

work in the cylinder equal to about 10 per cent. of the heat delivered to it, when the temperatures I have mentioned are maintained.

Mr. Lewkowicz,—

To get back to the question of smoke. It might interest the members to hear of something I learned during my travels in England last year. That was the McKay bridgewall, which is a cast iron bridgewall containing a great many slits and holes in it through which air is admitted from the ashpit and is mixed with the hot gases as they pass over it, which has done a great deal towards solving the question of complete combustion in the furnaces on steamers and has aided considerably in the abatement of smoke nuisance on them when it has been used. It is a very ingenious device and is made in parts so that if any part should burn out it can easily be replaced.

Mr. Wickens,—

The device that Mr. Lewkowicz speaks about would not be at all suitable for land practice. On these vessels where they carry about 200 lbs. pressure and force the fires until they burn from 30 to 50 lbs. of coal per square foot of grate area per hour, they have so much heat leaving the grates they can afford to turn air in at any part of the furnace over the grates without reducing the temperature of the gases too much, and are thus able to consume them, but in our ordinary land tubular boilers we do not have such an enormous heat as we only burn from 10 to 15 lbs per square foot, consequently we could not let air in in the same way to assist in consuming the gases and smoke.

Mr. Wilson,—

The device mentioned is to assist in consuming the smoke after we have made it. I think we should try some means of preventing the production of smoke in the first place, that is, do not let the smoke get away from the coal. What I have in mind is that all the air should pass through the incandescent coal, the smoke also should pass through it. The coal should be pushed up from underneath, and it will become hot before it reaches the incandescent coal and some of the carbon gases will be liberated, and they will have to pass through the incandescent coal with the air and thus be consumed. Of course we would have to take care that the coal was not crowded too