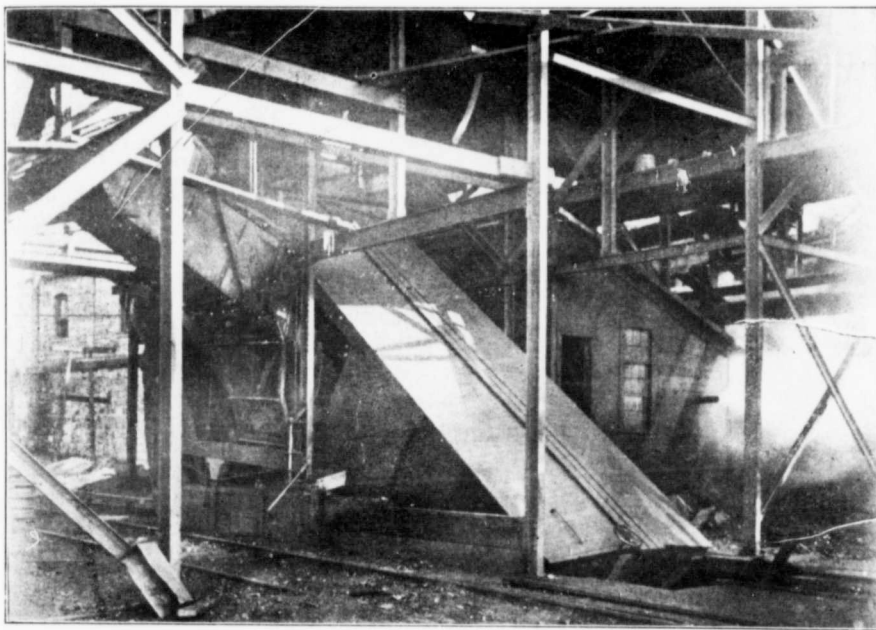


bia. The Morrissey colliery is the latest to be made productive of the three collieries owned by this company in the Crow's Nest district. Between 400 and 500 men are employed at this colliery, including those engaged at the coke ovens, of which 240 have been recently built here. The larger part of the output of coal and coke from this colliery is sold in the United States, with which direct railway connection is given by the Crow's Nest Southern Railway to Gateway, on the international boundary, and thence to Jennings, on the Great Northern Railway Company's transcontinental road, by a branch line operated by the latter company.

ren or very poor rock by loading it into cars and tramping to waste dumps, but as the funnel system developed it became quite inadvisable to remove any except large bodies of waste, for the cost of removal had become greater than the cost of smelting. Experience has shown, however, that the detrimental effects of these smaller bodies of waste have been more than offset by the improvement in the general run of the ore body, due to lesser quantities of partially leached surface rock being included; so that the average copper contents of the 137,800 tons mined in 1903 were appreciably higher per ton than those of the 135,500 tons mined in 1902. In places, however, large



No. 3.—Smith Gravity Hydraulic Box Car Loader.

MINING IN THE BOUNDARY DISTRICT.

(By Frederic Keffer, M.E.)

TWO years ago the writer contributed a description of methods employed in mining low-grade ores at the Mother Lode mine, in the Boundary district. It is the purpose of the present paper to briefly note developments of the system, particularly as regards the quarrying and economical handling of ores, and also to touch upon certain features connected with smelting operations.

At the Mother Lode the series of quarries has been extended and there are at present four raises to the quarries from the main tunnel, with a fifth in course of driving. As far as is possible, the tops of these raises are maintained funnel-shape so as to reduce to a minimum the handling of the ore. While the pits remained shallow it was an easy matter to remove bar-

dykes of epidote and alkali porphyry, and occasionally isolated bodies of limestone, occur, which are removed by blasting into the raises, all the ore having been previously withdrawn.

The crusher plant located at the entrance to the quarry tunnel has dealt with the quarry ore alone, that from the stopes having been crushed by a Gates machine installed at head of shaft. Work is now being carried forward to consolidate the crushing plants and to do away with the Gates machine, which, although a No. 5 size, is entirely inadequate to the demands now made upon it. To this end a tunnel is being driven to intersect the main shaft on the same level as the quarry tunnel. At the shaft will be placed a very large pocket, and this will discharge the ore into 5-ton skips which will replace the cages now used. The skips will empty into a bin at the head of the shaft, ore passing thence to either one or two Jenckes-Farrel crush-