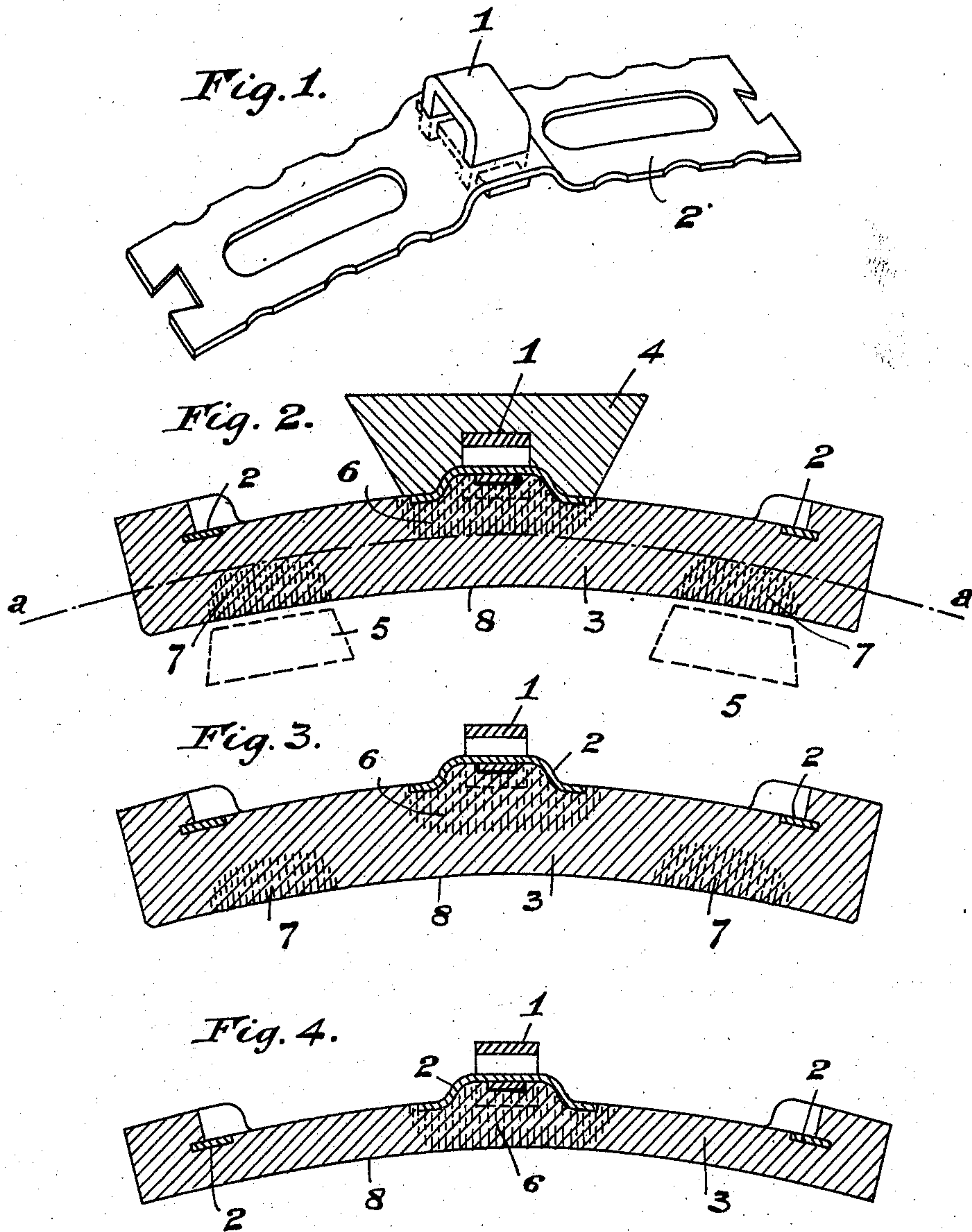


J. A. PANTON.  
BRAKE SHOE.  
APPLICATION FILED MAR. 17, 1910.

963,640.

Patented July 5, 1910.



Witnesses.  
A. C. Oakley  
am. Serch

Inventor.  
Joseph Alexander Panton,  
by Frank. A. Alesman  
att'y



# UNITED STATES PATENT OFFICE.

JOSEPH ALEXANDER PANTON, OF WATERLOO, NEAR LIVERPOOL, ENGLAND.

## BRAKE-SHOE.

963,640.

Specification of Letters Patent.

Patented July 5, 1910.

Application filed March 17, 1910. Serial No. 549,995.

To all whom it may concern:

Be it known that I, JOSEPH ALEXANDER PANTON, a subject of the King of Great Britain, and resident of Waterloo, near  
5 Liverpool, England, have invented certain new and useful Improvements in Brake-Shoes, of which the following is a specification.

This invention has reference to brake  
10 shoes of that type wherein the separable wearing sole or shoe proper is provided with a reinforcing strip or backing of wrought metal, said backing having a lug for securing the shoe in position on the  
15 brake head.

The particular objects of the present invention are to provide means for preventing the lug and the part of the backing in proximity to the lug from being burned during  
20 the operation of casting the shoe, and to produce a shoe the metal of which is double chilled, that is, from the back as well as the front or wearing face, all as hereinafter more particularly set forth.

The invention is illustrated in the accompanying drawings, in which,

Figure 1. is a view showing by way of example one kind of wrought sheet metal backing with attaching lug to be affixed to the  
30 cast shoe. Fig. 2. is a longitudinal medial section showing the shoe cast on such a backing, the protecting and chill block for the lug being shown in position for casting. Fig. 3. is a corresponding section showing a  
35 finished brake shoe before wear. Fig. 4. is a longitudinal section showing such a brake shoe after wear has taken place.

Brake shoes have been previously proposed in which a rear attaching lug such as  
40 1 has been constructed either integrally with or separate from a wrought metal backing such as 2, a cast metal shoe such as 3 being formed on the backing. But in such cases there has always been a liability of the lug  
45 being burned and weakened during the process of casting. Further, brake shoes have been made having alternate chilled and soft iron portions on their wearing surfaces, such alternate arrangement of the chilled and  
50 soft iron portions giving the most satisfactory results in practice, but such chilled portions when set up from the wearing face could not be allowed to penetrate very deeply into the metal of the shoe, as otherwise, the  
55 shoe would become too brittle at cross sections through the chills and liable to break

off. Consequently when the shoes had worn down to such an extent as to cause the chills to disappear, the whole wearing surface of the shoe was of soft iron and quickly wore  
60 down. To avoid this eventual elimination of the chills by wear it has been proposed to chill the ends of the shoe completely through from wearing surface to back. It is disadvantageous however to have chills on the  
65 extreme tips of the shoes, such hard tips acting to score and cut the tires of the wheels. This can only be prevented by forming the chill in a surrounding of soft metal.

According to this invention, when the shoe  
3 is being cast on the backing 2, a protecting chill block 4 shaped to fit closely around the lug 1 and the local portions of the backing near the lug, is placed in the sand in a  
70 position corresponding to the rear or back of the shoe, the usual chill blocks 5 being disposed at the front of the shoe, a short distance in from the ends, so as to allow for soft metal being left at the extreme tips, but  
80 staggered with reference to the back chill block. With such an arrangement when the shoe is being cast the back chill 4 protects the lug 1 and the local portion of the backing  
85 2 from being burned, thus maintaining the strength of the lug and the backing, and throws a chill 6 from the back surface of the shoe. This rear chill 6 is made to penetrate only to approximately the medial line  
90  $a-a$ , or halfway into the shoe. The front chills 7 are similarly made to penetrate from the front or wearing surface 8 to about the medial line  $a-a$ , or half way into the shoe. By this means a shoe is produced chilled  
95 from the back and front as in Fig. 3, the chills being staggered on the back and front alternately. Such a shoe fulfils the required conditions of having alternate soft and chilled iron sections on its wearing surface continuously throughout its life, that is,  
100 until worn down to the backing, since, when the face chills 7 have been completely worn away as in Fig. 4. the rear chill 6 comes into wear, and when in wear both front and rear  
105 chills alternate at the wearing surface with soft metal, and are surrounded on the wearing surface with soft metal.

I claim:

1. A cast metal brake shoe provided with a reinforcing backing of wrought metal and  
110 having chills formed in the front or wearing surface and in the back thereof, said



chills penetrating about halfway into the shoe and being staggered on the front and back surfaces alternately.

2. A cast metal brake shoe provided with  
5 a reinforcing backing of wrought metal and having face chills disposed on the wearing surface a short distance in from the ends and a back chill disposed centrally, said front and back chills penetrating about half-  
10 way into the metal of the shoe.

3. In a cast metal brake shoe provided with a reinforcing backing and rear attaching lug of wrought metal, an attaching lug

on said backing protected from burning during the casting of the shoe by a protect- 15  
ing chill block; a chill formed in the back of the shoe by said protecting chill block; and face chills formed in the wearing surface of the shoe.

In testimony whereof I affix my signature 20  
in presence of two witnesses.

JOSEPH ALEXANDER PANTON.

Witnesses:

A. J. DAVIES,  
FRED NAYLOR.