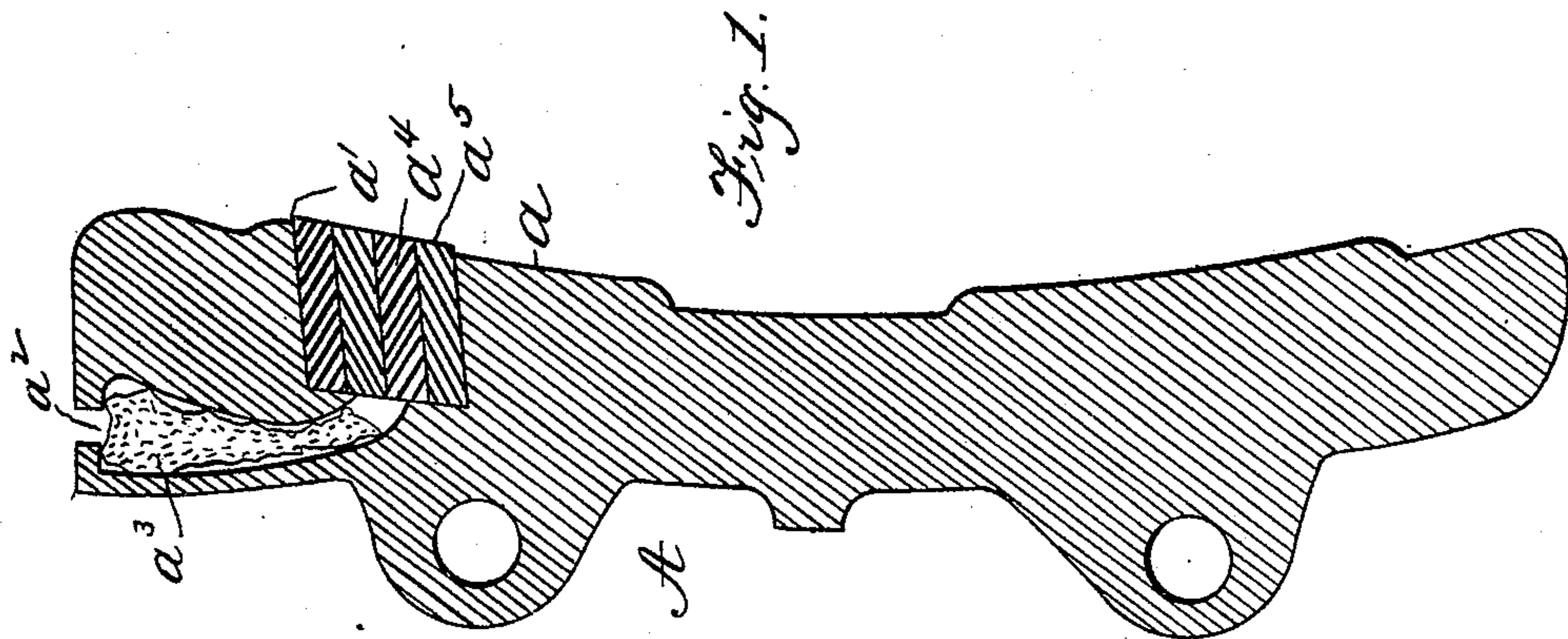
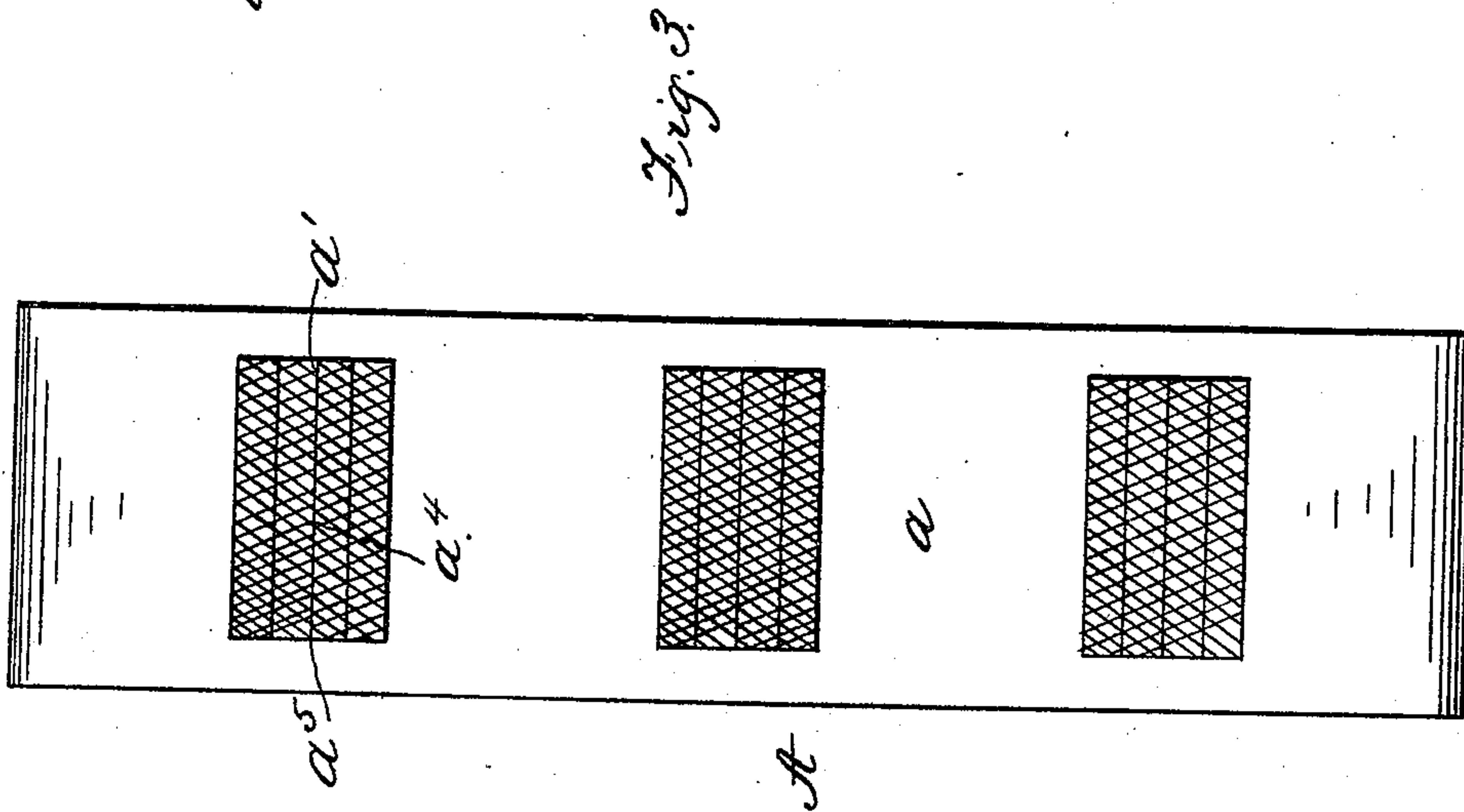
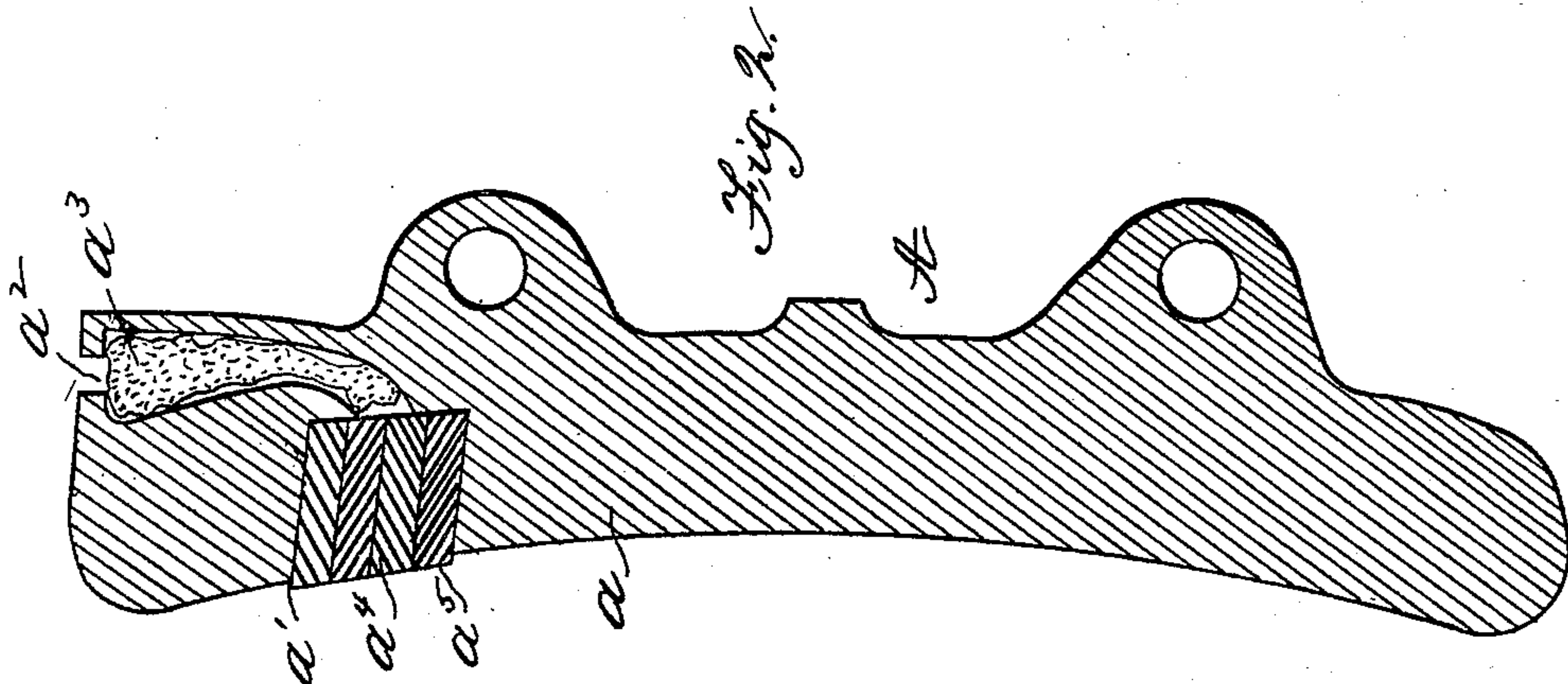


(No Model.)

C. F. WOHLFARTH.  
BRAKE SHOE.

No. 480,982.

Patented Aug. 16, 1892.



Witnesses

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# UNITED STATES PATENT OFFICE.

CHARLES FREDRICH WOHLFARTH, OF NORWICH, CONNECTICUT, ASSIGNOR  
TO THOMAS MILBURN, OF TORONTO, CANADA.

## BRAKE-SHOE.

SPECIFICATION forming part of Letters Patent No. 480,982, dated August 16, 1892.

Application filed March 14, 1892. Serial No. 424,896. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES FREDRICH WOHLFARTH, a citizen of the United States, residing at Norwich, in the county of New London and State of Connecticut, have invented certain new and useful Improvements in Brake-Shoes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to that class of brake-shoes having a part of the face that comes in contact with the wheel of a softer material than the rest of said face.

Heretofore wood, leather, and rubber have been used as part of the contacting face, but were objectionable, as the rubbing friction to which the contacting face is subject is very great, and the wood, leather, or rubber soon becomes very smooth and no longer useful for the purpose intended. To obviate that objection, parts of the face of the shoe have been made of soft metal and the other parts of chilled metal. The soft metal aids materially in stopping the wheel, while the chilled part of the face protects it from undue wear. Notwithstanding the fact that part of the face is made of chilled iron, the wear upon the shoe is very great. All of these shoes are further objectionable in that the frictional contact with the wheel heats them to a high degree and in that the contact with the wheel causes them to squeak—a very objectionable feature, which heretofore has never been obviated.

The object of my invention is to make a shoe that will be free from the objections noted and at the same time permit of the use of a very soft material as part of the face. The advantages of such a construction will be hereinafter set forth.

The invention consists of constructions and combinations, all as will hereinafter be set forth in the specification and pointed out in the claims, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure 1 represents a section of a brake-shoe of ordinary form having my invention

applied thereto; Fig. 2, a similar view showing my device applied to what is known as a “combined soft and chilled face shoe;” Fig. 3, a front elevation showing the face of the shoe and the soft material applied at different points.

As it will be obvious from the following description that my invention can be applied to any form of brake-shoe, I deem it unnecessary to show it upon any other forms than those shown in the drawings, and which are marked A. The face  $a$  of the shoe is provided at one or more points with one or more recesses  $a'$ , which may extend as deep into the body of the shoe as desired. The rear part of this recess is connected with a chamber  $a^2$ , ordinarily filled with a liquid, preferably oil, and supplied with waste or wicking  $a^3$  to prevent the liquid from wasting. There may be a separate chamber for every recess, or there may be a common oil-chamber for all the recesses. In the recess  $a'$  I place a packing  $a^4$ , of any porous material of sufficient density to prevent the liquid from wasting and still of sufficient porosity to permit the liquid to thoroughly permeate it. I prefer to use what is known as “rubber belting” cut up in sections of equal size, with the flat faces together and the edges toward the oil-chamber and the face of the shoe. It is obvious, however, that rubber, tow, flax, felt, cotton belting, waste, and many other materials could be used to fill the recess. All that is necessary is to provide a material that can be packed in the recess in such a manner as not to lose its porosity and at the same time can be packed so tight that contact with the wheel will not draw it out of the recess.

In practice I have found that linseed-oil is the best liquid for my purpose. I do not, however, limit myself to the use of that, as any of the other oils will serve my purpose, but none so well as the oil above referred to. The object in using the oil in combination with the packing is primarily to keep the face of the packing soft and moist, so that the constant rubbing will not polish and thereby rob it of its function. The packing projects a little beyond the face; but the wear is nominal, as contact with the wheel forces it partly



back into the recess. Its resiliency returns it to its normal position. The wear upon the face of the brake-shoe is less, as the packing comes in contact with the wheel first and  
 5 checks the speed of the latter before the whole face of the shoe comes in contact. As the wear upon the face of the shoe is due to the wheel moving over it, it is obvious that any reduction of the revolutions of the wheel  
 10 while in contact with the brake-shoe will result in less wear of the shoe. Actual experiment has also demonstrated that the moist packing prevents the shoe from becoming unduly heated, as can be demonstrated by plac-  
 15 ing a piece of plain iron and a piece of iron having an oil-saturated packing upon a revolving emery-wheel. The plain iron will become heated in a few moments, but no perceptible heating of the other piece will be  
 20 found after hours of contact. On the other hand if the plain face be rubbed over a smooth surface there is no apparent retardation of the movement, whereas if the piece having the moist packing be rubbed upon the same  
 25 surface the retardation of the movement is plainly perceptible. The squeaking of the brakes is also obviated by this packing, which I believe is due to the fact that the brake when brought in final contact with the wheel  
 30 stops the latter without allowing any slipping movement, or that a thin film of liquid from the moist packing is interposed between the

two. The latter may be the true solution, as there is less squeaking in wet weather than in dry, owing probably to the moisture be- 35  
 tween the two parts. The amount of liquid used, however, is very small, and is in fact only enough to keep the outer face of the packing moist. That is sufficient to keep the wheel from polishing the face of the packing, 40  
 and I thereby continuously obtain all the good results attained by the use of wood, leather, rubber, &c., before their face becomes polished by contact with the wheel.

What I claim as new is— 45

1. A brake-shoe having a recess in its face and a moist packing in said recess.

2. A brake-shoe having a recess in its face, a packing in the recess, and a chamber connected with said recess. 50

3. A brake-shoe having a recess in its face, a packing made of rubber belting, and a chamber connected with said recess.

4. A brake-shoe having a recess in its face, a packing in the recess, a chamber connected 55  
 with said recess, and oil in said chamber for keeping the packing moist.

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

CHARLES FREDRICH WOHLFARTH.

Witnesses:

CHAS. W. BROWER,  
 M. F. HALLECK.