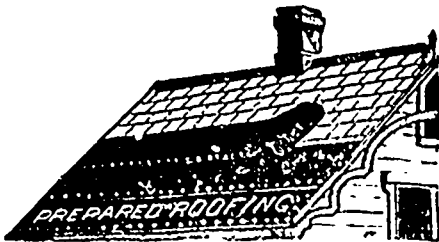


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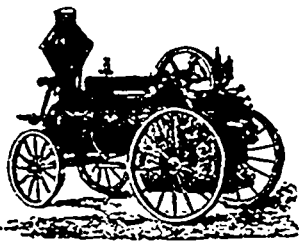
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THE CRAWFORD CRUSHING AND AMALGAMATING MILL.

The Crawford mill is a new invention and one which is attracting considerable attention from mining men. It is a variety of the common Ball mill, but one in which many of the disadvantages of that pulverizer are completely eradicated. It is in addition an exceedingly good amalgamator. This mill undoubtedly possesses several novel features, and as a fine crusher has given good results. To pretend that any mill will treat and crush every kind of material is a mistake that is often made, and in many instances blame has been laid on the machine where it was really due to those employing it. To attempt to crush material finely in one operation is also a great mistake, and wherever attempted has invariably ended in failure. The Crawford mill is pre-eminently a fine crusher, and in order to obtain the best results the material fed into it should be previously reduced by a rock-breaker, which is the most economical form of coarse crusher for reducing material down to say 1/2-in. to 1/4-in. in size.

The special features of the Crawford mill are: The feed is central, not to one side, thereby insuring an even wear of the roller-path. No screens whatever are employed, and a constant source of expense and trouble is thus removed. The crushed material, instead of being discharged at the periphery of the machine, where the swirl is great, passes out in a steady flow near the center, so that there is no danger, it is claimed, of any particles of gold being carried over with the tailings. A current of clear water is admitted at the center, passing over the surface of the mercury and rising up through an annular slot below the crushing-path of the balls. The action of this rising current of water is to carry off all the material as fast as it is sufficiently finely reduced, and is light enough to pass out at the center of the machine. Any gold freed from the quartz, or from sulphurets, owing to its greater specific gravity, can not be lifted by the rising column of water and sinks down, it is claimed, through the slot below the roller-path, and becomes amalgamated with the quicksilver in the annular well.

Further, as the mercury well was out of the swirl of the pulp, and as the water flowing over it keeps any base mineral from coming in contact with it, there is no loss due to "sickening," and it is possible in these mills, say the patentees, to treat refractory ores, which could not be treated in an ordinary stamp battery, with copper plates. The mercury is easily withdrawn from time to time to remove any amalgam, and fresh mercury added to the machine by means of the pipe and funnel. In many ores the gold is so exceedingly finely disseminated that no amount of pulverizing in an ordinary stamp battery can eliminate it from its surrounding matrix. For such ores the Crawford mill is suitable, since by it there is no difficulty in reducing the ore so that it can pass a 120-mesh sieve. Stamps seldom pulverize finer than 40 to 45-mesh. The wearing parts of these machines are rough castings, which can easily be renewed, and at less expense than the dies of ordinary roller mills. These machines are self-contained, easy of transport, and on arrival at the mine can be erected and put to work in a day or two. Clayey ores, which are difficult to treat in a stamp battery owing to the slimes produced, have been very successfully reduced by these mills, little or no gold being carried over with tailings. The following advantages are claimed for the mill:

1. Minimum outlay in capital.
2. Great economy in transport and erection.
3. Low consumption of water.
4. Small power required for driving.
5. Extra fine grinding.
6. Simplicity of construction.
7. Ease of management.
8. Greater efficiency than any other mechanical process.

The cost of crushing and amalgamating is stated by representatives of the Co. to be from 60c. to \$1.00 per ton, according to the hardness of the ore.

The following table shows a comparison of results obtained with this mill with those from stamps.

Name of Mine	Location	Value of ore.	% extracted by stamp mill.	% by mill
Mac Mining and Milling Co.	Montana	\$77.00	52	91
Matmore	Ontario		*	90
R. pes.	Michigan	3.30	62 1/2	86
Riverswood	Queensland		25	90
Mount Morgan	"		*	86 1/2
"	"		*	92 1/2

* The percentage extracted by plate amalgamation is inapplicable.

In addition to this table, which shows the efficiency of the mill, other tests have been made with like results. Thus, at Helena, Mont., the mill extracted \$46 per ton from an ore where a stamp mill extracted but \$21. The mill is made at present in two styles, 8 in. and 12 in., with a capacity of 2 1/2 and from 8 to 10 tons respectively. The cost of the smaller sizes is \$1,600, and of the larger \$2,500.

When working, the machine is under lock and key, and one man can attend to at least 12 machines capable of dealing with a minimum quantity of 100 tons a day. Mills have already been placed in the following mines: Six mills at Cane Springs, Tooele County, Utah; four mills at the St. Lawrence mine, Ophir, Auburn County, Cal.; at the Lewiston mine, Granite Mountain, White Pine, Colo.; the Fire Centre Mining and Milling Company near Ishpeming, Mich., and at the Malone mine, Ont., Canada.—*Engineering and Mining Journal.*

BANANA PEEL ON THE SIDEWALK.

The street car had passed, but to catch it he reckoned, So he ran like a deer, and shouted and beckoned,

Till he planted his heel On a smooth bit of peel—

Then he saw half a million of stars in a second.

He was in too great a hurry; better to have waited for another car. There are cases, however, where haste is necessary. If you have night-sweats, feverishness, weak, sore lungs and a hacking cough, do not lose an hour in obtaining a supply of Dr. Pierce's Golden Medical Discovery. Delay in such cases is dangerous; it may be fatal. Before the disease has made too great progress, the "Golden Medical Discovery" is a certain cure. In fact, it's guaranteed to benefit or cure, or money paid for it promptly refunded.