

S. B. CASEY.
 HOOK FASTENER.
 APPLICATION FILED JUNE 29, 1910.

995,951.

Patented June 20, 1911.

Fig 1

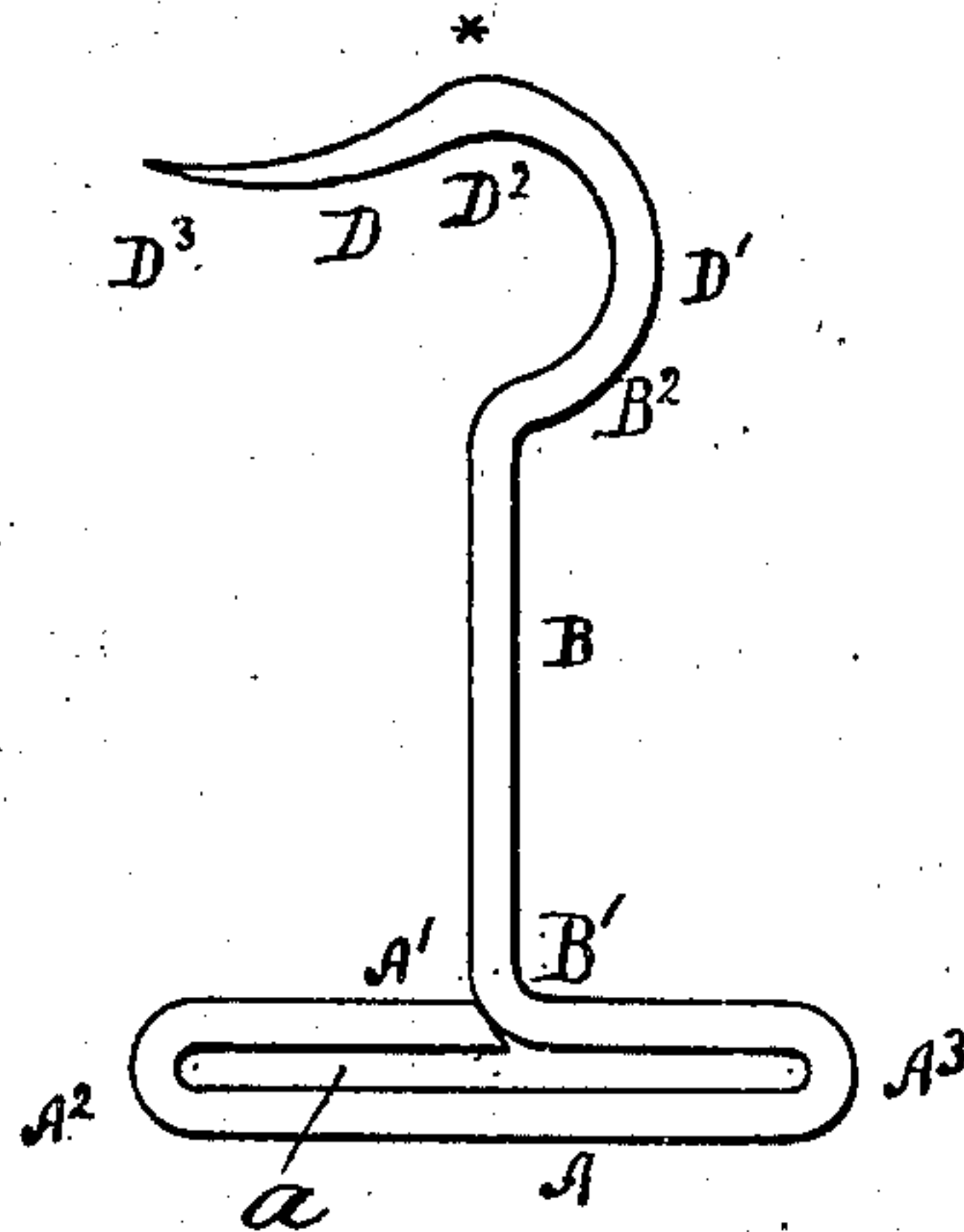


Fig 2

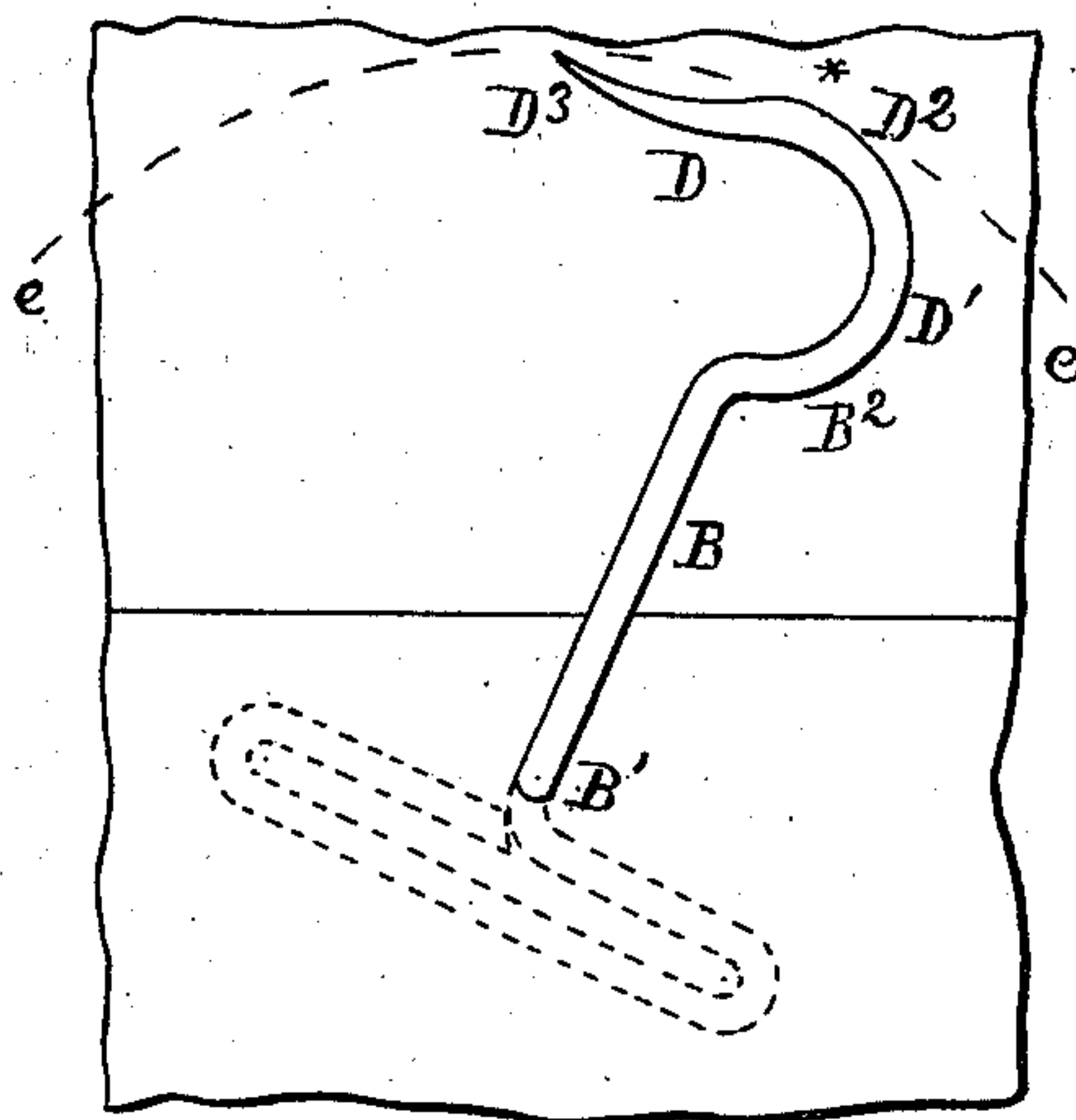


Fig 3

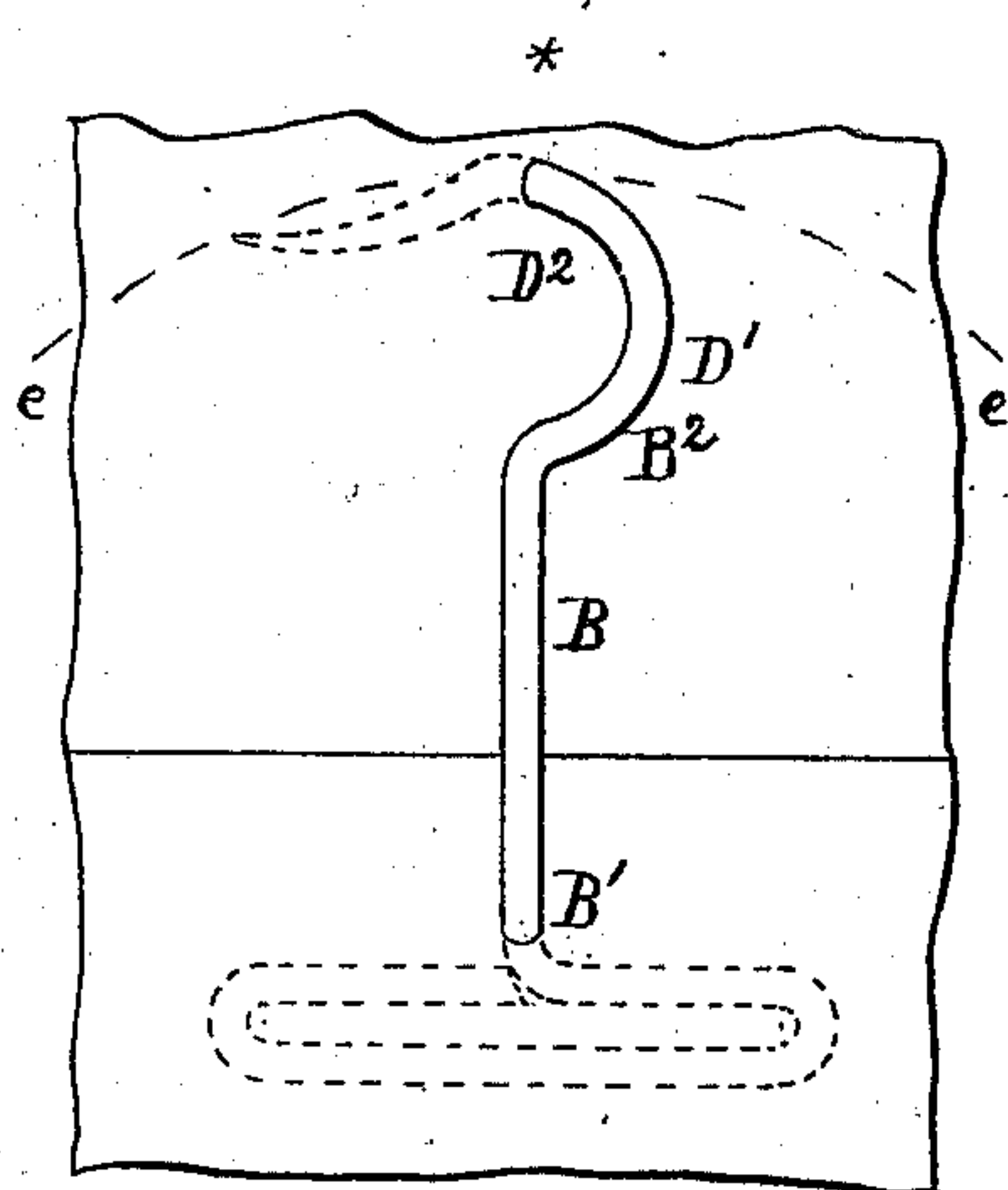
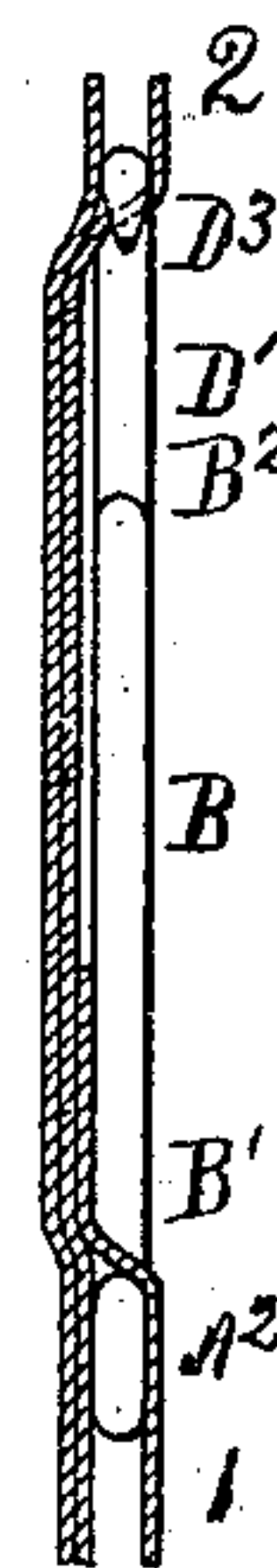


Fig 4



Witnesses:
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UNITED STATES PATENT OFFICE.

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HOOK-FASTENER.

995,951.

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To all whom it may concern:

Be it known that I, SAMUEL B. CASEY, a citizen of the United States, residing in the borough of Brooklyn, in the city and State of New York, have invented a certain new and useful Improvement in Hook-Fasteners for Surgical Bandages, of which the following is a specification.

Ordinary hooks, after being engaged, yield to a considerable and for some purposes ruinous extent in making the slack before coming fully to a bearing. There is no word known to me which is identified with this yielding, but it is well known. It is greater or less in proportion to some function of the angle and the length of the "return" portion of the hook. It is generally believed to be a necessity of hook engagement, that there must always be a certain amount of slack or lost motion or the hook cannot be relied on to maintain its hold.

I have discovered that for use in bandages in treating wounds, a form can be adopted and a mode of use practiced which causes a hook to hold reliably even if the material is severely shaken, and the device may be used without alteration. It is easy to engage and disengage by intelligent effort without any special appliance, and gives practically no slack in applying it, and requires no slack to be gathered to allow its disengagement. A hook thus formed is the subject of this invention. It may be, like many hooks of its class, engaged with one of the parts to be fastened, by being inserted from the back. As with other hooks of this general class, the device may be secured permanently to one article or part, which I will term the pivot part, and detachably to the other, which I will term the controlled part. At the end of the device which is permanently but flexibly fastened, the wire is formed in a double loop.

I arrange the loop or loops in the same plane as the point. In my experiments I have extended such loop about equally, on one side in the direction toward which the point of the hook extends, and on the other side in the opposite direction, but the loop on the first side, the left as shown, is more important than on the other. It is one of

the advantages that this entire device can, by easy adjustment of the machinery familiar to wire-workers, be produced rapidly at a single operation each from a single length of wire, by cutting and bending, taking care to have the loop or loops closed so that the fabric to be engaged will not by lateral slipping become tangled in the loops and also to have the free end well pointed corresponding in that respect to the pointed end of the ordinary straight pin.

Suppose my hook to be held with its working end up. It is so far as yet described, not a hook, but a pin with a looped base,—an inverted T. In making it the wire starts from the midlength of the loop and extends to the left and back, forming thus one half of the loop, and the return stretch is continued past the central point, and reaches out to the same extent to the right and returns, thus completing the cross-bar of the base T, and thence extends upward to form the remainder of the device. The shank is shown as a single stretch of the same wire, the first part of the wire being straight, and the last, or upper part, being bent to the right and again upward. The upper, which I will term the "working portion or effective portion," is peculiar in form and effect, as will presently appear.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification. All the figures show the device with the effective end upward and with the point directed to the left. I will describe it as thus applied, but it will be understood that it is adapted to serve reversed, inclined and in every position.

Figure 1 is a face view of the device alone. Fig. 2 is a face view of so much as appears when the device has been properly inserted from the rear and thrust through the lower fabric until the broad base is firmly in contact, and the device has been inclined to the right ready to have its point engaged. Fig. 3 is a face view after the point has been engaged at the proper height with the upper fabric and the effective or working portion and the shank thrust

through. The fastening is now fully secured, and Fig. 4 is an edge view corresponding to Fig. 3.

Similar letters and marks of reference indicate like parts in all the figures where they appear.

Referring to the drawings and to the letters of reference thereon, A is the cross part which I have termed the base. The part B with supernumerals is the shank, and D with supernumerals is the portion which corresponds to the "return" of ordinary hooks, although it does not in fact return but slightly. It extends practically in about the arc of a circle of which the base of the shank is the radius. The wire is so treated at the base end by cutting and shaping as to make a firm contact with the adjacent parts when the device is completed, so that a fabric cannot pass it. In detail it may be noted that the wire extends to the left, doubles upon itself at A², extends past the starting point A' to the opposite side A³, doubles again there and extends back to the starting point. The base thus presents the appearance of a pair of straight wires with a space between them extending cross-wise of the shank. This base is adapted to give an extended bearing upon the surgical bandage or surface with which it is brought into contact. A quality of this base to which I attach much importance is its extended surface, giving resistance by friction to prevent any turning motion while in use. Another quality of the extended base in this combination is its affording a convenient handle by which the position of the hook is controlled. It allows the operator to easily insert and disengage the hook by taking hold of the base. Another point very important in this is the assurance it gives in use against allowing the point to turn either inward or outward. Its extended base is compelled to lie flat in the bandage and thus insures that the point of the hook will always be correspondingly flat. It cannot turn inward and prick the patient or turn outward and cause any other mischief.

The shank is the central or main portion, commencing with a sharp right-angle turn B' where it leaves the base, extending upward at first straight—and afterward inclining to the right and reversely curved as indicated by B² and D' in the last part of its upward extension. The effective portion or hook proper commences with a continuation of the curve upward at D' and maintains that curved condition until it has reached the highest point D² where it is of course horizontal. Thence it extends farther to the left with about the same curvature which is inclined downward, and soon is curved upward as shown at D³. Both the

inwardly curved part D and the outward or upwardly curved part D³ are gradually contracted in diameter, pointed.

The long narrow opening *a* in the base may be utilized, in some branches of the arts for receiving anything found expedient, as allowing the device to slide longitudinally upon a bandage, or allowing the bandage to play longitudinally through the base, but I prefer for general use to leave it empty,—simply serving to broaden the base and make it peculiarly efficient.

To attach the device I first operate behind or on the side of the fabric which is likely to be concealed when the bandage is in use, and presenting the sharp point D³ at the back or "wrong" side, thrust it through, and following by pushing at the rear or pulling at the front, or both, cause the whole of the return part or working portion D³ D² and D as also the whole of the shank B B² to move through the close-fitting hole and the whole of the base or certainly the two upper stretches A' and A² on the upper side of the base to lie firmly against the fabric. The device can be turned at any angle desired, but always with a marked resistance from friction,—the conservative force which though not enough to materially increase the labor of hooking which we are now ready to commence, is enough to insure against any accidental unhooking; in brief, the friction holds the device reliably engaged under all conditions and for any period in use, but is not difficult to be overcome when the operator exerts his force to turn it in the direction to disengage.

The extreme point D³ by being turned upward or more properly outward is more easily engaged with the fabric 2, and what is more important, it engages therewith at a point so exactly the same distance from the center B' as the fullest point D² in the curve, that when the point D³ is thrust through the fabric 2 and is by the partial revolution of the device shifted into the position shown in Fig. 3, the act of so partially revolving does not either tighten or relax the bandage. The uniformity of tension, without either tightening or relaxing its hold obtains also with the releasing movement, though this is of less consequence. Near the place of engagement and approximating the point of pin is a star, indicating the highest point of the curve. In case of slacking the goods will fall toward the shank, the place of least resistance, instead of toward the point where the pin would be disengaged.

Modifications may be made without departing from the principle or sacrificing the advantages of the invention. I have in my experiments made the device of steel or pin wire about No. 30, but the material and the

size may be widely varied. It should be sufficiently rigid to retain its shape under strain.

I do not confine the invention exclusively to surgical bandages. It may be useful in many other situations.

I claim as my invention:

A fastening pin comprising a base portion, a shank and a pointed hook-shaped portion

concentric with the center of the base portion and in the same plane as the base portion. 10

Signed at New York city this 23d day of June 1910.

SAML. B. CASEY.

Witnesses:

F. A. CHICKERING,

THOMAS DREW STETSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
