general good. In asking for State interference, it must be remembered that we are making fresh invasion on private liberty, and we ought not to extend this invasion further than is absolutely necessary. Also, the theoretical sanitarian is bound to consider what are the prospects of passing ideal schemes into effective law. The insistence of a very high standard may lead to immediate failure and possibly to a disastrous postponement. On the other hand, there can be no doubt that if, by the limited scheme here presented, dwellings should be provided with appliances of the character specified, examined in their respective positions and periodically supervised, a great improvement would be conferred upon the habitations of the people, slow and lingering disease would be diminished, the tone of the general health would be raised, and something will have been done to increase the happiness of many an individual home.

CHAT WITH A CHIEF ENGINEER.

"I see there is another case of boiler blister in one of the new whale-shaped barges," said the chief engineer, "and it would be interesting to know who pays for the blister. The engineer says 'soft steel' in the furnace did it, and the boiler builder says it was the engineer's negligence that did it. What the owner thinks will cause the biggest argument. The first thing to consider is whether or no the boiler builder would put 'soft steel' into a boiler. Sec. 4430 of the steamboat inspection rules would bear down pretty hard on this 'soft steel,' but a decision from the treasury department a number of years ago only requires inspection of shell plates. (In parenthesis I would remark that the United States government pays out at least $100,000 each year for marine boiler inspection, and pays not one cent for stationary boiler inspection, from which one might infer that marine engineers' lives are worth preserving.) But if the 'soft steel' didn't blister the boiler, then the engineer did. I suppose you think the engineer went to work and made a mustard plaster and put it on the tenderest spot? No, it is easier than that. Why, a mustard plaster wouldn't make a boiler stop 'priming,' not to mention warping it out of shape. The chances are that he forgot to play with the surface blower each watch. How would that have prevented the blistering? This way! When the oil or grease came in with the feed water it swam around on the top until it gathered enough sediment to sink it. And by the way do you know that there is calm weather, nor'westers, and regular cyclones in your boiler? Sometimes the water is level and quiet, and steaming like a mill pond on a spring morning, and sometimes again the water at the bottom thinks it isn't having a fair show at steaming, and then the top and bottom water have a stormy time for an hour or two. But this grease gets tired swimming around, and if it isn't skimmed off by the surface blower down it goes on the furnace. Then where that lies heat can not get through to the water, and it stays in the iron until it is red-hot and blisters. If there is any animal grease in the oil the blister comes very quick. You may think this is funny, but take a tin can and after smearing linseed oil on the bottom inside, fill it full of water, put it over a lighted gas jet, and see if the tin don't get red-hot before the water boils.

"This blister on the whale-shaped boat's boilers isn't the only case. Why, one of our bran new steel steamers got a touch of it this spring. The engineer said he filled one of the boilers near the gas-house in Chicago river, and as that was the only one burned, it is reasonable to presume that gassy or greasy water caused it. I have in mind a case that happened several years ago on a boat belonging to a large Cleveland fleet. The engineer ran out of oil and bought some at Duluth. It was learned afterwards that the oil was put in a linseed oil can that contained some of the original linseed. Chemists found traces of the linseed oil on the scale, but the engineer said that it was 'soft steel,' and the owner believed the engineer, which they sometimes fail to do, I am sorry to say. It came near resulting in a law suit. In fact, I don't remember how it did end, but think that the boiler builders convinced the owner. These cases aren't a 'patch on' one or two others I know about. One was on the yacht Peerless. She came from the coast with a surface condenser and the first triple expansion engine that was built in this country. Although the latter was disputed, the former isn't, because as soon as she got away from salt water there was nothing to cut the oil, and as all the condensed water goes back to the boiler, all the oil that got into the cylinders went to the boiler and raised——blisters. The Canadian Pacific steamer Campana had the same experience, but let one of our jet condenser steamers go to salt water, and I guess there would be some blistering—from a different cause, though. The salt left by evaporation would settle down on the crown sheet, and not being used to the salt it would naturally get warm, red-hot, in fact. A young friend of mine went 'first' in the Ranney a number of years ago, and deciding to get rid of the scale, which had accumulated under the regime of his predecessor, he put a whole barrel full of black oil into the boiler. The result was that the Ranney's furnaces 'came down' in corrugations that would make a Continental furnace jealous. My owner came into the engine room the other day, and among other things he asked was for me to trace the water from the seacock to the condenser discharge, and next time I'll tell you how I did it."—E. N. GINEER, in the *Marine Review*.

THE GREAT TRAVELLING CRANE AT TRUBIA.

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