

UNITED STATES PATENT OFFICE.

JOHN J. TORLEY, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO HIMSELF,
WILLIAM McCONWAY, WILLIAM DILWORTH, JR., AND JOHN HEATH, OF
SAME PLACE.

IMPROVEMENT IN MALLEABLE-IRON BRAKE-SHOES.

Specification forming part of Letters Patent No. 127,996, dated June 18, 1872.

To all whom it may concern:

Be it known that I, JOHN J. TORLEY, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in the Manufacture of Malleable-Iron Brake-Shoes; and I do hereby declare the following to be a full, clear, and exact description thereof.

The brake-shoes of wagons, railroad and other cars, and other vehicles, have heretofore been commonly made of wood or cast-iron. The chief objection to them is that they wear out speedily and require frequent renewal; also, when made of cast-iron, they are somewhat brittle, and frequently break. By my improvement in manufacturing them from cast malleable iron, so called in the art of iron-working, I am enabled to produce a shoe having a greater tensile strength, increased durability of material, and, at the same time, by making it of less weight I lessen by so much the "dead-weight," so called, of rolling stock.

To enable others skilled in the art to make and use my improvement, I will proceed to describe the same.

To produce the malleable iron in proper condition for my purpose, I use preferably a good quality of charcoal, pig, or other cast pig-iron freed from sulphur and phosphorous by any of the known modes of purification. Such pig-iron is then melted in any suitable cupola or melting furnace, and run off into sand-molds. The castings thus produced are hermetically inclosed in metallic boxes with any suitable oxide of iron, raised and kept at a high temperature for about five days, after which the boxes are allowed to cool gradually. But other known process may be substituted for that set forth, by which a tough, tenacious, granular malleable iron be produced.

The brake-shoe may be made of malleable iron in any of the forms in use on our railroads, each road commonly having its own pattern.

The molds are made and the casting is done in the usual way; but I find it best, in practice, to make the shoe of only about one-half the thickness of the ordinary cast-iron brake-shoe, by which I save in dead-weight about one-half the weight of the brake-shoes now employed, and at the same time I have found that in practical use such malleable-iron shoes of the proportionate weight specified will outwear four and in some cases five sets of the ordinary cast-iron shoes.

Another great advantage is that such malleable-iron shoes wear off so slowly on their face, as compared with the thicker, heavier, and less durably-cast iron shoes, that little or no time or labor is required in changing the adjustment of the brake with reference to the wheel, or in taking up lost motion, as it is called; and as this whole adjustment has to be changed every time the cast-iron shoe is renewed, the relative utility will be still more obvious.

As an article of manufacture and trade such malleable-iron shoes are readily distinguished by railroad purchasing agents and mechanics from the ordinary cast-iron shoe, and their utility is such that they are being rapidly adopted.

I am aware of and hereby disclaim the invention patented to William McConway February 27, 1872, No. 124,190, my invention being different from that, and, like it, an improvement on what was before known and used.

What I claim as my invention, and desire to secure by Letters Patent, is—

As a new article of manufacture, a brake-shoe made of malleable iron, substantially as set forth.

In testimony whereof I, the said JOHN J. TORLEY, have hereunto set my hand.

JOHN J. TORLEY.

Witnesses:

A. S. NICHOLSON,
G. H. CHRISTY.