UNITED STATES PATENT OFFICE.

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

IMPROVEMENT IN COMPOSITION-METAL BRAKE-SHOES FOR RAILROAD CARS.

Specification forming part of Letters Patent No. 124,190, dated February 27, 1872.

Specification describing a new and Improved Metal for Brake-Shoes for Railway Cars, &c., invented by WILLIAM McCONWAY, of Pittsburg, in the county of Allegheny and State of Pennsylvania.

By the present method brake-shoes are ordinarily made of cast-iron, and in some cases of wrought-iron.

My improved metal for this purpose is composed of pig-iron, of malleable cast-iron, and of steel, preferably that produced by the Bessemer process. To combine these substances into a homogeneous mass, I take of pig-iron, fifty per centum; of malleable cast-iron, thirty per centum; and of steel, twenty per centum; and fuse them by such processes as are usually employed for melting iron and steel, and in such a manner as to insure a very thorough admixture. When at the proper heat for casting—which is determined by the tests ordinarily applied to iron or steel—this liquid mixture is poured into molds of a suitable form to produce the particular pattern of shoe required. After having become sufficiently cool to permit safe or convenient handling the castings are transferred from the molds, placed in iron boxes, and surrounded by oxide of iron. In this condition they are subjected to a bright-red heat for the space of five days, and, after cooling, are ready for use.

By this process I produce a quality of metal which has peculiar toughness and closeness of grain, and far exceeding ordinary cast or wrought iron in wearing qualities when subject to friction, as in the form of a brake-shoe. I have practically tested it in this form and found its durability, when subject to wear, is as twenty to one compared with the common brake-shoe. Its use on railways would, therefore, effect a very great economy in cost of metal and the labor expended in substitution or repair.

The proportions of the ingredients above given are those I deem preferable in order to attain the best results; but they will be varied in practice to any extent found necessary or expedient, in view of the quality or fiber of the different metals, the proposed use of the product, or other conditions as they arise.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The process of combining and treating the ingredients herein named to produce an improved metal for frictional wear, substantially as described.

2. As an article of manufacture, a brake-shoe composed of the ingredients hereinbefore specified.

WILLIAM McCONWAY.

Witnesses:
ROBT. HERNEN,
ALEXANDER McFARLAND.