

will impress the beholder with amazement. This is greatly augmented, or brought to convenient application, by the vast number of canals constructed to carry water to wash the placers. Thousands of miles of these canals have been made, and the water taken to the high ridges where it can be applied to manufacturing purposes safely, economically, and effectively. When it is seen what nooks, and corners and out-of-the-way places are sought in other countries, where water power can be obtained, a faint idea may be had of the great importance of the privileges so complete and so abundant in California.

INK MANUFACTURE.—Messrs. Knowlton & Co., (Pacific Ink Factory) are now engaged in the manufacture of every description of writing inks, stencil and marking inks, all grades of mucilage, and liquid blueing for laundry use. These writing inks are used in the public schools of this city, and a large number of the colleges and private schools on this coast, and at the last State Fair at Sacramento, and the Mechanics' Institute Fair in this city, they received the highest premiums. Amount of capital, \$10,000. Men employed, 6. Sales in 1870, \$46,000.

The California Ink Factory (W. Faulkner agent, 405 Sanson Street) is also manufacturing every variety of writing inks, mucilage, liquid blueing, sealing wax, etc., of a superior quality.

GLASS MAKING.—The consumption of glass on the Pacific Coast is enormous, probably exceeding, in proportion to population, any other section of the globe. When it is known that all the material used in the composition of this beautiful product is found in great abundance close at hand, it may be considered strange that all the glass used is not manufactured here. The principal factory of the State is the San Francisco Glass Works of Messrs. Newman and Duval, South Beach, near the foot of Fourth Street, San Francisco. Here a large establishment has been erected, during the past season, for the manufacture of the most common articles of glass used on this coast—such as demijohns, carboys, wine, pickle, spice, soda, and medicine bottles, window glass, etc. The building is constructed of wood and iron, on a brick basement, and has a front of seventy-eight feet by a depth of sixty-seven, and cost about \$20,000. The arrangements are complete in every respect, and the factory is capable of turning out about \$350 worth per day, giving employment to about forty workmen.

The Pacific Glass Works are situated near the Potrero, and are engaged in the profitable business of manufacturing this fragile material.

STOVES.—Messrs. Savage & Son, 145 Beale Street, have invented and are now manufacturing a new cooking stove, called the "Empire Range." This is the only stove made on this coast. The castings used are of a superior quality, being very heavy and of an extremely smooth surface. The interior arrangement and construction of this range, together with the fact that it is an article of home production, will undoubtedly make it a general favorite with housekeepers.

NEVADA METALLURGICAL WORKS. The successful working of ores, or reliable information respecting their value and component parts is a matter of the utmost importance to the mining interest, and the establishment of metallurgical works in this city, where such returns can be made, will constitute one of the most prominent and valuable of her industries. Such an establishment, planted with the expectation of growth from intrinsic merit, is that of Messrs. Riotte and Luckhardt, called the Nevada Metallurgical Works, at the Golden Gate Foundry on First Street, which has commenced operations

during the past year. These gentlemen are graduates of the best of German Metallurgical Universities, and have had the experience of many years in the mines of California and Nevada.

THE DIAMOND DRILL.—One of the most expensive of mining and engineering operations is that of boring the deep working and drain tunnels of the placers; or for the passage of the railroad through the mountains. Whoever aids in this work is a public benefactor. Many of the mines of California have been opened by bed rock tunnels at the expense of the fortunes of the projectors, and through years of the severest toil. The Diamond Drill has come to the relief of labor as well as capital, a tireless machine performing the work of many men, and by its expedition enabling the opening of mines in a short time which otherwise would remain untouched; as the long years, if not the expense, required by hand labor, would deter capitalists from the attempt. The diamond drill tunnelling machine of the patent of Severance, Holt & Co., made at the Fulton Foundry of this city, consists of a frame of iron resting on four car wheels. Two small cylinders working by steam or compressed air, give motion to the drills, of which there are four. These are attached by adjustable arms and so held that they may be pointed in every direction. These drills consist of long iron cylinders, or gas pipe, on the end of which is attached the diamond holder. By means of a hose connected with the opposite end of the pipe, a stream of water may be forced through it, thus constantly keeping the hole clear of the borings or grit made in drilling. The drills are rapidly revolved by means of cog wheel gearing, and moved forward by automatic motion as they cut away the rock. A core is left within the pipe, and broken off by a slight blow and extracted when the hole is completed. The value of such a machine to California is beyond estimate, as such an appliance is required in opening the ancient river channels of the Sierra Nevada, which have heretofore defied the works of man. The office of the Company is at 318 California St.

BOOT AND SHOE MANUFACTURE.—The manufacture of boots and shoes has greatly increased in the past year, and with such success as promises to stop importation, to the great injury of the importers and the manufacturers of Lynn and Philadelphia. Mr. I. M. Wentworth is most extensively engaged in this enterprise, having recently added great improvements to his already extensive establishment on Fell Street between Franklin and Gough. The main building is of wood, 40 feet front by 80 feet depth, and three stories in height. To this has been added a fine brick fire-proof wing, for the safe storage of stock, 30 by 24 feet in dimensions, and three stories high, also a wooden extension 50 by 24 feet on the ground, giving increased room for manufacturing purposes. The capacity of the factory is for working three hundred hands, and more than two hundred have been employed during the past season. Machinery, which is propelled by steam power, comes largely to the aid of man in the work of shoe making and here it is fully employed, this being the only establishment of the kind on the Pacific Coast where steam power is used. The cost of the buildings has been about \$20,000, and the annual product about \$500,000 in value. A tannery is also connected with the establishment, producing each year \$25,000 worth of leather. Besides the leather made here, large quantities of kid, calf, and cloth are used in the business, imported from the east and Europe. Notwithstanding the value of the boots, shoes and slippers made in San Francisco exceeds \$2,000,000, annually, the importation is still large; but with the success of such establishments as Wentworth's, this drain upon our treasures will be stopped.