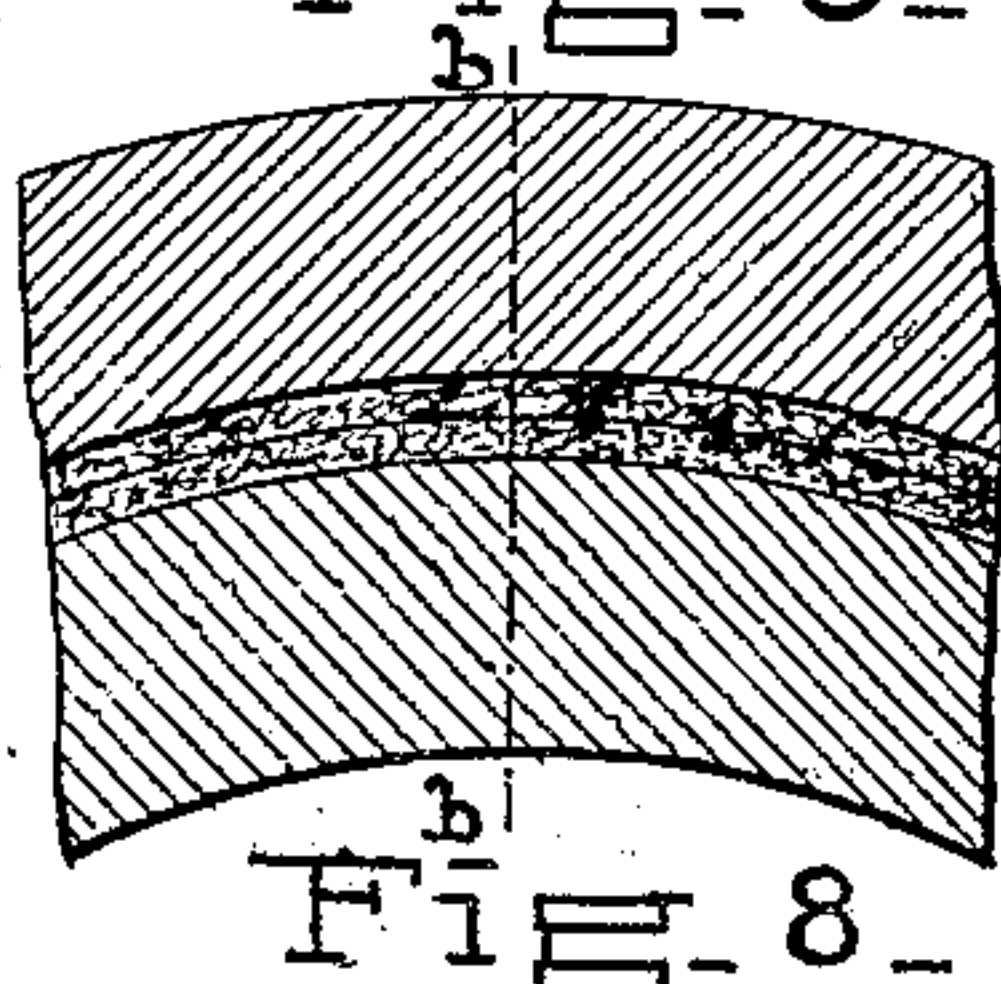
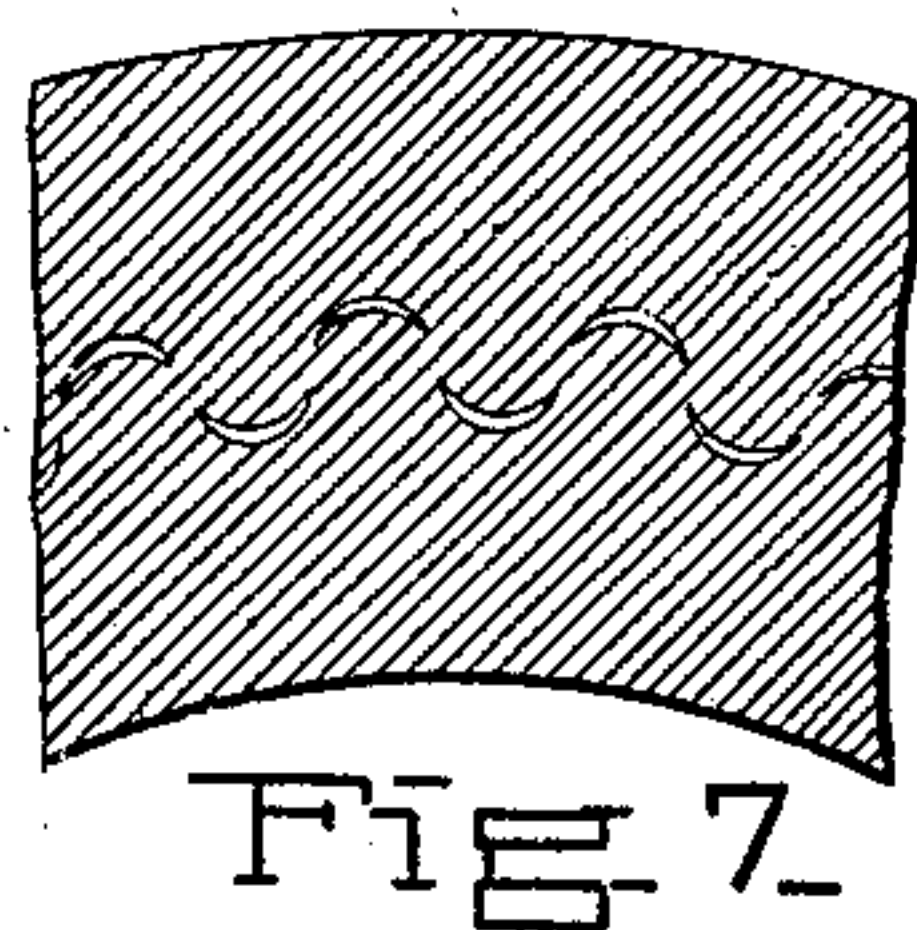
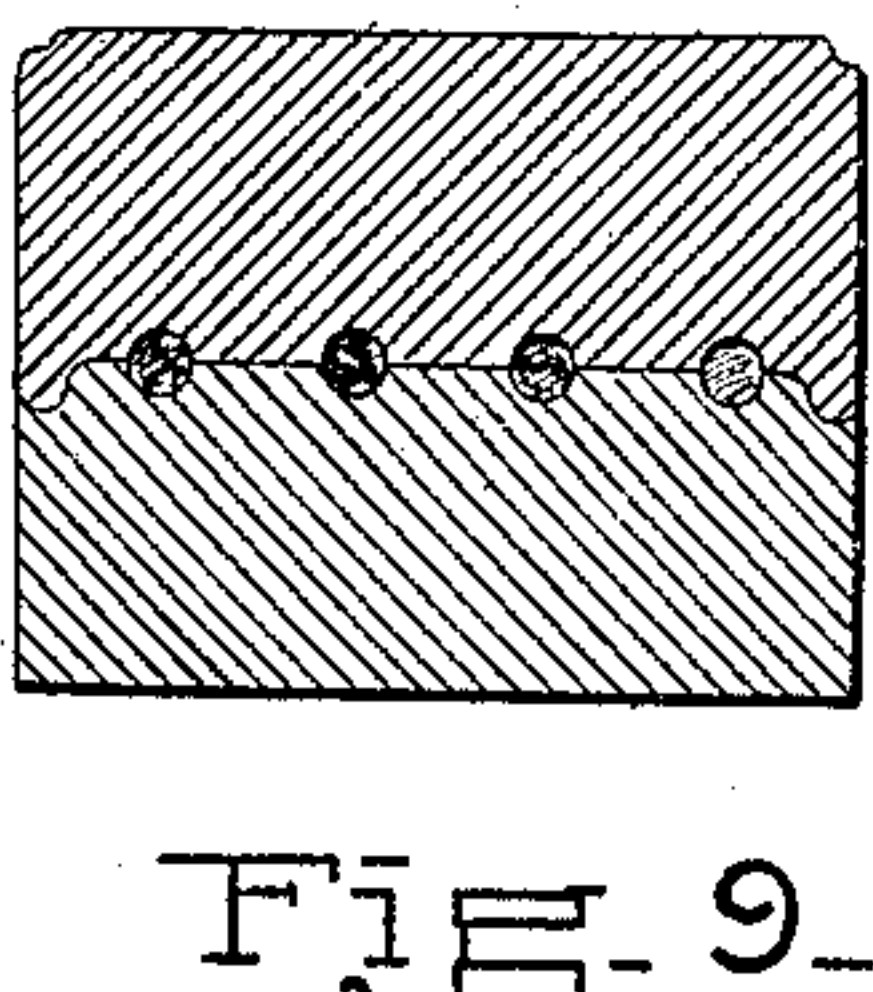
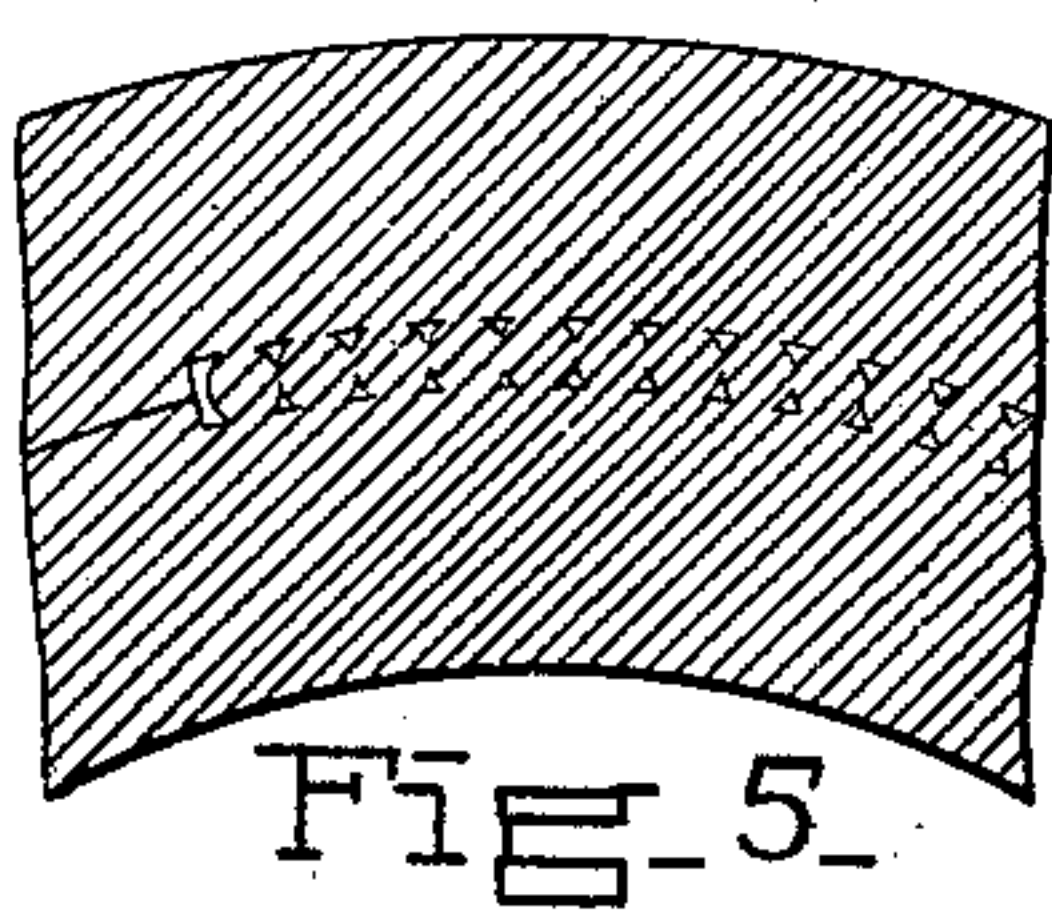
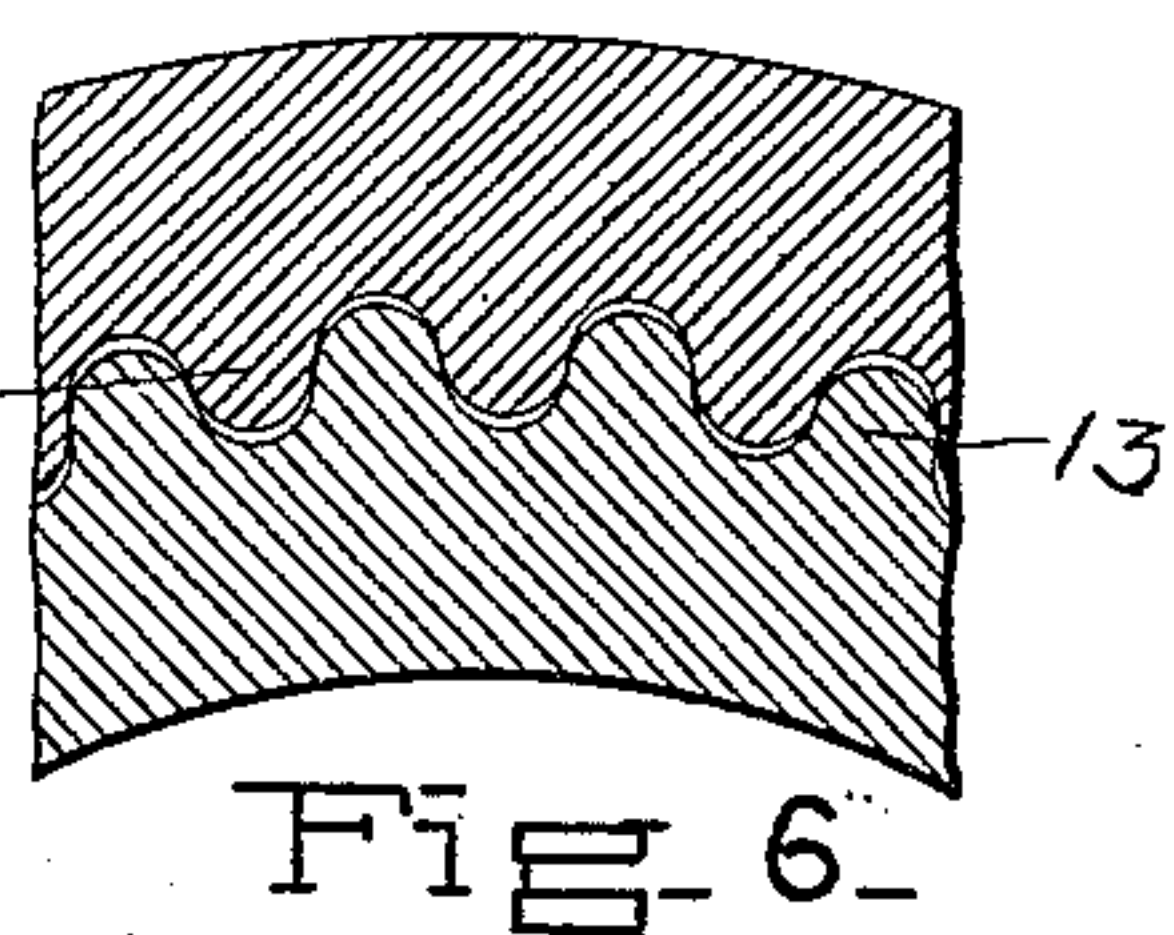
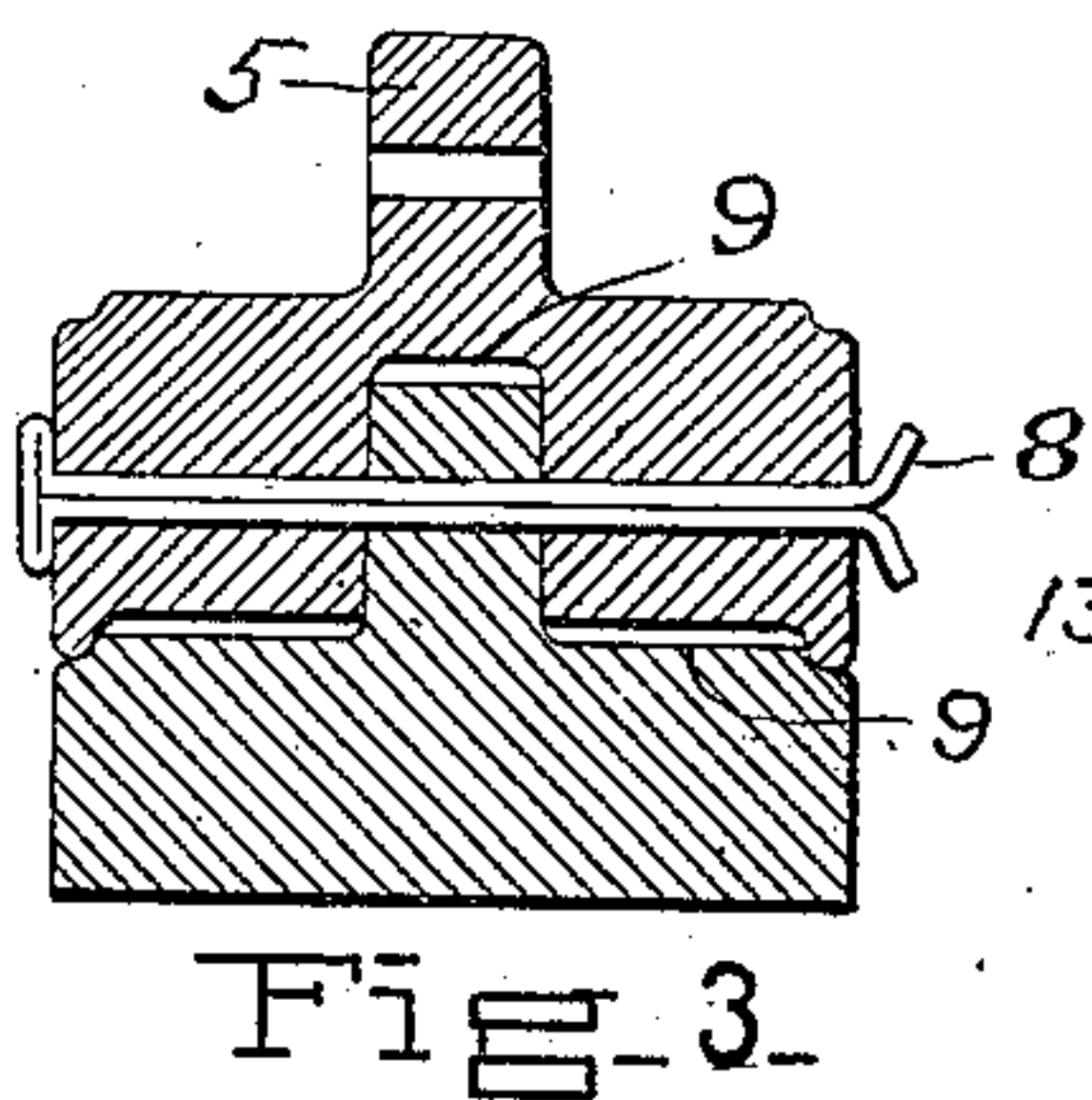
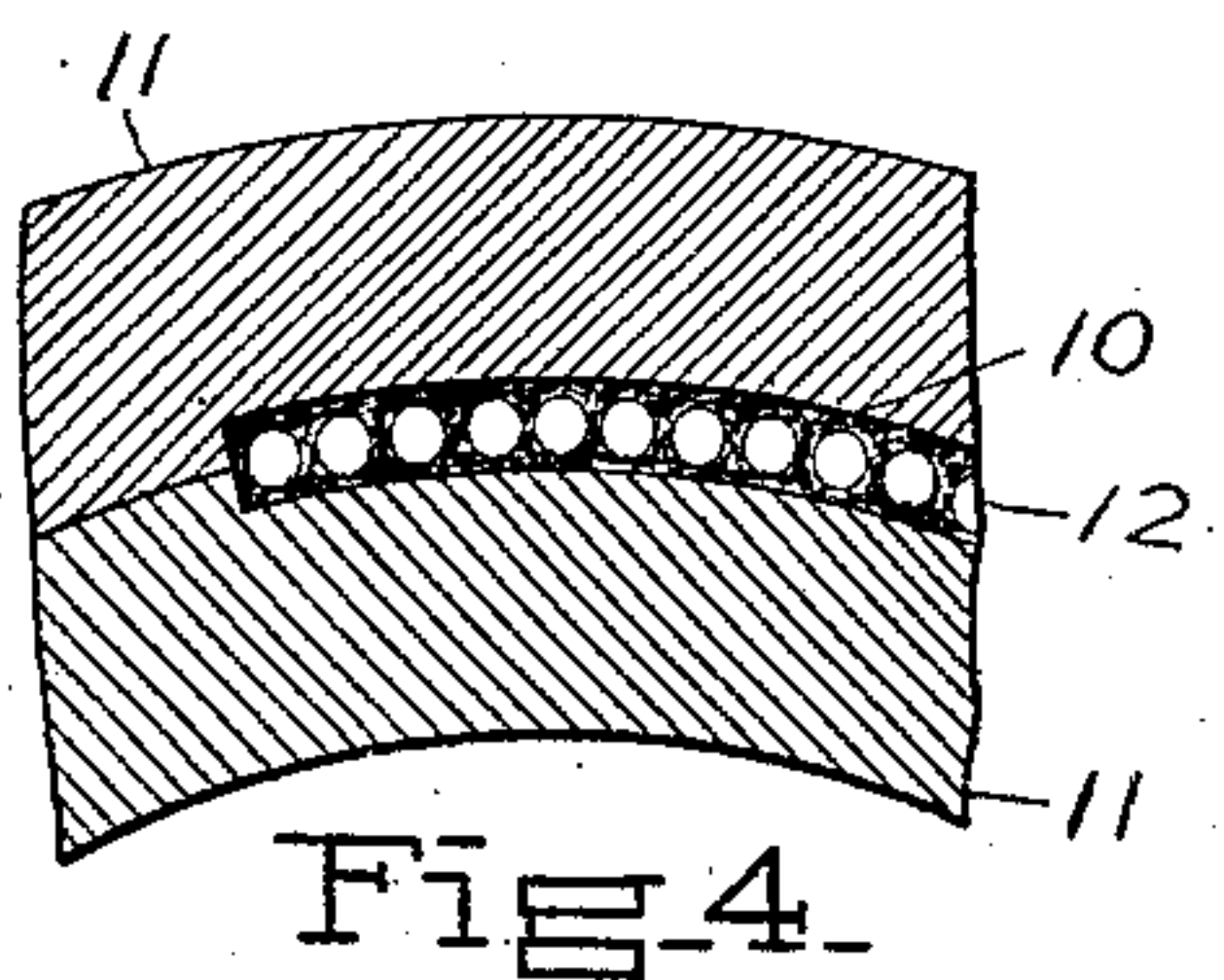
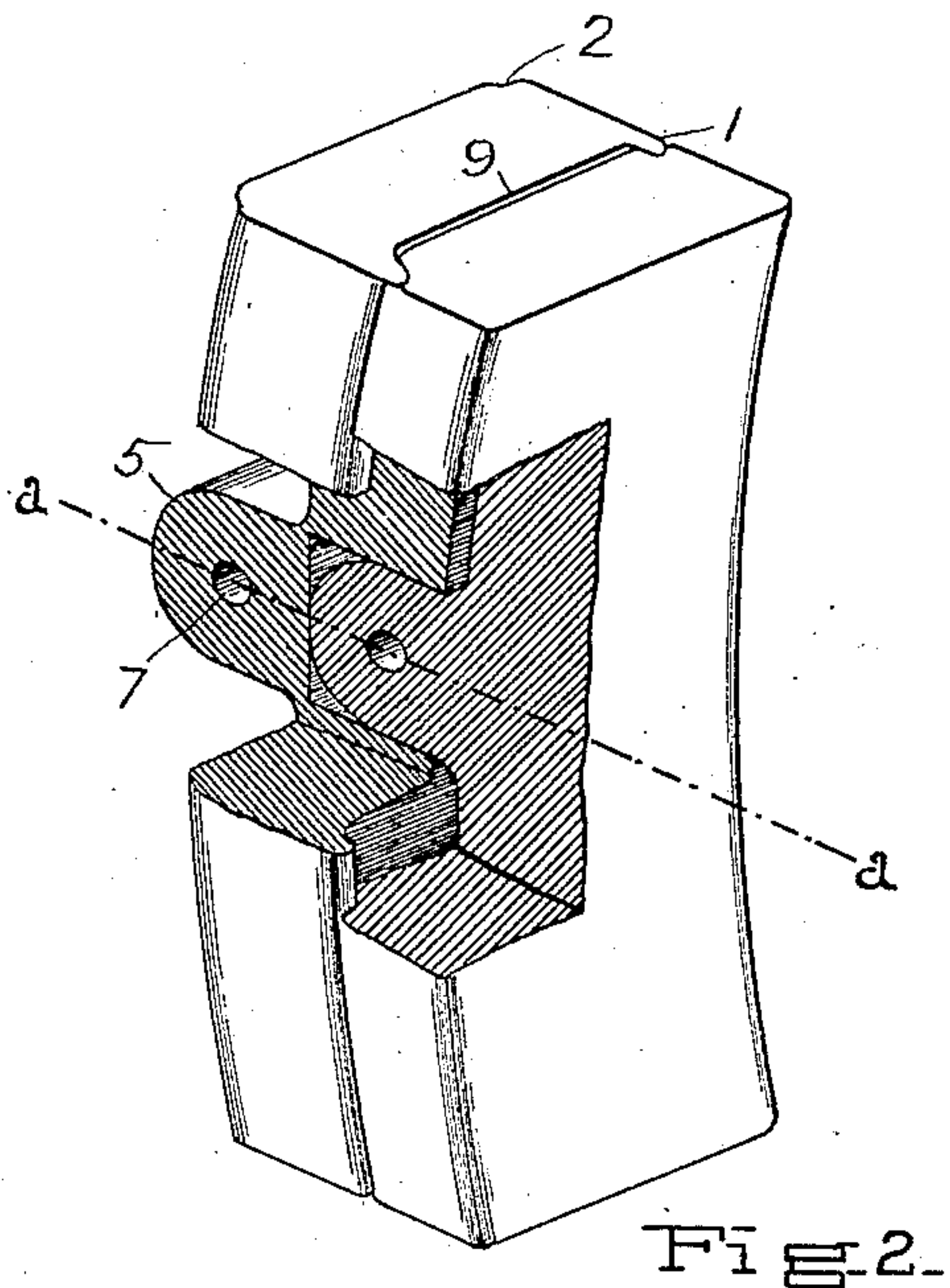
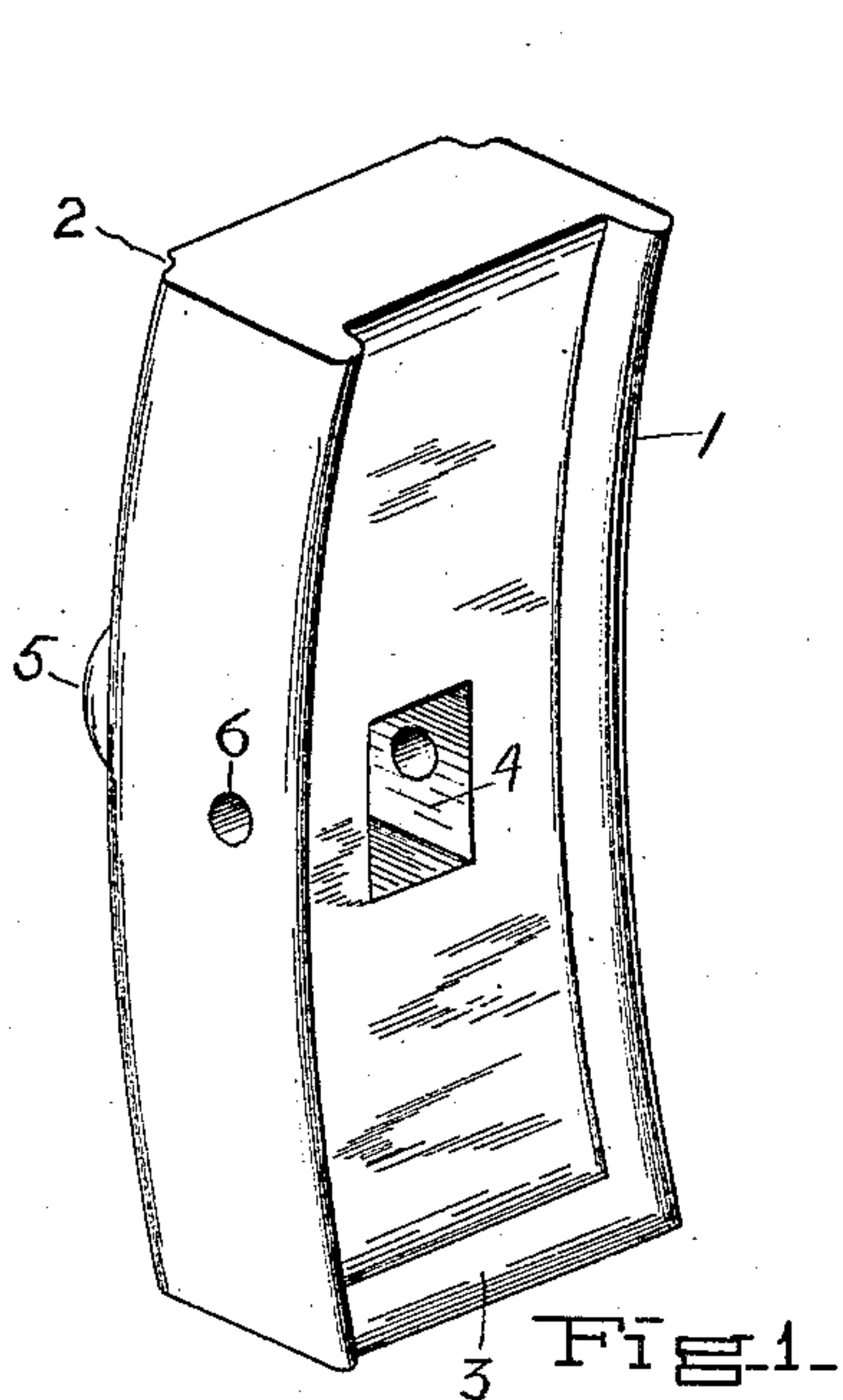


VAN BUREN LAMB.
BRAKING DEVICE.
APPLICATION FILED MAY 20, 1907.

915,031.

Patented Mar. 9, 1909.



WITNESSES
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UNITED STATES PATENT OFFICE.

VAN BUREN LAMB, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO KEYSTONE BRAKE-SHOE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

BRAKING DEVICE.

No. 915,031.

Specification of Letters Patent.

Patented March 9, 1909.

Original application filed October 28, 1905, Serial No. 284,922. Divided and this application filed May 20, 1907.
Serial No. 374,731.

To all whom it may concern:

Be it known that I, VAN BUREN LAMB, residing at New Haven, in the county of New Haven and State of Connecticut, have
5 invented certain new and useful Improvements in Braking Devices, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the
10 same.

This invention broadly relates to means for replenishing the wear accruing in braking devices in which a positively controlled body is so contacted with a moving surface as
15 to effectuate a retardation of the relative movement therebetween, but the herein disclosed embodiments possess peculiar advantages when utilized in connection with brakes analogous to those employed in rail-
20 road moving stock and in which a suitable shoe is pressed against some portion of a wheel, such as the tread, or against the track, as the case may be. As to subject-matter, this application is a division of my former ap-
25 plication filed October 28, 1905, Serial No. 284,922. Such shoes and like bodies undergo a very considerable abrasion in service and fresh material must after a time be supplied to take the place of that worn away.
30 Obviously, great saving of material and other inherent advantages accrue if the new material be so added to the residual shoe that the latter continues its braking function until every particle thereof is consumed
35 in wear only and no part is discarded by removal, breaking off or otherwise wasted save in actual service. Heretofore, the partially worn shoe has been affixed to the wearing face of a fresh shoe by means of one or more
40 lugs protruding from the back of the worn shoe so as to transversely extend in an axial direction. Such lugs mechanically interlock with the wearing face of the complementarily renewed shoe which is matrixed
45 in correspondence with the rear lugged face of the worn shoe and, as the attachment entirely depends upon such lugs, it fails as soon as the wear closely approaches the same, inasmuch as the shoe, being sup-
50 ported at a few points only, is subject to easy fracture at other points and once divided it readily detaches in parts from the worn shoe. Moreover, such lugs and portions as may temporarily cohere to the new unworn

shoe are liable at any time to suddenly shift 55
in position while in contact with the wheel, either severely cutting the tread thereof or so tightly wedging thereagainst as to en-
tirely stop its rotation, thereby producing a
"flat" wheel, to the injury of all parts of the 60
rolling stock.

This invention has in view, among other objects, the provision of such a system of unitary shoes and mode of joining the same as will be applicable to any arrangement of 65
braking means to overcome the above stated defects.

This invention also aims to produce shoes with interfitting faces so contoured that when joined and worn the features thereof will not 70
present transverse facets which in practice would otherwise cut and injuriously scratch the tread of the wheel, and will be held rigidly in place.

Another object is to devise a bond between 75
worn and fresh shoes which will for all practical purposes so merge the two together as a substantial entity that the contacting por-
tions will be integral and in wear not subject
80 to detachment.

An additional object is to formulate a manner of integrally and otherwise effectively uniting brake shoe units and the like, which is so inherently simple in operation as to be 85
adapted for being readily employed in any place by ordinary unskilled labor unassisted by cumbersome or unusual mechanical appli-
ances.

In its more specific application, this inven-
tion contemplates a union and mode of pro- 90
ducing the same between contiguous parts of brake shoes which will substantially constitute a true weld joint which, however, may also be more or less in the nature of a "solder joint" according to circumstances. 95

Other objects and advantages will be in part obvious and in part more specifically pointed out hereinafter.

With the aforesaid and other ends in view, my invention accordingly consists in the 100
combination of parts, features and modes of construction, and arrangement of elements hereinafter more specifically stated as an exemplification of the invention.

That this invention may be more fully un- 105
derstood, and made comprehensible to those skilled in its relating arts, I have accompanied the following description by drawings

illustrating several of many possible embodiments thereof. In such drawings, like characters denote corresponding parts throughout all the views, of which:

- 5 Figure 1 is a general perspective of a brake shoe embodying certain structural characteristics adapting it for being conveniently treated by my novel mode of uniting such parts; Fig. 2 is a sectional perspective illustrating the structure shown in Fig. 1 as assembled with a complementary structure preparatory to carrying out my method of joining the same; Fig. 3 is a horizontal sectional view taken along line *a—**a* of Fig. 2; 10 Fig. 4 illustrates a simple deviation from the preceding in which a plurality of metallic granules are applied within the spaces intermediate the faces of the shoes for further uniting the same according to my invention; 15 Fig. 5 is a view of the structure shown by Fig. 4 after undergoing treatment in accordance with my improved process; Fig. 6 denotes another construction in which the opposing faces of the brake shoes may be corrugated or pebbled to insure a better uniting contact; 20 Fig. 7 is a view of the structure corresponding to Fig. 6 but after having undergone the manner of joining prescribed by this invention; Fig. 8 denotes a manner of grooving the opposing faces so as to constitute channels for the reception of the uniting substance; 25 Fig. 9 is a sectional view of Fig. 8 taken along line *b—b* of the same.

Referring now to the drawings, 1 indicates 35 side lugs positioned on the shoe so as to match with corresponding grooves or recesses 2 on the rear face of a complementary shoe. The bottom edge of such shoe may be correspondingly divided with a like lug 3 adapted to fit in a corresponding recess in the rear 40 face of another shoe. Each shoe is also preferably provided with a front recess such as 4 adapted to receive a correspondingly shaped and positioned lug 5 on the rear of the complementary shoe. This will be apparent from 45 Fig. 2. Preferably, alining apertures 6 and 7 are provided for the reception of a suitable joining pin 8 which will serve to hold the unitary shoes together during the permanent uniting thereof by means of my process. To 50 facilitate the application of my process to such shoes, a space 9 is provided intermediate the adjacent faces for the reception of the uniting substance. Obviously, such space 55 or spaces may be given any preferred shape, proportions or configurations. Escape vents may be provided for the exit of gases arising during the permanent uniting of the shoes according to the herein described process, or 60 reliance may be had for this purpose upon the permeability of the matching faces. Likewise, entrance ports may be provided in case it is desired that the uniting substance be introduced after having brought the shoe 65 members into the desired juxtaposition, al-

though this invention also contemplates the application of such uniting substance to the faces of the shoe in the form of a plastic paste, in which case the ports for the introduction of the same may be dispensed with. Thus 70 in Fig. 2 the uniting substance, which is usually of a pulverulent flowing nature may be introduced through the opening at the top of the figure in which the transverse lug similar to that shown at the bottom is dispensed 75 with. To facilitate the introduction of such substance, I may provide openings of a funnel shape in which case a lug similar to 3 would also be provided at the top of the shoe so that it would be joined to the mate along 80 the whole exterior contour. For the welding substance I prefer in practice to employ any of the well known compositions adapted to spontaneously react and fuse at a high temperature upon being suitably started. Many 85 such substances are in common use and generally contain pulverulent aluminum mixed with some suitable metallic oxidation product, such as a metallic sulfid, oxid, chlorid or the like. A mixture of aluminum and 90 iron oxid may be resorted to in this connection. Such composition may be employed in various ways. Thus, as heretofore indicated, it may be externally applied to the interstices between shoes when fitted together through one or more small openings 95 leading from the said interstices to the outside of the shoe. Such application may be readily made at any point or locality as it requires nothing more than a suitable receptacle for pouring the pulverulent material into place. This operation, as will be understood, is such as may be readily performed by ordinary unskilled labor and no unusual or costly implements are required. Another manner 100 by which the same end may be easily attained within the scope of the herein described invention is by applying self-fusing composition in the form of a paste to the proper surface of each unitary brake-shoe so that the 105 whole constitutes a self-contained device adapted for being instantly affixed mechanically to a worn shoe and, by a simple ignition at a suitable point, becomes at once permanently welded to such worn shoe. Many 110 other obvious ways may be resorted to, thus, a paste may in some cases be substituted by a pulverulent mass suitably retained in place by means of properly shaped pockets or films of combustible or other harmless material. To increase the efficacy of this composition I may commingle therewith granules of iron, solder or other material adapted to unite with the material of the shoe under the conditions of a high temperature. 125

In Fig. 4 I have illustrated one manner in which a bond may be effected between the shoes through the assistance of granules designated by 10. Such granules, which will ordinarily consist of iron, are shown in con- 130

tact with the adjacent portions 11 of the interfitting brake shoes. Commingled with such granules is the substance 12 which upon ignition undergoes a spontaneous fusion, thereby melting parts or all of the adjacent metallic surfaces and causing them to unite somewhat after the fashion designated and shown by Fig. 5.

Fig. 6 illustrates a slight deviation from the foregoing forms, the opposing faces of the shoes being pebbled or provided with other intermeshing projections 13 so as to provide a sufficient space adjacent the contacting portions for the introduction of a composition having the character stated. After undergoing ignition, the contacting portions will fuse together somewhat after the fashion illustrated by Fig. 7.

Fig. 8 exemplifies another arrangement in which channels are provided for the introduction of the self-fusing compound. Fig. 9 shows the above in section.

Many other variations and adaptations will be obvious from the foregoing description and drawing, both of which are to be understood as being employed in an explanatory and disclosive, but nowise limiting, sense. Thus it is well within the contemplation of my invention to so vary the constitution of the self reactive, bonding substance as to arrive at ends deemed preferable in practice, such as employing a composition whose reaction products possess desired physical properties, such as softness, malleability, strength, or the like. Likewise, such substance may set between suitable interfitting elements of respective shoes to serve as a key in addition to a weld. Also, discharge ports may be provided for excess or undesirable reaction products. It will also be understood that this invention is not to be confined to supplying fresh material to the rear face of the worn shoe, since, by the use of the welding substance, new shoes may be adapted

for convenient application directly to the worn surfaces or to the head.

Other arrangements and modifications are within the scope of the following claims, and it is to be understood that this invention is eminently fitted for the mounting of shoes upon brake heads, as well as two shoes one upon the other, and the term "brake shoes" is used through the following claims in a broad sense as comprehensive of the part better known as brake heads.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. A plurality of brake shoes having certain contacting portions fused or welded together and spaced slightly apart in other portions.

2. A plurality of brake shoes having contacting portions fused or welded together and having other portions mechanically bonded.

3. A plurality of brake shoes having matching faces fused or welded together in places.

4. A plurality of brake shoes having contacting portions of united faces fused or welded together in parts, at least one of said faces being recessed.

5. A plurality of brake shoes having matching faces thereof in interfitting relation and having interstices therebetween filled with a solid substance serving as a key for holding said shoes together.

6. A plurality of unitary brake shoes fitted together in corresponding faces and united by a suitable bonding substance.

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

VAN BUREN LAMB.

Witnesses:

SAMUEL L. ALPERT,
ARTHUR G. PREVİN.