

mine is fairly timbered, and ladders in passes good; but there is great carelessness displayed in the use of explosives: loose cartridges of dynamite, and likewise detonators, were lying here and there along the sides of the drives. On the 12th April last I wrote to the manager requesting that proper canisters be got for taking explosives into the mine. There are twenty-two men at work at the mine and eight men at the battery.

7. *Mokihinui Quartz Mines*.—6th March, 1884. The quartz mines in the Mokihinui district consist of the Red Queen, Comet, Golden Crown, Guiding Star, and Mokihinui. As there was scarcely any work doing in any of these mines I only visited the Red Queen Company's mine; as, from the information supplied me, they are merely prospecting, and nothing can be said about them until they get opened out and their quartz tested. The Red Queen and Mokihinui Companies are conjointly erecting a crushing battery, which will afford facilities to the whole of the companies to test their quartz.

8. *Red Queen Company's Mine*.—6th March, 1884. This company have driven a level following the quartz lode for 250ft., but 170ft. of this is now filled up. The mine manager informed me that the lode was about the same thickness for the whole of the distance driven, viz., from 6in. to 15in. thick, containing good gold. At 80ft. from the mouth of this level or tunnel a winze is being sunk, and some good specimens are got from it. They have likewise driven another level or tunnel 270ft. in length, about 140ft. below the upper level, and have commenced to construct an uprise. There is some fair-looking stone stacked at the mouths of these levels ready for sending to the battery as soon as it and their tramways are completed. It is an extremely hard country, and very little timber will be required to work the ground with safety.

SAFETY-CAGES.

A great number of mines, not only in the Westport district, but in every part of the colony, are worked from shafts, some of which are a considerable depth, and therefore careful attention should be given to secure good and efficient winding appliances, and a safe mode of hoisting and lowering the men up and down the shafts. Some of the cages that are at present in use are very defective in their construction: they have not sufficient head-room to admit of a cover being placed on the top to afford protection to persons travelling up and down in case of anything falling down the shaft. It may be truly said that there is not a good description of safety-cage in the colony. This subject is attracting the attention of mine managers and others interested in mines in Victoria, as will be seen from the following description and plans of safety-cages that T. Couchman, Esq., Chief Inspector for Mines for Victoria, has published with his report on the inspection of mines, and which is now republished for the information of those interested in mining and working from deep shafts in this colony:—

“Mr. Cock, the mining manager of the Victoria Reef Gold-Mining Company, at Sandhurst, has kindly furnished information from which the accompanying plans and description of a safety-cage in use at that mine have been prepared. Mr. Cock says that the advantages claimed for this cage are—(1.) The application of indiarubber springs instead of metal springs, as the latter are so liable to be impaired by rust, and to lose their elasticity and power. [This deterioration of metal springs in quartz mines of considerable depth, where the water is impregnated with minerals, takes place very rapidly; consequently, such springs require constant supervision and frequent testing, otherwise they are not reliable.] The springs are made of the best red rubber, $3\frac{1}{2}$ in. wide by $\frac{5}{8}$ in. thick, and are fixed to bear a drawing strain of about 6cwt., the cage being about 8cwt. The springs are four in number, and are placed two on each side of the travelling bar; they are fastened by means of two small bolts at the top and bottom of each pair of springs. These bolts pass through the lower and distant bar for the bottom of the springs, and through the cross tension-bar for the top of the springs, and are tightened by a pair of glands at the top and bottom of each pair of springs, the bolts being beyond the width of the rubber. The rubber springs are said by Mr. Cock to be coming into use in many mines in this district, and he has never heard of a single case of failure, nor does he believe it likely to occur if the cage be well made, the grippers properly set, and if a good tension be on the rubber. (2.) An improvement in the attachment of the connecting-rods to the grippers. These connecting-rods are attached to the tension-bar by eyes slipping over the end of the bar and a pin to keep them in place; but at the other end there is an eye-bolt attached to the grippers: this bolt is passed through the gripper hot, and the head beaten down into a recess made to receive it; it is then loosened so as to move round freely; the eye extends inwards over the side straps of the cage, and the connecting-rod passes through it, with a nut above and below to regulate the pitch of the gripper and to meet the wear of the guides. (3.) The use of an auxiliary safety gripper. These grippers are placed on the slopes of the cage and act upon the face of the runners, but the lateral thrust is not sufficient to push the runners back beyond the action of the main grippers; their length is not sufficient to do so, but they are designed to arrest the progress of the cage sufficiently for the main grippers to come into action. They have been frequently tested in the shaft and have always acted well, not losing half an inch. These grippers are made with $1\frac{1}{4}$ -in. square iron working in two brackets rivetted on to the slope of the cage, the pinion of the grippers extending beyond the brackets a sufficient length to receive a rod on the end of each pinion; these rods are made with a sweep, as shown in the plan, and are pinned on to the pinion, which is keyed to the grippers; one of these rods on each pinion has an eye turned outwards from the end of the rod, through which the rod on the opposite pinion works, and is of sufficient length to prevent the two forming each pair from coming apart when brought into action. And for the purpose of preventing the grippers coming too readily into action, as they would be liable to do on the rebound of the cage from the bumpers when in rapid work, there is a small strip of $\frac{1}{2}$ in.-square rubber fastened from the top of the cage to one of the sweep-rods, with just sufficient tension to keep the grippers steady. The auxiliary grippers are brought into action by a man in the cage putting his hand on any part of the sweep-rods and pulling them down: a strain of about 2lb. is sufficient to do so. The sweep-rods are placed on each side, to enable a man on either side of the cage to have command of them without reaching across. The