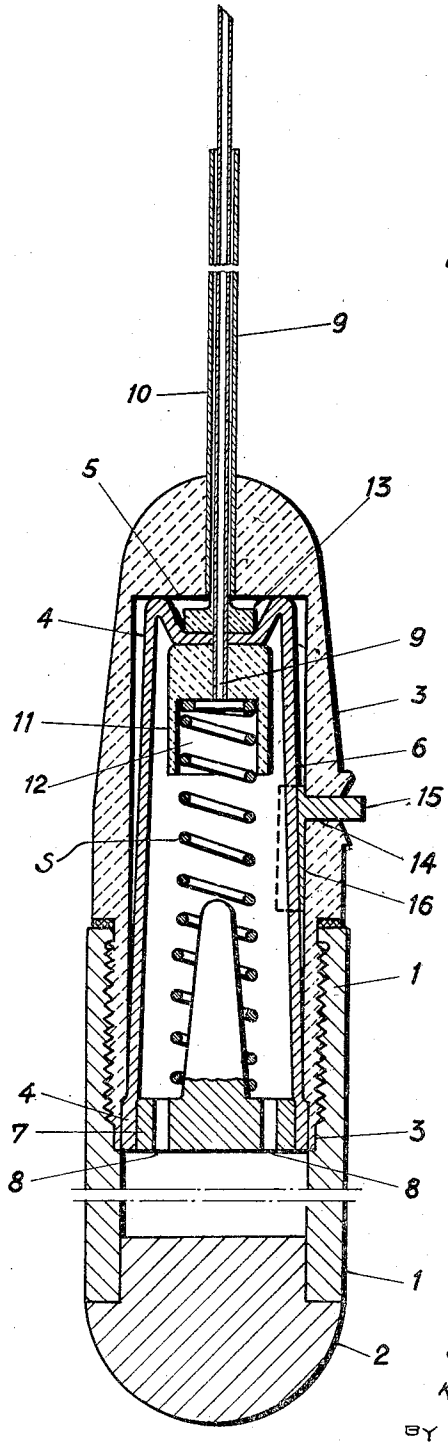
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POCKET OIL CAN WITH FLUID DISCHARGE ADJUSTABLE WITHIN FINE LIMITS

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Fig. 1



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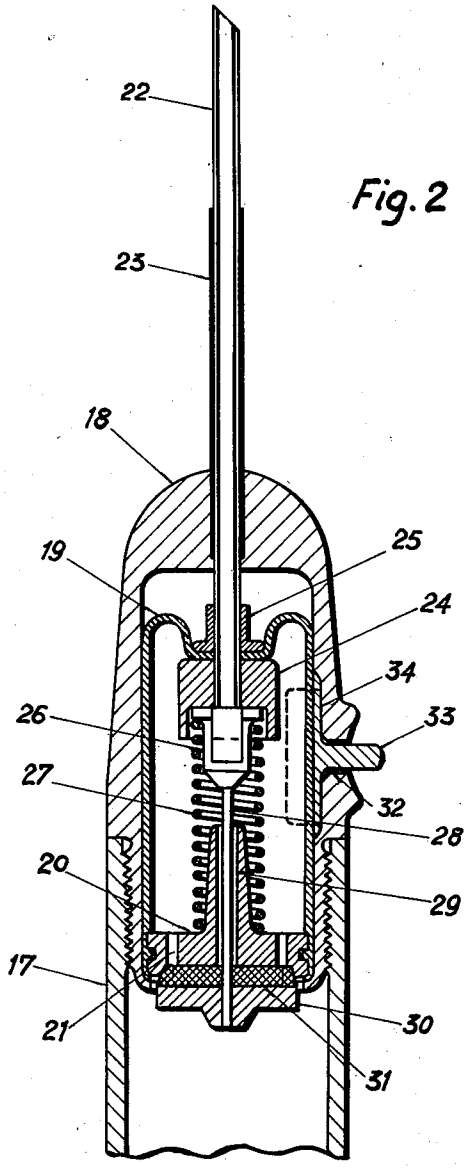


Fig. 2

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POCKET OIL CAN WITH FLUID DISCHARGE ADJUSTABLE WITHIN FINE LIMITS

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4 Claims. (Cl. 222—320)

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With the pocket oil cans at present known there is no means of adjusting the fluid discharge within precise limits. The principal disadvantage lies in the fact that the oil left in the discharge tube cannot be prevented from escaping. It is, however, absolutely essential when lubricating delicate pieces of mechanism and timepieces to adjust within precise limits the amount of oil released. As is well known, slight excess of oil can interfere with the running of timepieces.

The present invention relates to an oil can with which it is possible either to discharge fairly considerable quantities of oil or to release very minute, accurately measured quantities.

The pocket oil can with fluid discharge adjustable within fine limits in accordance with the present invention is characterised by the fact that an elastic hollow body is disposed in a housing fashioned in the shape of a fountain pen, in which hollow body a needle passing through the housing and displaceably mounted in the latter is secured, the hollow body, which is sealed at its end opposite to the needle mounting by a plug provided with perforations for the passage of the fluid, bearing sealingly against the inner wall of the housing, and furthermore by the fact that the housing has an aperture in which means for exerting pressure on the elastic body and thus causing a deformation of that body are mounted.

The invention is further characterised by the fact that valves are provided in the plug sealing the elastic hollow body, for the purpose of closing the perforations provided in the plug, for the passage of the fluid, these valves being connected to the needle and opened by displacement of the needle into the housing. In this connection a plate valve sealing all the perforations can be expediently provided.

The object of the foregoing is to ensure that the compression chamber or space is as small as possible when pressure is exerted on the elastic hollow body by the means provided in an aperture in the housing. It is immediately evident that the smaller the compression chamber, the more accurate the control of oil flow by these means.

In the enclosed drawings two typical embodiments of the invention are represented, namely, in Fig. 1 a first typical embodiment, and in Fig. 2 a second typical embodiment of a pocket oil can shown in section.

The housing, which may for example be fashioned in the form of a fountain pen, con-

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sists of a rear section 1, sealed by a cap 2, and a front section 3, which is screwed on to the rear section 1. The front section 3 houses an elastic hollow body 4, which bears on the end 5 of the bore 6 provided in the body 3 and is sealed at its rear, open end by a plug 7 with perforations 8 for the passage of the fluid. The needle 9, which passes through the head of the front section 3 of the housing and through the elastic body 4 and is mounted in a tube 10, is rigidly connected to a part 11 disposed inside the elastic body 4. Between the housing and the elastic body 4 a part 13 is disposed, which is likewise connected to the needle 9, for instance by being screwed on. The upper portion of the elastic body 4 is therefore clamped between the parts 11 and 13. The part 11 has a bore 12 which serves as guide for a spring S which, at its other end, bears on the plug 7. If the elastic body 4 is, for example, made of a metallic foil which automatically resumes its initial position after compression, the spring S is superfluous. In the front section 3 of the housing 1 a bore 14 is provided through which passes a stud 15, which carries a plate 16 bearing against the elastic body 4.

In Fig. 2 a further typical embodiment is shown. The housing, which is again shaped like a fountain pen, consists of a rear section 17 sealed by a cap not shown, and a front section 18 screwed on to the rear section 17. The front section 18 houses an elastic hollow body 19 which is sealed at its rear, open end by a plug 20 equipped with perforations 21 for the passage of the fluid. The needle 22, which passes through the head of the front section 18 of the housing and through the elastic body 19 and is mounted in a tube 23, is rigidly connected to a part 24 disposed inside the elastic body 19. Between the housing and the elastic body 19 a part 25 is provided which is likewise connected to the needle 22, for example by being screwed on. The elastic body 19 is clamped in between the parts 24 and 25. In the part 24 a body 26 is mounted, serving as guide for the spring 27. A rod 28 provided on the body 26 passes through a bore 29 in the plug 20 and carries at its rear end a plate valve 30, which engages by a tapered part 31, made for example of some plastic material, in a correspondingly tapered bore in the plug 20 and seals the apertures 21. In a bore 32 a stud 33 is again provided, carrying a plate 34 bearing against the elastic hollow body 19.

The mode of operation of the oil can as shown in Fig. 1 is briefly as follows:

The rear section of the housing 1 is first filled with oil, whereupon the front section 3 is screwed on the rear section 1. As the elastic body 4 bears sealingly against the side of the bore of the front section 3, the oil can only gains access to the inside of the elastic hollow body through the perforations 8. There are now two alternative ways of using the oil can: First, by the exertion of pressure on the needle 9 this latter can be displaced rearwardly, whereby the elastic body 4 is rearwardly collapsed, at the same time compressing the spring S. A positive pressure is thereby produced in the hollow body 4 and oil flows out through the needle 9. Although the amount of oil emerging can be controlled within certain limits, since it is dependent on the rearward motion of the needle 9 and consequently of the piston 11, this means of control is not sensitive enough for certain purposes. For this reason the stud 15 and the plate 16 are provided. If the stud 15 is pressed, the elastic body 4 is subjected to slight deformation, which again causes a certain, although very small, quantity of oil flow out through the needle 9, the quantity of oil discharged being now adjustable within precise limits. As soon as the stud 15 is released, the flow of oil ceases and the oil left in the needle 9 is sucked in by the negative pressure produced in the elastic body 4. It is therefore possible with this arrangement to regulate within precise limits the quantity of oil released. The oil can described solves fully the problem referred to in the preamble, in that it facilitates the discharge both of considerable and of minute, accurately metered quantities of oil.

In the case of the oil can as in Fig. 2 the elastic body 19 is in the normal way sealed off from the rest of the reservoir cavity by means of the valve 30, 31. By the exertion of pressure on the needle, not only is the elastic body compressed but also the valve 30, 31 is opened at the same time, whereby the oil is enabled to flow out of the housing 17 into the hollow body 19. If, however, precisely metered quantities are to be discharged from the oil can, which can be achieved by the operation of the button 33, the hollow body 19 is sealed off from the rest of the reservoir cavity and therefore constitutes a relatively small compression chamber from which precisely metered quantities of oil can be discharged without difficulty.

We claim:

1. A pocket oil can with fluid discharge adjustable within fine limits, said can comprising a hollow housing in the shape of a fountain pen, an elastic hollow body in said housing adjacent an end thereof, said body being remote from the opposite end of said housing, a needle, said hollow body having an opening, one end of said needle extending through said opening, means to secure said end of the needle to said hollow body adjacent the first-named end of the housing, said first-named end of the housing having an opening, said needle extending through said opening in the housing and being slidable therein, means to secure said hollow body to said housing remote from said first-named end of the housing, said housing having perforations for the passage of fluid, an aperture in said housing, and a member movably disposed in said aperture, the inner surface of said member being adjacent said hollow body whereby upon inward displacement of said member the same will exert pressure upon the elastic body and cause a contraction thereof.

2. A pocket oil can with fluid discharge adjustable within fine limits, said can comprising a hollow housing in the shape of a fountain pen, an elastic hollow body in said housing adjacent an end thereof, said body being remote from the opposite end of said housing, a needle, said hollow body having an opening, one end of said needle extending through said opening, means to secure said end of the needle to said hollow body adjacent the first-named end of the housing, said first-named end of the housing having an opening, said needle extending through said opening in the housing and being slidable therein, a plug, said plug constituting the end of the hollow body opposite to the end on which the needle is secured, said plug having perforations therethrough for passage of the fluid, the rim of said plug bearing sealingly on the inner wall of the housing, an aperture in said housing, and a member movably disposed in said aperture, the inner surface of said member being adjacent said hollow body whereby upon inward displacement of said member the same will exert pressure on the elastic body and cause a contraction thereof.

3. A pocket oil can as set forth in claim 2 wherein a spring is provided for urging the hollow body to its uncontracted state.

4. A pocket oil can with fluid discharge adjustable within fine limits, said can comprising a hollow housing in the shape of a fountain pen, an elastic hollow body in said housing, a needle, said hollow body having an opening, one end of said needle extending through said opening, means to secure said end of the needle to said hollow body, one end of said housing having an opening, said needle extending through the opening in the housing and being slidable therein, a plug, said plug constituting the end of the hollow body opposite to the end on which the needle is secured, said plug having perforations therethrough for passage of the fluid, the rim of said plug bearing sealingly on the inner wall of the housing, an aperture in said housing, a member movably disposed in said aperture, the inner surface of said member being adjacent said hollow body whereby upon inward displacement of said member the same will exert pressure on the elastic body and cause a contraction thereof, a valve sealing the perforations in the plug, and means connecting said valve to said needle in such fashion that the valve will be opened upon displacement of the needle inwardly of the housing.

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