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gauge side of the trap (10) contains a suitable non-corroding material, such as chlorinated paraffin oils, while the other side of the trap contains mercury. The gauge (9) is positioned convenient to the operator.

Compressed gas is supplied from the cylinder (2) thru the cylinder valve (12), conduit (3), valve (13) and conduit (4) to the tank (1) containing the liquid to be sprinkled. The liquid is forced from the tank (1) by the compressed gas thru the conduit (5), valve (14), conduit (6) and the nozzle (7) at the rear of the aeroplane.

The conduit (4) is also provided with a valve (15), which serves as an emergency pressure release outlet, and when the tank (1) is being filled this valve (15) serves as an air release outlet. The conduit (5) is provided with a valve (16) near the tank (1), this valve being used in the ordinary filling of the tank (1) with the liquid to be sprinkled. In the conduit (3) and located near the conduit (6) is a valve (17) which serves in an emergency for permitting the escape of pressure should a forced landing be necessary.

The tank (1) may be filled with the liquid to be sprinkled in any convenient manner. For example, air is allowed to escape by opening the valve (15) and the liquid is forced into the tank (1) through the valve (16), the valve (14) being closed during the operation. When the tank (1) has been filled the valves (15) and (16) are again closed.

In operating this device for sprinkling the liquid, it is advisable not to introduce pressure into the system until the plane has left the ground. All the valves being closed, valve (13) is opened and then valve (12) is opened gradually. Pressure immediately builds up in the system as shown by the gauge (9). Ordinarily, it is desirable to start with an initial pressure of 225 pounds per square inch in order that the pressure be maintained at the desired point while valve (14) is being opened and until attention can again be given to the pressure control. Valve (14) should be opened gradually in order to prevent a water hammer effect which might result in a broken connection. If decrease in pressure takes place at this point, valve (12) is again opened and manipulated so as to maintain the gauge pressure at about 170 lbs. per sq. in. This pressure will discharge approximately 300 pounds of liquid over a period of 20 seconds and of a distance of one half mile. After the tank has been completely discharged a rapid decrease in pressure will be noted. Ordinarily, it is advisable to allow the gas, for example carbon dioxide, to exhaust itself in order to clear all the conduits and lines. This invention is applicable to various amount of liquid which may be carried varies with the carrying capacity of the particular aircraft.

Although in this specific illustration we employ compressed carbon dioxide as the source of gas pressure, it is to be understood that our invention is not limited in this respect but that other gases which do not have undesirable chemical action on the liquid to be sprinkled may be employed, and that mechanical apparatus, for example a pump or air compressor, may be employed in lieu of the compressed carbon dioxide. Also, other smoke-producing liquids than those named herein may be employed without departing from the spirit of this invention.

In describing the operation of our device, a gas pressure of 175 lbs. per square in. of the liquid is given. This figure represents a value based upon the physical and chemical constants of the liquids sprinkled, the average speed of the plane, the size of the nozzle and the resistance of the conduits and fittings. By controlling the pressure of the gas in the tank containing the liquid to be sprinkled, the velocity of ejection may be made approximately equal to the velocity of the plane through the air at any given time.

In the practice of our invention, the actual velocity of the wind with reference to the ground is of substantially no importance, the vital consideration being the velocity of the moving aircraft in the air which is the factor resulting in the breaking up of the drops of liquid into smaller particles. By projecting the liquid from the moving aircraft with a velocity substantially equal and opposite to the velocity in the air of the moving aircraft, counter-longitudinal motion between the liquid and the air at the time of release of the liquid is prevented and the result is that the liquid falls as if poured from an elevation at rest, and travels to the ground in substantially stable drops. When the liquid is a smoke-producing material, which reacts with one or more constituents of the air to form substantially stable, visible products, the effect produced is that of a falling smoke curtain.

In the following claims, wherever reference is made to the velocity of the moving body, aircraft or airplane, it is intended to refer to the velocity in the air and not the speed relative to the ground.

The present invention is not limited to the specific details set forth in the foregoing examples which should be construed as illustrative and not by way of limitation, and in view of the numerous modifications which may be effected therein without departing from the spirit and scope of this invention, it is desired that only such lim-