

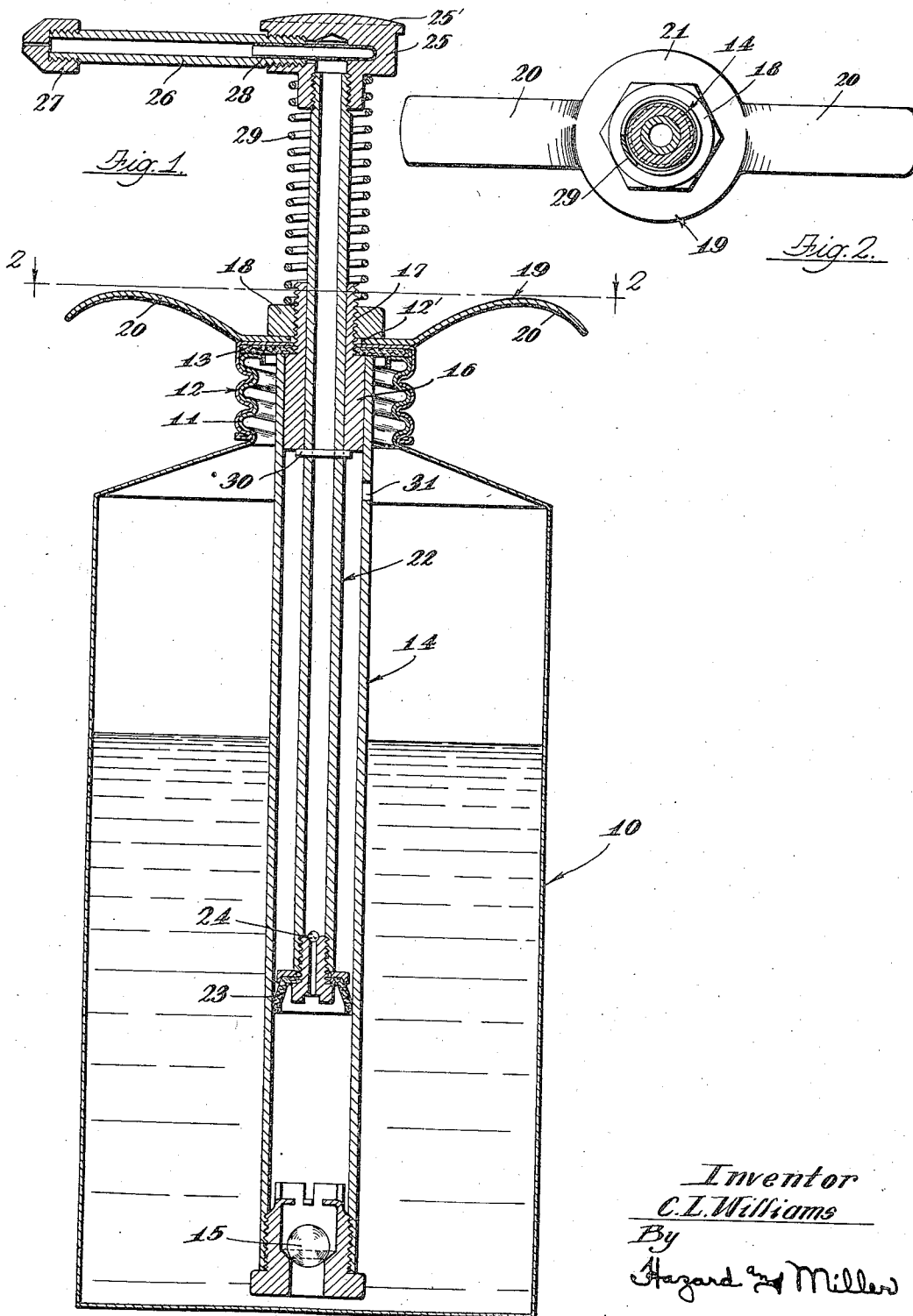
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LIQUID SPRAYING DEVICE

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LIQUID SPRAYING DEVICE

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6 Claims. (Cl. 299-97)

My invention relates to a liquid spraying device, and while it is of general application it is especially intended for use in spraying oil onto the leaf springs of motor cars.

It is an object of this invention to construct a simple yet efficient mechanism whereby a spray of oil may be injected with considerable force by the operator in the use of two fingers engaging a stationary handle and the thumb operating a head mounted on the top of a reciprocable plunger against the tension of a spring which tends to move the plunger in the opposite direction. The extreme simplicity of the construction and ease of operation are the distinguishing features of this invention which may be applied to a can especially constructed or to the cans of commerce which are provided with a screw threaded tubular neck on which the device is mounted.

With the above and other objects in view, which will appear as the description proceeds, my invention consists in the construction and arrangement of parts hereinafter described and claimed.

In the accompanying drawing, which forms a part of this specification, I have illustrated a preferred embodiment of my invention and in which:

Fig. 1 is a vertical central section of the device.

Fig. 2 is a plan view showing the operating handle, taken on the line 2-2 of Fig. 1.

Referring to the drawing, 10 indicates a can preferably of a size which can be conveniently carried in one hand. The same is provided with a screw threaded tubular neck 11 extending from the top thereof on which a screw cap 12 is mounted. 13 is a gasket between the top of the neck 11 and the cap 12. Extending downwardly from the cap 12 there is a pump barrel 14 provided at its lower end with a standing valve 15 which is preferably of the ball type, as shown. At the upper end of the barrel 14 is a tubular plug 16 which is suitably secured to the barrel 14 by a press fit. The upper end of the plug 16 is reduced and screw threaded as at 17 and extends through a bore 12' in the cap 12 for the reception of a nut 18 which holds the plug to the cap 12 and also a handle 19 disposed between the nut 18 and the top of cap 12.

The handle 19 consists of a pair of convex arms 20-20 extending in diametrically opposed directions, being united by a perforated disk 21 encircling the reduced neck 17 of the plug 16. Slidably mounted in the plug 16 is a tubular plunger 22 provided at its lower end with a suitable piston

23 and an inwardly opening valve 24 preferably of the ball type. The plunger 22 extends for some distance above the cap 12 and has mounted on its upper end a tubular cap 25 provided with a substantially flat or slightly convex top 25'. A tubular member 26 leads from the head 25 preferably at right angles thereto at whose outer end a suitable spraying nozzle 27 is mounted. 28 is a screen member in the tubular member 26 to screen the oil during its passage to the nozzle head 27.

Surrounding the upper part of the plunger 22 and interposed between the head 25 and the nut 18 is a helical spring 29 tending to move the head 25 and the plunger 22 attached thereto upwardly. The upward movement of the plunger is limited by a stop member 30 mounted on the plunger 22 and adapted to engage the bottom of plug 16. 31 is a perforation in the upper part of barrel 14 to permit free circulation of air between the upper part of the can and the annular space between the plunger 22 and the barrel 14.

It will be understood that in place of the cap 12 engaging the tubular neck of the can 10, the top of the can could be built integrally with the plug 16, dispensing with the tubular neck and the screw cap and a special opening could be provided for filling the can with oil.

Operation

In the operation the operator holds the can with two fingers engaging the convex arms 20-20 of the handle while the thumb engages the top 25' of the neck. By pressing the head 25 downwardly against the tension of the spring 29, the plunger 22 moving downwardly will close standing valve 15, open the valve 24 in the plunger, and force the oil between the piston 23 and the standing valve 15 upwardly to the tubular plunger 22 and to the head 25 out through the nozzle head 27. It should be remarked here that the action of the spring 29 is quick, returning the plunger 22 to its extreme upward position instantly thereby again filling the space between the standing valve and the piston with oil so that with the next depression of the head 25 the oil is sprayed with considerable force out through the nozzle head 27.

It is a great convenience in the operation of my device to be able to place the tubular member 26 with its nozzle 27 in various angular positions in respect to the axis of the handle 19. It is merely necessary to rotate the member 26 and the plunger 22 connected thereto upon the axis of the plunger to the desired position. The frictional co-efficient of the spring 29 engaging

the movable head 25 at one end and the stationary nut 18 at the other will hold the nozzle and the parts connected thereto in adjusted position so that it will require a conscious effort to rotate the nozzle into a new position. The plunger 22 fits loosely in the plug 16, permitting air to pass between them to compensate for the oil displacement in the container.

Various changes in the construction and arrangement of parts of my device may be made by those skilled in the art without departing from the spirit of my invention as claimed.

I claim:

1. A liquid spraying device comprising a container, a stationary barrel extending downwardly from the top of the container and provided with a standing valve at its lower end, a reciprocable tubular plunger in the barrel and having an inwardly opening valve and a piston at its lower end, said plunger extending upwardly from the top of the container, a stop limiting the upward movement of the plunger, a head connected to the plunger, a spray nozzle connected to the plunger, a spring tending to move the plunger upwardly, and a stationary handle supported by the container and comprising oppositely disposed arms adapted to be engaged by two fingers of the operator while the thumb operates the plunger by alternately depressing the head.

2. A liquid spraying device comprising a container, a stationary barrel extending downwardly from the top of the container and provided with a standing valve at the lower end, a reciprocable tubular plunger in the barrel and having an inwardly opening valve and a piston at the lower end, said plunger extending upwardly from the top of the container, a stop limiting the upward movement of the plunger, a head provided with a flat top mounted on the upper end of the plunger, a spray nozzle connected to the plunger and extending therefrom at an angle, a spring tending to move the plunger upwardly, and a stationary handle supported by the container and comprising two oppositely disposed convex arms adapted to be engaged by two fingers of the operator while the thumb operates the plunger by alternately depressing the head.

3. A liquid spraying device comprising a container, a stationary barrel extending downwardly from the top of the container and provided with a standing valve at the lower end, a reciprocable tubular plunger in the barrel and having an inwardly opening valve and a piston at the lower end, said plunger extending upwardly from the top of the container, a stop limiting the upward movement of the plunger, a tubular head provided with a flat top mounted on the upper end of the plunger, a spray nozzle connected to the head and extending therefrom at an angle, a helical spring surrounding the upper part of the plunger interposed between the head and the top of the container, and a stationary handle comprising two convex arms extending diametrically from the top of the barrel and adapted to be engaged by two fingers of the operator while the thumb operates the plunger by alternately depressing the head.

4. A liquid spraying device comprising a closed container having a screw threaded tubular neck on top, a screw cap on the neck, a pump barrel extending downwardly from the cap and provided with a standing valve at its lower end, a tubular plug fast to the inner upper end of the barrel and extending above the cap, a tubular plunger mounted for reciprocable movement in the plug and provided with a piston at the lower end and an inwardly opening valve, a stop limiting the upward movement of the plunger, a nut screw threaded on the upper end of the plug to secure the same to the cap, a tubular head provided with a substantially flat top secured to the upper end of the plunger, a nozzle connected to the head and extending at an angle thereto, a helical spring surrounding the upper end of the plunger and interposed between the head and the nut, and a stationary handle comprising two oppositely disposed convex arms extending diametrically from the top of the cap and adapted to be engaged by two fingers of the operator while the thumb operates the plunger by alternately depressing the head.

5. A liquid spraying device comprising a container, a stationary barrel extending downwardly from the top of the container and provided with a standing valve at the lower end, a rotatable plunger reciprocably mounted in the barrel and having an inwardly opening valve and a piston at the lower end, said plunger extending upwardly from the top of the container, a stop limiting the upward movement of the plunger, a tubular head mounted on the upper end of the plunger, a spray nozzle connected to the head and extending therefrom at an angle to the plunger, a stationary handle comprising two oppositely disposed arms arranged in alignment and extending laterally from the plunger and adapted to be engaged by two fingers of the operator while the thumb operates the plunger by alternately depressing the head, a helical spring embracing the upper part of the plunger and engaging the lower face of the head at one end and a stationary support on the container at the other, said spring tending to move the plunger upwardly and to hold the plunger and the nozzle connected thereto in adjusted angular position in respect to the handle.

6. A liquid spraying device comprising a container, a stationary barrel extending downwardly from the top of the container and provided with an inwardly opening valve, a reciprocable tubular plunger in the barrel and extending upwardly from the top of the container, a piston attached to said plunger and fitting said barrel, an inwardly opening valve in said plunger, a head on the plunger, a spray nozzle connected to the plunger, a spring tending to move the plunger upwardly, and a stationary handle supported by the container and comprising oppositely disposed arms adapted to be engaged by two fingers of the operator while the thumb operates the plunger by alternately depressing the head.

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