

UNITED STATES PATENT OFFICE.

GEORGE W. BILLINGS, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN PROCESSES OF MANUFACTURING ROLLED IRON.

Specification forming part of Letters Patent No. **139,359**, dated May 27, 1873; application filed August 12, 1872.

To all whom it may concern:

Be it known that I, GEORGE W. BILLINGS, of Chicago, Cook county, Illinois, have invented an Improved Process of Working Puddles or Scrap Billets into Merchant Bar-Iron, of which the following is a specification:

The common mode of working such billets is to transfer them from the squeezer to the anvil to be hammered into a bloom, or to take them directly to the draft-rollers, by which they are drawn into what is known commercially as puddled or muck bar-iron; this is then cut into pieces, which are piled and heated, and then drawn into merchant bar.

The nature of my invention consists in passing the ball or billet, as it comes from the Burden squeezer or any similar squeezer, through and between rollers divided by transverse collars or bosses into several cogged and plain spaces, preferring to use for the purpose the three high rollers described in a pending application for United States Letters Patent filed by me on or about June 29, 1872.

The distance between the rollers is to be sufficient to allow the billet to pass between them and to be compressed in size from a half-inch to two inches at each passage. The billet is to be passed and repassed between the

rollers until the scoriæ are expelled and the billet has become quite solid, and in a better condition than if a hammer had been used on it. I then return the billet to the furnace to be reheated, and then pass it through and between ordinary draft-rollers, and thus convert it into merchant bar-iron. For small rods the billet may be cut into lengths proper for such use before the reheating.

To keep the billets smooth while working the same in the cogged spaces or boxes of the rollers, I pass it once, after its passage through the cogged spaces, through the plain or uncogged spaces or boxes of the rollers before repeating the squeezing operations effected by its passage through the cogged spaces, and so on, alternating the passages through the cogged and plain spaces until the pile is finished.

I claim—

The described process of working puddled or scrap-billets into merchant bar-iron without cutting and repiling the iron, substantially as set forth.

GEO. W. BILLINGS.

Witnesses:

W. MOORE,
ED. J. FASY.