ture drop of the oil where the oil lift tube **53** is made of nylon, then

$$\Delta t_2 = \frac{135}{(8.92)(0.50)} = 30° \text{ F.}$$

Thus, where the oil lift tube is made of copper, the oil, as it leaves the exposed portion of the tube **53** and enters the mist generating head **17**, is at a temperature of 60°. However, where the oil lift tube is made of nylon, the temperature of the oil as it enters the mist generating head **17** is (150°−30°)=120°.

Now 60° F. is below the aerolization point of 2000 S.U.S. oil and hence the oil must be reheated after it enters the mist generating head **17** if suitable oil mist generating conditions are to be met. However, 120° F. is well above the aerolization point, and thus where a nylon oil lift tube is used re-heating of the oil in the mist generating head is not required.

The advantages in utilizing material having low thermal conductivity for the oil lift tube **53** are also inherent in the case of the oil funnel **52**. For example, assume that the funnel **52** is made of aluminum (where "k"=118) or of brass 90–10 (where "k"=63). The loss of heat through the funnel **52** as a result of the cooling effect of the expanding air in the mist generating head **17** will be approximately 840 times greater for aluminum than for nylon, and approximately 450 times greater for brass 90–10 than for nylon.

Other plastic materials such as fluorocarbon resin ("k"=0.14) and chlorinated polyether ("k"=0.08) have extremely good thermal insulation characteristics for reducing temperature drop of the oil from the oil reservoir **20** to the admixing chamber **43**.

In further accordance with the principles of the present invention, the pressurized air being supplied to the oil mist generating head **17** may be maintained at a constant temperature, since constant air temperature assures constancy in the quantity or flow rate of oil mist being generated by the generating head **17** for a given oil viscosity and air pressure.

A preferred manner of maintaining the temperature of incoming air at a constant level is to adjust the air heater thermostat **18** to a temperature slightly above the maximum anticipated ambient air temperature. For example, assume that the generator **10** is installed in a steel rolling or metal fabrication plant wherein ambient air temperature is likely to periodically rise as high as 110° F. The thermostat **18** may be adjusted to a temperature of about 120°, thereby assuring that variations in ambient air temperature will leave no effect on the temperature or density of the air entering the oil mist generating head **17**, and thus will leave no effect on the generating capacity of the oil mist generating head **17** for a given viscosity of oil and given air pressure. It will be appreciated, of course, that in accordance with the principles of the present invention the temperature of the air as it enters the oil mist generating head **17** may be substantially less than the temperature of the oil in the reservoir **20**.

Although minor modifications might be suggested by those versed in the art, it should be understood that we wish to embody within the scope of the patent warranted hereon all such modifications as reasonably come within the scope of our contribution to the art.

The invention claimed is:

1. A method of generating an aerosol or oil mist with lubricating oil comprising the steps of:

directing a stream of pressurized air to the throat of the venturi of an oil mist generating head, heating a reservoir of lubricating oil to a temperature between the aerolization and chemical decomposition points of the oil,

communicating the lubricating oil in the reservoir with the throat of the venturi to draw a stream of oil from the reservoir into admixing relation with the air within an admixing chamber in the venturi to produce the aerosol, and

insulating the stream of lubricating oil so that the temperature of the oil is maintained above the aerolization point as it admixes with the air.

2. The method as defined in claim **1** wherein the temperature of the air stream as it enters the oil mist generating head is below the temperature of the oil in the reservoir.

3. The method as defined in claim **1** wherein the temperature of the air in the air stream is maintained at a substantially constant value.

4. The method as defined in claim **1** wherein the air in the air stream is heated to a constant temperature slightly above ambient air temperature.

5. The method as defined in claim **1** wherein the temperature of the air in the air stream is maintained at about 120° and wherein the oil in the reservoir is heated to a temperature of about 140° and higher.

6. The method as defined in claim **1** wherein the oil stream is insulated sufficiently so that the temperature of the oil is greater than the temperature of the air as the oil and air enter the admixing chamber.

7. In an oil mist lubricating system,

an oil mist generating head including a venturi having an air-oil admixing chamber,

means formed in said generating head for directing a stream of pressurized air to said admixing chamber,

an oil reservoir,

heating means for maintaining the temperature of the oil in the reservoir between the aerolization and chemical decomposition points thereof, and

conduit means including means formed in said generating head for directing a stream of oil from said reservoir to said admixing chamber,

said conduit means including insulation means for maintaining the temperature of the oil as it is conveyed to the admixing chamber above the aerolization point thereof for mixing with the air stream to provide an oil mist.

8. The apparatus as defined in claim **7** and including:

means for maintaining the temperature of the air stream at a substantially constant level below the temperature of the oil stream.

9. The apparatus as defined in claim **7** wherein said conduit means comprises an oil lift tube extending from a point in the oil reservoir below the level of the oil to the generating head,

said oil lift tube being constructed of material having insulation properties sufficient to prevent any substantial reduction in the temperature of the oil stream due to the cooling effect of the oil mist on the oil lift tube in the reservoir above the level of the oil therein.

10. The apparatus as defined in claim **7** wherein said generating head is made of a first material and said insulation means is made of a second material, the ratio of the thermal conductivities of said first and second materials being within a range of about 450:1 to 1600:1.

11. For use in a centralized oil lubricating system, an oil mist generating head comprising:

a metal body member,

means in said body member forming a venturi including a frusto-conical air-oil admixing chamber,

a pressurized air inlet and a high-velocity throat communicating said air inlet and the small end of the admixing chamber,

means in said body member forming a generally vertically extending oil passageway above said venturi for directing oil downwardly into the small end of the admixing chamber and including a downwardly converging open-ended funnel member,

means forming a bore in said body member extending therethrough to the exterior thereof,

means including an oil lift tube extending through said