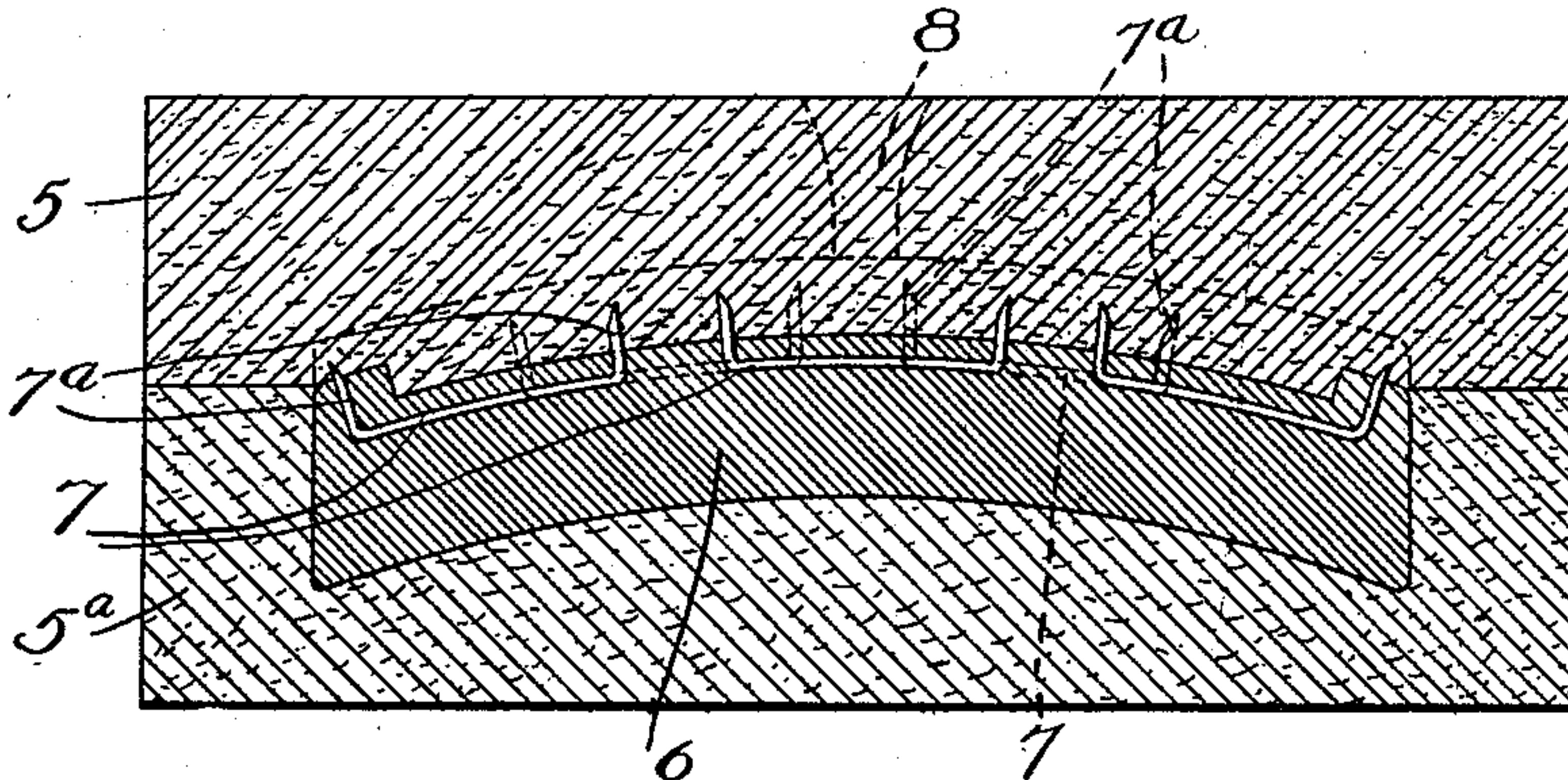


D. RAWSTRON.  
BRAKE SHOE WITH REINFORCED BACK.  
APPLICATION FILED APR. 16, 1910.

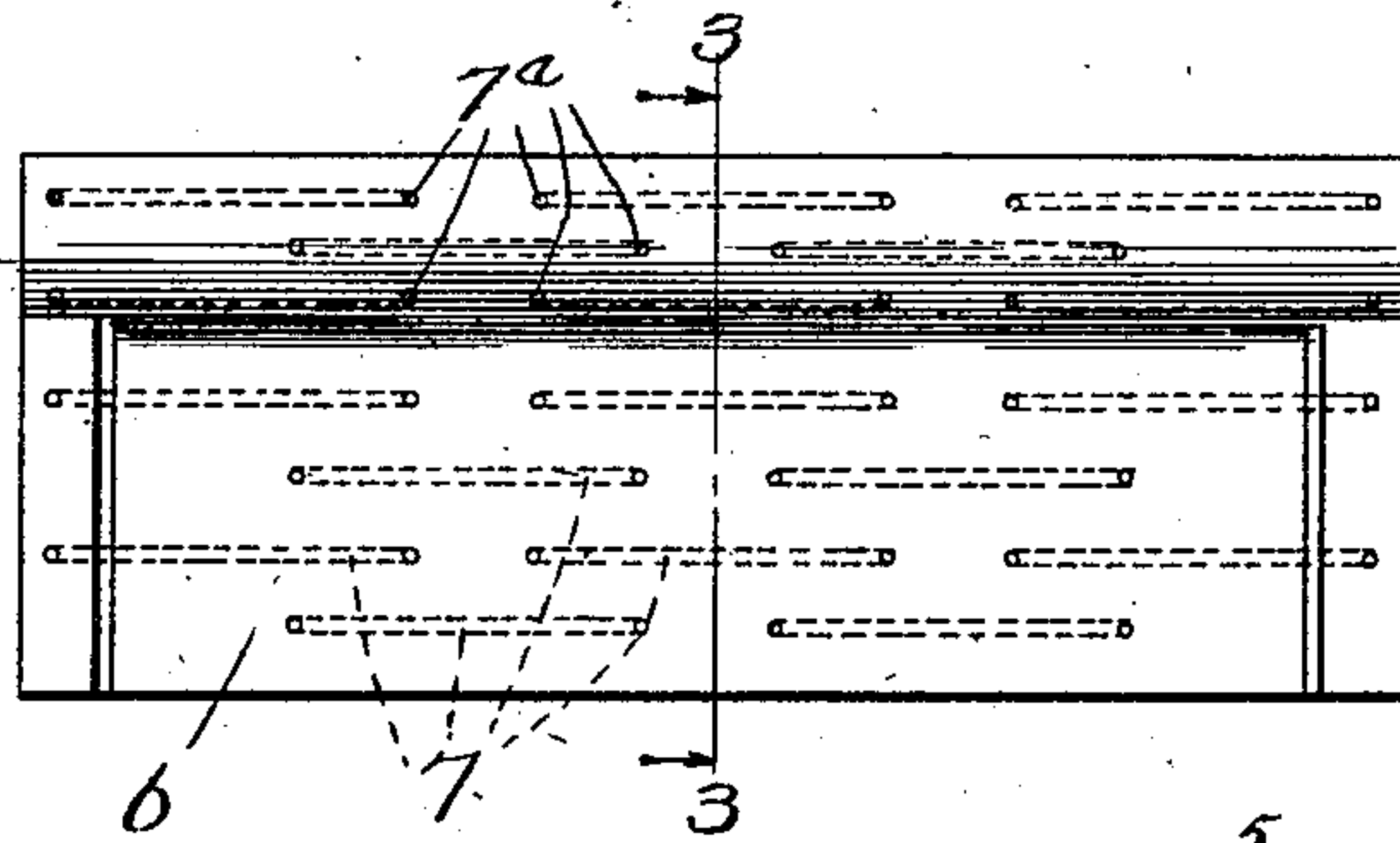
999,259.

Patented Aug. 1, 1911.

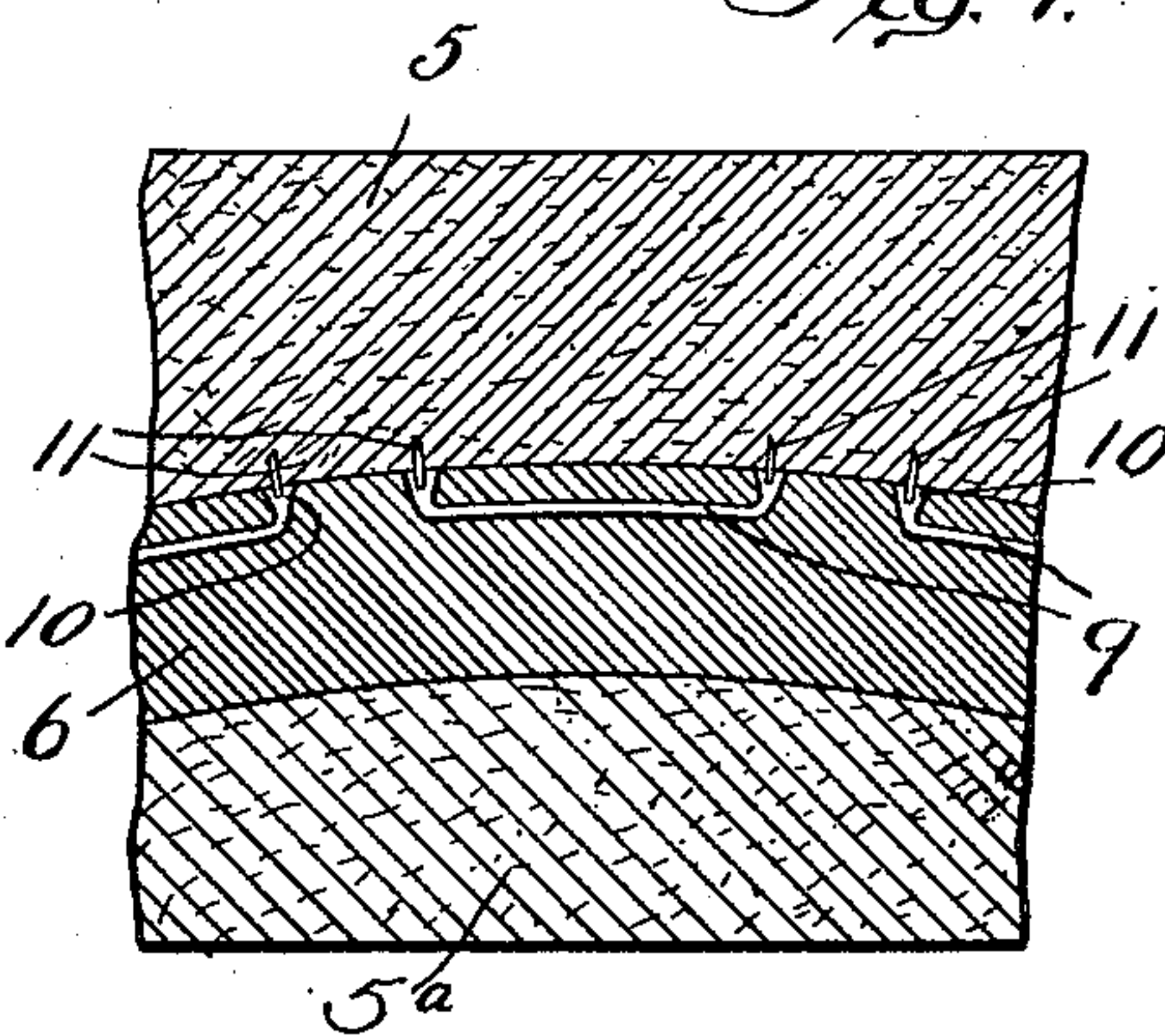
*Fig. 1.*



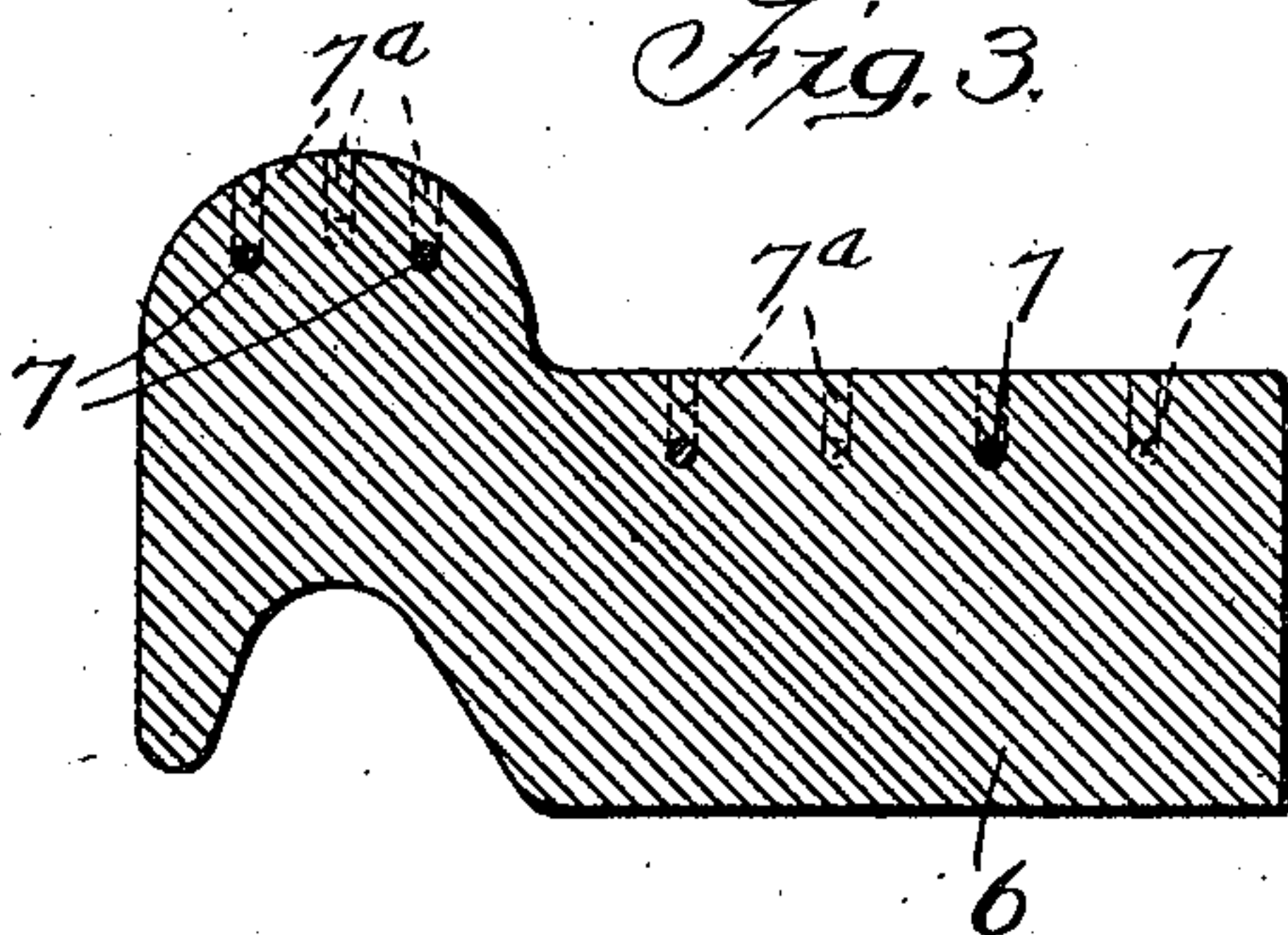
*Fig. 2.*



*Fig. 4.*



*Fig. 3.*



Witnesses:

A. Lewis.  
E. H. Clegg

Inventor.

Donald Rawstron  
By Buckley, Dwyer & Dwyer  
Attys.



# UNITED STATES PATENT OFFICE.

DONALD RAWSTRON, OF CHICAGO, ILLINOIS, ASSIGNOR TO JAMES F. HILL, OF CHICAGO, ILLINOIS.

## BRAKE-SHOE WITH REINFORCED BACK.

999,259.

Specification of Letters Patent.

Patented Aug. 1, 1911.

Application filed April 15, 1910. Serial No. 555,559.

*To all whom it may concern:*

Be it known that I, DONALD RAWSTRON, a citizen of the United States of America, and resident of Chicago, Cook county, Illinois, have invented a certain new and useful Improvement in Brake-Shoes with Reinforced Backs, of which the following is a specification.

My invention relates to improvements in brake shoes, and has for its object the production of a shoe that is so formed that it can never fall apart, regardless of the number of pieces into which it may be broken.

A further object is the production of a cheap and efficient shoe, and one of simple construction.

These and such other objects as may hereinafter appear are attained by my device, an embodiment of which is illustrated in the accompanying drawings, in which—

Figure 1 represents a sectional view of a flask containing my improved shoe. Fig. 2 represents a top plan view of a brake shoe embodying my improvement. Fig. 3 represents a sectional view on line 3—3 of Fig. 2, looking in the direction indicated by the arrows. Fig. 4 represents a sectional detail of a modified form of my invention.

Like numerals of reference indicate like parts in the several figures of the drawings.

Referring now to the drawings: A represents a mold or flask comprising a cope 5 and drag 5<sup>a</sup> with the completed shoe 6 in place.

The process of manufacturing the shoe is as follows: After the mold is formed, a plurality of tie rods, comprising a straight portion 7 and upturned ends 7<sup>a</sup>, are placed within the mold in staggered relation by forcing the sharpened ends 7 into the sand of the cope, the straight portion of the rods being entirely within the mold and a short distance from the face of the sand in the cope. The metal is then poured through the sprue opening 8 filling the mold and entirely surrounding the members 7 and the portions of the upright members 7<sup>a</sup> adjacent thereto. When the shoe is removed from the mold the ends of the members 7<sup>a</sup> will project out from the face of the back and will be cut off close to the back.

The tie rods are preferably made from lengths of rod, say about three-eighths of an inch in diameter, the pieces cut apart diagonally and the ends bent upwardly, thus

forming sharp ends that penetrate the sand of the cope without disturbing its face. The inserts can be arranged in any desired manner over the face of the cope, but I prefer to place them in staggered relation, as clearly shown in Fig. 2.

In the modification shown in Fig. 4, the upturned ends of the rods 9 are upset or flattened, as shown at 10, and a sprue or spike 11 fitted in each end. This spike is forced into the face of the cope the same as the sharpened end 7<sup>a</sup> and the flat surface of the upset end 10 rests against the face of the sand in the cope. The spike may be formed of wood and broken off after the shoe is cast, leaving the base of the upset end flush with the back of the shoe. This form of insert, by reason of the shape of the ends, is securely wedged within the body of the casting. Either form of construction, however, serves the purpose of holding the pieces together in case the shoe is fractured, and preventing it from falling away from the brake head.

Heretofore in reinforcing the backs of shoes, pieces of metal have been employed with the result that it was necessary to suspend them in the mold while the shoe is being cast. This form of shoe is also objectionable for the reason that in the event of the fracturing of the shoe the several parts are very liable to fall or pull apart, while in my construction the rods having upturned ends hold all the parts together, even in case of fracture, regardless of the wear or strain put upon the shoe.

While I have shown straight pieces of rod for use as inserts, I may, of course, use any other form that will serve the purpose. For instance, I might substitute a series of interlocking rods with bent ends (not shown), but for ordinary use I find my present form to be eminently satisfactory.

I claim:

1. A reinforced brake shoe comprising a cast body, a plurality of inserts embedded near the back face thereof, the ends of said inserts being upturned and extending to the back face of said shoe.

2. A reinforced brake shoe comprising a cast body, a plurality of longitudinally disposed inserts embedded near the back face thereof, the ends of said inserts being upturned and extending to the back face of said shoe.



3. A reinforced brake shoe comprising a cast body, a plurality of inserts embedded near the back face thereof in staggered relation to each other, the ends of said inserts  
5 being upturned and extending to the back face of said shoe.

4. A reinforced brake shoe comprising a cast body, a plurality of longitudinally disposed inserts embedded near the back face  
10 thereof in staggered relation to each other, the ends of said inserts being upturned and extending to the back face of said shoe.

5. A reinforced brake shoe comprising a cast body, a plurality of inserts comprising  
15 rods bent at their ends and disposed longitudinally within said shoe and near its back face with the bent ends substantially flush with the back face of the shoe.

6. A reinforced brake shoe comprising a  
20 cast body, a plurality of inserts embedded near the back face thereof, the ends of said

inserts being bent and enlarged and extending to the back face of said shoe.

7. A reinforced brake shoe comprising a cast body, a plurality of inserts comprising  
25 rods bent at their ends and disposed longitudinally within said shoe and near its back face with the bent ends enlarged and substantially flush with the back face of the shoe.

8. A reinforced brake shoe comprising a cast body, and an insert embedded in the back face thereof, the ends of said insert  
30 being bent and extending to the face of said shoe.

Signed by me at Chicago, Illinois, this  
35 1st day of April, 1910.

DONALD RAWSTRON.

Witnesses:

E. H. CLEGG,  
S. LEWIS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,  
Washington, D. C."