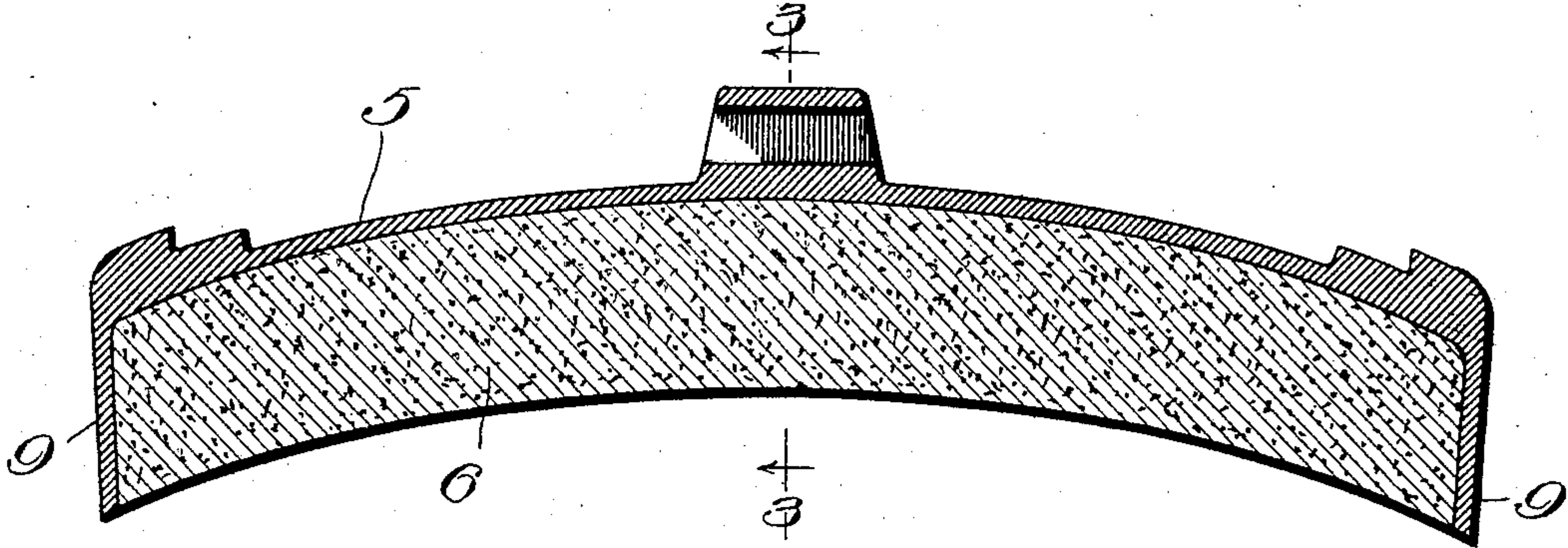


No. 786,373.

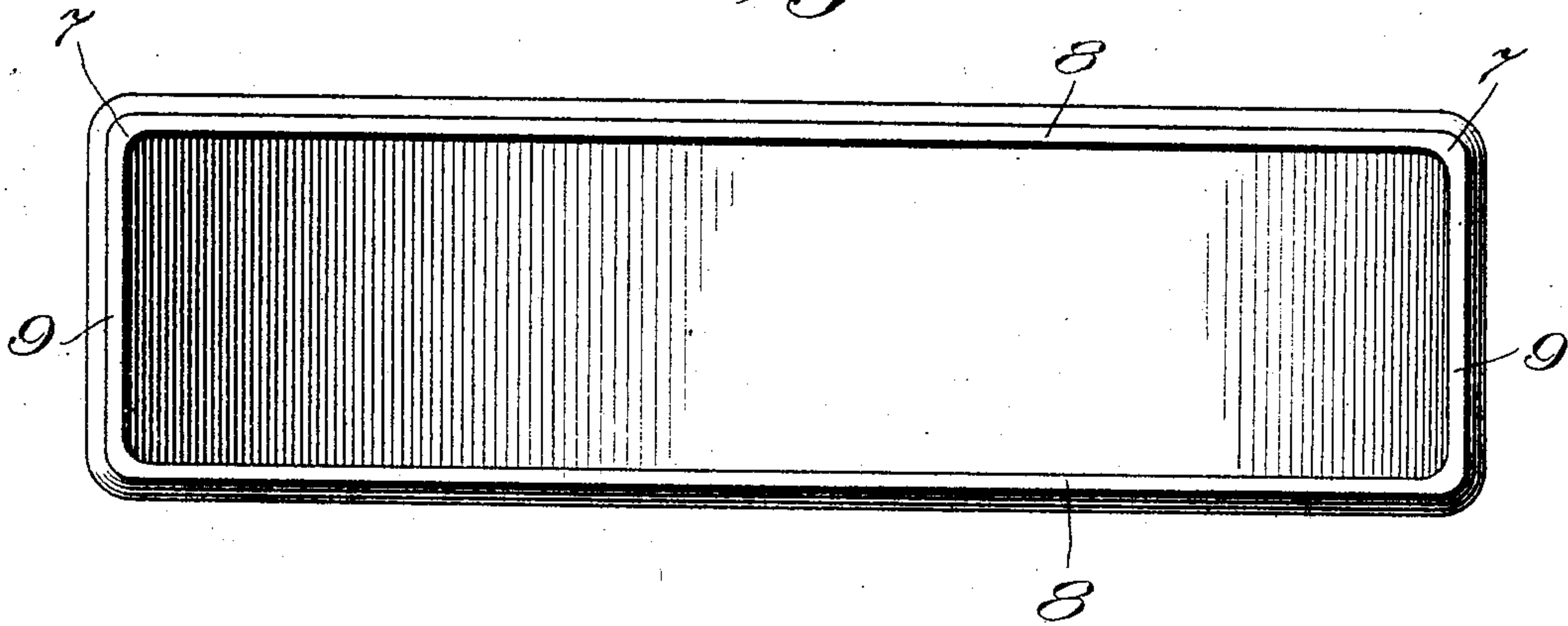
PATENTED APR. 4, 1905.

J. F. MORRISON.  
BRAKE SHOE.  
APPLICATION FILED JAN. 9, 1905.

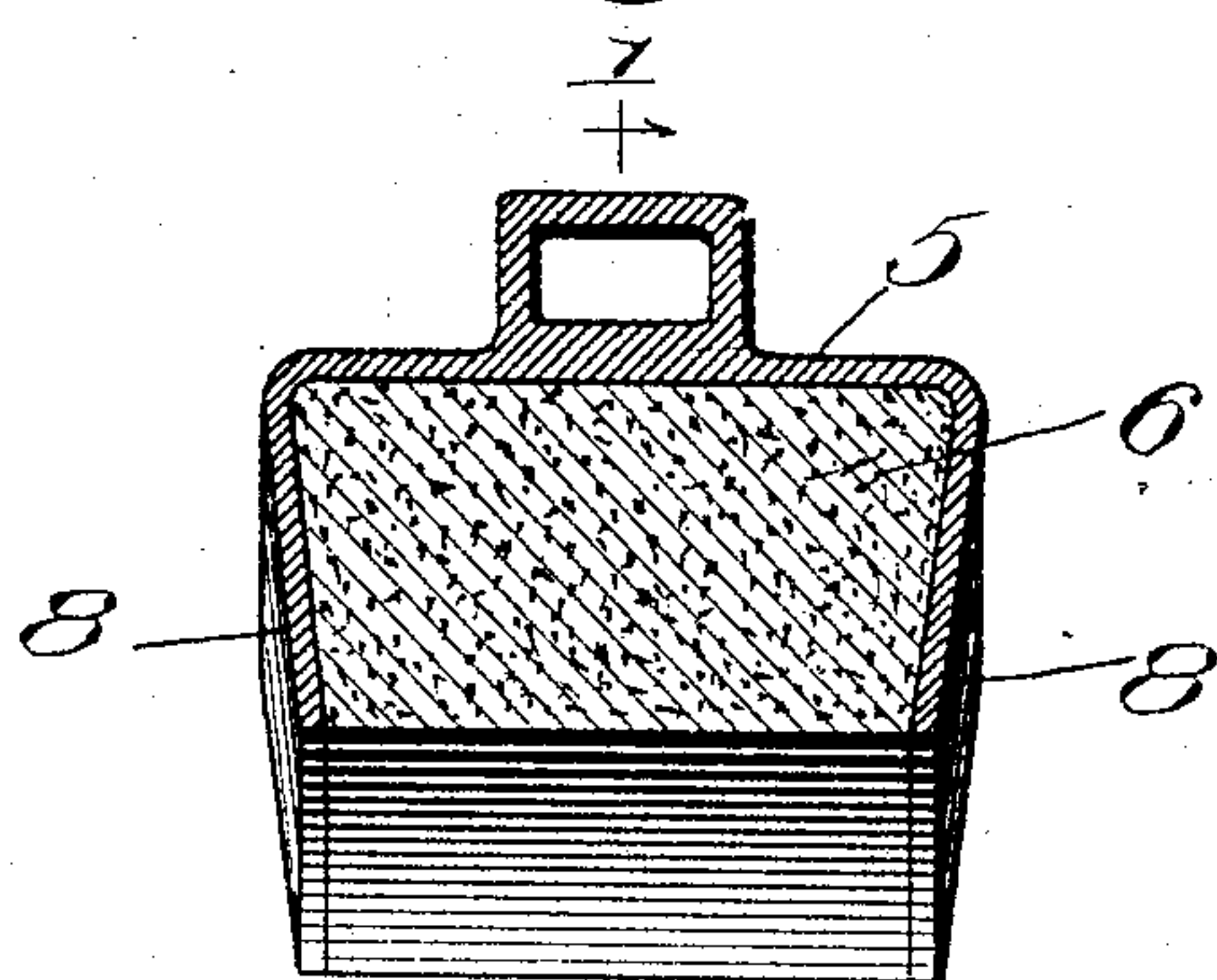
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Witnesses:  
H. S. Gaiter  
C. Schmechel

Inventor:  
James F. Morrison  
by Wm. B. Bell atty.



# UNITED STATES PATENT OFFICE.

JAMES F. MORRISON, OF CHICAGO, ILLINOIS.

## BRAKE-SHOE.

SPECIFICATION forming part of Letters Patent No. 786,373, dated April 4, 1905.

Application filed January 9, 1905. Serial No. 240,142.

*To all whom it may concern:*

Be it known that I, JAMES F. MORRISON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Brake-Shoes, of which the following is a specification.

The objects of this invention are to reduce the weight and cost of manufacture of brake-shoes of the "composition" type and at the same time increase the strength and prolong the life of the shoe.

In the accompanying drawings I have illustrated one embodiment of the invention, in which—

Figure 1 is a longitudinal sectional view of the complete shoe on the line 1 1 of Fig. 3. Fig. 2 is a front view of the shell. Fig. 3 is a sectional view on the line 3 3 of Fig. 1.

I employ a cast malleable-iron shell 5 to receive and hold a composition 6 of suitable character. The corners 7 of the shell are rounded and made thicker to add to the strength of the shell, and the sides 8 and ends 9 are inclined inwardly from the back to hold the filling in the shell.

A cast malleable-iron shell can be made much thinner and is considerably lighter than a cast-iron shell and at the same time it is much stronger and will not crack or break like a cast-iron shell. By reason of the fact that a very thin shell can be employed a greater quantity of composition can be used in a shoe of standard size, and this will correspondingly prolong the life of the shoe. The cast malleable iron will not injure the tire like a shell made of sheet metal, and my improved shoe can therefore be used on steel-tired and chilled-tired wheels. I have found that for a standard-size shoe a cast malleable-iron shell weighing five pounds may be used with much better results than the common cast-iron shell heretofore used and which weighs twenty-one pounds. This material difference in the weight of the shell results in a saving of about eighty per cent. in the scrap in addition to the fact that the cast malleable-iron shell is not brittle and liable to fracture like the common cast-iron shell. The life of the shoe is further prolonged by reason of the fact that the com-

position can be forced into the cast malleable-iron shell under twice as great pressure as can be used with a common cast-iron shell, thus producing a more compact shoe and increasing the density of the composition. In practical use I have found that to make a standard-size shoe fourteen pounds of composition can be forced into a cast malleable-iron shell which weighs five pounds, as against eight pounds of composition in a common cast-iron shell weighing twenty-one pounds. The cost of the cast malleable-iron shell is much less than the common cast-iron shell, because of the difference in weight, and the tensile strength is about ten to one. The shoe can be worn down close to the back of the shell, and by reason of the inherent strength of the shell it is unnecessary to strengthen the back by means of rods or plates.

The composition which constitutes the filling for the shell may be of any suitable character which will produce the proper friction upon the wheel, and I do not limit the invention to any particular composition. As the side and end walls of the shell can be made very thin, I am thereby enabled to increase the frictional engaging surface of the shoe, and this correspondingly increases the coefficient of friction.

The shell of my improved shoe will not score and cut the wheel-tires like those shoes which have shells stamped or otherwise formed out of sheet metal, and the wear on the tire is uniform in character throughout the face of the shoe.

Without limiting myself to the exact construction and arrangement of parts herein shown and described, what I claim, and desire to secure by Letters Patent, is—

1. A brake-shoe comprising a cast malleable-iron shell, and a filling of frictional material.

2. A brake-shoe comprising a cast malleable-iron shell having rounded and thickened corners, and a filling of frictional material.

JAMES F. MORRISON.

Witnesses:

WM. O. BELT,  
P. L. SCHMECKEL.