

iron railing and bedsteads, of water closets, of pumps, of gun locks, of saws, wire rope, lead pipe, shot, sheet lead, gold leaf, refined gold and silver, etc.

The iron foundries are the most prominent. Of these are the Union, Miners, Fulton, Vulcan, Aetna, Pacific, Golden State, Phoenix, Pioneer, Lincoln, Portland, California, Atlas, Eureka, San Francisco, Columbia, the Risdon Boiler Works and the Pacific Rolling Mill Co. These, although not working during the past year with the energy and demand of business that caused their erection, still have been more or less employed and aggregating a vast amount of work. The total value of iron manufactures has exceeded three million dollars with cost of material and labor impossible to estimate. Locomotives, steamboat machinery, engines of all classes, new inventions, building material and architectural ornaments, mining and quartz crushing machinery have been the chief products of the foundries. Many inventions, of which the patent right is held in the East, gives Eastern foundries great advantage and excluding those of San Francisco from their work; but of mining inventions and mining machinery, this city has the lead. The mining machinery, including hoisting works, engines, batteries, stamps, pans, etc., made in San Francisco, have proven superior to that of Eastern or Foreign manufacture and have excluded importation.

The gold, silver, lead and copper working establishments are growing into importance, but bear no comparison to the interest of the matter. The Pacific Coast being the great producer of those metals it should reap the rewards for preparing them for the markets of the world. There are some twenty smelting, assaying and refining works, besides thirteen manufactories of ware of the precious metals. But these, with perhaps a single exception, are, through lack of capital, science and other causes, unequal to the necessities, and large shipments of most valuable ores are constantly made to the Atlantic States and to England for reduction. There is a bright future for this interest, and the grand fortunes with nobility of rank gained in Wales may be repeated here. The single complete establishment is the Selby Metallurgical Works, which surpasses any other in America, but still comes far short of that perfection the mineral productions of the country demand. In the year 1870, the product of this establishment was \$1,500,000, and its increase of capacity will enable it to add a million to its product the present year. Included in the product of the last year was some \$300,000 of gold and silver extracted from the ores and metals reduced. From four to five hundred tons of lead are shipped monthly to the East, and about one hundred tons per month are used to supply the home demand. These works were established at a cost of about \$450,000 and employ one hundred and twenty men constantly. The business is susceptible of indefinite extension and the enterprising proprietors are endeavoring to comply with the demand. The annual consumption of lead in the United States is about thirty-two thousand tons, of which sixteen thousand tons are provided by the mines of Illinois, Wisconsin, Iowa, Missouri, and other sections East, and seven thousand from the lead works of San Francisco. The balance is imported, but as the argentiferous lead regions of California, Arizona, Nevada and Utah are developed, and railroads are provided for cheap transportation, the home demand will be supplied by home production. The Selby Smelting Works promise to so increase their capacity as within five years to entirely supply the wants of the country.

The shot tower and lead pipe manufactory on the southeast corner of Howard and First streets, are under the same management as the smelting works.

A want, formerly felt to a great extent, has been supplied by these works, and importations of pipe, shot and sheet lead have ceased. The product of 1870 was four hundred tons of shot, four hundred tons of pipe, three hundred and fifty tons of sheet lead, and one hundred tons of other products. Some of these manufactures are shipped to the Eastern States.

Of gold and silver ware manufactures, there are thirteen different establishments, with an aggregate capital of \$200,000, and employing one hundred men. The products of these amount in value to about \$400,000 annually, and some of their extraordinary pieces of work have been described in previous numbers of the Directory.

The San Francisco Assaying and Refining Works, devoted to the purpose of assaying and refining gold and silver bullion, are located on Brannan Street, near Seventh, and occupy a brick structure one story high, one hundred and thirty feet long, and sixty feet wide. This establishment, for the purpose designed, is one of the most extensive aside from the assay offices of the United States, and is fitted up with all the necessary apparatus for the assaying and refining of gold and silver in large quantities.

No section of the world offers better facilities for those classes of manufactures that bear a connection with metallurgy. In these are coloring matter, dyes, acids, paints, medicines, and every species and form of metals used in the arts. Minerals and metals of every description abound in great profusion, and are at hand to aid the metallurgist, or for him to operate upon in the production of whatever he may desire. The metallurgical works of San Francisco are already quite extensive. About one-half, or \$20,000,000 of the gold and silver product of the Pacific Coast is refined in San Francisco, the remainder being sold and sent abroad as it comes from the mills, and assay offices of the interior. Nitric and sulphuric acid are made in large quantities, sufficient for all demands. There remains a great necessity for a manufactory of lead paints, of which millions of pounds are used annually, all being imported, while every material for its production is obtained here and sent abroad for a market.

The wood manufactures of San Francisco are of great importance. That which is built mostly of that material and elaborate ornamentation is the chosen style both indoors and out. The grand forests of this Coast of soft and hard woods for common and fancy work, enables the taste to be indulged in to the greatest extent. The establishments for working wood comprise saw mills, sash and door factories, box, furniture, pianos, billiard tables, coach and car, cooperage, wooden ware, and other factories, numbering in all one hundred and twenty-two, and producing nearly \$4,000,000 worth annually.

The woolen manufactures are among the most prominent of the city and State; but from the fact that the great bulk of the woolen goods used are imported, is evidence that the field is not fully occupied. Three woolen mills have been constructed in this city: the Pioneer, Mission and Pacific, the two latter having consolidated with the intention of rebuilding and extending operations.

So favorable is California pasturage and climate to the rearing of sheep, that men of foresight, energy, and intelligent enterprise have engaged in that branch of husbandry, and large fortunes have been the reward. Flocks are numbered by thousands and tens of thousands, showing the most approved breeds and the finest fleece. With such a product, and with every natural facility for manufacturing, the impolicy of sending the wool abroad to be carded, spun, and woven, adding the freight of many thousands of miles, the profits claimed by many hands, and large import duties, was manifest, and its manufacture at home was urged by every reason.