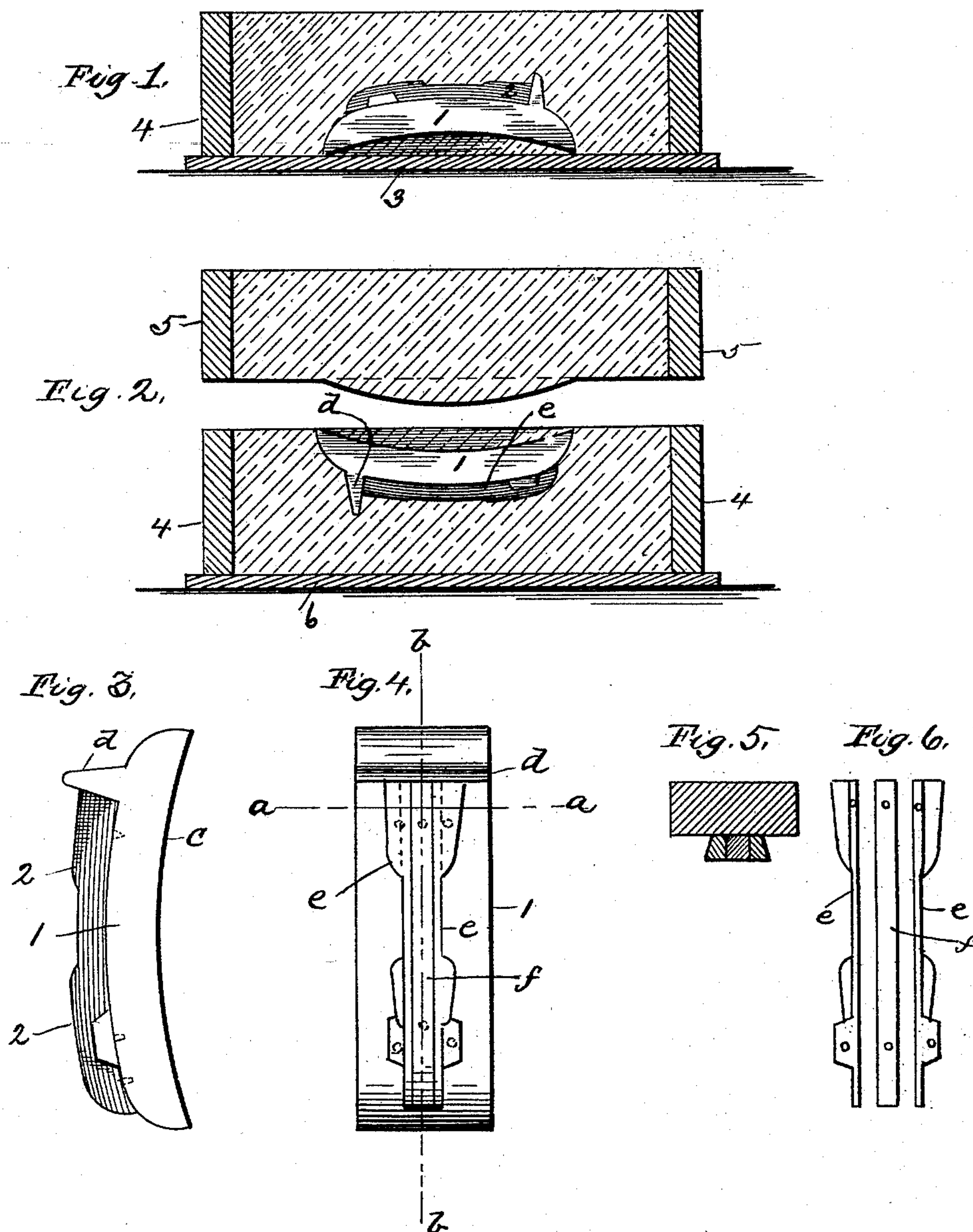


(No Model.)

W. H. KRAMER.  
PATTERN FOR CASTING BRAKE SHOES.

No. 485,949.

Patented Nov. 8, 1892.



Witnesses:  
J. H. Beal  
H. E. Harrison.

Inventor.  
William H. Kramer, Inventor,  
by William L. Pierce,  
his Attorney.



# UNITED STATES PATENT OFFICE.

WILLIAM H. KRAMER, OF ALLEGHENY, PENNSYLVANIA.

## PATTERN FOR CASTING BRAKE-SHOES.

SPECIFICATION forming part of Letters Patent No. 485,949, dated November 8, 1892.

Application filed March 31, 1892. Serial No. 427,155. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. KRAMER, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented or discovered a new and useful Pattern for Casting Brake-Shoes, of which the following is a specification.

In the accompanying drawings, which make part of this specification, Figure 1 is a section through the bottom flask and showing brake-shoe pattern in elevation. Fig. 2 is a section through top and bottom flask and showing brake-shoe pattern in elevation, the bottom flask being inverted. Fig. 3 is a side view of the pattern; Fig. 4, a plan of same; Fig. 5, a section on line *a a* of Fig. 4, and Fig. 6 an inverted plan of the three pieces of the pattern which form the clutch of the shoe.

Heretofore brake-shoes of the type shown in the accompanying drawings have been molded by the use of patterns which have been divided into two parts substantially along the line *b b* in Fig. 4. This has been due to the fact that it has been difficult to withdraw the pieces of the pattern from the sand when otherwise divided. This separation of the pattern into pieces on this line has necessarily left a central rib of metal extending along the whole length of the rubbing-surface of the shoe. This rib of course will wear a corresponding seam in the tread of the car-wheel, and is therefore exceedingly objectionable. Again, the old method of casting such brake-shoes involved the casting of them on the edge in order to withdraw the pattern. This was unsatisfactory, as it made a deep narrow mold, in which there was danger of draw-holes and blow-holes.

The purposes of my invention are to avoid the formation of the rib on the rubber and also to permit a brake-shoe of this general type to be molded lying on its back rather than on its edge.

In the accompanying drawings, which make part of this application, I show a pattern made of four pieces. The part 1 consists of the rubber *c* and clutch-stop *d*. The clutch 2 is seen

to be composed of three pieces—two side pieces *e e* and a center piece *f*. These three pieces are provided with the usual pins, by which they are secured to the rubber.

In the practice of my invention I place the pattern upon the following board 3 with the rubber face down. The bottom flask 4 is placed around it and the sand rammed in. The bottom board 6 is then placed on top of the bottom flask, which is inverted. The pattern is sprinkled with parting-sand, the top flask 5 placed in position, and the sand rammed in. The top flask is then removed. The pattern is then drawn by lifting out the piece 1. The piece *f* is then carefully drawn. The pieces *e e* are then moved laterally in toward the center until their projections will clear the sand, when they are lifted out.

It is clear that by my method there will be no parting ridge on the face of the rubber and that the mold instead of being narrow and deep will be broad and shallow, thus lessening the liability of blow-holes and draw-holes.

If preferred, the stop may be made detachable from the rubber in the pattern, or the key-piece *f* may be made integral with the rubber. I intend in the following claim to cover, in combination, the key-piece, whether integral with or detachable from the rubber. This would require, however, more careful drawing. The precise width and length of the central piece may also be varied, thus varying the width of the side pieces.

I claim—

A pattern for brake-shoes, consisting of a rubber, clutch-pieces separable from the rubber and having outer faces inclining outwardly from the rubber, and a key-piece arranged to be inserted between said clutch-pieces, as set forth.

In testimony whereof I have hereunto set my hand this 24th day of March, A. D. 1892.

WILLIAM H. KRAMER.

Witnesses:

WILLIAM BEAL,  
WILLIAM L. PIERCE.