The purpose of this invention is to provide a device by which fluids for removing ink, or the like, may readily be used and applied.

The invention is a small container having a reservoir with a valve resiliently held in the closed position and a dispensing plunger extending out of a tip of the device which opens the valve as the tip is applied.

Ink eradicators or fluids for removing ink are ordinarily supplied in bottles or other containers and, owing to the acids in the fluids these containers are made of glass and the fluid is applied by a glass stem extending from the stopper or cork. The stem may be solid or tubular and the cork may be provided with a nipple by which the fluid may be drawn upward in the tube. Dispensing devices have also been provided for other kinds of fluids and different types of valves have been used which may be automatically opened or closed or manually operated from the exterior or from the tip, however, altho these devices have been provided in various styles and for different purposes, any of them are not adapted for ink eradicating fluids where it is necessary to discharge the fluid by drops and the drops should only be discharged as the tip of the device engages the surface of an object from which the ink is to be removed.

The object of this invention is, therefore, to provide a device for containing and dispensing ink eradicating fluids which only discharges a comparatively small drop of the fluid as the tip engages the surface having the ink to be removed thereon.

Another object is to provide a dispensing device having a point extending thru and beyond a tip thereof in which the point operates a valve to release a substance in the device as it is pressed inward.

Another object is to provide a device for dispensing liquids having a valve member adapted to contain a drop of the fluid below the valve member.

Another object is to provide means in a dispensing device for ink eradicating fluids for readily refilling the device.

Another object is to provide non-metallic resilient means for holding the valve member.

A further object is to provide a device for dispensing liquids having air escaping means around the valve member.

A further object is to provide a liquid dispensing device which may be self-contained as an independent unit, or which may also be incorporated in a fountain pen.

And a still further object is to provide a comparatively small device for dispensing ink eradicating fluids which is of a simple and economical construction.

With these ends in view the invention embodies a small casing having a reservoir in one end, a tip at the opposite end, a resiliently held valve between the reservoir and tip, and a plunger extending thru the tip for opening said valve.

Other features and advantages of the invention will appear from the following description taken in connection with the drawings, wherein:

Figure 1 is an outside view showing the device as it would appear in use.

Figure 2 is a cross section thru the device on an enlarged scale.

Figure 3 is a view showing the device incorporated in a fountain pen.

Figure 4 is a detail thru the plunger and valve on an enlarged scale showing the valve open.

Figure 5 is a cross section thru the device just above the upper edge of the plunger showing the grooves in the outer walls and also the shape of the upper edge of the plunger.

Figure 6 is a cross section thru the plunger showing grooves in the opposite edges thereof.

Figure 7 is a similar section showing an opening in the center of the plunger.

Figure 8 is a similar section showing a double opening thru the plunger.

Figure 9 is a view similar to that shown in Figure 2 showing an alternate design in which a fountain pen filler is incorporated in the casing for readily refilling the device.

Figure 10 is a similar view with parts omitted showing an alternate method of operating the filler.

Figure 11 is also a similar view with parts omitted, showing a filler of the compression type.

Figure 12 is a cross section thru the lower part of the device showing an alternate arrangement of the plunger head and valve.

Figure 13 is a similar view showing another alternate arrangement in which the spring is replaced by a rubber member.

Figure 14 is a section thru a portion of the device showing a combination filler as it may be used with a fountain pen in which part of the filler fills the pen and the other part the sack of the ink eradicating device.

In the drawings the device is shown as it may be made wherein numeral 1 indicates the upper part of the casing or cap in which the reservoir is formed, numeral 2 the intermediate section, and numeral 3 the tip.

It will be understood that this device, or any of the parts thereof, may be made of any material and the material should be such that it will withstand the chemical action of the acids used in ink eradicating or removing fluids. These materials may also be machined or molded and may be formed so that the parts may be held together by threads, as shown, or in any manner. It may be preferred to make these parts of glass.
or an acid resisting, transparent or translucent material, and these materials may be colored or provided with different designs, so that the device may be very attractive, or finished in any manner. The device may also be incorporated in a fountain pen and may be made of the same material as the pen, or of any material that may be used therewith. The different parts of the device, as it will be noted that the acid does not contact the upper part of the casing or cap, so that this may be made of celluloid, or any similar material. In the design shown the cap 1 is threaded on a shank of the section 2, as shown at the point 8, and the section 2 is threaded on a shank 6 of the tip 3, as shown at the point 7, however, it will be understood that these parts may be of any design and may be removable secured together in any manner. The tip may also be covered with an additional cap 8, as shown in Figure 3, as this cap may be used on the design shown in Figures 1 and 2, in which the outer surface may be provided with threads 8, or the cap may be held by friction, similar to the cap of a fountain pen. This cap may be made plain, as shown in Figure 2, or may be provided with grooves 23 in the surface thereof, or may be provided with two openings 25 and 27 extending therethrough, as shown in Figure 8, in which it will be noted that one opening will permit the fluid to run downward and the other will form a by-pass to permit the air to pass upward, the device being illustrated in Figure 9. The valve in the open position. The plunger 3 is preferably round and may be made with grooves 23 in the surface thereof, as shown in Figures 2 and 6, or may be provided with an opening 28 in the center, as shown in Figures 4 and 7, or may be provided with a cap 46 pressed inward with a comparatively quick movement, the air inside of the cap 45 will be compressed and this will form the upper end of the plunger and upon the paper or surface from which it is desired to remove ink, or the like. The recess 28 may be of any shape or design and may be arranged in any manner, however, it will be noted that it communicates with the grooves or passages extending down the plunger. This device may be used independently or may be provided in combination with a fountain pen, pencil, or other device, and may be incorporated in a fountain pen, as shown in Figure 3, in which the cap 1 is omitted and the section 2 extends continuously therethrough, and the upper end of the opening is counter-sunk, as shown at the point 11, so that the head 12 of the plunger 13 may be accommodated therein with a valve disc 14 resting upon a valve seat 15 on the upper end of the tip. This valve may also be formed in any other manner or any type of valve may be used. The valve disc 14 is resiliently held downward by a spring 16 and this member may be provided with grooves 17 in the outer edge thereof, as shown in Figure 2, or these members may be omitted and the valve seat 15 may be provided on the interior of the section 2, as shown in Figures 4 and 5. This valve member may be provided in any other form and any other means may be used for permitting the fluid to pass when the valve is in the open position, as shown in Figure 4. The disc 14 may also be made slightly larger than the opening 19, in which it is mounted, so that the fluid may pass around the edges thereof. The spring 17 engages the upper surface of disc 14 and the opposite end thereof rests against the upper end of the opening 18. It will be understood that, although this spring is shown of a conical shape, it may also be of any shape and may be arranged in any manner. The spring may be replaced by a rubber member, as shown in Figure 15, or any means may be provided for resiliently holding the valve in the closed position. An opening 21 extends upward from the upper end of the opening 18 extending thru the shank 4 and also thru a nipple 22 at the upper end thereof over which a rubber cap 23 may be placed, which may be compressed and released to draw material into the device with the valve in the open position. The plunger 13 is preferably round and may be made with grooves 24 in the surface thereof, as shown in Figures 2 and 6, or may be provided with an opening 28 in the center, as shown in Figures 4 and 7, or may be provided with two openings 25 and 27 extending therethrough, as shown in Figure 8, in which it will be noted that one opening will permit the fluid to run downward and the other will form a by-pass to permit the air to pass upward, the device being illustrated in Figure 9. The valve in the open position. The plunger 3 is preferably round and may be made with grooves 23 in the surface thereof, as shown in Figures 2 and 6, or may be provided with an opening 28 in the center, as shown in Figures 4 and 7, or may be provided with a cap 46 pressed inward with a comparatively quick movement, the air inside of the cap 45 will be compressed and this will
squeezing the sack so that, as the finger or thumb is removed from the aperture and air admitted to the cap, the sack may expand and thereby draw in fluid to refill the device.

The device shown in Figure 12 shows an alternate arrangement in which the upper end of the plunger is formed with a flat disc 46 providing a head, and this disc is resiliently held downward by the spring 47. A rubber washer 48 is placed on the underside of the disc, and this rests upon a ring 49 extending upward from the surface of the tip 44. Providing a valve seat with the valve member resiliently held downward by the spring 48 and adapted to be raised by pressing the point of the plunger against the surface so that it will pass upward inside of the device.

It has been found, however, that the only metal capable of resisting the acid of ink eradicating fluids is gold, and, therefore, it has been necessary to use a gold spring, so that it is preferred to replace this spring with a rubber member 61, which may be of any shape and size, and may be arranged in any manner. In the design shown in Figure 13, the upper end of the member 61 is recessed in a groove 62 in the member 2, and the lower end rests upon the head 68 of the plunger 12. In this design, the opening 21 is provided with a wide groove 69 thru which the liquid may pass into the chamber 19 above the valve. The member 61 is also provided with longitudinal grooves 54 and cross grooves 55 in the upper end thereof, also permitting passage for the ink eradicating fluid from the channel 31 above the grooves in the rubber may be omitted, and the groove 55 may be made sufficiently large to accommodate all the fluid, or any number of the grooves 55 may be used, or the groove 55 may be omitted and only the grooves in the rubber used. It will be understood that any other means may be used for providing passage of the fluid from the passage 21 to the chamber 19. In this design a rubber ring 56 is placed on the lower side of the head 48, and this contacts the head 56 forming in the valve C. As heretofore stated, any other means may be used and resiliently holding the valve closed, a valve of any other type or design may be used, and any other means may be used for providing a flow of the fluid to the valve.

In the design shown in Figure 14 the device is provided with a spring 51, one end 58 of which extends into the fountain pen section of the device so that it may compress the sack therein, and the other end 59 of which extends into the ink eradicating section, so that it may compress the sack therein. The springs 58 and 59 may be forced inward by levers similar to the lever 40 shown in Figure 9, or by any means desired. It will also be understood that any other means may be used for compressing the sack from the exterior of the casing in order to refill the device.

It will be understood that other changes may be made in the device without departing from the spirit of the invention. One of which changes may be in the use of any other arrangement of the parts, another may be in the use of a casing of a larger or smaller size, so that a larger or smaller amount of fluid may be contained therein, another may be in the use of other means for opening the valve as it is desired to use the fluid, and still another may be in the use of other means for ejecting the fluid, as it is desired.

The construction will be readily understood from the foregoing description. In use the device may be provided as shown and described, and it will be noted that with the lower end of the tip held in a container so that the valve will be open, and with the rubber cap 23 squeezed together and released, the fluid will be drawn upward into the cap and as the device is removed the valve will automatically close and hold the fluid in the upper part thereof. The device may, therefore, readily be refilled by removing the cap 15 and placing the tip in an ink eradicating or removing fluid.

When it is desired to use the device the lower end of the plunger may be pressed upon paper having ink thereon or upon any surface, and it will be noted that with the plunger pressed upward into the tip the valve will be opened, as shown in Figure 5, and a small amount of the fluid may pass out of the lower end and upon the surface. The fluid may, therefore, be applied at any point desired.

Having thus fully described the invention, what I claim as new and desire to secure by Letters Patent is:

1. A fluid container and dispenser comprising a casing, a reservoir in one end of the casing, a plunger having a recess in the upper end adapted to hold a small amount of fluid extending thru a tip in the opposite end and a valve positioned above the plunger adapted to be opened by said plunger as it is moved inward.

2. A device as described in claim 1 in which the plunger is provided with grooves in each side providing a discharge passage for the fluid and also an inlet passage for air.

3. A dispensing device having a central casing, a tip extending from said casing and a valve positioned above and seated against the end of the tip, a plunger having space for a small amount of fluid in the inner end thereof forming a reservoir beyond the valve extending thru said tip adapted to open said valve as it is moved inward, a reservoir extending upward from said casing, and a cap enclosing said reservoir.

4. An ink eradicating device comprising a central casing forming a body having a central opening forming a reservoir with an opening communicating with the upper end thereof, a tip threaded in the lower end having a central opening extending through said tip, a plunger extending through said opening, said plunger having separate grooves in the opposite sides thereof, one for the outward passage of the fluid and the other for the inward passage of air as the tip is pressed inward, a valve member positioned against and seated upon the inner end of said tip, said valve member forming a closure for the opening in said tip, resilient means in the central opening of said casing holding said valve member closed, a sack forming a storage chamber fitted over and extending upward from the upper end of said central casing, said sack communicating with the opening extending through the upper end of said casing, and a removable cover for said sack.

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