

No. 689,496.

Patented Dec. 24, 1901.

H. JONES.  
BRAKE SHOE.

(Application filed June 20, 1901.)

(No Model.)

Fig. 3.

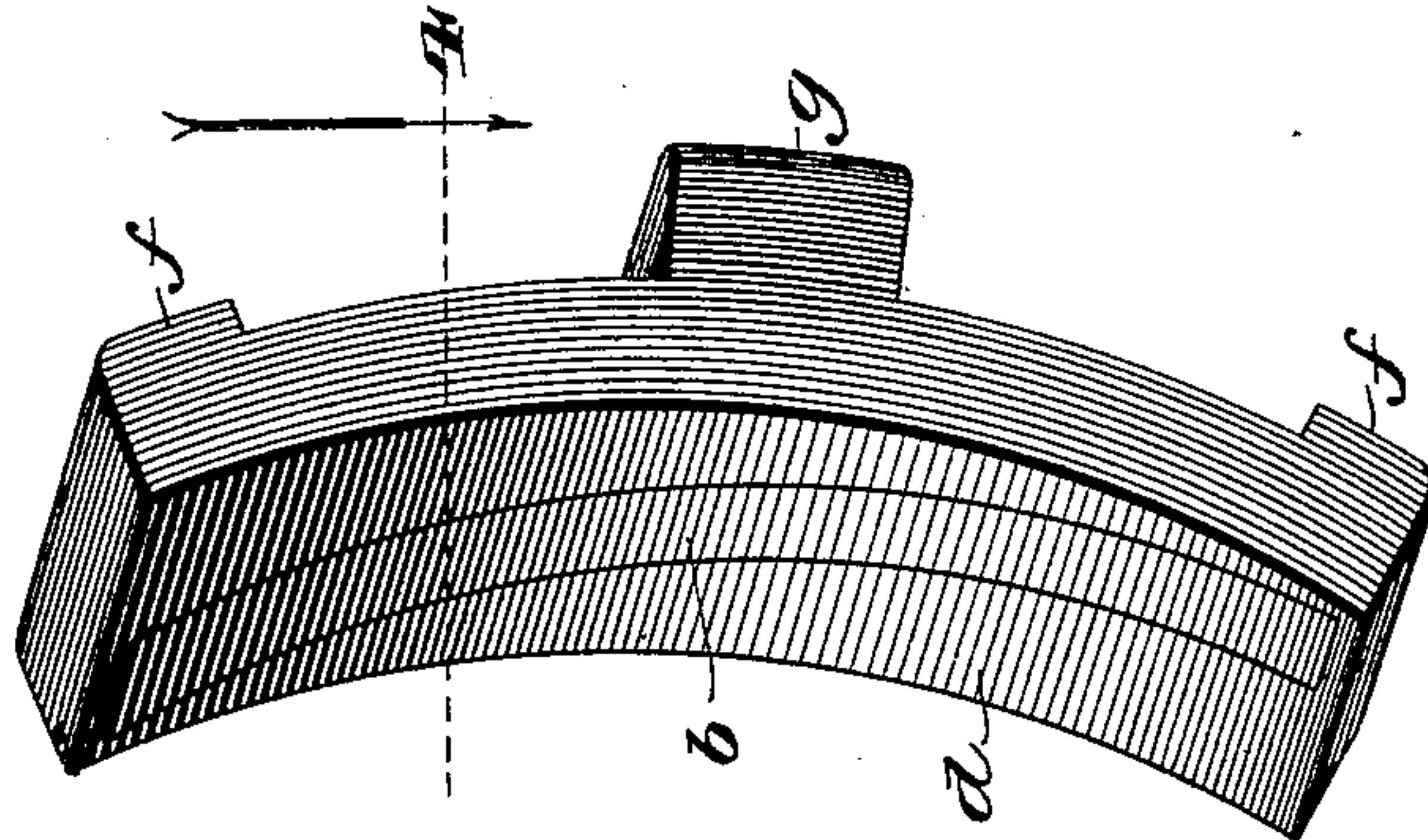


Fig. 4.

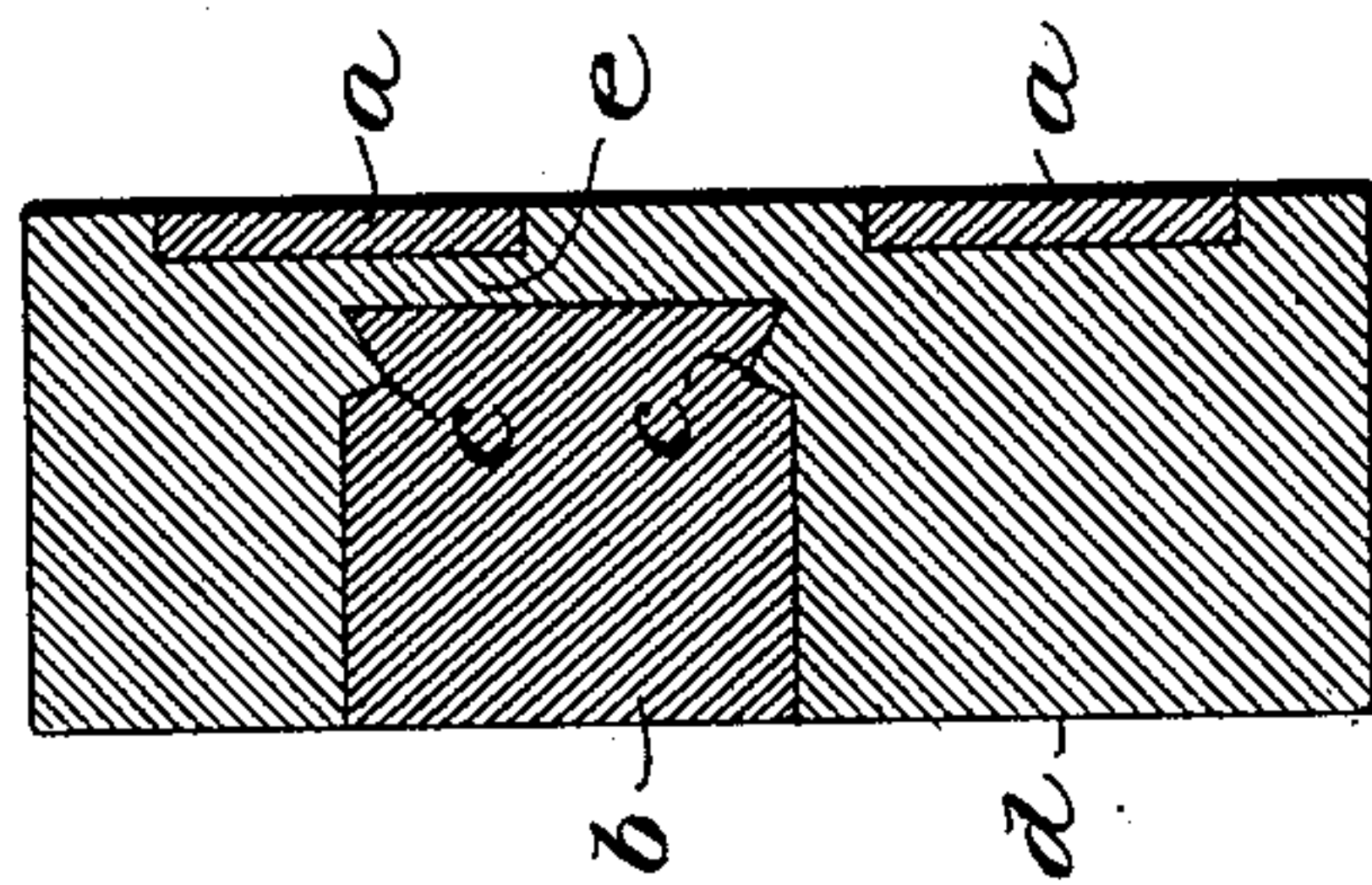


Fig. 2.

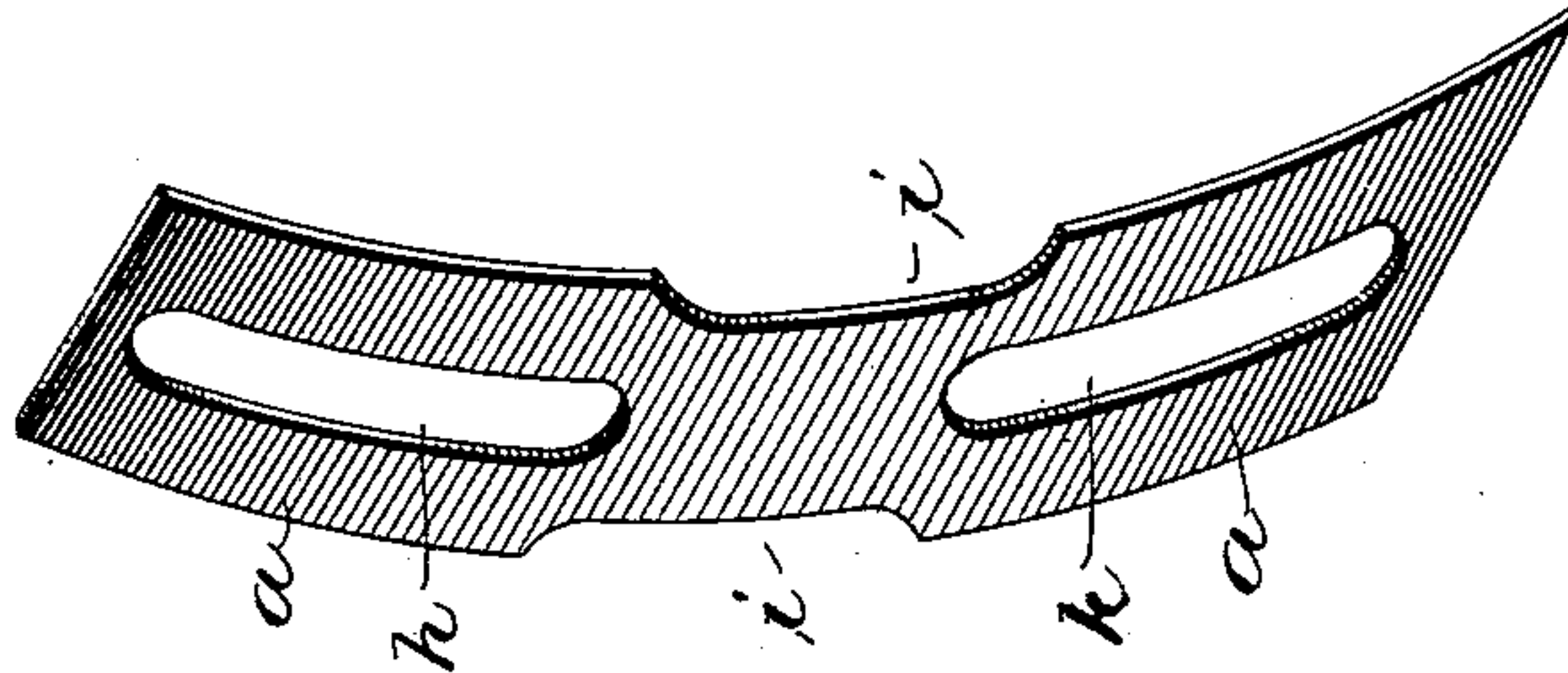
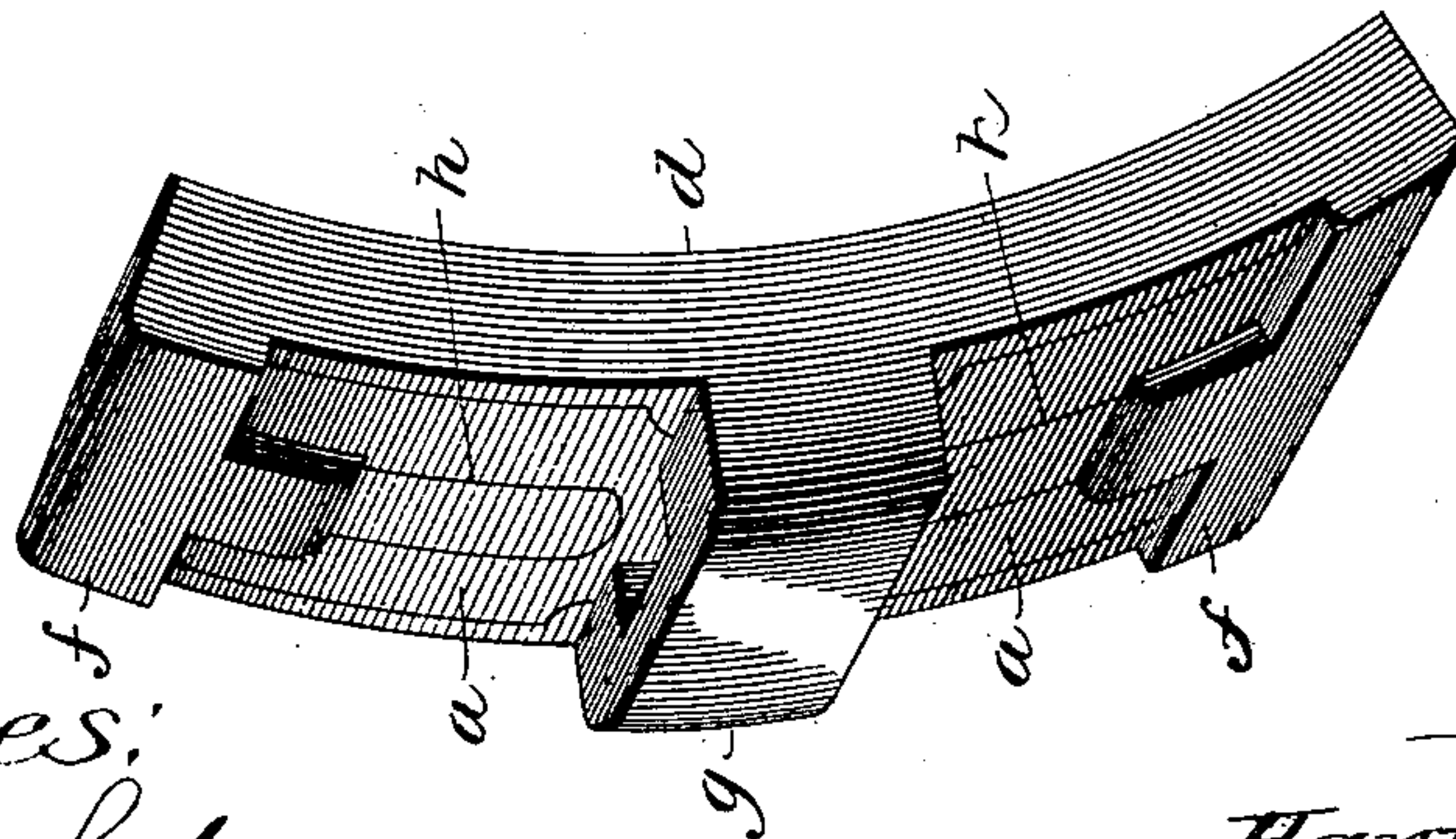


Fig. 1.



Witnesses:  
E. S. Gaylord,  
John Enders, Jr.

Inventor:  
Harry Jones,  
By Thomas F. Sheridan,  
Att'y



# UNITED STATES PATENT OFFICE.

HARRY JONES, OF BLOOMFIELD, NEW JERSEY, ASSIGNOR TO THE LAPPIN BRAKE-SHOE COMPANY, OF BLOOMFIELD, NEW JERSEY, A CORPORATION OF NEW JERSEY.

## BRAKE-SHOE.

SPECIFICATION forming part of Letters Patent No. 689,496, dated December 24, 1901.

Application filed June 20, 1901. Serial No. 65,267. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY JONES, a citizen of the United States, residing at Bloomfield, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Brake-Shoes, of which the following is a specification.

This invention relates to that class of brake-shoes which are formed of two or more metals, and particularly to the means for backing such shoes so as to preserve their efficiency and integrity as long as possible, all of which will more fully hereinafter appear.

The principal object of the invention is to provide a simple, economical, and efficient brake-shoe; and the invention consists in the features, combinations, and details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a brake-shoe constructed in accordance with these improvements looking at it from the back; Fig. 2, a similar view of the steel back before its insertion in the shoe; Fig. 3, a perspective view of the shoe looking at it from the front or wearing surface, and Fig. 4 an enlarged cross-sectional view taken on line 4 of Fig. 3.

In the art to which this invention relates it is well known that it is desirable to get the greatest efficiency possible out of a shoe and also to maintain its integrity or life as long as possible, without regard to whether the "wearing" parts remain integral or become broken. The principal object, therefore, of this invention is to provide a shoe having the above advantages, all of which will be more fully hereinafter set forth.

In constructing a shoe in accordance with these improvements I take a steel back *a* of the desired size, shape, and strength to preserve the integrity of the shoe as long as possible and place this back in a mold, around and in contact with which the molten cast-iron is poured, as hereinafter set forth. To provide for the wearing-surface, I first take a soft-steel wearing-piece *b* and arrange it diagonal of the mold. This steel piece, as shown in Fig. 4, is provided with a longitudinal groove on each side, and the ends (not shown) are dovetailed, so that when the cast-

iron is poured around the same, as shown in Fig. 4, the insert is cast firmly in engagement with the rest of the shoe. This insert is placed in the mold so as to leave a space of about a quarter of an inch between it and the steel back *a*, as shown particularly in Fig. 4, the result being that when the cast-iron is poured into the mold it flows into and fills such space. When cooled, this cast metal assists in providing a very efficient shoe in that the portion of the iron *d* at the wearing-surface is of the desired density to provide a braking-surface, and that portion of the metal at *e* between the steel back and the soft-metal insert becomes still denser or harder, though not chilled, and it also provides for the longer wearing of the shoe.

As shown in Fig. 1, the steel back is exposed partly, though covered and locked in engagement with the rest of the shoe by means of the projections *f* at the ends of the shoe and the attaching-lug *g*, while in Figs. 3 and 4 the soft-metal insert is shown as diagonally arranged in the face of the shoe and also exposed to provide a compound wearing-surface. Fig. 2 also shows that the steel back has a peculiar shape—that is, concavo convex—and provided with elongated slots or perforations *h* and notches or grooves *i*, midway of the shoe and each lateral edge thereof, all for the purpose of permitting the shoe to become firmly engaged with the cast metal.

The principal advantage incident to the use of a shoe constructed in accordance with these improvements is that the metal *c* between the soft-metal insert and steel back does not chill, but becomes harder and more brittle than the rest of the cast metal in the shoe and is apparently a very dense iron caused by the close juxtaposition of the cold insert and back between which it lies, the practical effect being that the shoe is better adapted for braking purposes and the wear-resisting qualities of the insert *b* are in a measure transmitted to it, so that the shoe can be used until it is worn clear to the steel back.

I claim—

1. In a brake-shoe of the class described, the combination of a wrought-metal back, a wrought-metal insert, and a cast-iron body



portion locking the parts together and interposed between the wrought-metal back and insert, substantially as described.

2. In a brake-shoe of the class described, 5 the combination of a perforated steel back, a wrought-metal insert, and a cast-metal body portion locking the parts together and providing a part of the wearing-surface and a layer of denser metal between the steel back 10 and the wrought-metal insert, substantially as described.

3. In a brake-shoe of the class described, the combination of a concavo-convex perforated steel back, a wrought-metal insert ar- 15 ranged diagonally and provided with grooves

or depressions in the side thereof, and a cast-iron body portion passed through the perforations of the steel back and engaging the indentations or grooves of the soft-metal insert to lock the parts together, provide a part of 20 the wearing-surface and a layer of denser metal between the perforated steel back and the wrought-metal insert to provide and maintain the longevity and efficiency of the brake-shoe, substantially as described.

HARRY JONES.

Witnesses:

W. S. DEHART,  
I. M. OSTMARD.