

Puddling

Dave Johnson

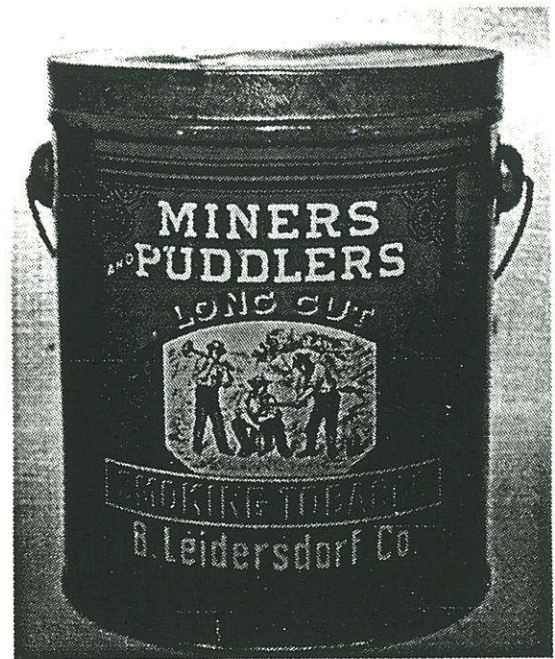
Many collectors are familiar with the Miners and Puddlers tobacco tins. I have been asked many times what a puddler was. While I knew it had something to do with the processing of iron, that is all I knew until I acquired a book titled, "Iron Brew: A Century of American Ore and Steel", written by Stewart H. Holbrook in 1939 and published by the MacMillan Co. of New York. This book chronicles 100 years of iron mining in the Lake Superior Region and iron and steel processing in Pennsylvania and Alabama.

In his book, Holbrook describes for us the puddling process, and something about puddlers. The following excerpt is taken from the book. "A puddler was quite a fellow during the latter half of the nineteenth century. The puddling furnace was a brick oven with two compartments - one, a receptacle into which some 500 pounds of pig iron was put at a time; the other, a fuel chamber where melting heat was generated. Drafts were so arranged that the flames swept directly upon the surface of the iron.

With the pig iron in its place and the heat turned on, the puddler went to work with a long rod. Through a hole in the furnace door he began stirring the mass of iron in order to bring as much of it as possible into contact with the air. Heat brought out the impurities in the iron, and these, in the form of slag, rose to the top and were drawn out of the furnace through a hole called the cinder notch.

The temperature kept mounting, and gradually the mass began to solidify into granules, something like butter in a churn. It was at this point that the puddler started to show his skill. Yes, and his brawn. With his stirring rod through the sweltering hole, he worked the mass of iron into 3 balls, each about the size of a bushel basket. These were taken out of the furnace with iron tongs suspended from a trolley. The tongs carried the balls of red hot iron to the squeezer, where the remaining slag was forced out and the iron formed into a bloom, which was a bar 3 to 4 feet long.

As the bloom fell from the squeezer, it was grabbed in tongs by a "rougher", the man who shoved it into the rolls



Miners and Puddlers tobacco tin, author's collection.

of the roughing mill. This was to compress the iron still more and to remove any slag the squeezer had missed.

It was all a hard and colorful business. As the bloom hit into the rolls of the roughing mill, there was a crash to deafen, while a shower of sparks flew over everything. On the other side of the rolls, the bloom emerged slightly longer in shape and was caught by the "catcher" in his tongs and put through an ever tighter roll. So the bar passed back and forth until it had gone through the last and tightest opening. It was then known as a muck bar." Such bars were reheated in a furnace, and rolled again into "merchant iron", the finished iron of commerce.

"Puddling iron was done in a temperature hotter than an African jungle. It called for constitutions as tough as merchant iron itself, and killed off the others in no time. Working one change was called a "heat". It required from two to three hours. Five heats were considered a days work. Two, sometimes three, men took turns at stirring the hot metal. Puddlers drank enormous amounts of beer at their work, ate much salt to supply what they lost in the heat and even worked in puddles of sweat. Working always in high temperatures, puddlers had a high mortality rate from pulmonary diseases.

Making merchant iron by the puddling process was big business in Pittsburgh of mid-century. Puddlers were the most important men in an ironworks."