

When working with wet sand, the cylinder is rotated in the opposite direction, and the sand fed against the side about half way down. The sand, with some water from the jet A (Fig. 4), reaches the cylinder at B. That part of the cylinder is moving upwards, and the friction of the magnetic material as pulled by the magnets is great enough to carry it with the cylinder against the stream of water from the jet C. The non-magnetic minerals, not being attracted, are washed down and away. D and E are two water jets to clean the cylinder from any materials which tend to adhere beyond the proper points for discharge.

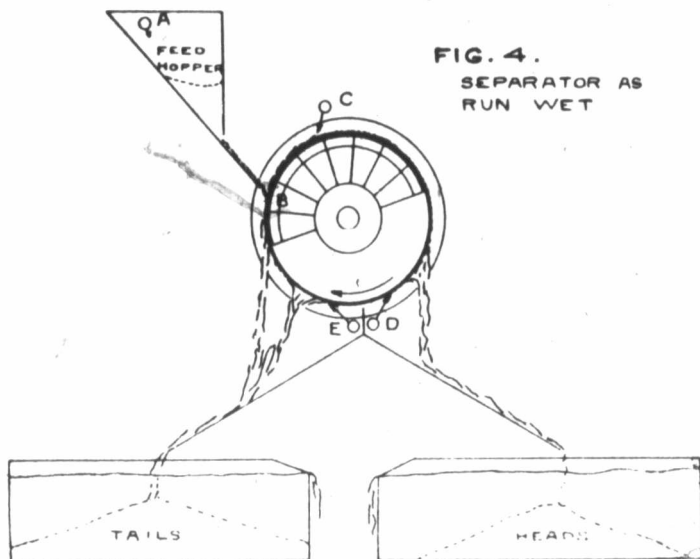


FIG. 4.
SEPARATOR AS
RUN WET

It was found that the co-efficient of friction of magnetite on brass is so low that the grains tended to accumulate in rows in front of each pole piece. This difficulty was overcome by placing a few strips of electric tape across the drum parallel to the axis. Covering the drum with canvas was also tried, but while this gave good results in dry concentration, it carried too much non-magnetic stuff when run wet.

The magnetic field utilized in the separator is the stray field. As first designed, the gap between the pole pieces was made quite small, with the result that a large current was required to produce a sufficient strength of stray field outside the cylinder. The gap was then widened, giving better results. It is now proposed to further increase the air gap between the pole pieces,