The Ross Automatic Drop-Bar Grizzly Feeders

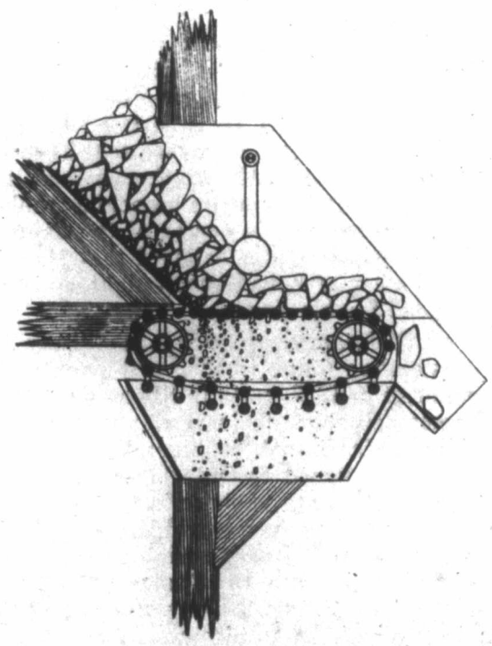
By Wm. Ross.

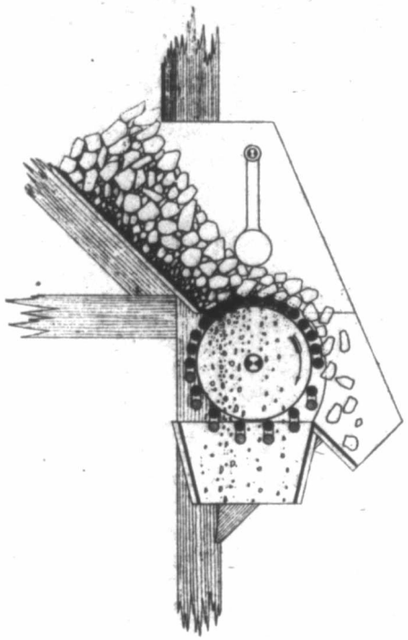
Ore feeders, grizzlies and screens are extremely important links in the chain of milling operations. It is on these that the crushers and other grinding machines depend for a steady flow of ore of the right size. Hitherto the close analysis granted to other milling equipment has been withheld from these machines, with the result that the mill operator is saddled with various types of faulty apparatus which are a source of continual trouble to him. Most of us are familiar with plugged grizzly, choked crusher, sledge hammer and repair gang episodes.

Many years practical study and experiment by the writer with various apparatus has resulted in the development of a machine for which is claimed the ability to **automatically feed and screen run-of-mine and crushed ore at an even rate for twenty-four hours a day without attention.**

The accompanying diagram, taken from the maker's catalogue, show the features of the rotary and traveling types of the Ross Automatic Drop-Bar Grizzly-Feeders. These diagrams show clearly the means by which the spacing of the grizzly bars is automatically increased at the underside of the apparatus.

The machines consist essentially of an apron of equally spaced grizzly bars which are fed forward under the lip of the bin opening. Every second bar, instead of being socketed at its ends, is linked to the main bar ahead of it. On reaching the discharge point these secondary grizzly bars drop down, remaining clear during the return half of the cycle, at the end of which they again automatically come into position ready for the screening and feeding operation. On the return journey to the starting point the bars do not obstruct the free passage of the fines. It should be noted here that the links carrying the secondary bars are pivoted excentrically to the main bars in such a way that the space between the adjacent bars is





automatically increased when the secondary bar drops over at the discharge point. This provides for the release of any piece of ore which might otherwise be trapped in this space. No troublesome internal fines chutes are necessary with these machines, and consequently the headroom required is very small; the discharge end of the travelling type can be elevated, thus necessitating no height allowance between the bin opening and the crusher. No other machine combines the functions of feeding, screening and elevating in such a manner.

The simplicity of construction of the Ross Grizzly-Feeders will make a strong appeal to the mill man. The rotary machine consists of two heavy cheek plates in which the main bars are journaled. The drop bars are supported by wide turned shoulders on the cheek plates. The cheek plates are keyed to heavy steel shaft which is carried by two bearings of ample size. The machine can be driven by ratchet, chain or belt. In the Travelling-bar machine the cheek flanges of the rotary type are replaced by heavy steel chains with hardened pins on which the main bars are journaled. The drop-bars are linked to the main bars, and are provided with half sockets at each end, which match the pins of each alternate chain link.

In any screening apparatus the greatest wear is caused by the abrasive action of large ore sliding over the screen bars or plates. Thus, in a revolving trommel screen ten feet long by five feet diameter, the coarse ore will slide over about one hundred feet of plate, and a piece may have tried two or three hundred holes before being discharged. The result is rapid wear of the screen and particularly the edges of the screen around the holes. Also, at the receiving end, the ore is impinged with considerable force onto the plate in a direction different to that of the plate. The Ross machine draws its own feed, which must therefore correspond in speed and direction to that of the bars. The coarse ore is carried to the discharge point without slip and consequently without wear. In most installations a speed of about twenty feet per minute is all that is necessary, and the wear caused by fines slipping through the slowly moving bars is negligible.