drawings. In the modified embodiment, however, the main body portion **104** of the cap body **106** is provided with an integral extension **108** on the side of the throat **54** opposite the frusto-conical portion **48**. The extension **108** is provided with a rectangular cavity **110**, having an opening on the top surface of the main body portion **104**, for receiving a close-fitting preservative container **112**. The preservative container **112** may comprise a rigid outer carton or box **114** made of plastic or cardboard, and a thin inner liner **116** made of plastic or cellophane film, or some other material which can be easily punctured. A preservative liquid **118** is contained within the inner liner **116** as shown. The outer carton **114** of the preservative container is provided with a circular hole **120**, best seen in the exploded view of FIG. **10**, which is approximately aligned with a horizontal fluid passage **122** when the container **112** is in position within the rectangular cavity **110**. The fluid passage **122** communicates between the cavity **110** and the vertical throat **54** of the main body portion **104**. The purpose of the fluid passage **122** is to allow the preservative liquid **118** to drip from the container **112** into a sample receiving bottle attached to the bottom opening **60** of the cap body **106**, as will be explained hereinafter.

As can be seen most clearly in FIGS. **8** and **10**, the proximal portion of the movable closure member **124** is provided with a transverse through-hole **126** and a peripheral groove **128** for receiving the vertical portion of an L-shaped lance or spike **130**. The L-shaped lance **130** may be made from a length of rigid metal wire or the like and is provided with a sharpened tip **132**. An interior groove or slot **134** is formed longitudinally within the main body portion **104** of the cap body **106** adjacent to and below the cavity **64**, for the purpose of receiving an elongated U-shaped channel member **136**. The channel member **136** serves as a guide for the lower horizontal portion of the lance or spike **130** as the latter moves back and forth as a consequence of the movement of the closure member **124**. A sealing block **138** is provided at the end of the channel member **136** closest to the throat **54** of the cap body **106**. The sealing block **138** contains a small through-hole **140** in which the lower horizontal portion of the lance **130** is slidably received. The sealing block **138** prevents the infiltration of liquids from the throat **54** into the cavities **64** and **66** which enclose the spring **74** and the other components associated with the slidable closure member **124**. The through-hole **140** is aligned with a further hole **142** formed through the vertical side wall of the throat **54** for allowing the lance **130** to pass into the throat **54** and through the fluid passage **122** as shown.

The operation of the modified embodiment of FIGS. **7–10** is substantially the same as the operation of the earlier embodiment, although the modified embodiment provides the additional function of introducing a liquid preservative into the sample receiving bottle immediately after the bottle is sealed by the closure vane **80**. Thus with reference to FIG. **8**, it can be seen that as the closure member **124** is moved in the left-hand direction toward the closed position under the influence of the spring **74**, the lance **130** will be moved an equal distance across the throat **54** and through the fluid passage **122**. As the closure vane **80** reaches its fully closed position within the horizontal slot **82**, the sharpened tip **132** is thrust through the hole **120** in the carton **114** of preservative container **112** and ruptures or punctures the inner line **116**. This allows the preservative liquid **118** to escape through the fluid passage **122** and to drain into the sample receiving bottle through the bottom opening **60** of the cap body **106**. It should be observed that, due to the close fit between the preservative container **112** and the rectangular cavity **110** in which it is received, the sample receiving bottle will be effectively sealed off from outside air when the closure vane **80** is in the fully closed position as shown. If desired, however, an additional sealing cap can be provided over the top opening of the cavity **110** to prevent any infiltration of air or liquid vapors through the cavity **110** and fluid passage **122**.

FIG. **11** illustrates the manner in which automatic bottle sealing devices of the type illustrated in FIGS. **7–10** can be fitted over the sample receiving bottles **22** of an automatic liquid sampling apparatus. As described earlier in connection with FIG. **6**, the tripping of the trip rods **68** by the lip **102** on the lower part of the spout frame **98** causes the bottles **22** to be sealed automatically after they have been filled with liquid samples. In this case, however, a preservative liquid is introduced into each of the sample receiving bottles **22** from the preservative containers **112** at the same time as the bottles **22** are sealed. This is advantageous in instances where the liquid samples contain components which are reactive with each other in the sealed sample receiving bottle. Unless a preservative is added to inhibit the reaction, it is difficult to obtain meaningful test results unless the samples are analyzed immediately. For example, certain types of organic contaminants found in drinking water are reactive with residual chlorine which may also be present in the water. The addition of a suitable preservative, such as a solution of sodium thiosulfide, will inhibit the reaction and preserve the liquid sample long enough for the organic contaminants to be readily detected and measured.

The various components of the automatic bottle sealing devices of FIGS. **2–6** and **7–11**, with the exception of metal components such as the spacing **74**, hook **84** and lance **130**, are preferably made from a suitable plastic material which is inert to the pollutants and contaminants typically found in the liquid samples of interest. Teflon is a suitable plastic material for this purpose.

Although the present invention has been described with reference to a preferred embodiment, the invention is not limited to the details thereof. A number of possible modifications and substitutions have been suggested in the foregoing detailed description, and others will occur to those of ordinary skill in the art. All such substitutions and modifications are intended to fall within the scope of the invention as defined in the appended claims.

What is claimed is:

1. A bottle sealing mechanism for automatically sealing a bottle comprising:

(a) a cap body adapted to be fitted over the mouth of said bottle, said body including a throat for receiving a substance and conducting it through the mouth of said bottle, said throat including a top opening for receiving a substance and a bottom opening for delivering said substance to said bottle;

(b) a movable closure member capable of moving into an open position, wherein said throat is open, and a closed position, wherein said throat is closed, said movable closure member including a slidable vane which is slidable across said throat between said top opening and said bottom opening and selectively moveable to an open throat or a closed throat position, and