

J. J. KINZER.
BRAKE SHOE.
APPLICATION FILED FEB. 27, 1911.

996,415.

Patented June 27, 1911.

2 SHEETS—SHEET 1.

FIG. 1.

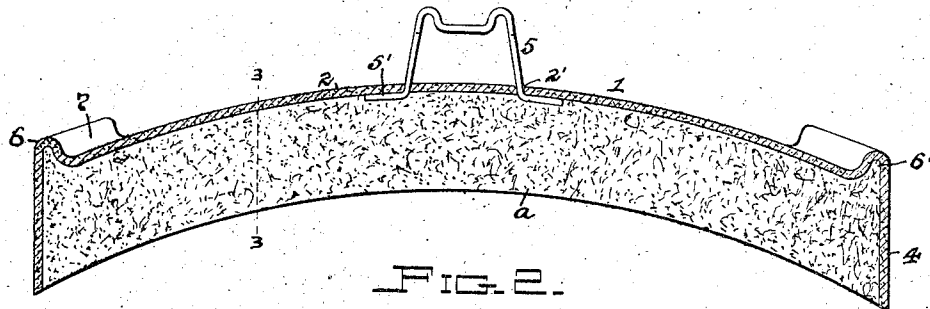


FIG. 2.

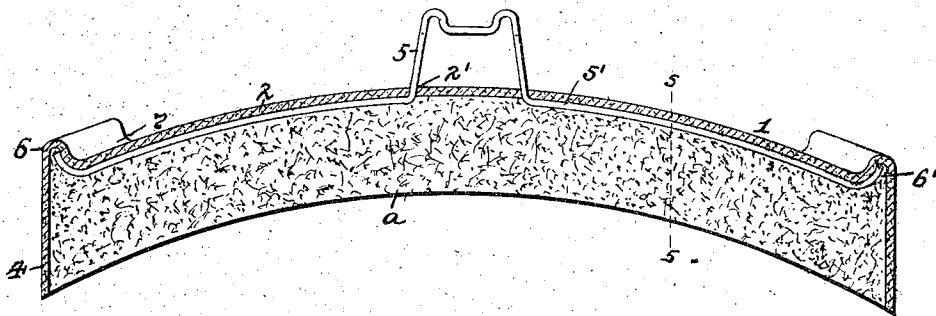


FIG. 4.

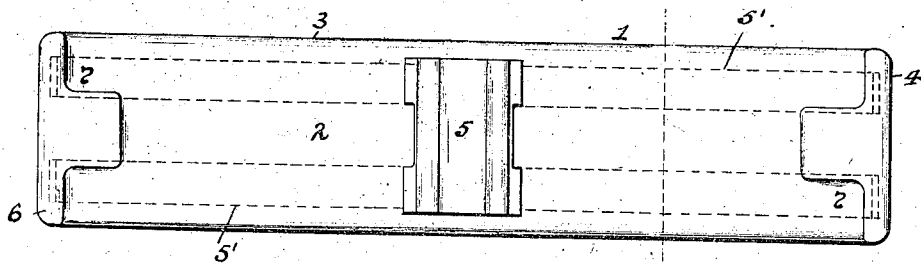


FIG. 3.

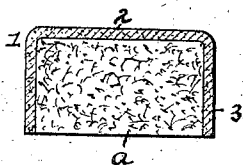
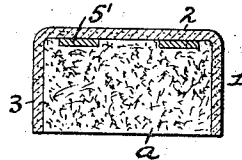


FIG. 5.



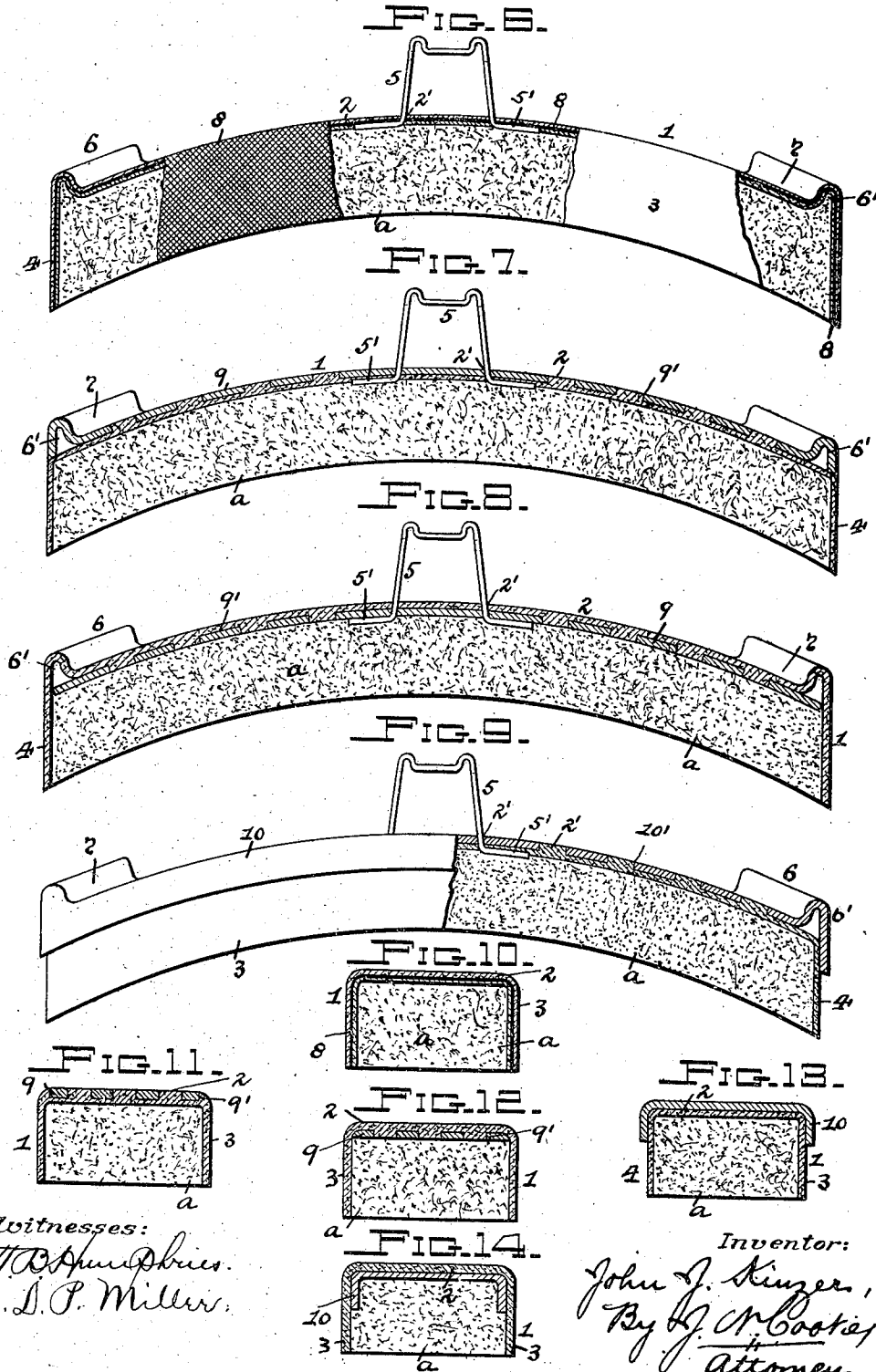
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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BRAKE-SHOE.

996,415.

Specification of Letters Patent. Patented June 27, 1911.

Application filed February 27, 1911. Serial No. 611,141.

To all whom it may concern:

Be it known that I, JOHN J. KINZER, a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Brake-Shoes; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to brake-shoes, and has special reference to such class of shoes which are provided with an inclosed metallic casing around a filling of frictional material. Heretofore, in this class of brake-shoes they have proven satisfactory on trains or cars running at slow speed or low brake pressure, but in the modern high speed trains and especially with steel cars and high brake pressure, the degree of heat produced between the metal of the brake-shoe casing and the face of the wheel with which it is employed is so great or intense that it burns or melts such metal casings to such an extent that they will lose their vitality, so that it lessens its support of the filling material, and will permit the shoe to wear out much quicker.

The object of my invention is to provide a cheap, simple and efficient form of a brake-shoe in which the inclosing casing for the filling material will be unaffected by the heat between the shoe and wheel so that it will be practically heat resisting and fire-proof.

To these ends my invention consists, generally stated, in the novel arrangement, construction and combination of parts, as hereinafter more specifically set forth and described and particularly pointed out in the claims.

To enable others skilled in the art to which my invention appertains to construct and use my improved brake-shoe, I will describe the same more fully, referring to the accompanying drawing, in which—

Figure 1 is a longitudinal section, of a brake-shoe constructed in accordance with my invention. Fig. 2 is a like view showing a reinforcement formed as part of the supporting lug. Fig. 3 is a cross-section on the line 3—3, Fig. 1. Fig. 4 is a plan or back view of the shoe with the reinforcement shown in Fig. 2. Fig. 5 is a cross-section on the line 5—5, Fig. 2. Figs. 6, 7 and 8 are longitudinal sections of other forms of the invention. Fig. 9 is a side elevation, partly

in section, of another form of the invention. Figs. 10, 11, 12 and 13 are cross-sections of the shoes shown in Figs. 6, 7, 8 and 9, respectively. Fig. 14 is a cross-section showing another form of the invention.

Like symbols of reference herein indicate like parts in each of the figures of the drawing.

As illustrated in the drawings, my improved brake-shoe comprises an inclosing casing 1, and a filling *a* of frictional material inserted within such casing, which casing is formed of a refractory material, such as asbestos or other suitable material, and which can be treated in any suitable manner and by any suitable means, or mixed with suitable materials for assisting or binding, to render it practically heat proof and capable of being bent or cast into shape, as desired, so as to form a structure having an integral back wall 2, side walls 3 and end walls 4, as well as being open at its front and curved substantially in accordance with the periphery of the car-wheel to which it is to be applied. A supporting lug 5, through which the brake-shoe is connected to the ordinary approved brake-head or hanger is fixed to the back 2 of the casing 1 and is preferably separate therefrom and connected thereto by having its inner ends passed through slots 2' in said back and turned over thereon. Short bearing surfaces 6, which are adapted to abut against bearings on the ends of the brake-head or hanger, are formed on the back wall 2 of the casing 1, adjoining its ends, and such bearing faces are preferably recessed, as at 7, while central or intermediate bearings on said head or hanger are adapted to abut against said back wall and on each side of the lug 5.

The rubbing or frictional action of the brake-shoe upon the wheel is exerted by the frictional member *a*, which consists of a filling of any suitable material, such as cast iron, or a composition of matter specially prepared for the purpose, and of such character as to exert proper and sufficient friction upon the periphery of the wheel without the imposition of undue or excessive pressure thereon, and compositions of this character are well known to those skilled in the art. This filling *a* is either cast into the casing 1 when set in a mold or inserted in such casing under pressure and retained

in position, after hardening, by the walls of the casing.

If desired, the bent ends 5' of the lug 5 can be extended along the inner face of back-wall 2 of the casing 1 and bent up into the ends 6' of the bearing surfaces 6 to form a reinforcement, as shown in Figs. 2 and 4, instead of such reinforcement being formed as part of such lug. All the walls of the said casing can be reinforced by any suitable material, such as the well known expanded metal 8 within such walls and between two layers of the fibrous or refractory material, as shown in Figs. 6 and 10, or if desired, the back-wall 2 can be reinforced by the longitudinal metal strip 9, such as steel, embedded in recesses 9' formed in the outer side of said wall, by the material of said wall entering perforations in said strip and forming such recesses as shown in Figs. 7 and 11 or on the inner side of the said wall, as shown in Figs. 8 and 12, while if desired, a metallic reinforcement cap, such as steel, and shown at 10 in Figs. 9 and 13 can extend exteriorly over and around the back, sides and ends of the casing 1 on which the hanger bearing surfaces 6 can be formed with the sides of said cap solid and its back provided with openings 10' through the same for projecting portion 2' on the casing back 2 to fill such openings, or such reinforcement 10 can be inserted within the casing 1 and between such casing and the filling *a*, as shown in Fig. 14.

Various other modifications and changes in the design and construction of my improved brake-shoe may be resorted to, without departing from the spirit of the invention or sacrificing any of its advantages.

It will thus be seen that my improved brake-shoe will be so constructed that the refractory casing inclosing the frictional filling material for engaging with the wheel will be strong and more durable than the ordinary metal casings heretofore employed on such shoes, and will have all the substantial advantages of lightness, inexpensive construction, and capability of use until practically worn entirely away with such filling material, while any tendency of the casing to crack or break is overcome when it or the filling material becomes worn, and the consequent liability to injury or derailment by flying fragments is thereby pre-

vented. The casing by being non-meltable and non-burning will retain its shape and condition, as well as remain intact, notwithstanding any heat from the wheel by contacting with the frictional filling of the shoe and from any knocks or blows to the same.

What I claim as my invention and desire to secure by Letters Patent is—

1. A brake-shoe comprising an inclosing casing of refractory material, and a filling of frictional material.

2. A brake-shoe comprising an inclosing casing of reinforced refractory material, and a filling of frictional material.

3. A brake-shoe comprising an inclosing casing of refractory material having integral back, side and end walls, and a filling of frictional material.

4. A brake-shoe comprising an inclosing casing of reinforced refractory material having integral back, side and end walls, and a filling of frictional material.

5. A brake-shoe comprising an inclosing casing of refractory material having a reinforcement within the same, and a filling of frictional material.

6. A brake-shoe comprising an inclosing casing having integral back, side and end walls provided with a reinforcement within the same, and a filling of frictional material.

7. A brake-shoe comprising an inclosing casing of refractory material having a reinforcement around the same, and a filling of frictional material.

8. A brake-shoe comprising an inclosing casing having integral back, side and end walls provided with a reinforcement around the same, and a filling of frictional material.

9. A brake-shoe comprising an inclosing casing of refractory material having a reinforcement around and within the same, and a filling of frictional material.

10. A brake-shoe comprising an inclosing casing of refractory material having integral back, side and end walls provided with a reinforcement around and within the same, and a filling of frictional material.

In testimony whereof, I, the said JOHN J. KINZER, have hereunto set my hand.

JOHN J. KINZER.

Witnesses:

T. B. HUMPHRIES.

J. N. COOKE.