

Ore Washer Technology

A significant amount of Centre County iron ore was found in small pieces and embedded in clay. When encountered, it was piled aside to allow the traditional lump ore mining to continue. Several attempts, like the use of the “puddler,” were tried to wash the clay from the ore but were rejected because they were not economically feasible. Abraham S. Valentine’s ore washer invention, in 1842, provided the solution.

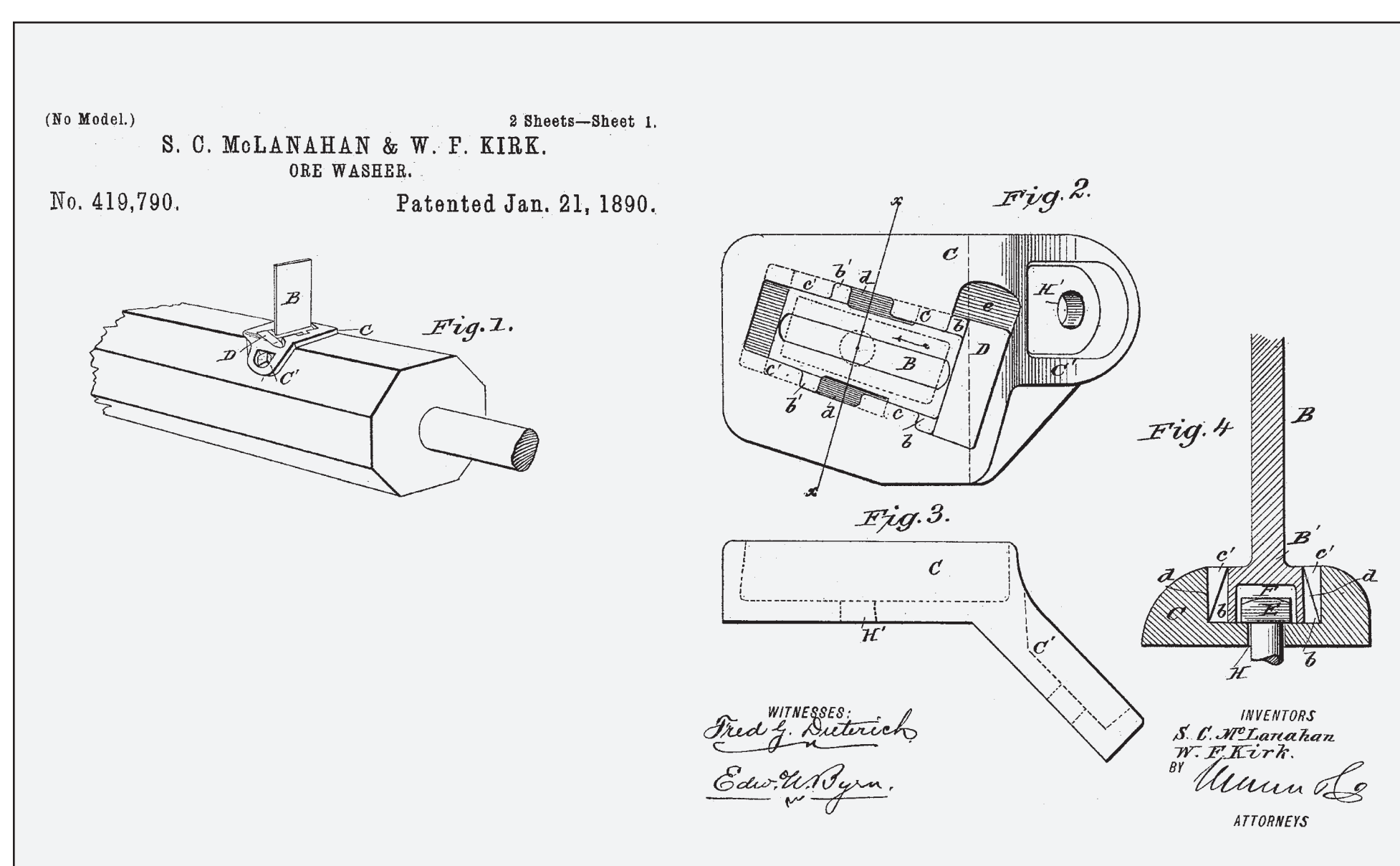
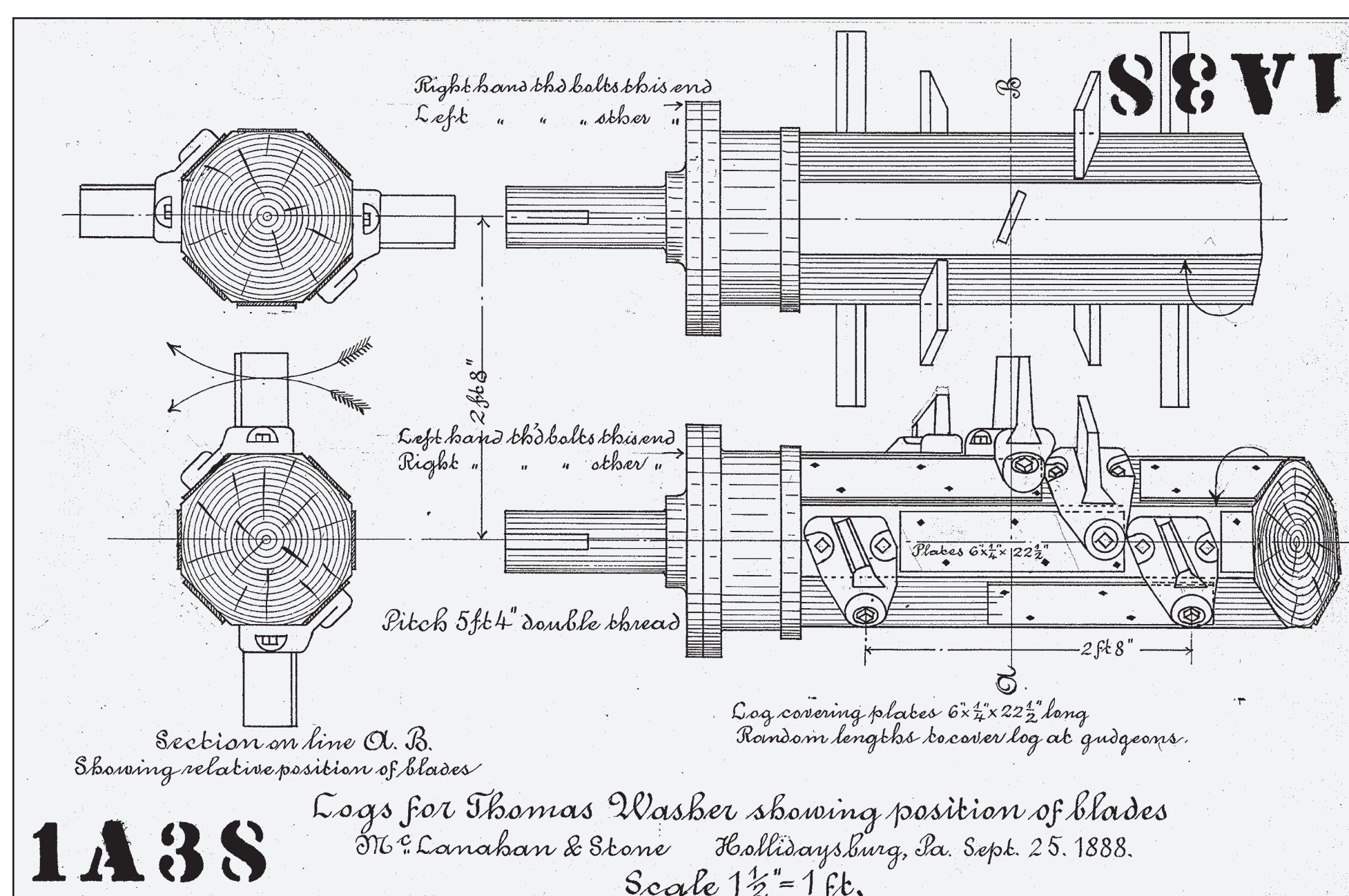
Valentine’s log washer consisted of a wooden log equipped with replaceable iron paddles. The log rotated within a trough that was elevated at one end. Water was pumped into the trough and on the ore that was to be washed.



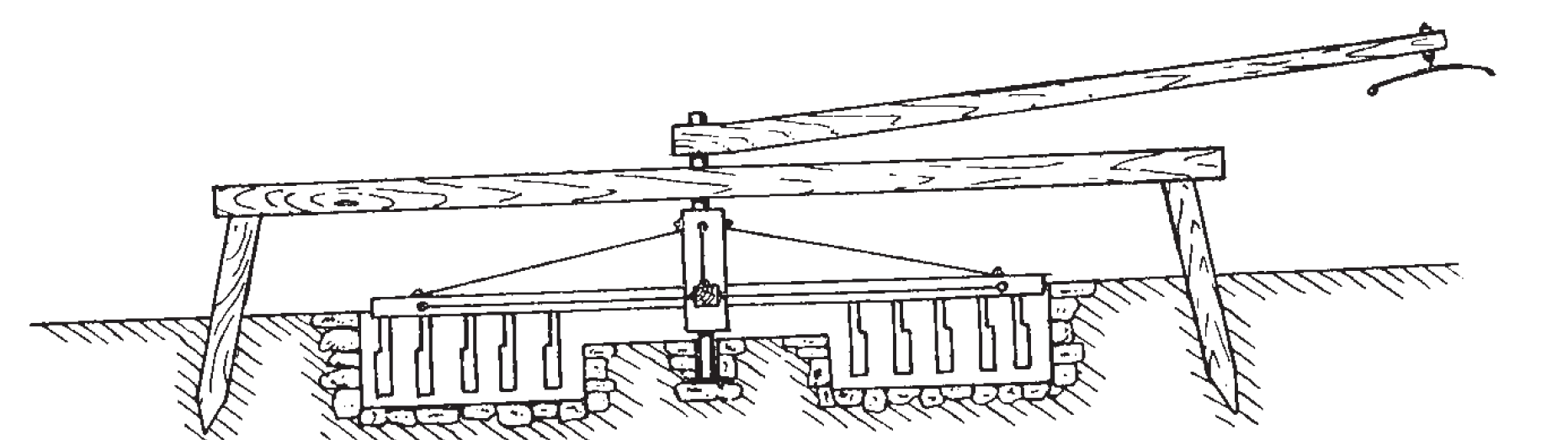
Ore washer blade recovered from site is conclusive evidence that the site was an ore washer.

Rotating paddles pushed the washed ore to the higher end and then out of the washer, ready to be hauled to the furnace. The excess water and clay flowed out the lower end. Usually two logs operated side by side, geared together within the same trough, powered by a steam engine. Advancement in well drilling to provide the water and in pumping technology allowed the log washer to be operated at the mining site.

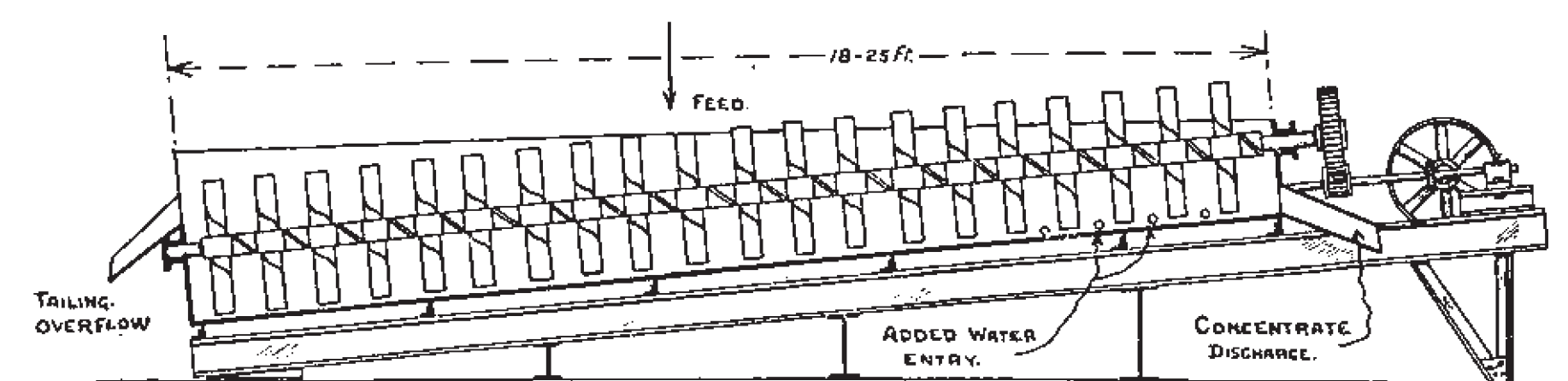
Today, ore washers using the same technology are often referred to as log washers, even though the logs have long since been replaced by a steel tube.



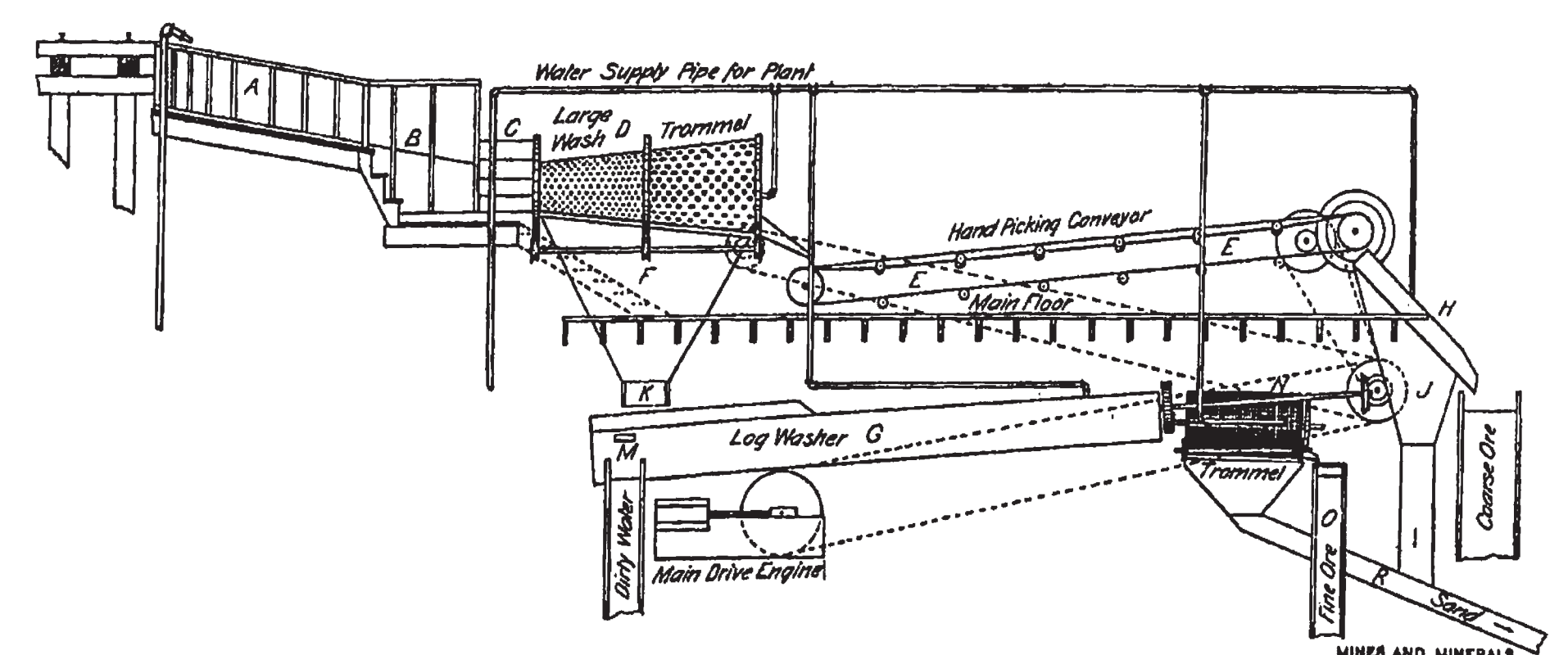
Patent illustrations



“Puddler,” a primitive type of ore washer powered by a mule pulling the yoke (on right).



Early log washer design using two sets of two blades. Note the size of the unit with 18-22-foot logs (only one log shown).



Plan and elevation of an ore washer plant