ther provided that, where essentially uniform flow in two or more nipples is required, the nipples are positioned to receive substantially uniform flows of oil ejected from the duct outlet across the gap. While the nozzle arrangement depicted produces a hollow conical spray, other spray configurations can be produced resulting in different nipple orientations.

Referring now to FIG. 14, an alternate embodiment of the air-jet ejector pump and expansion chamber in accordance with the invention is depicted, like reference numerals as were used in prior embodiments being applied to like elements. In this embodiment, expansion chamber 140 is defined by a housing 142 free of openings other than those described below. A plurality of nipples 22 having inlet openings 32' are mounted in the top wall of housing 142 in an essentially circular array, with the inlet openings 32' projecting into expansion chamber 140 so as to prevent interference between excess lubricant and the flow into the inlet openings 32', as described above. The bottom wall of the housing 142 is formed with an annular trough 144 about the outer periphery thereof for receiving the excess lubricant from the essentially conical lubricant spray which does not enter inlet openings 32'. Such excess lubricant may either fall directly into the trough 144 or run along the side peripheral walls into said trough. The air-jet ejector pump 146 includes an air inlet 148 which receives air under pressure transmitted in the direction of arrow 150 from tubing 152. The air passes from a constricted passage 154 to duct 156 through a short conical section 158. Oil is fed to the venturi thus formed from an outlet duct 160 and intermixes with the high-velocity air stream in duct 156. The oil may be fed from an oil supply 162 through tubing 164. The oil supply may consist of any known metering system, including mechanical, electrical, hydraulic or pneumatic devices, the oil-metering arrangement of the embodiment of FIGS. 1–7 not being required. From duct 156, the air-oil stream enters a preliminary expansion chamber 166 of greater diameter than duct 156 but of substantially lesser diameter than expansion chamber 140, and from the preliminary expansion chamber, located centrally of the bottom wall of housing 142, outlet opening 168 projects an essentially conical stream of lubricant to the inlet openings 32' of nipples 22.

It has been found that the preliminary expansion chamber 166 aids in the formation of an essentially uniform conical spray, further enhancing the uniformity of feed to the respective nipples 22 without regard to the location thereof. The excess lubricant from expansion chamber 140 passes from trough 144 through duct 170 to the base of preliminary expansion chamber 166 adjacent the short conical section 172 communicating between duct 156 and preliminary expansion chamber 166. Either section of duct 170 and preliminary expansion chamber 166 serves as a further venturi, entraining the excess lubricant into the main lubrication stream. In this manner, excess lubricant is recycled rather than being returned to the main oil reservoir.

The foregoing arrangement is particularly useful where the oil includes cleaning agents such as detergents. Such oil, when aerated and returned to the main reservoir, tends to foam, interfering with the operation of the lubricant distributor in accordance with the invention. This defect is remedied by the arrangement of FIG. 14, since the small quantities of aerated lubricant are immediately recycled, preventing foam buildup.

Referring now to FIG. 15, still a further alternative embodiment of the air-jet ejector pump and expansion chamber in accordance with the invention is depicted, like reference numerals being applied to like elements. In this embodiment, air-jet ejector pump 180 is of similar design to pump 16 of FIGS. 1–7, with tubing 30 delivering air under pressure to nipple 62 and tubing 28 delivering oil to a fitting 80'. In the embodiment of FIG. 15, duct 182, leading from the air inlet past the transverse oil delivery duct 68', is essentially identical to elements 154, 156 and 158 of FIG. 14 and is coupled by a short conical section 183 to a preliminary expansion chamber 184 similar to preliminary expansion chamber 166 of FIG. 14, which preliminary expansion chamber has been found to provide a more-uniform conical lubricant stream at outlet 186. Expansion chamber 188 is defined by a housing 190 secured to headpiece 36' by screws 192, which engage tabs 194 secured to housing 190. Nipples 22 pass through openings in headpiece 36' so that the inlet openings thereof project into expansion chamber 188 as described above. The upper peripheral region of housing 190 is formed with notches 196 which provide communication with the exterior of the housing and therefore to the main oil reservoir (not shown). Such notch openings 196 provide a path for the flow of excess lubricant out of the expansion chamber. In addition, the bottom wall of the expansion chamber is formed with a plurality of openings 198 which serve to permit the escape of excess lubricant, which falls to the bottom of the chamber. In other respects, the embodiment of FIG. 15 operates in the same manner as the embodiment of FIGS. 1–7.

Further, while a venturi-type oil-jet pump is illustrated, other sources of oil under pressure may be utilized, including pressurized oil streams broken up by air or mechanical means.

While examples of the apparatus above use oil as a lubricant, other liquid or colloidal suspension lubricants can be used provided they are capable of delivery by spraying.

It will thus be seen that the objects set forth above, and those made apparent from the preceding description, are efficiently attained, and since certain changes may be made in the above contructions without departing from the spirit and scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limitng sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

We claim:

1. A distributor for feeding a lubricant comprising:
lubricant supply means having an outlet;
lubricant transmission means having an inlet spaced from said outlet by a gap, said lubricant supply means being adapted to project a pressurized lubricant stream from said outlet across said gap; and
means supporting said lubricant transmission means inlet so that said transmission means inlet faces and is at least in part in the path of at least a portion of the lubricant stream, the lubricant transmission means inlet projecting toward said lubricant supply means from the adjacent surface of said support means, whereby flow to said inlet of lubricant not directly impinging on said inlet is substantially