

THE EFFECT OF OIL AND GREASE IN BOILERS.

them to sag, producing the condition shown in the picture.

Another difficult incident to all boilers is the practically unavoidable presence of oil or grease, which does not dissolve in water, nor does it decompose, neither does it remain on top of water, but it seems to form itself into what may be called slugs, which at first seem to be lighter than water, of just such a gravity in fact that the circulation of the water carries it at its will. After a short season of boiling these slugs or suspended drops seem to acquire a certain degree of stickiness, so that when they come in contact with the flues and shell of the boiler they begin to adhere thereto. Then under the action of heat they begin the process of varnishing the boiler. The thinnest possible coating of this varnish is sufficient to bring about the overheating of the boiler plates, and the point is emphasized that it is not necessary to have a coating of grease of any appreciable thickness to cause overheating and bagging of plates and leakage of seams.

The illustration gives a good idea of the effect produced by the presence of oil in the boiler alluded to. The boiler from which the plate shown in the cut was taken, was nearly a new one. It was made from a well

known brand of mild steel, and that it was admirably adapted for the purpose for which it was used is proved by it stretching as it did without rupture. The dimensions of the bulge shown are four feet lengthwise of the boiler, three feet girthwise and nine inches deep. The metal, originally 5-16 thick, drew down to 1-8 in thickness at the lowest point of bulge, without the slightest indication of fracture.

The circumstances under which the bulge

occurred are best described in the words of the inspector who examined the boiler, and are as follows:

"Last Thursday morning I was called with great haste to the —, upon arrival I found one of the boilers badly bulged, and with twenty pounds of steam up. I could give no explanation until I had thoroughly examined the interior of the boiler. I gave directions for cooling the boiler and ordered the top manhole plate to be loosened, but not to be taken off until my arrival in the afternoon, that I might see everything undisturbed. This was done. On my arrival

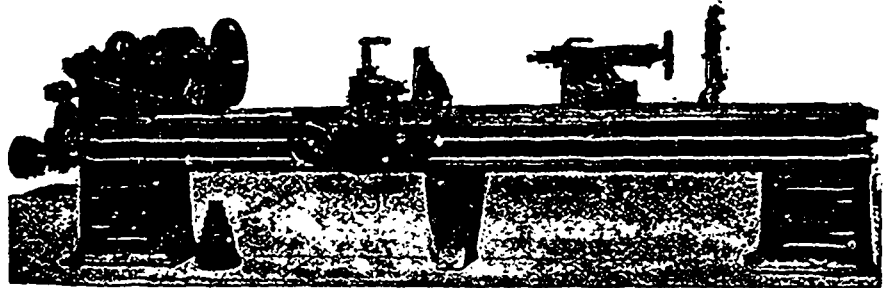
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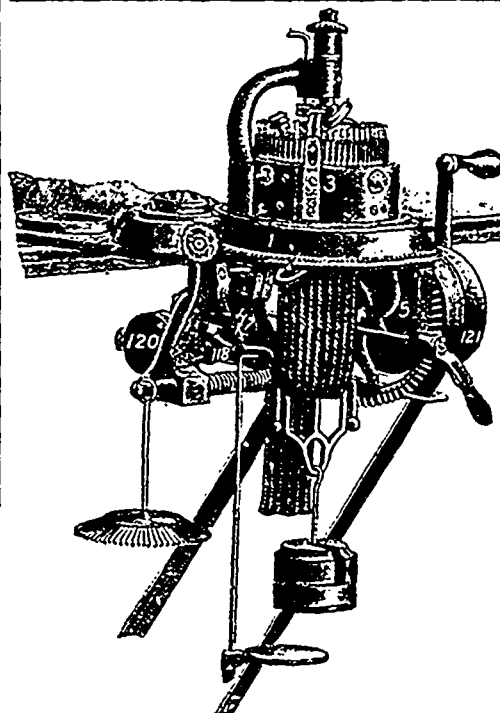
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