THE CENTRAL RAILWAY AND

sure after expanded to about $6\frac{1}{2}$ times its original volume, while the air drops to the same pressure after expansion to about a little over four times, its original volume. The mean effective pressure of the steam on this card is 27.38 pounds, and that of the air is 19.51 or only 71 per cent. of the steam. Now we will note card No. 2, which shows steam and air

Now we will note card 180. 2, which shows seem and seem of the stroke. expanded to atmospheric pressure at the end of the stroke. On this card you will note that the air line is outside or above the steam line and shows a higher mean effective pressure, but you will note at the expense of a larger initial volume



or otherwise a later cut off. The mean effective pressure of the air in this case is 41.6 and the steam 33.46, but the volume of air used is .2353 and the volume of steam used is .1473, the saving in the use of steam here is 25 per cent.

These two cards show clearly that compressed air should never be used in place of steam unless in a case of long transmission, which we will see about a little further on in this paper. Steam could also be used much cheaper than air for running any class of motor if it were not for the great loss in transmission

18