which assayed above $150 per ton; all the rest of the ore below this being treated by the Washoe process. In this process the ore is ground wet in stamp mills; after having been reduced to a suitable size for feeding, the ore passes off in suspension in water through sheet-iron screens and is collected in reservoirs from which it is removed to the pans to be ground with mercury and hot water, with or without the addition of cupric sulphate and common salt—the amount of this used varying in different works but generally consisting of from one to three pounds—to each charge of ore which consists in the old pans—those of Varney, Wheeler, Hepburn and Peterson—of 1,200 to 15,000 lbs. of ore, but in the later and larger pans—those, for instance of McCone and Mountain—the charge is 4,000 to 5,000 lbs. The description of this process and the machinery employed in it have been so voluminously treated of that it would be superfluous for me to again describe it. Suffice it to say that the benefit of the "chemicals" is doubted by some and the real action of them is not understood. As far as the conducting of the live steam into the pulp is concerned, either loose or in the shallow chamber, it appears to me that its principal effect and value is that it keeps to a certain extent the mercury from flouring. The Boss continuous process, patented by Mr. Boss of United States, is a modification of this process, in which a series of pans are employed, into which the pulp passes, instead of it passing directly into the separators.

Although amalgamation of gold ores was effected in the streaming mills, arrastras and Chilian mills for centuries, it was not until this century that amalgamation was effected in the batteries of stamp mills, and at the present time the greatest portion of the gold ores are treated in this way, amalgamation being effected by the mercury added and the amalgamated copper plates fixed to the inside of the mortar boxes or caught on the amalgamated apron riffles of the sluices. A great many contrivances have been invented for the tailings besides the amalgamated rifles; blankets, sluices were used, and also various jiggers, buddles, vanners, etc., for concentrating these tailings, which are afterwards treated in such machines as the Attwood amalgamator, the Eureka rubber pans, the Hungarian mill (which was used at Chemnitz and other localities), and various other inventions. Stamps themselves date far back as grinding mills, though not so as amalgamators. Various mills of late years have been invented as direct amalgamators, notable among which is the Crawford mill. This mill consists of a pan or basin of cast iron supported on four iron uprights, which are attached at the bottom to a circular iron frame which forms the base. The bottom of the pan or basin is elevated at its centre and gradually slopes to the sides; a little over half-way to the sides the bottom suddenly is depressed,