

thus forming an annular groove round the outer edge of the bottom of the basin. Through the centre of the bottom of the pan or basin, where there is an opening, a short upright piece of shafting passes, which fits at the bottom into a journal in the centre of the base. After passing through the opening in the bottom of pan, it is attached at its top extremity to a false bottom, which fits upon the true bottom, almost completely covering the above-mentioned groove, leaving only a small space open communicating with the upper part. The sides of this false bottom, as also the sides of the pan at the same level, have steel castings attached to them. On the area formed by the steel castings, which form also a groove which forms a half circle and a complete ring round the pan, balls of iron are placed which revolve when the false bottom, which is attached to the upright shaft, is set in motion by gearing attached to the shaft between the bottom of pan and base of stand; over the pan is bolted a dome, which at its apex continues perpendicular to form a pipe, round which near its top is a circular stage with a spout; inside this "pipe" fits a second, whose mouth is expanded to a filler; the bottom extends down further than the commencement of the apex of the dome to almost the level of the tops of the balls; this acts as the hopper through which the ore is fed. To the bottom, at one side of the first-mentioned annular groove, is attached a mercury pipe, through which the mercury is fed to the mill; a water pipe enters at that part of the centre of the bottom where the upright shaft, bearing the gearing for driving, enters; an oil supply pipe also supplies oil to the bearing of the shaft as it enters the bottom of pan.

The ore is fed by the hopper and is ground by the circular motion of bottom and balls to one hundred to two hundred (100 to 200) mesh. The first-mentioned annular groove, is filled with mercury, into which the finely divided gold gravitates through the water; the matrix and other minerals being finely divided and having a less specific gravity than gold are forced up and carried off by the water, the water passing off by the opening formed by the pipe of the hopper and the continuation pipe of the dome, it rises through this space, falls over on the circular stage and flows away by the spout; the water enters with a considerable upward pressure, which keeps everything but the gold from reaching the mercury, this pressure is exhausted by the lateral sweep of the balls and expansion in the wide dome. The mill is claimed to be able to treat any and every ore of gold, arsenical, pyritical, antimonial or the most refractory ore and save over (90%) ninety per cent., requiring less power than "stamps," and one-fourth ( $\frac{1}{4}$ ) less water, and one very good thing about it, I think, is that the tube by which the amalgam is drawn off is securely