

The INSPECTOR of MACHINERY, Otago District, to the ASSISTANT-SECRETARY, Marine Department.

SIR,— Office of Inspector of Machinery, Dunedin, 18th May, 1891.

I have the honour to forward to you the annual report of inspection of boilers and machinery in the Otago District for the financial year ended the 31st March, 1891, contained in the accompanying tables numbered 1 to 17 inclusive.

In forwarding this report unto you I am very sorry to state that the flax, mining (dredging), and saw-mill industries have not turned out so well as was expected. A number of flax-mills have been temporarily discontinued; a number of saw-mills have been shut down, and dredging operations, unless in certain cases, have been a failure, although I am of opinion that, with the experience gained, it will come to the front yet.

The increase of boilers during the year has been sixty-three, and, at the end of March, there still remained a considerable number to be inspected. There has also been a great deal more of marine work. There was also a certain amount of time lost last year through various causes; possibly this year will show better. The past year has been very bad for accidents, there being two fatal, the jury in each case returning a verdict of "accidental death." There have been no accidents by reason of the explosion of any steam-boilers throughout the district during the past year.

#### *Remarks on Tables.*

Return of Defects found on Inspection of Boilers.—There are four dangerous cases.

The Cornish tubular boiler has been very carelessly looked after to cause such a collapse as took place. Had it not been a steel boiler the consequences might have been serious; as it was no fracture of the plate took place.

Three Cornish Boilers at a Refrigerating-works.—Crowns all more or less collapsed from top of crown round to furnace-bars. This I consider to have been a very bad case, and might have been the means of loss of life and serious destruction to property. On my examination of these boilers after the accident on the 26th and 28th July, while the repairs were going on, I found the plates internally thickly covered over with oil (Englebert's), which had been allowed to enter the boilers from the condenser. I therefore advised the boilers to be thoroughly cleaned out by means of caustic soda; and, in order that such an actual danger from total collapse might not occur again, I ordered two angle-iron rings to be put round each furnace, 3in. x 3in. x  $\frac{3}{8}$ in.

The other defects are merely the ordinary casualties which may be looked for where so many unskilled men are in charge of steam-boilers.

Nature of Repairs ordered.—This table does not need much comment, as there is nothing serious requiring to be noticed.

Notice given to Fence Dangerous Parts of Machinery.—The only things here are the openings into scutchers used in the preparation of flax. In many cases, before any supervision took place, the openings might be found as wide as 2 $\frac{1}{2}$ in. This is not only dangerous, but entirely unnecessary, 1 $\frac{1}{2}$ in., with moderately wide side-openings, are found to answer much better, the scutcher—that is, the person using the machine, having more confidence with an opening where his hand cannot get in. They are all being reduced to this size where required.

I am sorry to have to report so many accidents to life and limb as occurred last year. Accident at Ellis and Watt's flax-mill: It would appear that this accident was entirely the person's own fault.

Southland Implement and Machine Works Accident.—This is one of those accidents which seem to be non-preventible, the gate being left open, and the little child passing was naturally attracted by the machinery, and, not knowing the danger, was suddenly caught and killed instantly.

Phoenix Company Accident.—Although not serious, the hand might have been lost altogether. Nothing can be done with this but the exercise of a little caution.

Brown and Richardson's Mill Fatal Accident.—This accident occurred very simply. In turning round from the scutcher the flax was caught, taking his arm in, the opening at that time being 2 $\frac{1}{2}$ in., which is now reduced to 1 $\frac{1}{2}$ in. Had this mill been inspected prior to the accident happening, no doubt this might have been avoided; but no notice of starting the mill had been received, and therefore nothing was known about it.

Reid and Gray's Circular-saw Works Accident.—This accident was not of a serious character, and such accidents are very common at a breast-saw bench, and entirely non-preventible.

Frankston Beach Gold-dredging Fatal Accident.—This accident was entirely accidental, and caused, perhaps, by too great an amount of self-confidence. Had he stopped the engine and secured the pin properly, the accident could not have occurred; but we may reasonably suppose that he considered he could manage to drive it home before going down below. I have examined the machinery; but it cannot be boxed up altogether, so I have suggested a hand-rail round about, so as to keep them as far off as possible.

I have, &c.,

ALEXANDER CRAWFORD,

Inspector of Machinery, Otago District.

Lewis H. B. Wilson, Assistant Secretary, Marine Department, Wellington.