and the Cross-over valve opened in which position it remains throughout the entire run.

Now what actually takes place is this,—when the entire radiating pipes are filled with steam the Regulator valve is forced to seat and will positively not admit any more steam until the pressure in the radiating pipe is reduced (due to condensation) when it will allow just sufficient steam to enter the apparatus to again equalize the pressure. (See Fig. 9.) It will be understood that by this method of regulation the

It will be understood that by this interiod of regulation of pressure throughout the entire train is equalized, its operation is very similar to the working of the air brake system of which you are all familiar. So it can be readily seen that by entirely closing the traps and by this method of regulation a much lower initial or train pipe pressure can be carried.

The question, quite naturally, has arisen, "How long will it take then to fill the entire radiating pipes with condensation, so as to retard the heating, and what is done to relieve this condition of affairs?

It can be stated after several years of continued use in all kinds of regular service that trains equipped with this system have been run over divisions varying from 100 to 300 miles without once releasing any of the condensation. (See Frg. 10.)

If the radiating pipes with this system becomes so full of water that the heating is decreased all that is necessary is to release just sufficient water to allow for expansion and the heating may be quickly established again.

By referring to the illustration it will be noticed that it is possible to have the same pressure of live steam on the discharge side of the radiating pipes as on the supply thereby overcoming the liability of freezing.

The initial or train pipe pressure required with this system is about 3 pound pressure for each car in the train, or about 30 pounds pressure for a ten car train and about 15 pound pressure for a five car train, while any method of heating working on the gravity system will require from 60 to 75 pounds steam pressure for a ten car train and for a five car train it is the common practice to supply a minimum pressure of 40 pounds.

With such a great reduction in the steam pressure it will be seen that a great saving is affected in the wear and tear on steam hose which is to-day, where the high pressure system is used, one of the largest items charged to maintenance account. The different roads which have used this system have,

The different roads which have used this specific have, after several years of exhaustive testing, concluded that,— "drips are expensive."