first sample may be so diluted in its passage down the sampling tube that the first part of the vapor will burn enough to give a reading, but on further sampling the pointer will drop back to zero The dial should be watched closely during the sampling

The sampling hose should be kept from an area where flammable liquid or water might be drawn into the instrument Either flammable liquid or water would put it out of service Hot vapors also may affect the indicator if they condense inside

A tank, tested before being cleaned, may be found vapor-free However, if it contains sludge or scale, flammable liquid and vapor may be released as soon as the sludge or scale is disturbed. A safe rule to follow is that no tank should be considered free from the possibility of dangerous vapors as long as it contains sludge or scale.

If workmen leave a tank for a period of time, such as overnight, gas tests should be made the next morning before they are permitted to continue work Many companies use a written permit form when it is necessary for men to enter vessels which have contained flammable liquids or to do "hot work" repairs in them

Devices are available for testing for carbon monoxide, benzene, hydrogen sulfide, and tetraethyl lead hazards (This last instrument is available from the Ethyl Corporation.)

Loading and Unloading Tank Cars

Only trained employees should load or unload tank cars containing flammable liquids These men should understand the danger of possible fire and explosion and of asphyxiation from breathing flammable vapors As an added precaution, unloading and pumping operations should be discontinued during electrical storms.

Invoices and shipping papers on incoming tank cars should be checked closely for correspondence with actual tank car numbers, and in doubtful cases contents should be tested in order to prevent accidental mixture of flammable liquids in plant tanks See Fig 32-6 for typical tank car construction details.

Spotting cars

A car mover should be used if it is necessary to hand spot a car The worker should stand with the handle of the bar to one side of the track rail and face the car with his feet well apart so that he cannot be overbalanced easily.

After the car is spotted, with the dome outlet opposite the loading or unloading line, the brakes should be set and the car wheels blocked The "blue flag" stop sign (at least 12 by 15 in., with words such as STOP—TANK CAR CONNECTED or STOP—MEN AT WORK) should be set before loading lines are connected or work

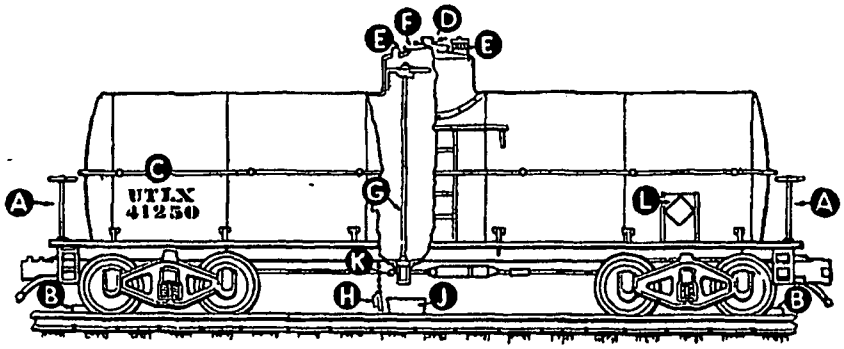

Fig. 32-6. Typical tank car with parts identified

A Car brake	E Safety valve	J Drain pan
B Wheel block	F Dome cover	K Outlet nozzle
C Identification number	G Outlet leg valve	L "Flammable" card
D Car seal	H Outlet leg cap	