

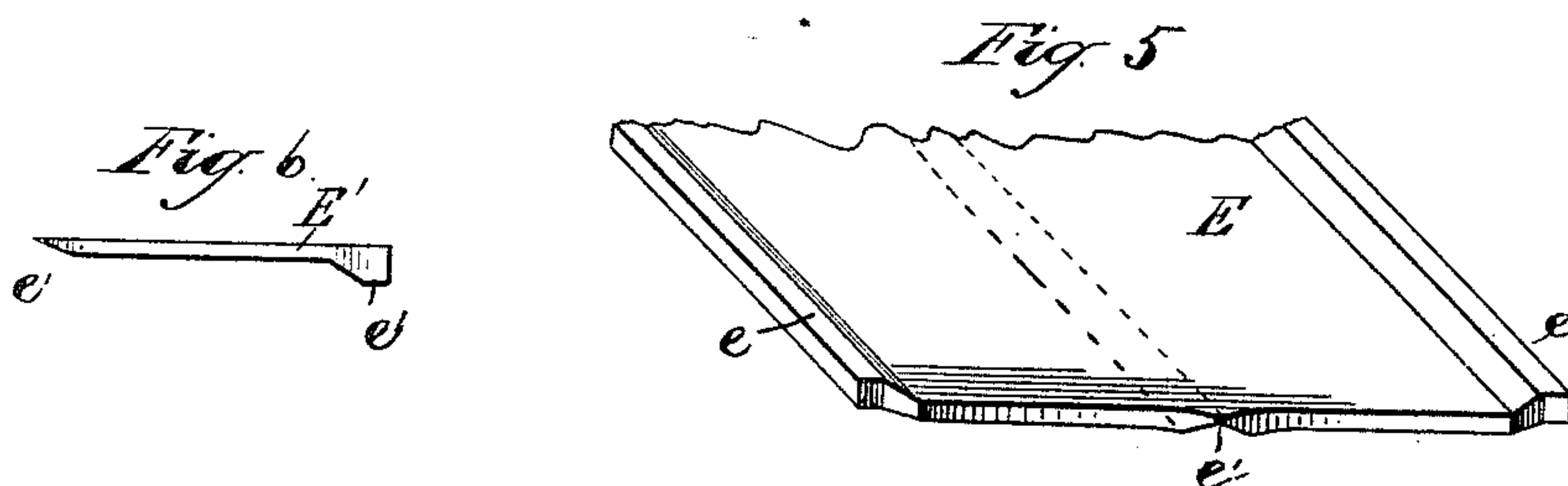
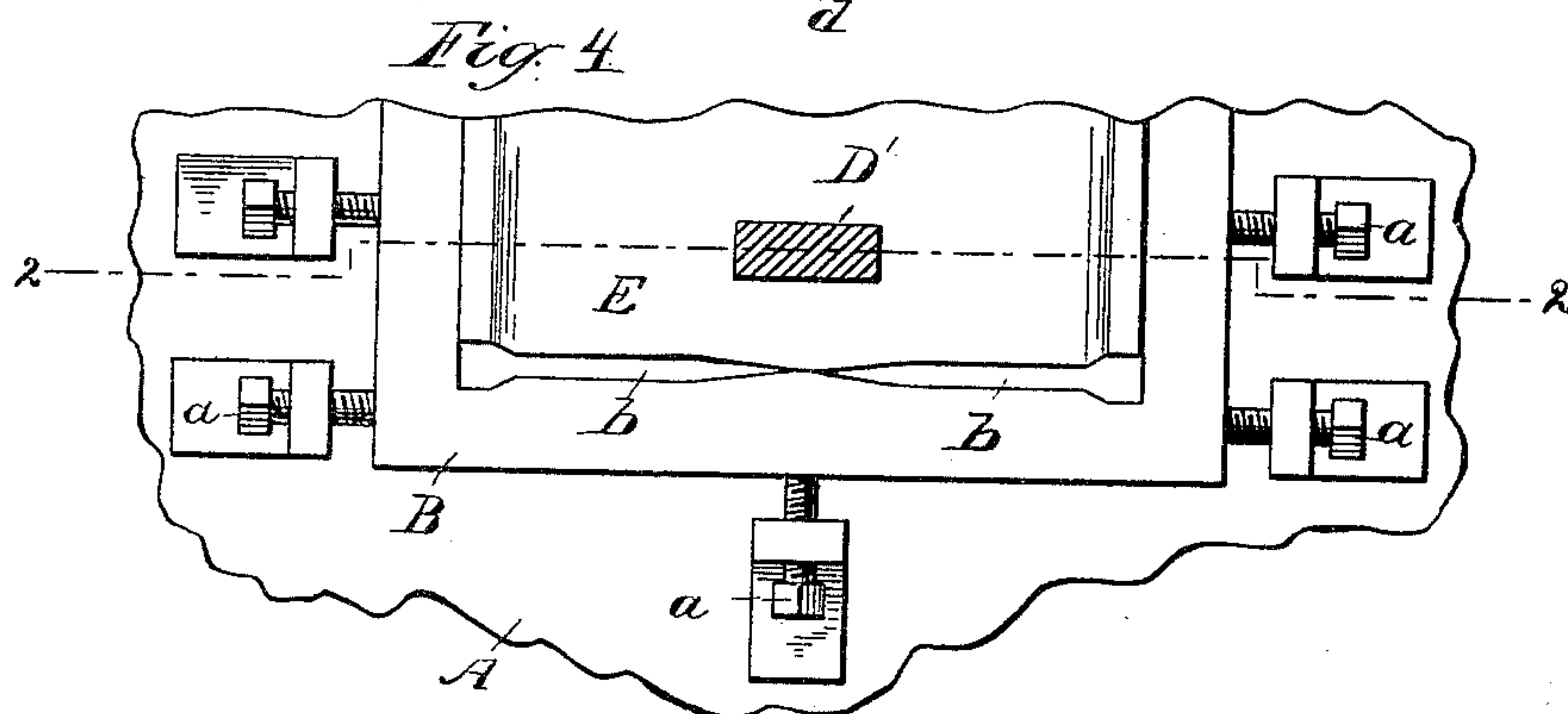
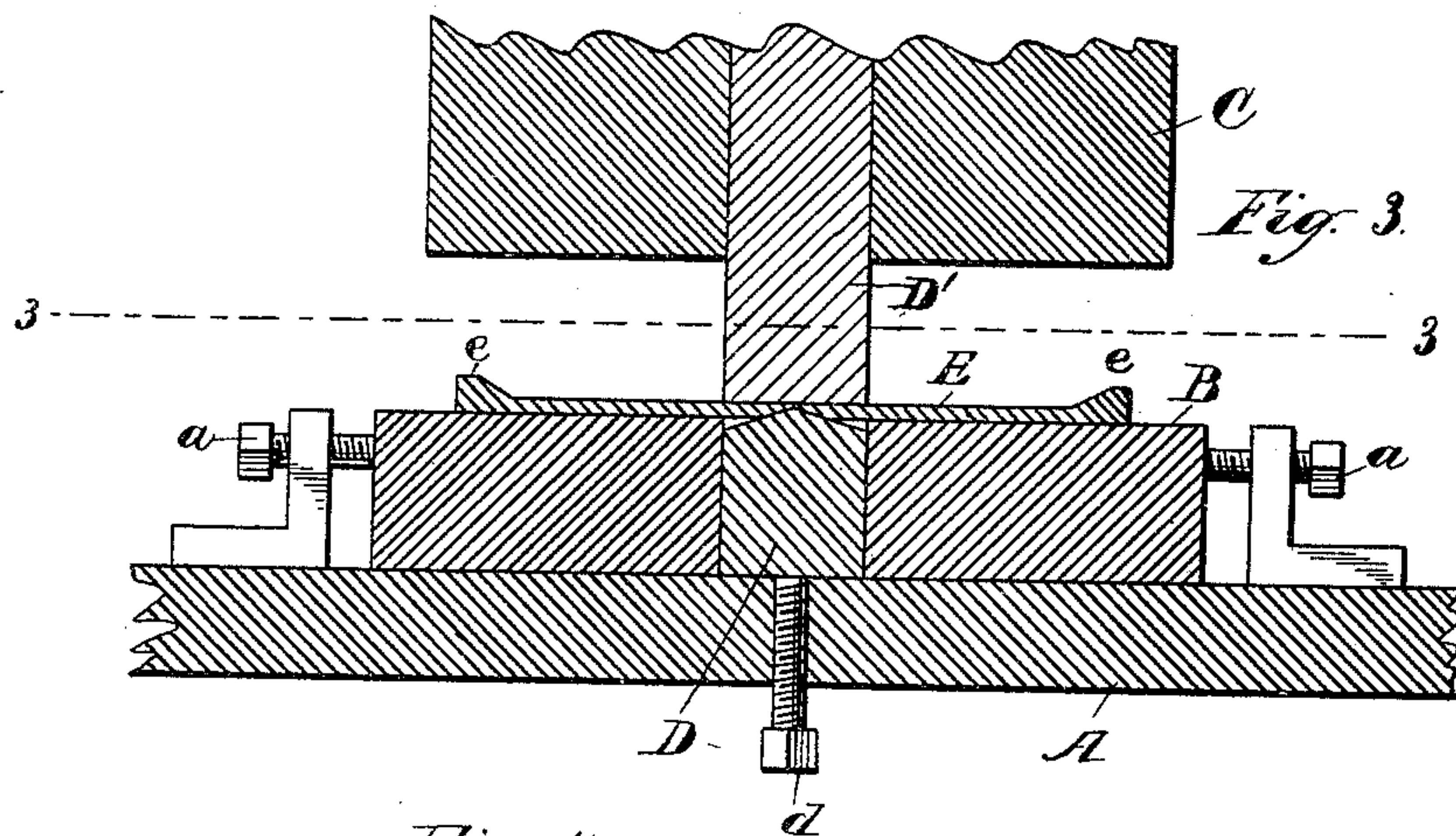
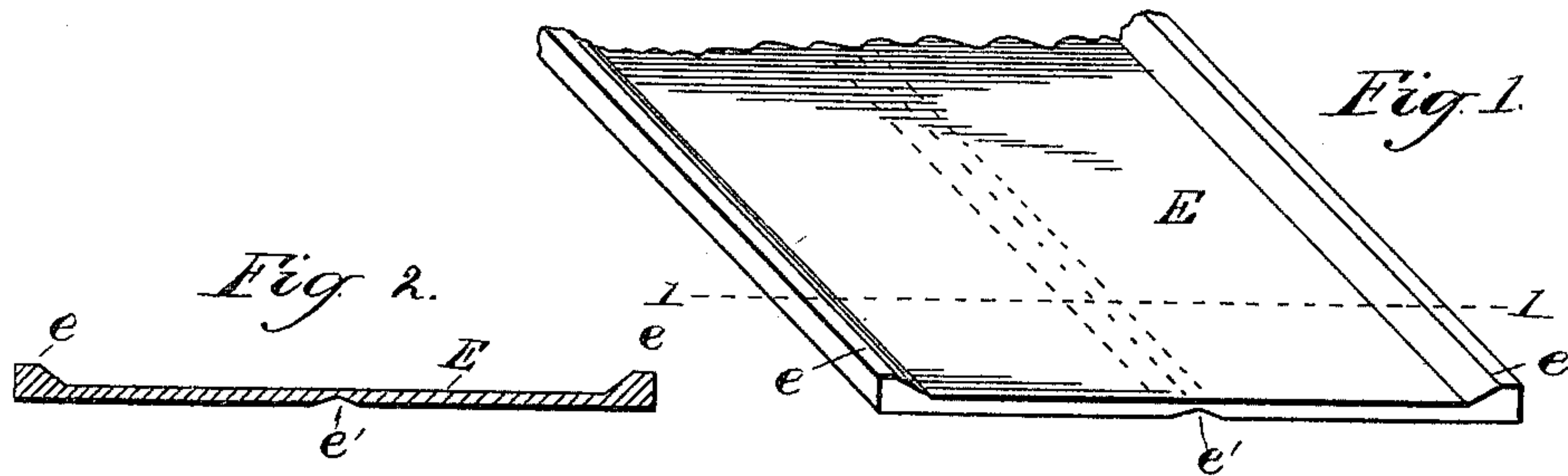
(No Model.)

H. A. WILLS.

PROCESS OF MANUFACTURING HORSESHOE NAILS.

No. 410,624.

Patented Sept. 10, 1889.



Witnesses.

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UNITED STATES PATENT OFFICE.

HARRY A. WILLS, OF BRIGHTON PARK, ILLINOIS.

PROCESS OF MANUFACTURING HORSESHOE-NAILS.

SPECIFICATION forming part of Letters Patent No. 410,624, dated September 10, 1889.

Application filed April 23, 1888. Serial No. 271,611. (No model.)

To all whom it may concern:

Be it known that I, HARRY A. WILLS, a citizen of the United States, residing at Brighton Park, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in the Process of Manufacturing Horseshoe-Nails, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

10 Figure 1 is a perspective view showing the rolled blank or bar before beveling; Fig. 2, a sectional view of the same, taken on the line 1 1 of Fig. 1; Fig. 3, a sectional view taken on the line 2 2 of Fig. 4, illustrating the operation of beveling; Fig. 4, a plan section taken on the line 3 3 of Fig. 3; Fig. 5, a perspective view showing the blank after the nails have been cut therefrom, and Fig. 6 a view of the finished nail.

20 Like letters refer to like parts in all the figures of the drawings.

My invention relates to the manufacture of horseshoe-nails, and is in the nature of an improvement upon the invention set forth in an application filed by me May 12, 1887, Serial No. 237,987.

The object of my invention is to provide a process whereby horseshoe-nails may be rapidly and cheaply produced; and to these ends my invention consists in certain novel features, which I will now proceed to describe, and will then particularly point out in the claim.

In carrying out my improved process any suitable form of apparatus may be employed; but it is obvious that my invention is not limited to any particular form. In the present instance I have shown an apparatus which in its main features resembles that set forth in an application filed by me December 2, 1887, Serial No. 256,835, only so much of the apparatus being shown as is necessary to illustrate the process.

A represents the bed of the machine, upon which is mounted the die-block B, adjustable thereon by means of screws *a*. This die-block contains the female dies, being provided with suitably-shaped die-apertures *b*, two in number, and each conforming in its configuration to the shape of a finished nail, 50 the said die-apertures being arranged, as

shown in Fig. 4, with their points toward each other and almost but not quite meeting.

C indicates the die-plunger, which is provided with two male dies or punches corresponding in size, shape, and location to the 55 die-apertures *b*.

D indicates the fixed beveling-die mounted centrally in the die-plunger B in advance of the die-apertures *b* and adjustable therein by means of a screw *d*. This die is provided 60 with a V-shaped working-surface, as shown in Fig. 3.

D' represents the movable beveling-die working through the die-plunger B, as in my application hereinbefore referred to, or in any 65 other suitable manner, and arranged immediately above the fixed beveling-die D.

In carrying out my process I first roll, or form in any other suitable manner, a blank E, having the form of a continuous flat bar 70 of any desired length and of a width sufficient to form two nails. Upon one side of this bar or blank there is provided along each lateral edge a raised rib *e*, from which ribs the heads of the finished nails are ultimately 75 formed. The bar or blank E is also provided along its center with a continuous V-shaped groove *e'*, which is preferably located on that side of the bar opposite to the one on which the ribs *e* are located. The bar or blank thus 80 formed by rolling or in other suitable manner is fed through the apparatus by any suitable means, and is first subjected to the operation of the beveling-dies D D', which serve to deepen the groove *e'* and harden and compact the metal at that point. By this means 85 suitable bevels are formed, which, when the finished nails are cut from the blank, will provide the bevel at the point of the finished nail. This operation of beveling deepens the 90 groove *e'* to such an extent that the two halves of the bar or blank E are connected to each other only by a thin central web, as shown in Figs. 3 and 5. The bar or blank thus beveled centrally is next subjected to 95 the action of the cutting-dies, which at a single stroke cut from the bar or blank two finished nails E' having substantially the form shown in Fig. 6 of the drawings, the head *e'* being reversed during the operation of cut- 100

ting in the manner pointed out in my application hereinbefore referred to.

5 The operation of beveling and the operation of cutting are both continuous, the beveling-dies always operating somewhat in advance of the cutting-dies and providing a continuous double bevel in the middle of the blank from which the bevels at the points of the nails are formed.

10 It will be seen that by the process described I produce by a single continuous operation finished nails cut from the cold metal and having properly beveled and hardened points. By the process described I am enabled to cut
15 two nails at each stroke of the dies, thereby doubling the number of nails produced in a given time, and at a very slightly increased cost of power and material.

20 It is obvious that various modifications in the details of the process described may be made without departing from the principle of my invention. For instance, the groove *e'* may be located on the same side of the bar or blank as are the ribs *e*, in which case the
25 heads are not reversed during the cutting operation, the cutting-dies being modified to produce this result.

Various other immaterial changes will readily suggest themselves, and I therefore do not wish to be understood as limiting myself 30 strictly to the precise details hereinbefore set forth, and shown in the drawings.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is— 35

The hereinbefore-described process of making horseshoe-nails, which consists in first rolling a heated bar so as to form a continuous blank having a longitudinal rib along each lateral edge and a continuous V-shaped groove 40 along the center, then slightly widening and deepening the groove by suitably beveled hammer-dies when the blank is cool to compress the metal at that point, and then simultaneously cutting from the blank two finished 45 nails, substantially as and for the purposes specified.

HARRY A. WILLS.

Witnesses:

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