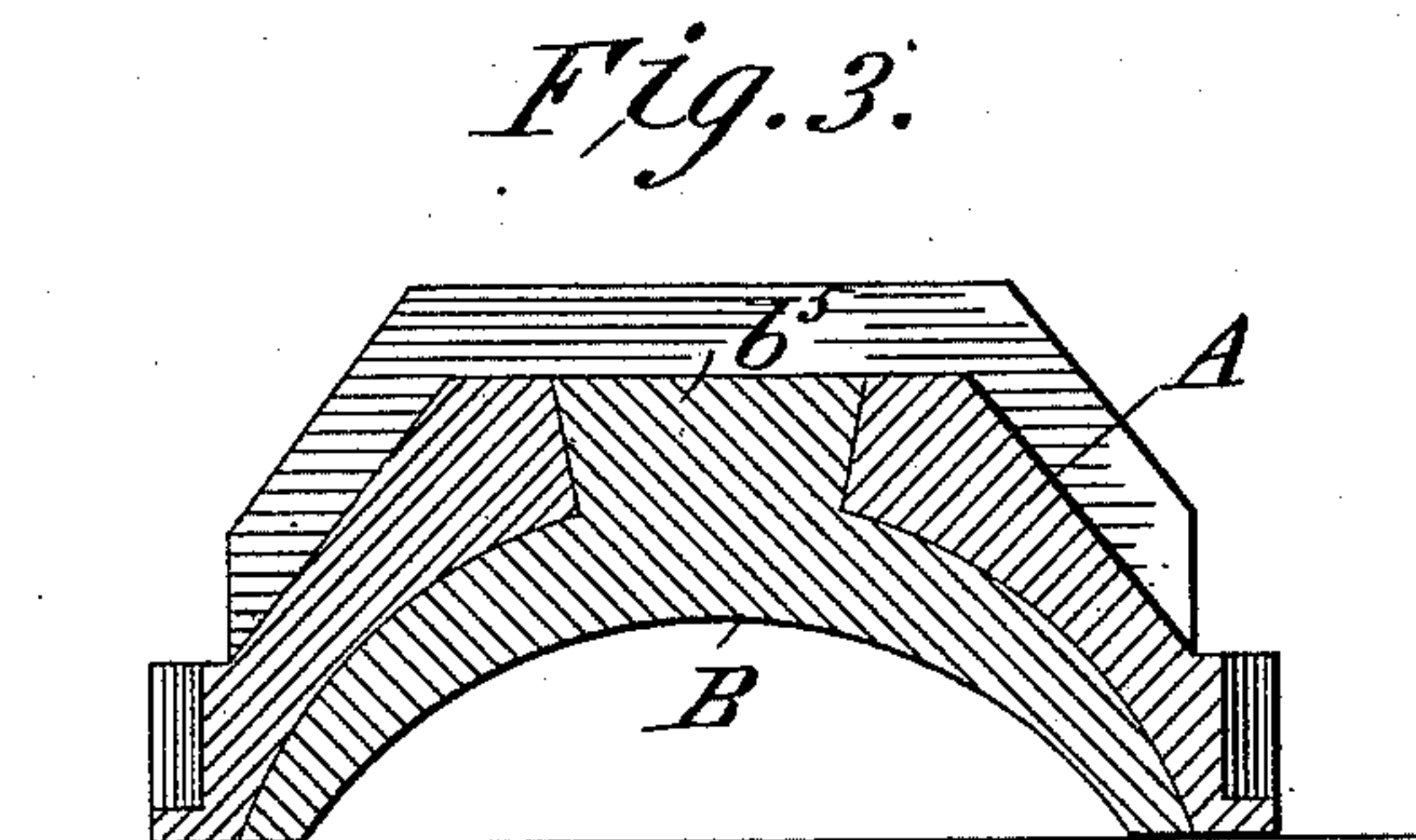
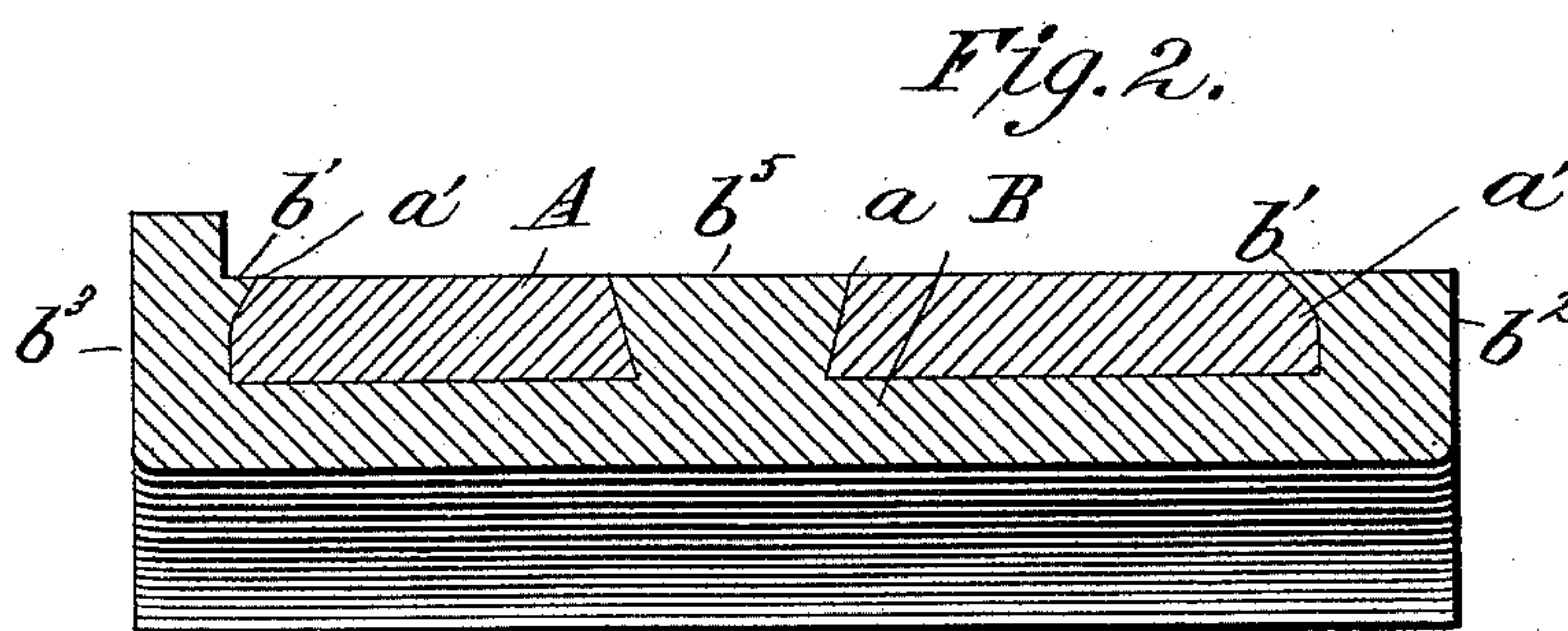
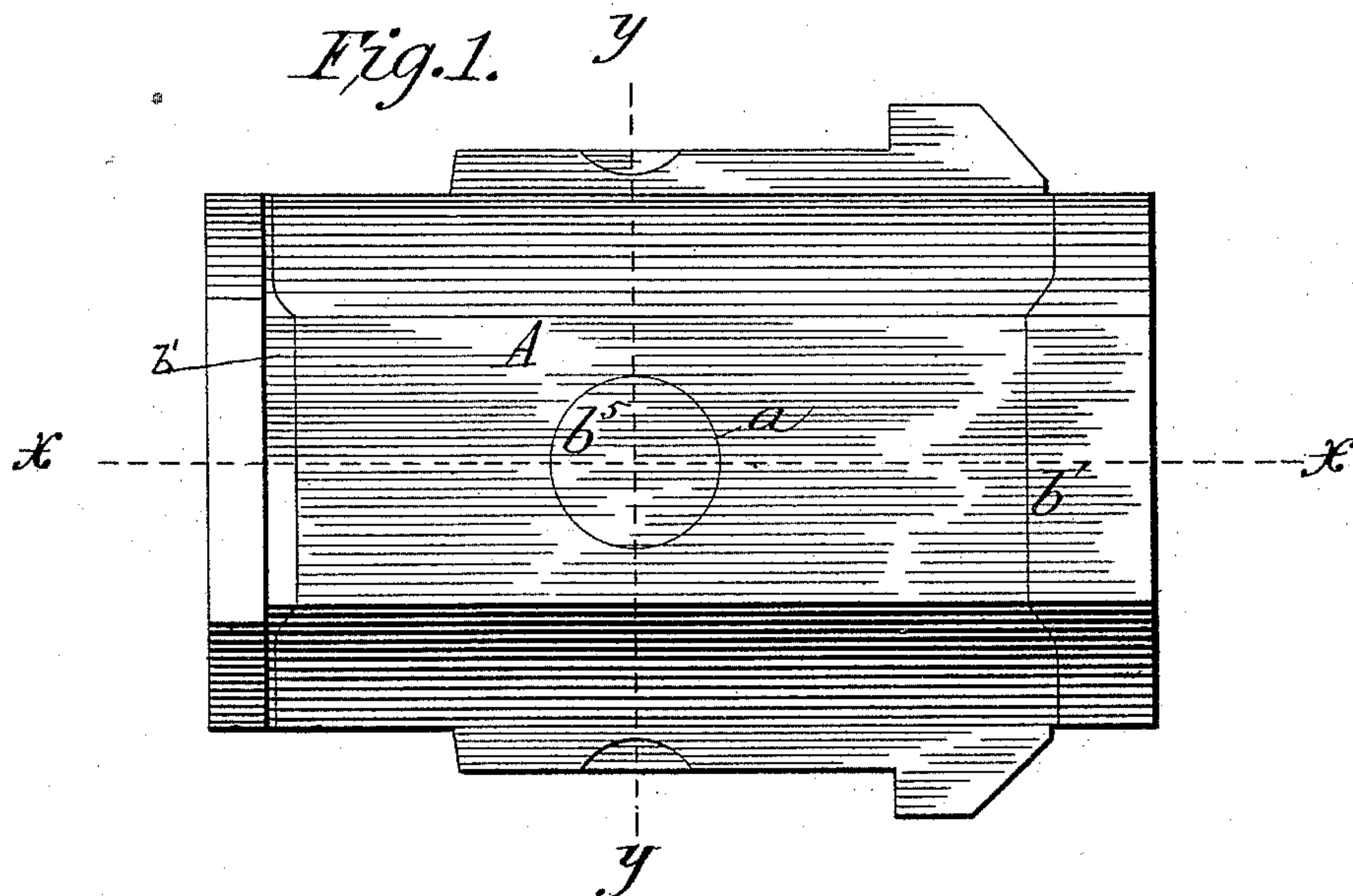


(No Model.)

W. E. KINSEY & F. C. SMITH.  
JOURNAL BEARING.

No. 421,289.

Patented Feb. 11, 1890.



*Witnesses:*

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# UNITED STATES PATENT OFFICE.

WILLIAM E. KINSEY, OF PEORIA, AND FRANK C. SMITH, OF MATTOON,  
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## JOURNAL-BEARING.

SPECIFICATION forming part of Letters Patent No. 421,289, dated February 11, 1890.

Application filed August 20, 1888. Serial No. 283,296. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM E. KINSEY, of Peoria, in the county of Peoria, State of Illinois, and FRANK C. SMITH, of Mattoon, Coles county, State of Illinois, have invented certain new and useful Improvements in Journal-Bearings, of which we do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

Our invention consists in the novel features of construction hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the claims at the end of this specification.

Figure 1 is a plan view of a journal-bearing made in accordance with our invention. Fig. 2 is a view in vertical longitudinal section on line  $xx$  of Fig. 1. Fig. 3 is a view in vertical transverse section on line  $yy$  of Fig. 1.

A designates the main frame or backing of the bearing, by preference formed of the shape shown in Fig. 3 of the drawings. To the inner or concave face of this frame or backing A is applied the brass or bronze wearing part B, the thickness of which beneath the central portion of the frame or backing A is preferably about equal that of the frame. This brass or bronze portion B is formed of greater length than the length of the frame A, so as not only to completely cover the ends of the frame, but also to provide sufficient brass or bronze at such ends to allow a surface of such material to be exposed during the life of the bearing. By thus providing the innerface and ends of the frame A with a thick wearing-body of brass or equivalent metal and by forming the back of the bearing of iron or equivalent cheap metal we attain the advantage of producing the bearing at a cost far below that of a homogeneous brass bearing, while at the same time all that portion or extent of the bearing which could during its life be subjected to contact with the wearing-surface of the axle is formed of brass or bronze. In other words, we attain the advantage of the brass or bronze as a wearing-surface where such material is

of benefit, while at the same time we are enabled to save the expense of using so costly a metal at such point where it would possess merely the function of a cheaper metal.

In order to properly unite the brass or bronze portion of the bearing to the frame A, which by preference we make of cast-iron, we provide this frame with a central opening  $a$ , of variable diameter—that is to say, by preference with its lower portion of smaller diameter than its upper portion—and we provide, also, the ends of the frame A with the chamfered upper edges  $a'$ , so that when the brass or bronze portion of the bearing has been applied to the frame by the process of casting such brass or bronze portion around the body the brass or bronze at the points  $b'$  and  $b''$  will respectively overlap and form a dovetailed joint with the inclined wall of the central opening  $a$  and with the chamfered ends  $a'$  of the box or frame A, and thus guard against all danger of the separation of the parts. In uniting the brass or bronze portion to the frame A this frame is inserted into the bottom of the mold and the brass or bronze is poured or cast around it in such manner and to such extent as to form thick end portions  $b^2$  and  $b^3$  of brass or bronze, with the edges  $b'$  overlapping the chamfered ends  $a'$  of the frame A, and with the central stem  $b^5$  of dovetailed shape filling the central opening  $a$  of the frame A. When the brass or bronze thus cast about the frame A has set, it will be found that it will firmly adhere thereto, and by reason of its shrinkage the dovetailed joints at the center and ends of the frame A will firmly unite the two metals against all danger of separation. It will thus be seen that in the finished bearing the metals will be so closely and firmly united as to produce in effect a bearing as solid as an integral bearing; and it will be found, also, that by forming the frame of a strong and cheap metal—such as iron or steel—not only will the expense of the bearing be much lessened, but the strength of the bearing will be materially increased. As in the use of this class of bearings the wear occurs simply upon the concave surface of the bearing where it contacts with the periphery of the



axle and at the ends of the bearing where they contact, respectively, with the flange and shoulder of the axle, the thick brass portions will present at such points a suitable wearing-surface until the life of the bearing is exhausted; and it will be found, also, that the frame of iron or equivalent metal will give the requisite strength to the bearing until its wearing capacity is exhausted.

10 It will be readily understood that, instead of forming the dovetailed joints at the center and ends of the frame A, such joints could be formed at other points—as, for example, at the sides—without departing from the spirit of our invention. So, also, changes in the precise details of construction which, without departing from the invention, would readily suggest themselves to the skilled mechanic can be made. So, also, while we prefer in the construction of our improved bearing to employ cast-iron for the frame or backing A and brass or bronze for the wearing portion B, still it will be within the scope of the invention to use any other cheap and stout metal for the backing and to employ other suitable alloys or metals for the brass or bronze; and, if desired, also, the wearing-face of the bearing may be lined with lead or

other soft-metal alloy in the well-known manner.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A journal-bearing the main frame whereof is formed of iron or equivalent metal, having a bearing portion of brass or equivalent metal, the said frame being provided with a central perforation *a*, having inclined walls, and being provided with chamfered ends *a'*, and the said bearing portion overlapping the inclined sides of said central perforation and the said chamfered ends, substantially as described.

2. A journal-bearing consisting of a cast-iron frame or backing A, having chamfered edges, and a wearing portion B, of brass, cast about and shrunk onto the said main frame or backing, substantially as described.

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