

saying of 25 to 38 per cent. can be made by re-heating, others claim that there is not one case in a thousand where one cent can be realized by re-heating the air.

At a meeting of the Master Car Builders' Association, some manufacturers of air appliances claimed that superheated compressed air used in air lifts, jacks, engines, etc., increases the efficiency 50 per cent. Their committee reported that the manufacturers either were not responsible for their words or that they did not know what they were talking about. The only place that any economy was got, was in a steady running motor with re-heating close up to it.

Large receiver capacity is of great importance in maintaining a uniform pressure on machines and acting as an accumulator in relieving the compressor of shocks due to sudden load fluctuations and it is almost impossible to have too much receiver capacity. A difference of pressure of three pounds between the compressor receiver and furthest end of compressed air plant should be the maximum allowed, and a properly laid out system of piping should not show any appreciable loss of pressure. A well designed distribution system should hold pressure on the receiver over night and a 5 per cent. loss should be the utmost limit of leakage allowed.

The source of a great waste of air is, I think, in air lifts. You will find that in a great majority of cases that the cylinders of these are altogether too large for the maximum amount they are required to lift. This, of course, would not waste air if it was not for the class of air cock generally employed which is a three way plug cock. This is generally turned on full when making a lift and when the piston has reached the top of the cylinder it is not shut off. This, would, you see, with a cylinder 10"x4' use about 3,700 cubic inches of air at 100 pounds per square inch to lift, say only 300 pounds, when the same amount of air would lift over 7,000 pounds. We are, therefore, using as much air to lift 300 pounds as 7,000 pounds. This, of course, is the fault of the operator in not shutting off the cock when the piston is nearly at the top of the cylinder. Card 6 is a cut of an air lift valve that saves a great amount of air and is used quite extensively. You will notice it shuts off automatically. A lift can also be made to the desired height much easier than with the 3 way cock.

It is not necessary for me to enumerate all the different applications of compressed air, but if you look up some of the different books on this subject and see the numerous uses it has been put to, it will surprise you. We all know it has about revolutionized all structural iron and boiler work; also the braking of railroad trains and when enumerating all the different purposes that compressed air is used for, you will find that in a great majority of cases, it is the only kind of power suitable and it has been estimated that for locomotive shop work, the cost of