

Two Up-to-date Dredges.

Inquiries are frequently made about dredges and dredging, and by the kindness of Mr. Payne, one of the engineers in Dunedin, who makes a specialty of dredge-construction, the following description of two dredges, of up-to-date design, have been supplied, as well as plans, which appear among the lithographs.

Magnetic Gold-dredging Company's Dredge.—The leading dimensions of dredge are as follows: Length, 109 ft.; width of beam, 25 ft. 6 in.; depth, 7 ft. The ladder is 75 ft. long, designed to dredge to a depth of 50 ft. from the surface of the water. The buckets are $5\frac{1}{2}$ cubic feet capacity. The engine is one of Messrs. Marshall's 16-horse power compounds, and surface condensation is effected by water raised for gold-saving purposes. The winch is driven by a pair of horizontal engines, fitted with reversing motion. The boiler is of the Cornish multitubular type, the working-pressure being 150 lb. per square inch. The ladder is raised and lowered in the usual manner from the winch B. The buckets are put in motion by the tumbler C, driven by gears and rope-drive from engine E. The material is delivered on to drop-plate, and from thence into perforated screen G, the fine stuff falling through screen on to gold-saving tables H. The material in screen is washed by perforated pipe running all through screen, and the tables are supplied with an additional supply by the branch pipes at back of screen. The water is supplied by a centrifugal pump, driven from the engine by a belt. The coarse material (stone, &c.) that will not pass through holes in screen is delivered into stone shoot and passed direct overboard into the current, or elevated by means of elevator, as shown in illustration. The dredge is being built from plans prepared by Mr. F. W. Payne, consulting engineer, Dunedin, and under his supervision, and when completed will be larger than any gold-dredge now afloat in Otago.

Unity Gold-dredging Company's Dredge.—Leading dimensions: Length, 85 ft.; width, 26 ft. 6 in.; ladder, 60 ft.; buckets, $4\frac{1}{2}$ cubic feet capacity. The engine is one of Messrs. Marshall's 16-horse power compound and surface condenser. Centrifugal pump and air-pump are placed below deck. The winch is driven by worms and worm-wheels, the power being supplied by a pair of vertical engines fitted with reversing gear. The boiler is one of Messrs. Marshall's 20-horse power dredger type, the working pressure being 140 lb. per square inch. The ladder is raised and lowered in the usual manner from the winch. The material is delivered from the buckets into the revolving screen; and the fine stuff distributed over a double set of tables leading each way from the centre of screen. The coarse material that will not pass through screen is delivered to elevator and deposited astern of the vessel. This dredge is also being built from plans prepared by Mr. F. W. Payne, and under his supervision.

Improvements are constantly being made in dredge building and equipment, and the different engineers vie with one another in producing more powerful and effective machinery, and the buckets of such increased capacity as to permit of much larger quantities to be dealt with daily.

In next year's report important additions will be shown in the number of dredges employed in New Zealand.