

(6) The manager of a sheep-station visited a small hydro-electric plant on the station for the purpose, it is assumed, of oiling the shafting. His clothing became entangled with the end of a shaft and he received injuries from which he died. The shaft was 18 in. from the floor, and a guard which had at one time been fitted was not in position at the time of the accident. The Department was not aware of the existence of the plant, and previous to the accident it had not been visited by an Inspector of Machinery. The machinery is now efficiently guarded.

(7) A patternmaker of many years' experience with wood-working machines was killed when struck by a portion of a wooden pattern which was thrown from a lathe during the process of being turned. Investigations into the cause of the accident proved that the fastenings of the pattern, which was made in two parts, were insufficient to withstand the centrifugal force, tending to separate the two parts when the pattern was revolved at the high revolutions necessary for turning. The pattern was also insecurely attached to the face plate of the lathe.

Of the 33 non-fatal accidents reported, 9 were connected with circular saws, 5 with power presses, 3 with woollen-manufacturing machinery, 2 with transmission-shafting, 2 with electric lifts and the remaining 12 with various types of machines. In 15 accidents fingers only were injured, and in 8 cases hands were injured. In 17 cases, mostly with circular saws and power presses, lack of care or concentration on the work in hand was a contributing cause to the accidents. A serious non-fatal accident occurred at Waihi Gold-mine in July last. A cage with 12 men was being lowered down a shaft when the clutch on the winding-engine shaft slipped out of position and let the cage away. The cage dropped with great velocity, but eventually tore into the timber guides and the sides of the shaft and came to rest 500 ft. from the bottom of the shaft and 1,300 ft. from the surface. Both hand and foot brakes were fitted to the winding-drum. All 12 men in the cage were injured, but fortunately none were killed. From investigations and tests carried out after the accident it was proved that the clutch could not have been fully engaged when the brakes were released and the cage set in motion and that the brakes were efficient. Since the accident indicators have been fitted for the purpose of showing when the clutch is engaged or disengaged, and the machine has been equipped with a locking-device for holding the clutch in the engaged position.

This year marks the sixtieth anniversary of the enactment of the first Inspection of Machinery Act. It may not, therefore, be out of place to refer briefly to the history of this legislation.

The first Act was introduced into the House of Representatives in 1874 by the Hon. Edward Richardson, member for Christchurch City West and Minister for Public Works. The necessity for such legislation had been agitating the public mind for some years prior to this period. Many boiler explosions and serious accidents with machinery were occurring with disastrous results to life and property. Following an explosion of a boiler on the 24th January, 1874, at the Kurunui Battery, Thames Goldfield, by which three persons were killed, a Royal Commission was appointed on the 21st February, 1874, to inquire into the causes of the explosion, and on the condition of the boilers and machinery generally on the goldfield. Three methods of dealing with the subject of boiler inspection were examined by the Commission, and opinions of witnesses were sought as to their merits. The Commission reported that there was a remarkable unanimity of opinion in favour of the plan of Governmental inspection.

The provisions of the first Act may be briefly summarized as follows :—

All boilers were required to be inspected at least once in every year, or oftener, as occasion may require.

A boiler was defined as any boiler or vessel in which or by means of which steam is generated or used for the purpose of working any machinery. An Inspector was required to keep a complete record of each boiler inspected, containing particulars of the nature and construction of the boiler, the name of the maker, the pressure which it was calculated to sustain, the mode of working the boiler, and the state and condition of it, and its fitness for the purpose for which it was used. A fee of £1 was charged for the inspection of each boiler not exceeding 10 h.p., and £3 for each boiler over 10 h.p.

Provision was also made for the inspection and certification of certain classes of machinery, such as machinery for cutting, preparing, or dressing *Phormium tenax*, and all machinery used in printing by steam machinery, or in flour-mills, sawmills, bone-crushing mills, woollen-mills, distilleries, foundries, planing-machines, and quartz-crushing mills or batteries. Fencing and guarding were required for certain parts of machinery whether or not they were parts of the machinery mentioned above, such as for every flywheel connected with mechanical power, and every part of a steam-engine and water-wheel, and every hoist near to which children or young persons were liable to pass or be employed, and every wheel-race was also required to be fenced.

A fee of £1 was charged for the first inspection and certification of machinery not having boilers connected therewith. No further fee was payable for any subsequent inspection of the same machinery.

No child under the age of ten years was permitted to be employed in working or assisting to work at or with any machinery.

Owners of boilers and machinery were required to give notice of any boiler explosion and of every machinery accident resulting in loss of life or serious bodily injury to any person whether the machinery was subject to the provisions of the Act or not.

It is interesting to note that Justices were empowered to allow to any person who had suffered bodily injury or damage by reason of default in respect of which a penalty was imposed a certain proportion of the penalty as compensation.

The Act could only be brought into force in the various provinces by request of the Superintendents. Within a year, it was in force in all the provinces excepting that of Hawke's Bay. It came into force in Hawke's Bay in 1877.