allow the purified bypass oil stream to pass to oil filter **110** for the engine for recycling and reuse in engine lubrication. In another embodiment, conduit **36** may allow the purified bypass oil stream to pass into oil pan **21** (path not shown in FIG. **1**).

**[0032]** The volatile contaminants separated from the bypass oil stream in purifier chamber **108** may be discharged from oil purifier **102** into the atmosphere through vent **202** (shown in FIG. **2**), and/or into a conduit **37** for conveyance to the engine intake manifold (not shown), or otherwise, as may be desired. Vent **202** may allow vapor—such as, but not limited to, evaporated water, oil and contaminates—to exit purifier chamber **108** while restricting the flow of oil from purifier chamber **108**. Vent **202** may also maintain approximately atmospheric pressure in purifier chamber **108** in order to promote evaporation of contaminates.

**[0033]** Oil purifier **102** may be provided for retrofitting in combination with a previously manufactured vehicular engine or the like using a kit or the equivalent. Such a kit may comprise, for example, flow divider **104**, purifier filter **106**, purifier chamber **108**, and interconnecting conduit components, such as conduits **31** and **36**.

**[0034]** FIG. **2** shows a sectional view of purifier chamber **108** of FIG. **1**. In purifier chamber **108**, contaminants, such as low boiling point volatiles, are separated from the bypass oil stream. Preliminarily, purifier filter **106** filters the bypass oil stream to remove particulates, including sludge. The filtered bypass oil stream enters purifier chamber **108** through a conduit **204** that extends in gas-tight relationship through a side portion of a top cap plate **206**. The bypass oil stream is introduced to an inner chamber **208** through a metering jet **209** and an oil distributor, such as spray nozzle **210**. Metering jet **209** may reduce and/or regulate the flow of the bypass oil stream, and may result in more efficient evaporation of contaminants in purifier chamber **108**.

**[0035]** Inner chamber **208** is separated from outer chamber **212** by a platen **214** having an evaporation surface **214***a*. Evaporation surface **214***a* includes an upper portion **214***b* and a lower portion **214***c*.

**[0036]** As the pressurized bypass oil stream exits spray nozzle **210**, the oil stream is exposed to approximately atmospheric pressure in inner chamber **208**. In one embodiment, the pressure drop is approximately 75-100 psi. Spray nozzle **210** may be configured to cause the bypass oil stream to form a mist as it exits spray nozzle **210**. Spray nozzle **210** may include a discharge manifold having a plurality of slits, for example 4 or 5 slits, to allow the bypass oil stream to form a plurality of mist paths **210***a* that may form a generally uniform distribution pattern. In one embodiment, metering jet **209** and spray nozzle **210** are configured to provide a mist over a broad circular path over the upper portion **214***b* of evaporation surface **214***a*.

**[0037]** The upper portion **214***b* of evaporation surface **214***a* is located to receive the oil distribution pattern from spray nozzle **210**, which may be take the form of a mist and/or a stream, and to allow the oil to condense and/or deposit on upper portion **214***b*. In one embodiment, evaporation surface **214***a* is located and configured in coordination with spray nozzle **210** so that the mist is generally uniformly deposited on upper portion **214***b* of evaporation surface **214***a* where it may form a film. Contaminants within the bypass oil stream may remain in the mist and/or may be deposited on upper portion **214***b* with the oil film.

**[0038]** The top cap plate **206** may be secured to a lower housing **52**. Housing **52** and cap plate **206** may be formed of cast, machined metal, and platen **214** may be formed from stamped, welded sheet metal, preferably stainless steel.

**[0039]** In a preferred embodiment, and referring now to FIG. **2**, evaporation surface **214***a* may include a plurality of varying, downward-sloped surfaces **214***d*, which may but need not have varying slope angles from the upper portion **214***b* to the lower portion **214***c*. The varying downward-sloped surfaces **214***d* may converge at angled transition points **214***g*. Evaporation surface **214***a* may include a plurality of generally horizontal grooves (designated in FIG. **2** by lines **214***f*). Grooves **214***f* may beneficially reduce the speed at which the oil film travels from upper portion **214***b* to lower portion **214***c*. As the oil descends from the upper portion **214***b*, its exposed surface area declines, which may aid in removing volatiles from the oil being processed. Also, as the oil descends, it is concentrated at lower portion **214***c*, which is desirable for oil collection purposes. The shape of evaporation surface **214***a* is believed to result in more efficient and faster evaporation of volatiles from the oil film than previous shapes. In addition, evaporation surface **214***a* is believed less likely to cause undesirable pooling of oil, and formation of oil deposits, than previous shapes. An upper edge portion of platen **214** may be provided with an out-turned flange **214***e*. The lower housing **52** that may contain platen **214** may have generally cylindrical side walls **53** that may be joined unitarily at a bottom edge portion to a dome configured bottom plate **54**. An out-turned rim flange **206***a* located on perimeter portions of top plate **206** may mount with machine screws or the like over, and sealingly close, with the aid of a seal (not shown), the upper edge portions of cylindrical side walls **53**, thereby completing an enclosure for purifier chamber **108**.

**[0040]** Ledge projection **56** circumferentially extends about inside wall portions of sidewalls **53** in downwardly spaced, adjacent relationship to the upper edge portions of sidewalls **53**. Out-turned flange **214***e* rests against the flattened upper face of ledge projection **56** of evaporation surface **214**. Flange **214***e* may be mounted to ledge projection **56** by a plurality of circumferentially spaced machine screws **216** or the like. Thus, platen **214** may divide at least the upper portion of purifier chamber **108** into an inner chamber **208** and an outer chamber **212**. Preferably at the lowest point of bottom plate **54**, a (e.g.) 0.75-inch drain allows the purified oil stream to exit oil purifier **102** through conduit **36**.

**[0041]** In one embodiment, a gap **218** is left between platen **214** and bottom plate **54** in order to allow oil to pool after flowing from evaporation surface **214***a*. In another embodiment, the gap is omitted and platen **214** extends to bottom plate **54**.

**[0042]** Oil that exits spray nozzle **210** as a mist may deposit on upper portion **214***b* of evaporation surface **214***a*, forming a thin film that moves downward by gravity over heated portions of evaporation surface **214**. Since the evaporation surface may include surface regions defining a plurality of slope changes, the oil flowing thereover may experiences a variable flow rate and a variable film thickness as it progresses to lower portion **214***c* of evaporation surface **214**. Such variations are generally preferred and are believed to be desirable for purposes of enhancing the separating and removing of volatile materials from the oil being so treated. It is believed that more volatile material is removed when