

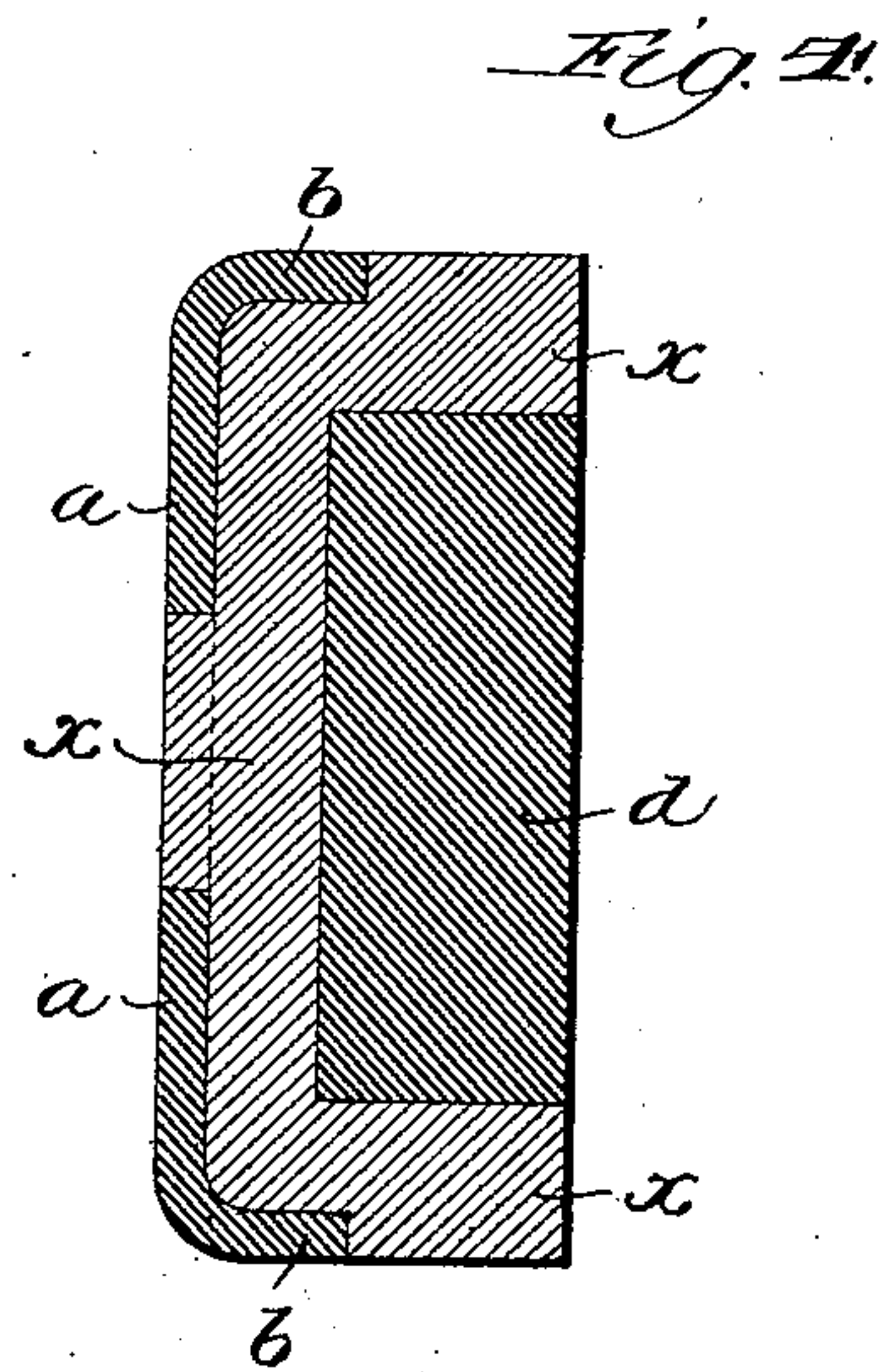
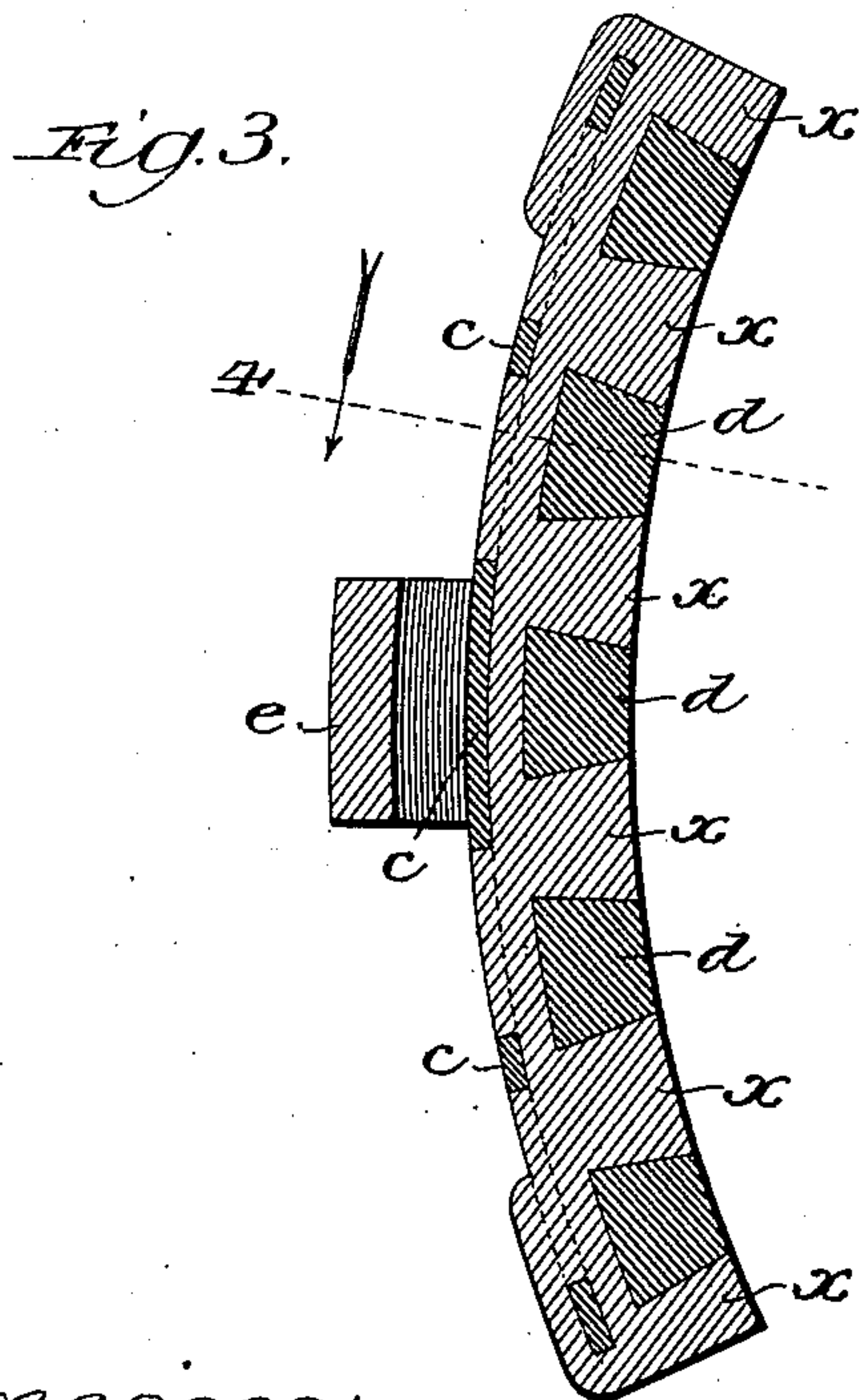
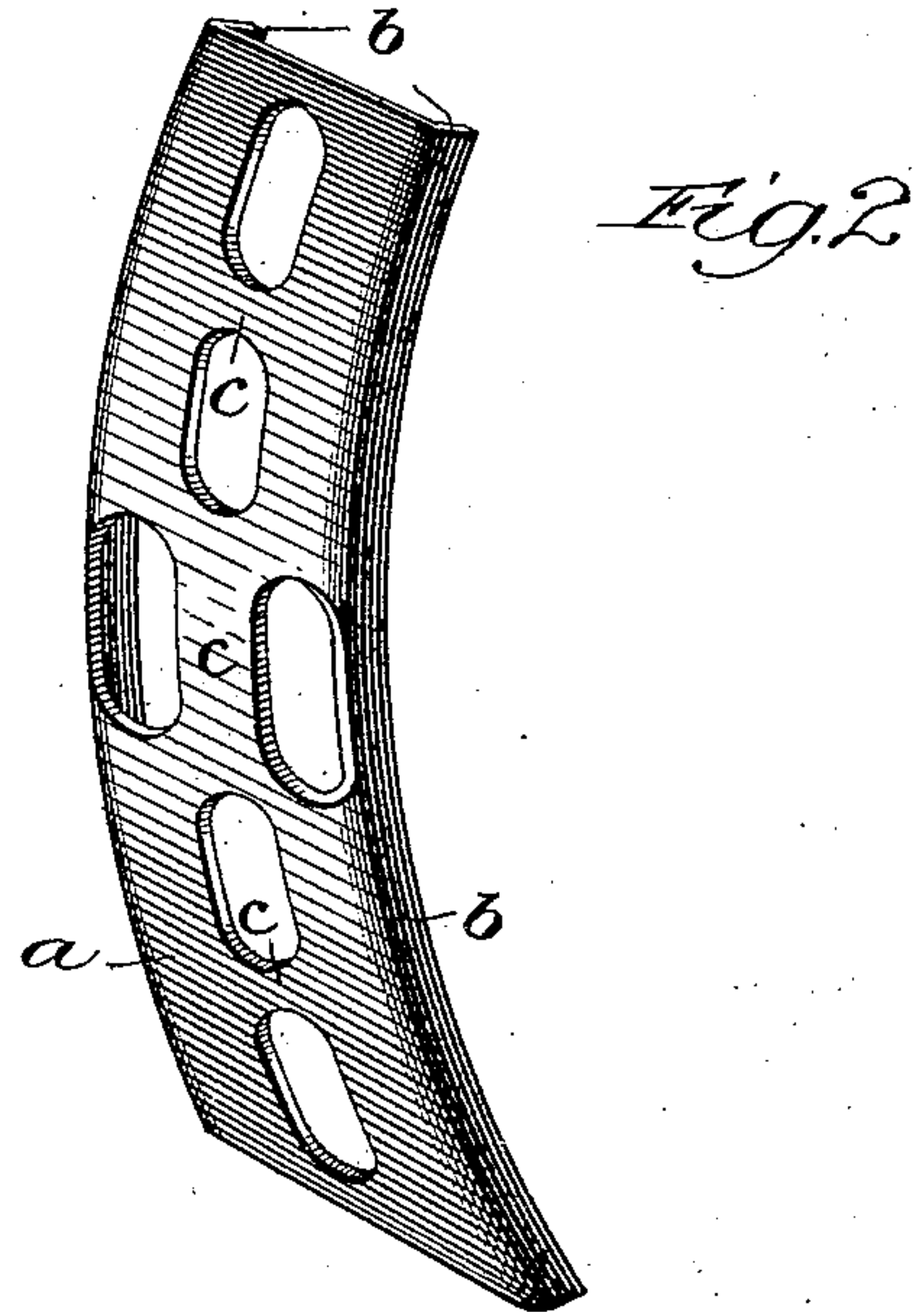
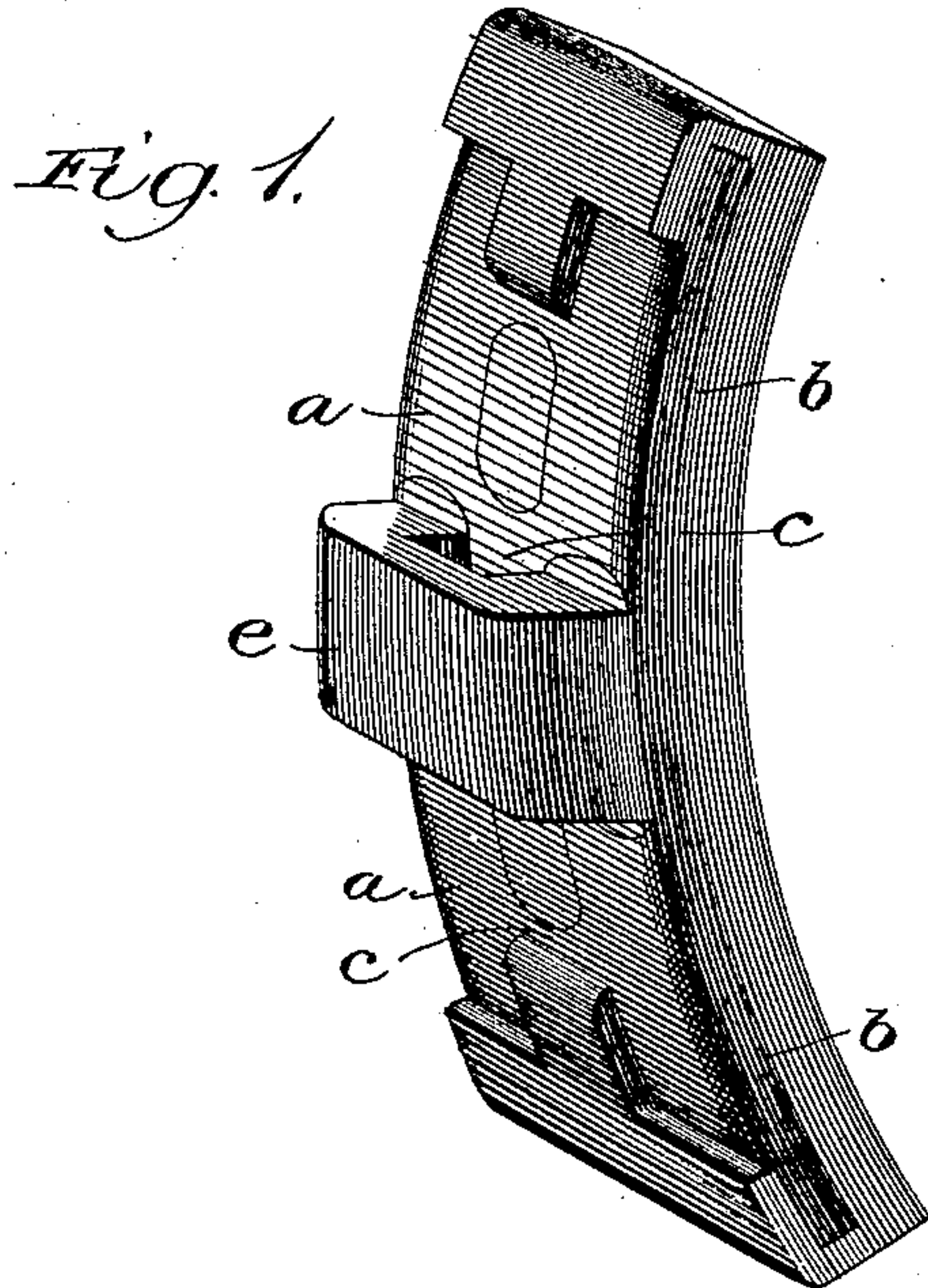
No. 689,482.

Patented Dec. 24, 1901.

J. D. GALLAGHER.
BRAKE SHOE.

(Application filed June 13, 1901.)

(No Model.)



Witnesses:
Edw. J. Gaylord.
John Enders, Jr.

Inventor:
Joseph D. Gallagher,
By *Thomas P. Sheridan,*
Atty.

UNITED STATES PATENT OFFICE.

JOSEPH D. GALLAGHER, OF GLENRIDGE, NEW JERSEY.

BRAKE-SHOE.

SPECIFICATION forming part of Letters Patent No. 689,482, dated December 24, 1901.

Application filed June 13, 1901. Serial No. 64,481. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH D. GALLAGHER, a citizen of the United States, residing at Glenridge, 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.

My invention relates to cast-iron brake-shoes, particularly that class known as "compound" brake-shoes—that is, shoes formed of two or more metals at the wearing-surface—and especially to the means by which the integrity and efficiency of the shoes are prolonged, all of which will more fully hereinafter appear.

The principal object of my invention is to provide a brake-shoe formed of cast-iron or similar materials with a strengthening back of peculiar form.

A further object is to provide a cast-iron brake-shoe with a back formed of steel channel.

A further object is to provide a brake-shoe of such construction and arrangement that wrought-metal inserts may be used without impairing the integrity or efficiency of the shoe.

Further objects of the invention will appear from an examination of the drawings and the following description and claims.

The invention consists, principally, in a brake-shoe in which there are combined a steel flanged back portion and a body portion of cast-iron.

It consists, further, in a brake-shoe in which there is combined a channeled back formed of two longitudinal side flanged portions tied together by bridges and a cast-iron body portion.

It consists, further, in a brake-shoe in which there is combined a steel back portion having two longitudinal side portions, bridges tying the same together, and a cast-iron body portion molded into engagement with the back portion with its metal flowed through the slots thereof.

It consists, further, in a brake-shoe in which there is combined a steel back portion having inwardly-projecting flanges at each lateral edge, a cast-iron body portion molded into engagement therewith, and deep wrought-metal inserts extending inwardly from the

face of the brake-shoe and leaving a small portion of cast metal between such inserts and the steel back.

It consists, further and finally, 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; Fig. 2, a perspective view of the steel channel back portion before it is cast in the shoe; Fig. 3, a longitudinal sectional elevation taken through the longitudinal center of a completed shoe, 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 in the use of brake-shoes made wholly or in part of cast-iron they are liable to break by the time they have been worn about half-way through, and in the case of compound shoes—that is, shoes in which the wearing-face is formed of metal inserts in the cast-iron body—there is and must necessarily be left a considerable body of cast-iron back of the insert to resist the wearing and braking strains incident to use, the consequence being that very little more than half the efficiency of the metal forming the shoe is obtained, all of which involves considerable expense and trouble in replacing, as will be thoroughly understood by those skilled in the art.

The principal object of this invention, therefore, is to provide a simple, economical, and efficient shoe which will prolong the efficiency and integrity of the same and which will permit of the use of very deep inserts, so that the shoe can be used almost twice as long as heretofore and obtain at least fifty per cent. more use of the metal forming the shoe.

In constructing a shoe in accordance with these improvements I take a piece of metal, preferably wrought metal or steel, and form it into a channel portion *a*, having flanges *b* at each lateral edge. This back is practically formed of two long and flanged side pieces tied together by means of the bridges *c*. In other words, a number of longitudinal slots are provided and passed entirely through the back, dividing it into two flanged side pieces with the bridges *c* uniting them. The ad-

vantage of these bridges is that they prevent the side pieces from spreading during the process of molding or during the bending or other actions brought on by the shocks and strains incident to the use of brake-shoes. This back is placed in a mold, and a number of dovetailed wrought-metal inserts *d* are provided and also placed in the mold. These wrought-metal inserts are for the purpose of providing a part of the compound wearing-surface of the shoe, and in order to bind the parts properly together and provide for the compound wearing-surface and efficiency of the shoe a quantity of molten cast-iron is poured into the mold, which passes around the channel back portion, as shown at *x* in Figs. 1 and 3, through the perforations thereof, and surrounds the wrought-metal inserts, as shown particularly in Figs. 3 and 4, and to also form the attaching-lug *e*. When the casting is cooled, it is complete and ready for use, as shown in Fig. 1.

The advantages incident to a shoe constructed in accordance with these improvements are many, the principal ones being that the steel back in this form and arrangement permits of a construction of shoe that can be used considerably longer than any other type of shoe—that is, should the cast-iron or other metal which forms the wearing-face of the shoe become broken during use its integrity, so far as the operative is concerned, remains unimpaired, in that the particular form of back prevents the broken parts from falling to the ground to derail the train. Further, it permits of deeper or thicker wrought-metal inserts being used, in that the major part of the cast-iron need not be left to form a backing to resist the braking strains, while an examination of the drawings will show that in my improvements a very small proportion, practically about one-fourth of an inch of the thickness of the cast-iron, need be left between the wrought-metal insert and steel back. Finally, the peculiar formation of the steel channel back provides great stiffness and rigidity for the shoe and permits of the

use, if desired, of a much more frangible metal for the body of the shoe than could be otherwise used.

I claim—

1. A brake-shoe of the class described, in which there is combined a wrought-metal longitudinally-flanged back portion, and a body portion of cast-iron, substantially as described.

2. A brake-shoe of the class described, in which there is combined a wrought-metal channeled back formed of two longitudinal side flanged portions tied together by bridges, and a cast-iron body portion, substantially as described.

3. A brake-shoe of the class described, in which there is combined a steel back portion having two longitudinal side portions, bridges tying the same together, and a cast-iron body portion molded into engagement with the back portion with its metal flowed through the slots thereof, substantially as described.

4. A brake-shoe of the class described, in which there is combined a steel back portion having side flanges, a cast-iron body portion molded into engagement therewith, and deep wrought-metal inserts extending inwardly from the wearing-face of the shoe and leaving a small portion of cast metal between such inserts and the steel back, substantially as described.

5. A brake-shoe of the class described, in which there is combined a steel back portion formed of two long flanged side pieces, bridges tying the side pieces together in one integral piece, a plurality of deep wrought-metal inserts extending inwardly from the wearing-face, and a body of cast-iron uniting the parts together forming a part of the wearing-face and providing a thin layer of cast-iron between the inserts and the steel back, substantially as described.

JOSEPH D. GALLAGHER.

Witnesses:

THOMAS F. SHERIDAN,
HARRY IRWIN CROMER.