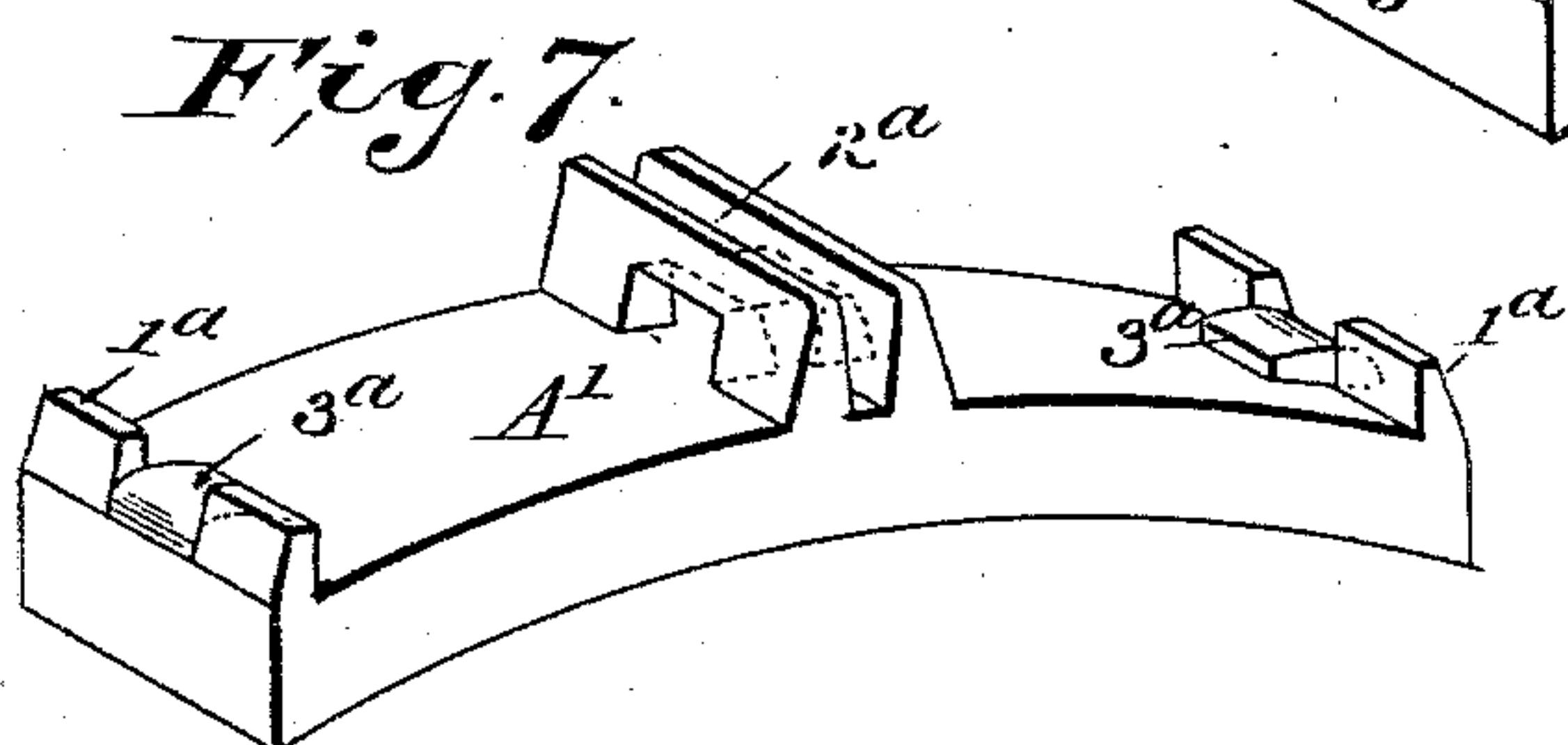
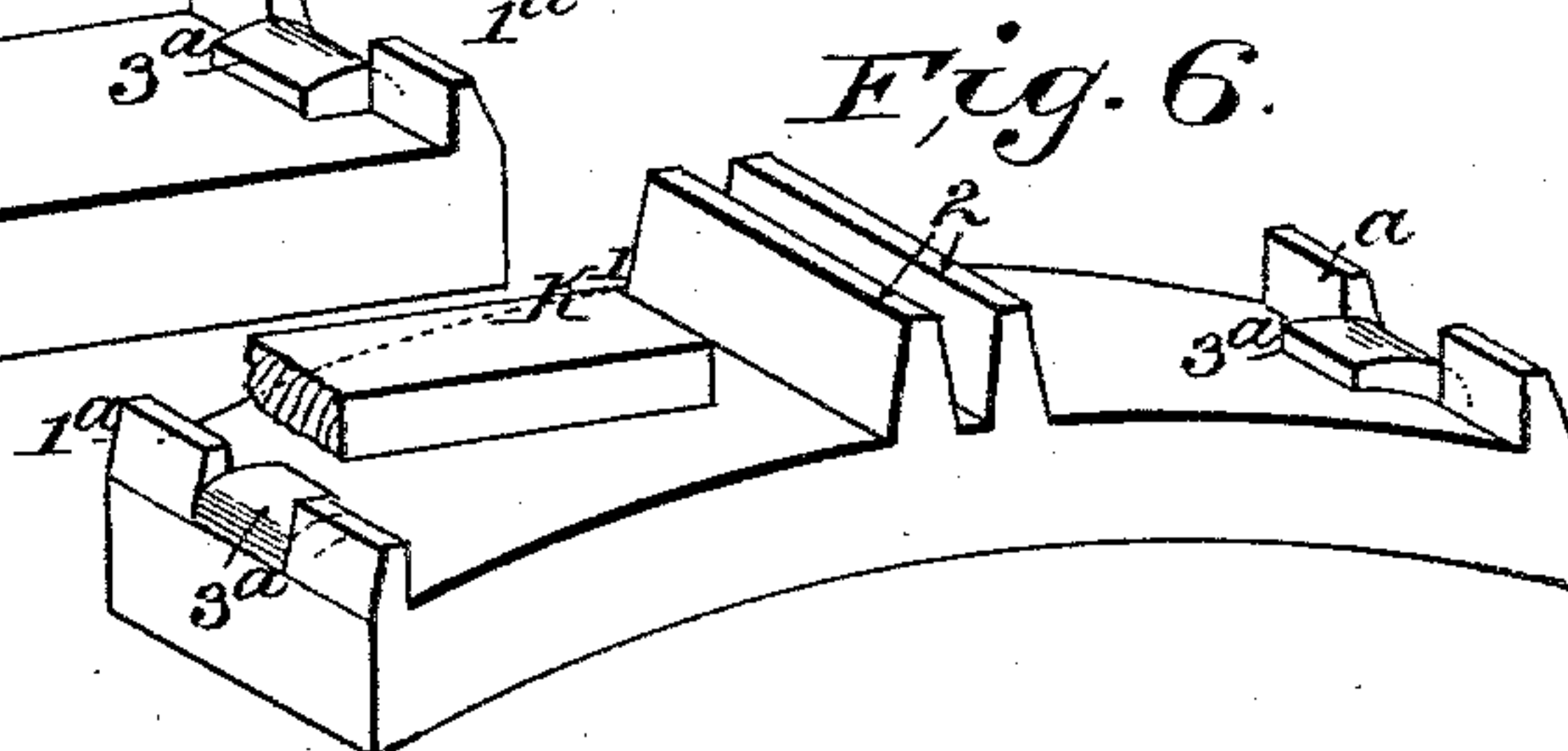
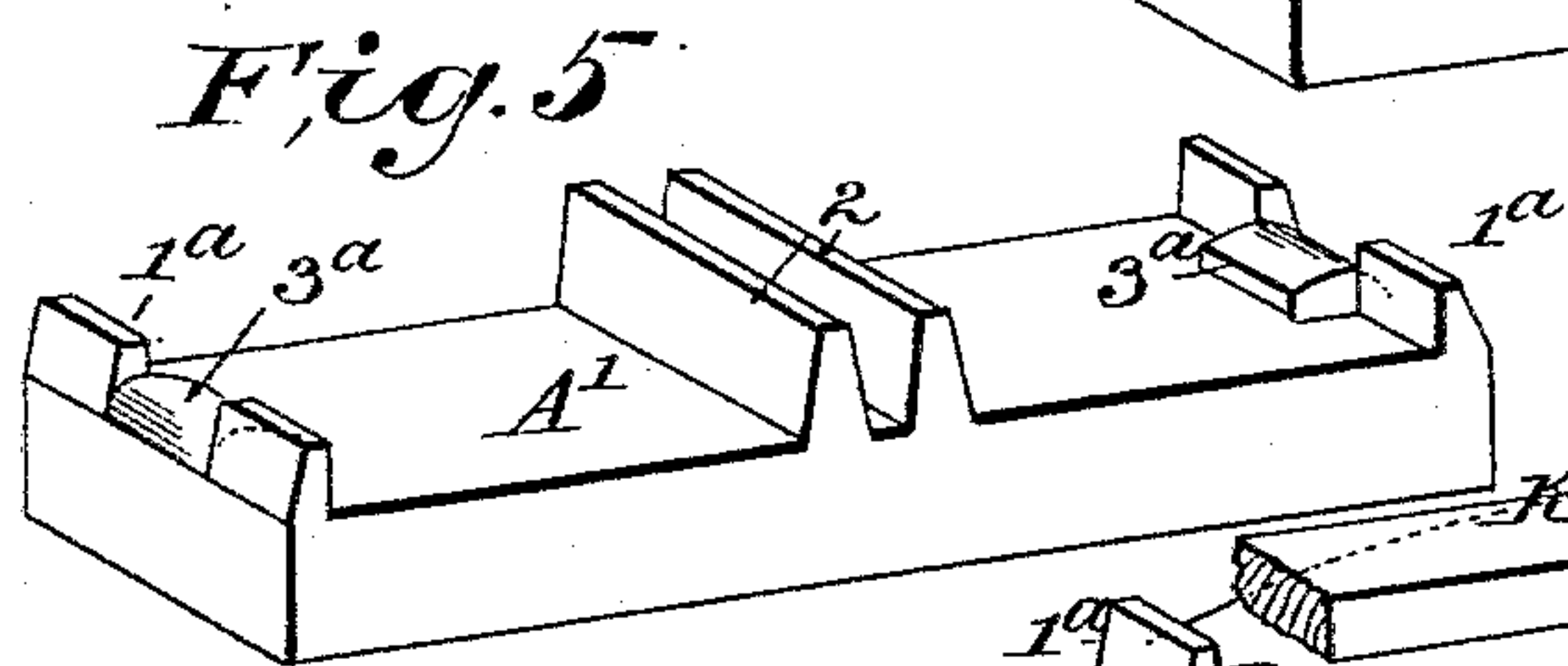
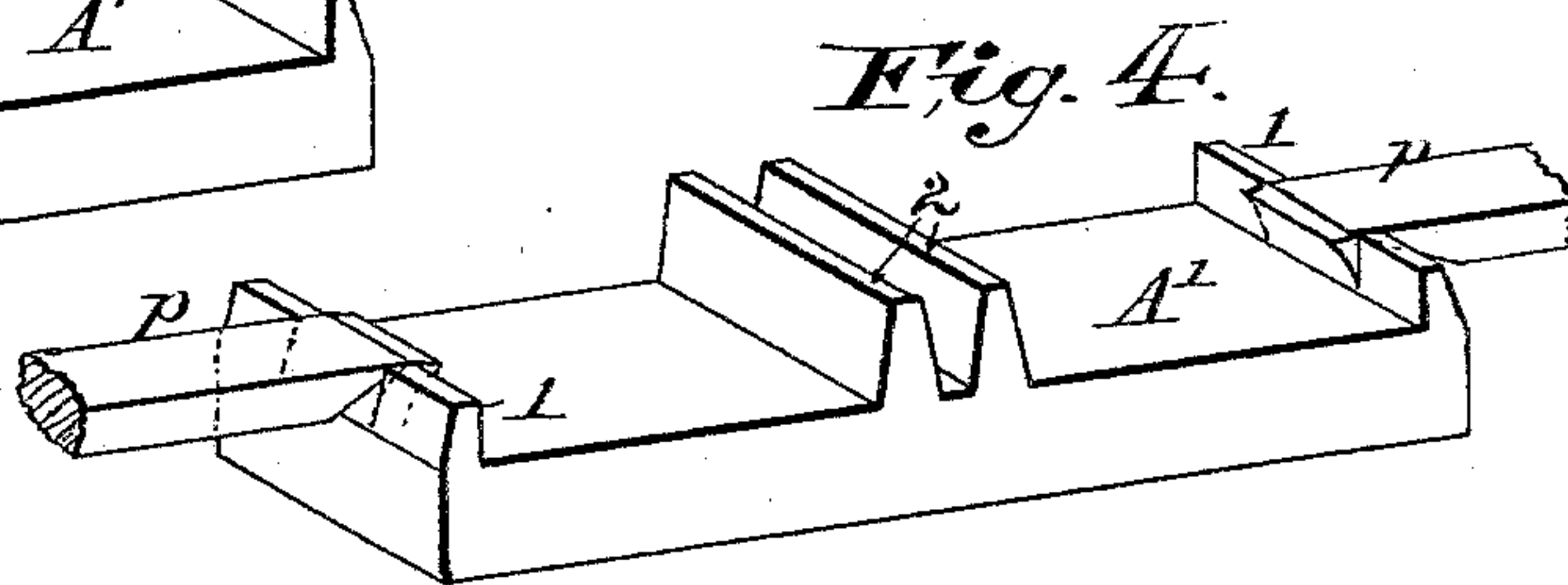
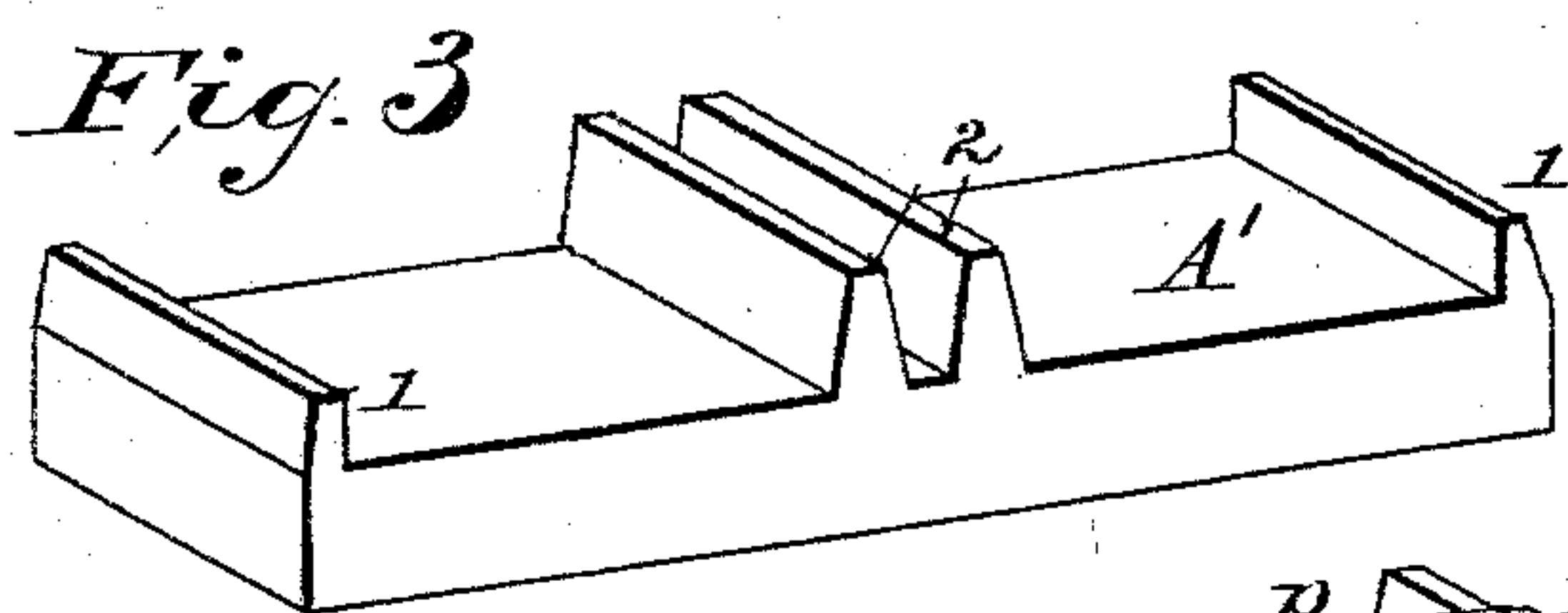
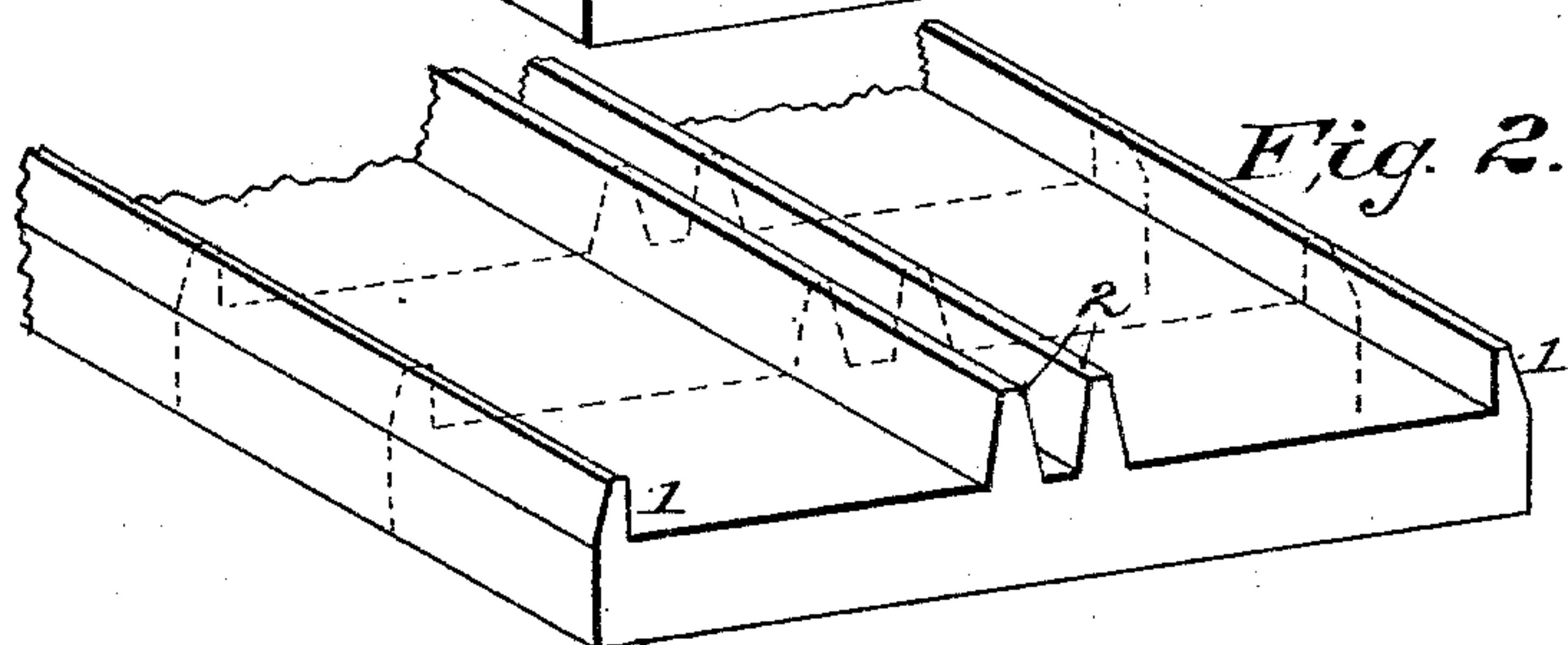
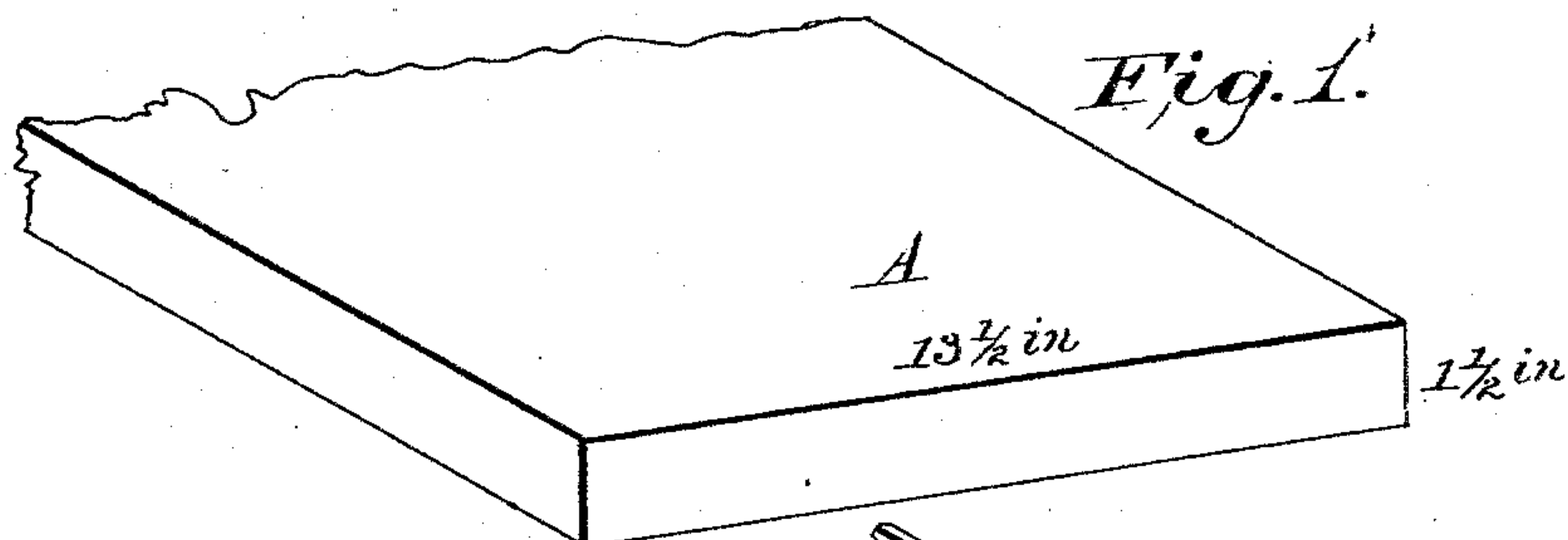


(No Model.)

H. B. ROBISCHUNG.
BRAKE SHOE.

No. 561,815.

Patented June 9, 1896.



Witnesses
Arthur Ashby
M. Darby

Henry B. Robischung Inventor
By *his Attorney F. W. Ritter Jr.*

UNITED STATES PATENT OFFICE.

HENRY B. ROBISCHUNG, OF KALAMAZOO, MICHIGAN, ASSIGNOR TO THE CHICAGO RAILWAY EQUIPMENT COMPANY, OF CHICAGO, ILLINOIS.

BRAKE-SHOE.

SPECIFICATION forming part of Letters Patent No. 561,815, dated June 9, 1896.

Application filed November 14, 1895. Serial No. 568,981. (No model.)

To all whom it may concern:

Be it known that I, HENRY B. ROBISCHUNG, a citizen of the United States, residing at Kalamazoo, in the county of Kalamazoo, State of Michigan, have invented certain new and useful Improvements in Brake-Shoes; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, wherein—

Figure 1 is a perspective view of the end of a wrought-metal blank-bar. Fig. 2 is a perspective view of the blank-bar after it has been rolled or forged into shape for a plurality of shoe-blanks. Fig. 3 is a perspective view of a single detached shoe-blank. Fig. 4 is a similar perspective view of a single shoe-blank, showing the operation of punches in the act of forming the end lugs of the shoe. Fig. 5 is a perspective view showing the shoe-blank after the end lugs have been bent down. Fig. 6 is a perspective view of the shoe-blank when it has been curved to its final shape and prior to the operation of the punch which forms the key-slot, and Fig. 7 is a perspective view of the finished shoe.

Like symbols refer to like parts wherever they occur.

My present invention relates to forged-steel or wrought-metal brake-shoes of the Master Car-Builders' pattern, or having like characteristics. Such shoes are in general of the class known as the "Standard Christie" brake-shoe, and are secured to the brake-head by a key which passes through a clip or lug on the center of the shoe, said lug having a key-slot, and is prevented from lateral movement on the brake-head by end lugs on the shoe, which engage in recesses in the brake-head. This class of shoes has heretofore been commonly produced by casting, though a plain shoe-blank has been forged and end lugs and clips inserted and welded thereto by the operation of dies.

The object of my present invention is to obtain in a simple, expeditious, and inexpensive manner a wrought-metal shoe of the class specified, which shall have the advantages of the cast-metal shoe—viz., the end lugs and clips integral with the shoe—so as not to be affected by the wear of or interfere with the

wearing-face of the shoe, as well as those advantages incident to the wrought metal—viz., greater toughness, less liability to break when worn or from flaws, and increased friction.

Owing to the general shape of the shoe, with its end lips and end lugs, and its clip with key-slot, all in the longitudinal central plane of the shoe, difficulty has heretofore been experienced in producing an integral shoe by rolls and dies or by like mechanical methods usually employed for the production of analogous articles.

To overcome the above-noted difficulties experienced in the manufacture of this class of shoes, I have devised a shoe wherein the end lugs are constituted by sections or folds of the marginal lips or ribs of the shoe, said sections being folded down on the body of the shoe, thus affording a path or clearance for a punch or die whereby the clip-eye of the shoe may be formed, and a wrought-metal brake-shoe, wherein the end lug consists of a fold or section of the marginal rib of said shoe embodies the main feature of my invention.

To preserve the requisite strength in the clip and avoid distortion of the metal of the blank in punching, it is desirable to form a plurality of parallel adjacent ribs at the transverse center of the blank or at the point corresponding with the key-clip in the finished article, and such a feature embodies a further point of my invention.

There are other minor features of invention, all as will hereinafter more fully appear.

I will now proceed to describe my invention more specifically, so that others skilled in the art to which it appertains may apply the same.

In the drawings, A indicates a portion of a wrought-metal bar, preferably merchant-steel, of suitable proportions for a finished brake-shoe or a multiple thereof. For purposes of illustration the proportions of such a blank-bar may be taken as thirteen and one-half ($13\frac{1}{2}$) inches wide and one and one-half ($1\frac{1}{2}$) inches thick, which will, when transformed, as hereinafter pointed out, give the length and thickness required for a finished shoe, the remaining or third proportion of the bar being that of a single brake-shoe or a multiple

thereof, as desired. Such a blank is then transformed by either rolls or dies, as preferred, into substantially the form shown in Fig. 2 of the drawings—that is to say, with 5 parallel marginal ribs or flanges 1 1, corresponding in location with the lip-flanges 1^a of the finished shoe, and with a central rib or flange 2, corresponding in location with the clip or key-lug 2^a of the finished shoe, said 10 ribs or flanges being situated transversely of the shoe-blank A'.

The central rib or flange 2 may, if desired, be a single rib; but in order to obtain the requisite strength in the key-lug or key-clip 15 2^a said rib would be of such thickness as to require considerable force or power in punching, and thus induce a tendency to distortion of either punch or key-lug, I prefer to obtain the requisite strength in the key-clip and 20 avoid the difficulties pointed out by employing two or more parallel adjacent central ribs of about the thickness of the end or lip flanges, though such a formation of the blank is not an essential feature.

25 If the shoe-blank has been formed in multiple, (see Fig. 2,) the single blanks are now severed from the bar, or, if formed singly, the shoe-blank, of the general character shown in Fig. 3, is subjected to the action of dies or 30 punches, (substantially as indicated at *p p*, Fig. 4,) which, acting on the margin at flanges or ribs 1 1, at or about the longitudinal central line of the blank, divide the said ribs or flanges 1 1 into at least three sections, forcing 35 the central section down upon the body or rear ribbed face of the blank to form the end lugs 3^a of the finished blank, which prevent the lateral movement of the finished shoe on the head.

40 The operation of the dies or punches which divide the marginal flanges 1 1 and turn down the central section or end lugs 3^a it will be noted have thus opened a path for the operation of one or more dies K, (see Fig. 6,) which 45 act longitudinally of the shoe-blank to punch the key slot or slots in the central transverse rib or ribs 2, and either before, at the time of, or subsequent to the operation of said punch or die K the blank may be subjected to dies

which give it the required curve to complete 50 the brake-shoe and adapt it to a car-wheel, though said curving of the blank is preferably done prior to or at the time of the operation of the punch K, as thereby greater clearance 55 is given said punch.

In fact, if desired, the blank may be curved or conformed to the wheel-tread before the punches *p p* operate on the marginal ribs 1 1, though such a procedure is not recommended, 60 as it renders the turning down of the end lugs 3^a rather more difficult of accomplishment.

In the form of shoe thus devised and hereinbefore described I secure a wrought-metal brake-shoe of the Master Car-Builders' stand- 65 ard, or one having a similar structure, wherein the end lugs 3^a and key-clip 2^a are integral with the body of the shoe A', and thus obtain the advantages incident to both the cast and wrought metal shoes. 70

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

1. A blank for making brake-shoes, said blank having a plurality of parallel adjacent 75 transverse ribs which correspond in location with the key-clip of the finished shoe, substantially as and for the purposes specified.

2. A forged-steel or wrought-metal brake-shoe having marginal ribs or flanges, sections 80 of which are folded on the body of the shoe and constitute end lugs, substantially as and for the purposes specified.

3. A forged-steel or wrought-metal brake-shoe, having a central or mid rib provided 85 with a key-slot, and marginal ribs or flanges sections of which are folded on the body of the shoe and constitute the end lugs thereof, substantially as and for the purposes specified. 90

In testimony whereof I affix my signature, in presence of two witnesses, this 25th day of October, 1895.

HENRY B. ROBISCHUNG.

Witnesses:

E. T. WALKER,
J. H. NOONAN.