Ore No. I. assaying 87.0 ozs. per ton.
Silver saved in concentrates.....77% of total silver.
Silver recovered by cyaniding coarse tails.. 8% of total silver.
Silver recovered by cyaniding slimes.....10% of total silver.

Total recovery of silver.....95%

Ore No. II. assaying 60 ozs. silver per ton.
Silver saved in concentrates.....72% of total silver.
Silver recovered by cyaniding coarser tails..10% of total silver.
Silver recovered by cyaniding slimes.....12% of total silver.

Total recovery of silver.....94%

Ore No. IV. assaying 28.0 ozs. silver per ton.
Silver recovered in concentrates.....55% of total silver.
Silver recovered by cyaniding coarse tails..19% of total silver.
Silver recovered by cyaniding slimes.....18% of total silver.

Total recovery of silver.....92%

Besides the silver value a considerable percentage of the nickel and cobalt would be recovered in the concentrates, and might be realized on, if the sale or treatment of the high grade ores of this district is successfully settled from the producers point of view.

The mill required for the treatment of these ores according to this latter process would consist of a crushing device such as a stamp battery, a set of riffle tables, and a sand and slimes cyanide plant.

The cost of treatment would vary with the size of the plant but would be reasonable, and, probably, allow of the profitable treatment of ores containing 15.0 ozs. or less silver.

A NEW MATTE SEPARATOR.*

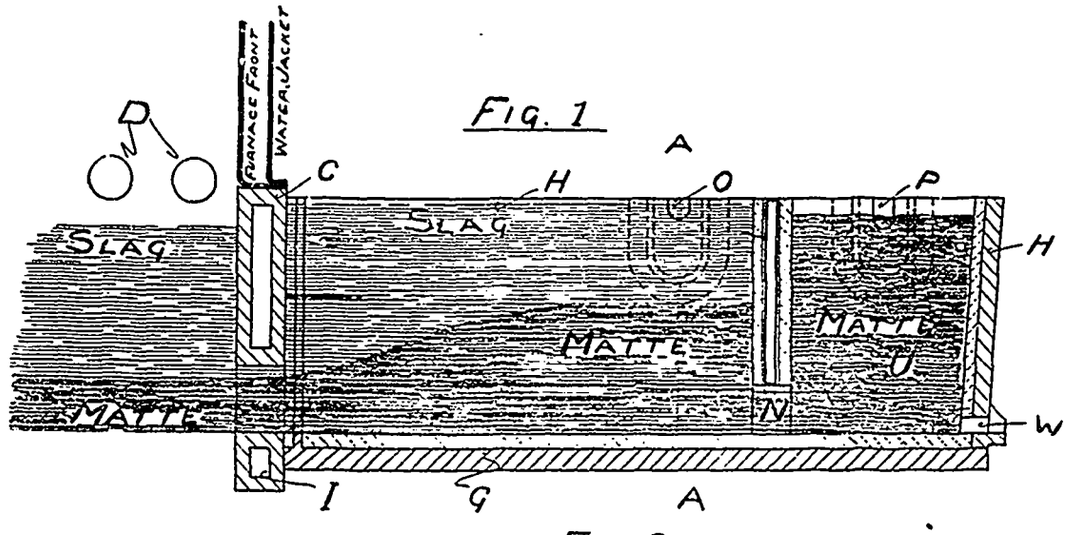
By R. R. Hedley, Nelson, B.C.

The problem of most efficiently separating matte from slag in blast furnace work has occupied the attention of metallurgists with results varying very widely.

In copper matte smelting it is more or less simply a question of settling by gravity; while in lead smelting, with base ores, the problem becomes more complex. The day of the conical pot with a tap hole is past, and large rectangular forehearths are used. Many conditions prevail, making it impossible to produce a slag sufficiently free from silver to discard, and in such cases it is customary to save and re-smelt the shells which chill rapidly on the pot and which carry a large proportion of the silver. In copper smelting, Nicholls and James of Swansea recommend a small reverberatory with independent fire-box, in which the slag is reheated, and Mr. Rhodes of the Arkansas Valley Works was using a large reverberatory in "97, into which the matte and slag were poured as taken from the blast furnace in slag pots. Many attempts have been made to take the matte direct from the furnace and thus avoid the intermixing with slag, but so far as I know these have not been economically successful.

I propose to describe the device successfully used for the past six months, in the Lead Smelting Works of the Hall Mining & Smelting Company, Ltd. at Nelson, invented and patented by Mr. Henry Harris, A.R.S.M.; and, if possible, to point out concisely and clearly its manifold and manifest advantages. First of all, it is manifest that a fairly complete separation of matte from slag takes place within the furnace where a very high heat is developed, and that if this separation can be maintained without the furnace, a vast advantage is gained over letting both matte and slag flow together to any receptacle where they must be again separated by gravity at a lower heat, or by reheating.

*A paper read at the annual meeting of the Canadian Mining Institute, Quebec, March, 1906.



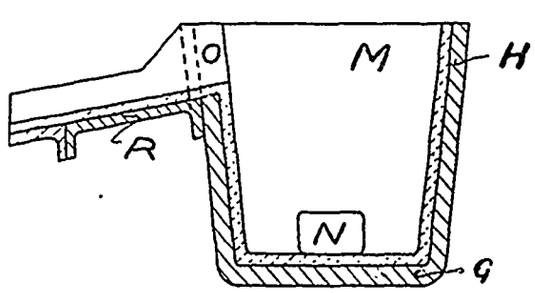


FIG. 1—Diagram showing manner of operation. FIG. 2—Cross-section on the line A A FIG. 1.