The equipment for studying the volume and phase relationships is a system of four high pressure cylinders, appropriately interconnected and fastened to an iron frame, the whole being immersed in the thermostat. All the vessels were designed for a working pressure of 5000 atm.

A general view of the equipment, fastened to the frame, is shown in Fig.2.

Fig.2.

Equalizer A (Fig.1) -- a cylinder with a volume of 330 cm^3, is used to maintain constant pressure during the experiment. In the lower part of the equalizer are located the sensor coils, the float, and the trap for the mercury of the contact-less differential manometer. Below the capillary the equalizer is filled with mercury, and joined to the second cylinder of the system -- the mixer B. The mixer has the same dimensions as the equalizer, and its function is to dissolve the liquid in the compressed gas. It is equipped with an electromagnetic stirrer, brought into motion by the solenoid D, mounted on top of the mixer.

The mixer is connected via a special steel ring to a vessel for adding (measured amounts of)liquid to the mixer -- the dosimeter L, and another vessel for measuring the change in volume of the system upon solution of the liquid in the gas -- the volumeter V.

The dosimeter is a calibrated cylinder in which a piston travels. The piston is connected at the top to a reduction gear, driven by a motor. The dosimeter fills with liquid when the piston is in the upper extreme position, and when the piston moves down, the liquid batch is put into the mixer. A schematic of the dosimeter is shown in Fig.3. Its working volume is 6 cm^3.

The volumeter is a calibrated cylinder with a piston -- an exact copy of the dosimeter. By varying the volume of the volumeter (raising or