

the one object in view, namely, that of precipitating the gold to the bottom of the cell and lifting the 'wash' which has been treated over the top rim of one cell into the succeeding cells, where it will again and again be treated until it finally drops back into the river or tail-race.

"In these savers the 'wash' is led down a gentle slope towards the bottom of each cell, which it enters in such a way that the whole of the contents of the cell feel the influence of the eddying water. The interiors of the cells are constructed so as to retain all gold which reaches the bottom, and the immediate effect is the formation of a skin of concentrates over the particles of gold at or near the bottom of the cell. These concentrates are constantly in motion, and the strength of the current at the base of the cells is far less than at or near the top, the result being a settling or precipitation of the gold and the carrying-off of the 'wash,' leaving the gold behind. In the ordinary pattern there are thirty-two cells to a square foot of saver, but for black sand the savers will contain perhaps several hundred cells to each square foot. At present the problem being worked out is the adjustment of the depth of the cells to the requirements of 'wash,' and this must necessarily take time and money before the adjustment becomes perfect.

"The advantages claimed for the savers are as follows:—

"1. Being made of cast-iron (and later probably this will be hardened) the wear-and-tear is reduced to a minimum.

"2. Being plates, they can be put down on plush or matting exactly as expanded metal is put down, except that they are heavy enough to keep in their places without being nailed or otherwise fastened.

"Each cell is by gravitation automatically doing the work of the miner when 'panning off,' and to have (say) ten savers on a dredge means that 320 cells are 'panning off' continually and passing on what each has finished to the cell next below.

"4. Perpendicular 'dead riffles' catch and hold the finest of the light gold.

"5. All 'wash' entering the cells is kept moving in such manner that the gold is precipitated, whilst the 'wash' is carried on over the top into the next cell, and so on.

"6. The savers may be lifted separately, and may be used either along the ends of the save-all and tables, or may cover the save-all and tables from the tail upwards for a few feet or more.

"7. Where the flow of water is insufficient to obtain the automatic motion required an outrigger may be placed at the tail of the tables, and the savers may then be used on the outrigger which should be placed at an angle sufficient to give the necessary fall.

"8. The cost is very moderate."

The illustration shows a foot-square saver, the white portion representing plush or matting underneath the saver.

A set of "Dividend" savers has been installed on the Rising Sun dredge, near Cromwell, an illustration and description of which dredge appears in this report.

ACCIDENTS AND FATALITIES.

The following statement shows the number of non-fatal accidents attended with what at the time was considered or might perhaps prove to be serious injury, which have been reported to the Department during the year, and also the fatalities in connection with the various branches of the gold-mining industry during the year:—

Class of Mining.	Northern District.		West Coast District.		Southern District.		Total.	
	Serious.	Fatal.	Serious.	Fatal.	Serious.	Fatal.	Serious.	Fatal.
Quartz	23	8	2	...	1	1	26	9
Hydraulic and alluvial ...	No workings.		...	2	2	2	2	4
Dredging	No workings.		2	3	13	3	15	6
Totals	23	8	4	5	16	6	43	19

TREATMENT OF TAILINGS AND SANDS FROM SMALL BATTERIES.

In my report of last year reference was made to the loss of tailings from small quartz-mines especially, and a suggestion was thrown out that the tailings from such mines should be stacked for future treatment, as it would in all probability pay to erect simple cyanide plants in convenient positions in order to treat the accumulated tailings of a few small mines. Such a plant as then suggested itself to my mind, has been erected at Coromandel by Messrs. Shepherd and Patterson, primarily for the purpose of treating the accumulated tailings from the Hauraki battery. The character of this small works will be seen from the accompanying photographs. The tailings are sluiced by a small jet of water to the bottom of the uptake-pipe of a small hydraulic elevator, and thence conveyed in a wooden spout carried on trestles to the cyanide-vats. This plant cost about £400, and has a capacity for treating 40 tons per week, one shift per day being worked.