

the buildings are of immense proportions, occupied by merchants, and so carry very heavy stocks. A number of these erections have been fitted out with this alarm system. The principle of it is that all the floors are fitted with very sensitive thermostats, and are connected by wire with a central office. If the temperature in any portion of the circuit increases above a certain point, the alarm is immediately transmitted to the central office, and information is at once conveyed to the neighbouring fire-station, a few yards away. On buildings supplied with this appliance a liberal rebate is allowed by the insurance companies, and out of this saving the cost of installation is provided. The proprietors of the May-Oatway Automatic Alarm, invented by Mr. May, of Dunedin, have also an office in the city. A number of improvements have been made in this device since it was exhibited in New Zealand, and it now provides a very sensitive and perfect system.

While in London we visited the factories of Messrs. Shand, Mason, and Co., and Merryweather and Sons, and were very kindly shown everything connected with the manufacture of fire-engines and appliances. Several improvements in the design of steam fire-engines were noted, one of the principal being the ease with which the valve-chambers may be inspected. By the loosening of a few bolts the cover may be removed, the valve got at, and the cover replaced, all within the space of two or three minutes.

After spending about six weeks in England we left for the United States, and immediately took train from New York to Charleston, South Carolina. A meeting of the International Fire Chiefs was being held, at which we attended. During the session we were much interested in the papers that were read, and the discussions that took place on matters connected with the fire service. A discussion on the question of the utility of the automatic sprinkler and nozzle showed what a great assistance they are to firemen in the extinction of large fires. The sprinkler is arranged so that on any increase in the temperature above a certain point (about 160 degrees) the solder controlling the valve melts, and allows the water to issue in a spray in all directions. If the fire spreads, the heat opens more sprinklers, and it is found in most cases that this contrivance effectually holds a fire in check. The system can be so arranged that immediately the sprinkler comes into action an automatic alarm can be rung at the fire-station. In large factories and stores a nozzle placed in the most suitable position can be utilised by the firemen connecting their hose to the water-main supplying the nozzle. This is so arranged that on the pressure being applied the nozzle rotates, and throws the jet in all directions. From photographs shown, and experiences related, we judged that this has proved of great service in many instances.

After the close of the convention, an exhibition of appliances was held, and trials were made of various styles of apparatus, some of which were quite new, and will no doubt prove of service. One great feature was the variety of nozzles exhibited. In some cases it seemed hardly possible that, with two steamers forcing water through four lines of hose, a fireman could, with one hand, control a nozzle throwing a $2\frac{1}{2}$ in. jet; yet such is the case. Controlling-nozzles seem to be in general use, which, of course, necessitates the use of relief-valves on all fire engines. The use of these is based on the idea of reducing the loss of water to as great an extent as possible, the branchman being able to reduce the size of his jet to exactly what is required, or even to shut it off altogether. In some of the departments lengths of small hose are carried in case they may be wanted. These are fitted so as to attach to the ordinary hose, and are used at small fires. Cellar-pipes, fire-alarm systems, swinging harness, and all requisites used by firemen were exhibited in great profusion, and we regret that we were unable to arrange for such an exhibition at this, the New Zealand Conference. We hope that the Association will be able at some future date to make arrangements whereby an exhibition on similar lines may be held at our annual meeting, so as to give New Zealand firemen an opportunity of seeing the class of apparatus used in the outside world.

One of the points that struck us in visiting the American fire departments was the very complete arrangements in use. When an alarm comes in, the lights are turned up all through the station; gongs give the alarm, and, striking the number of the box-alarm involved, show the district and position whence the alarm comes. The men get to the engine-room floor by means of sliding-poles. The horses are released, and rush into position under the swinging harness. The men on the floor pull down the collars, which fasten automatically, and all that is left for the men to do is to snap the rein-hooks and everything is ready. In a moment the men are in their positions, and the driver by pulling a cord opens the doors, and they are away. With an alarm given when the men are in their rooms it is considered they should be away in fifteen seconds. There can be no question that in the majority of cities in the United States those responsible for providing protection from fire quite realise the dangerous enemy they have to fight against. The appliances placed at the disposal of the firemen are of the best and most complete description, and the expense seems a question of no consideration. This gives the manufacturers of appliances encouragement to design apparatus in accordance with the most modern ideas, knowing that if a suitable article can be produced a demand is certain. In the face of increasing risks of large fires, the firemen require plant of the most improved description. The stations, as a rule, are fine buildings, in good positions, and well equipped. The officers are able, and, with a fine stamp of men to support them, we can quite understand the reason why the American fire-service is placed first.

One noticeable feature in the American apparatus is the almost universal adoption of the chemical fire-engine, the general opinion being that fully 50 per cent. of fires are extinguished by this class of engine. As a rule, the combination hose-truck and chemical engine seems to be the favourite design. This carries two cylinders, and is despatched to arrive first at a fire, so that if unable to extinguish the flames it holds them in check until the steamer gets to work. As the combination carries hose and ladders, these can, if necessary, be made use of. For small fires these engines have great advantages. They can be taken close up to the seat of the fire, and as soon as the branchman arrives he has a jet at his command, which, being controlled by a shut-off nozzle, only the right amount of water need be used. The lead of hose is small, and can be