cage is also provided with two catches, which may be thrown forth against the travelling bar and under two catch-blocks attached to the travelling bar, for the purpose of preventing the grippers cutting the runners on landing at the plats when pulling quartz, mullock, or water. But these catches should at all times be thrown back when men are about to ascend or to be lowered, otherwise they would prevent the action of the springs and render the grippers inoperative. When the cages are not in work, he deems it advisable to protect the indiarubber from the rays of the sun. Mr. Cock states that the cage has withstood some very severe tests.

"*Description of Plans of Cage, &c., showing Auxiliary Grippers.*—No. 1 plan shows the auxiliary grippers out of action. No. 2 plan shows the auxiliary grippers out of action. No. 3 plan shows the auxiliary grippers in action; *a*, the slope of the cage; *b*, the grippers which act upon the face of the runners; *c*, brackets rivetted on to the slopes.; *d*, the pinion or shaft to which the grippers are keyed, and to which the sweep rods *e* and *f* are pinned, and working in the bracket *c*; *e*, sweep-rod pinned on to the pinion at one end, and having an eye forged at the other and turned outwards, so as to allow the rod *f* to pass smoothly through the eye; *f*, sweep-rod pinned to the pinion, and which works through the eye in *e*, but it is much longer than the rod *e*, and of quicker sweep, quickening as it extends; *g*, small indiarubber spring, with just sufficient tension to steady the grippers from the rebound of the cage; they also retard the action of the grippers until sufficient force is applied to put them in action.

"In reference to this cage, Mr. Grainger, Inspector of Mines for the Sandhurst District, reports as follows upon a trial of the apparatus witnessed by him: 'The trial took place on the surface, temporary skids having been erected for the purpose. On the rope being cut, the distance the cage fell was hardly perceptible. A second trial took place, when the manager, Mr Cock, got into the cage, and, on the rope being cut, the cage was instantly caught. I was well pleased with this part of the trial, as the grippers proved to be most effective. I then descended the shaft with the manager, at the ordinary speed, when, at a depth of 1,180 feet from the surface, in order to prove the efficiency of the auxiliary grippers, I applied one of the sweep-rods indicated in the letters *e* and *f* on plan No. 1, and the auxiliaries acted at once, stopping the cage instantaneously. The main grippers also acted at once. I may add that the auxiliary grippers, as well as the others, took such a hold that they cut right into the skids. The auxiliary grippers of this cage are by far the best and most effective that I have seen. The cage at the mine has been in use since October, 1879, and is now in good order. The trials which I witnessed were most satisfactory.'

"Mr. Grainger, the Inspector of Mines, at Sandhurst, has furnished sketches, from which the accompanying drawings and description of a safety-cage known as Datson's have been made. The cage is said to have been in successful use for some time in the mine known as Lansell's No. 180 at Sandhurst: 'Datson's safety-cage, which is 7ft. 6in. in height, is constructed in the ordinary manner, and is suspended from the centre-bar by two chains (*a a*), which are attached to circular pulleys (*b b*), keyed to horizontal bars which cross the cage. On each side of the inside of the cage is a pair of eccentrics (*c c*) keyed to the bars, carrying two pairs of grippers (*d d*) outside the cage, which, when required, work against the skids. The eccentrics are each connected on the underside by strong bands of indiarubber (*h*), which, when the rope is disengaged by any accident, compress the grippers, so as to bring them against the skids, and thereby arrest the movement of the cage. On the inside of the cage two cranks (*f f*), pointing inwards, are fixed to the cross-bars actuated by a lever (*e*) connected at its short end by a chain with both cranks. On the lever being pulled down by any one inside the cage the raising of the cranks brings into play the outside grippers, and the cage is stopped. The least weight on the lever brings the eccentrics into play.'"

Conclusion.

In concluding my report on the inspection of mines: Too much care cannot be taken in using explosives, and these seem to be kept and handled by several companies' workmen in the most careless manner. It is not sufficient for a mine manager to merely give directions to the workmen to be careful, but it is and ought to be a part of his duty to see that explosives are taken into the mine in proper boxes or canisters, and that there should be certain safe places for these to be kept in inside the mine. They have now been fully warned with regard to explosives, both by Mr. Binns and myself, and, if any further infringement of the rules be made with regard to this, legal proceedings ought to be taken in order to force them to use every effort to guard against accidents occurring. The following table shows the principal mines at work in Westport District during the year ending 31st March, 1884.

I have, &c.,

Henry A. Gordon,
Inspector of Mines, Westport District.

The Under-Secretary for Mines,
Wellington.