

compound came into use on the Erie Railroad in 1867 in America.

Chairman,—

Will Mr. Wickens now lead the discussion on boiler explosions?

Mr. Wickens,—

I see that the first part of this question is a straight question,—“What is the cause of boiler explosions?” In my mind a boiler explosion is the simplest thing on earth. It is the question of having too much pressure for the strength of the metal. Of course as a boiler is used day after day, week after week, and month after month, like other apparatus, it gets worn out and weaker, and eventually when the pressure gets rather high, it explodes.

The next question on the paper needs a little thought. The question as I read it, if the crown sheet becomes dry and overheated, is the liability of explosion increased by the injection of cold water. I do not think it is. A crown sheet does not overheat when it is covered with water, but when the water is gone it overheats, or has got low, and the metal becomes so hot that the pressure pushes it down, making a bulge. Of course you all know if when metal gets hot you cannot pump water on to it fast enough to make an explosion. There are crown sheets which get dry and water is pumped on to them thousands and thousands of times before any explosion takes place.

When you talk about an explosion it does not cover such a thing as a crack which opens up and makes a leak, this should be classed as a rupture or simply a crack. There is no explosion unless it tears everything to pieces, and then you may say you have had a wreck.

Now the most conservative boiler inspection insurance company on earth is the English Manchester Boiler Insurance Company. They went to the trouble some years ago to build a boiler to explode. They went to a great amount of trouble to do this. They made a boiler to be fitted internally and set it behind a bank, putting an 8 foot stone wall near it, and put the pumps and gauges outside of the wall. They had a good steam pressure and let the water get down to 10 inches from the top of the flue. The person tending the boiler was there and he finally pronounced that the flue was red hot. They then turned in the water, and after doing this seven times they did not get it to explode. They kept on but could not get it to explode. In fact they spent thousands of dollars trying to get this boiler to explode. And at last the flue got some metal cracks in it. From their experience they found that the circular crown sheet would not explode if the boiler