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Patented Dec. 11, 1900.

D. NOBLE.

TRIMMING ATTACHMENT FOR SEWING MACHINES.

(Application filed Sept. 9, 1898.)

(No Model.)

2 Sheets—Sheet 1.

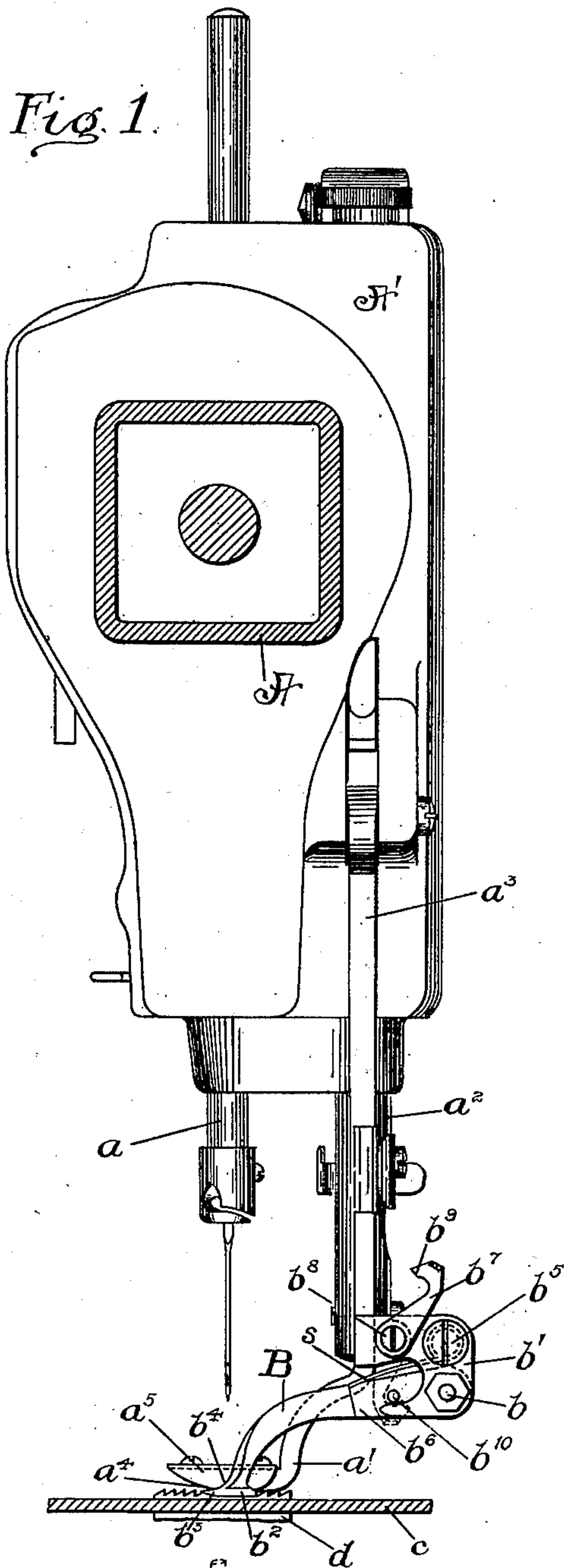
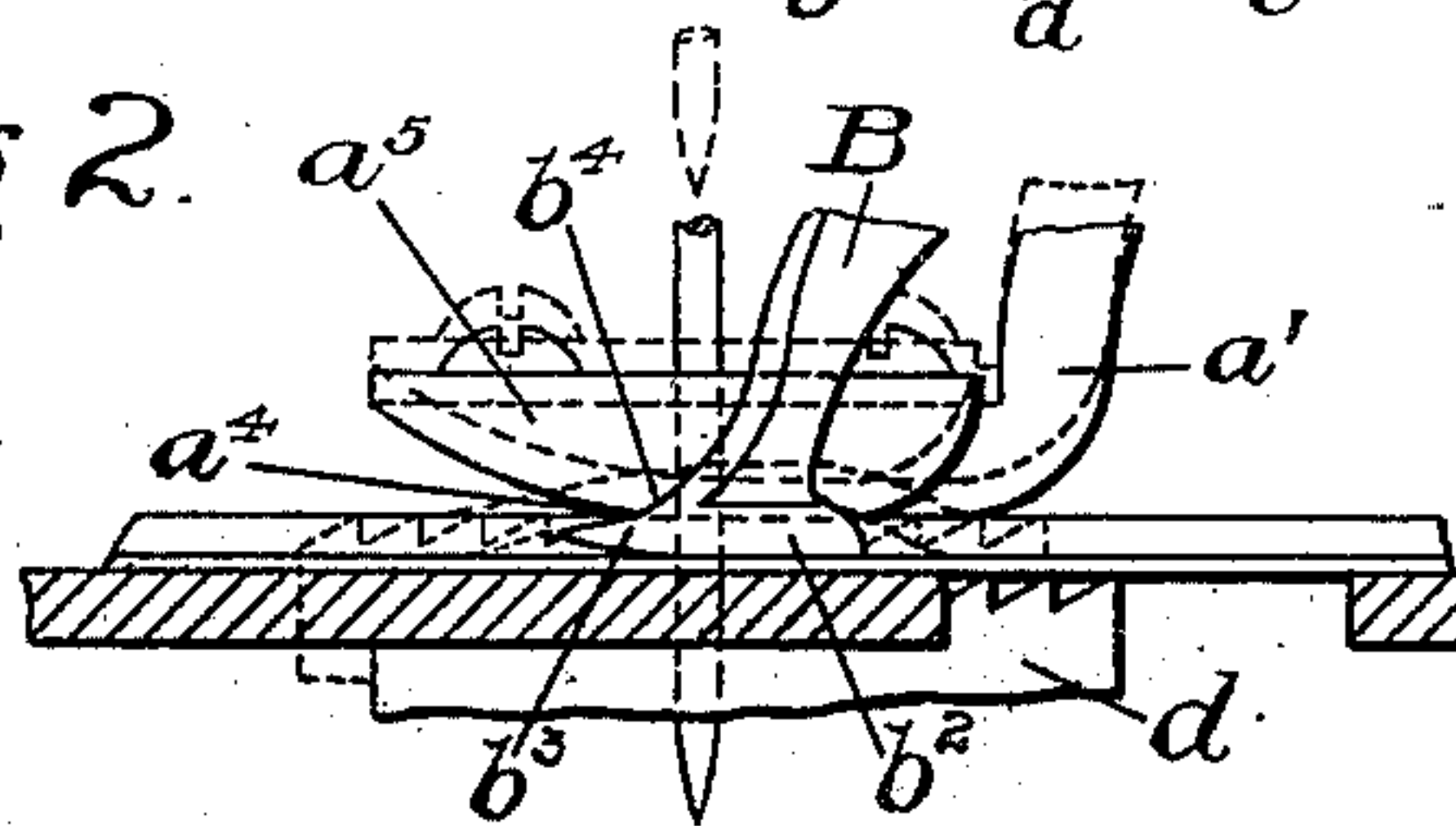


Fig. 2.



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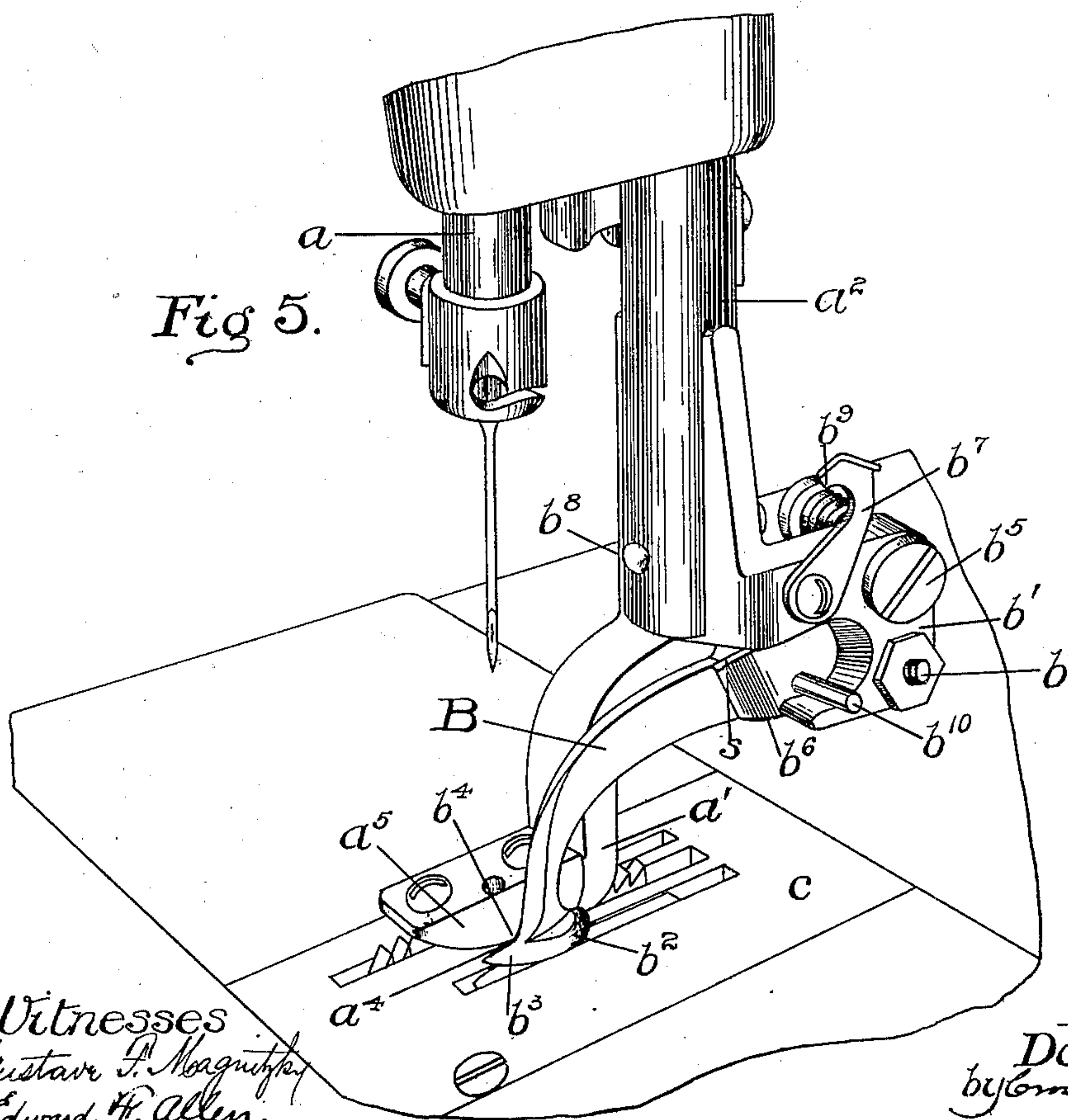
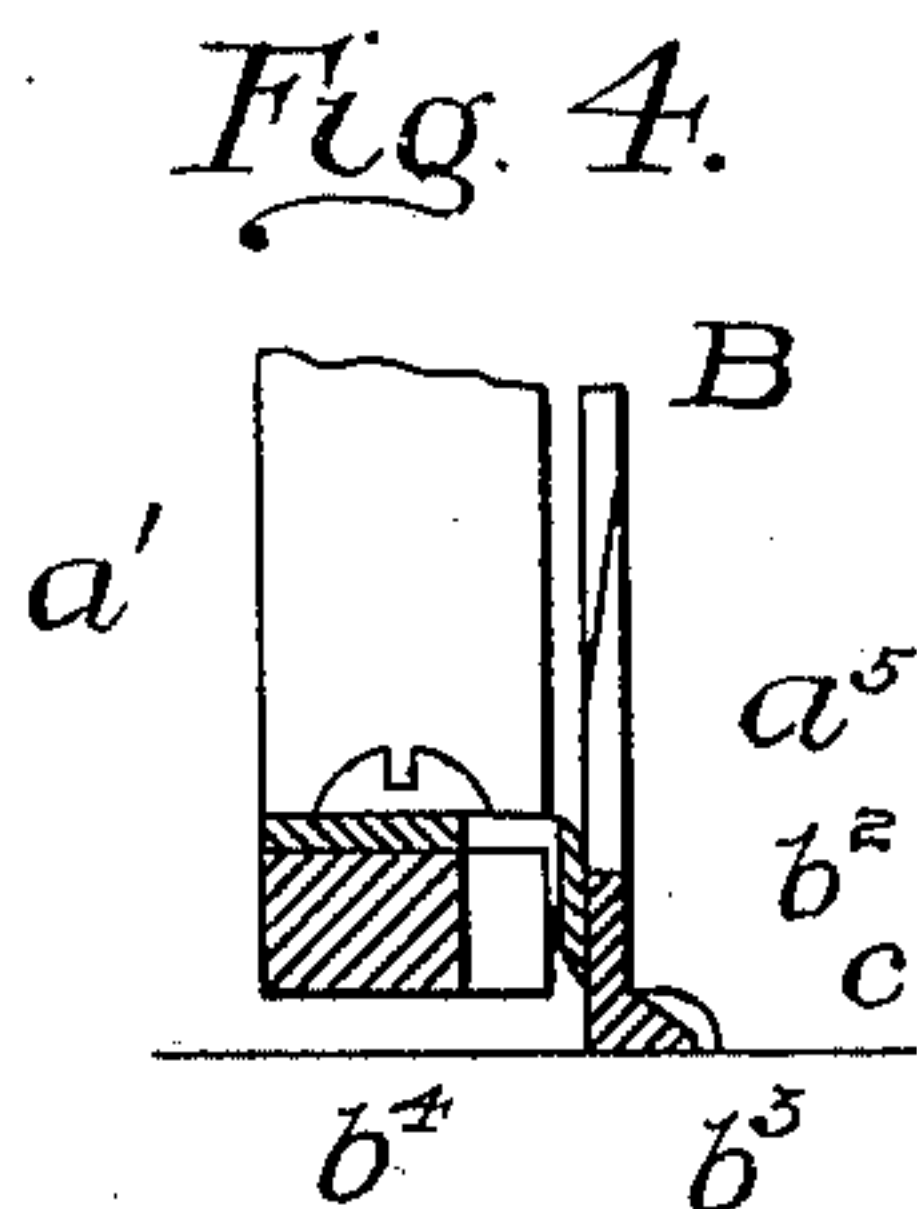
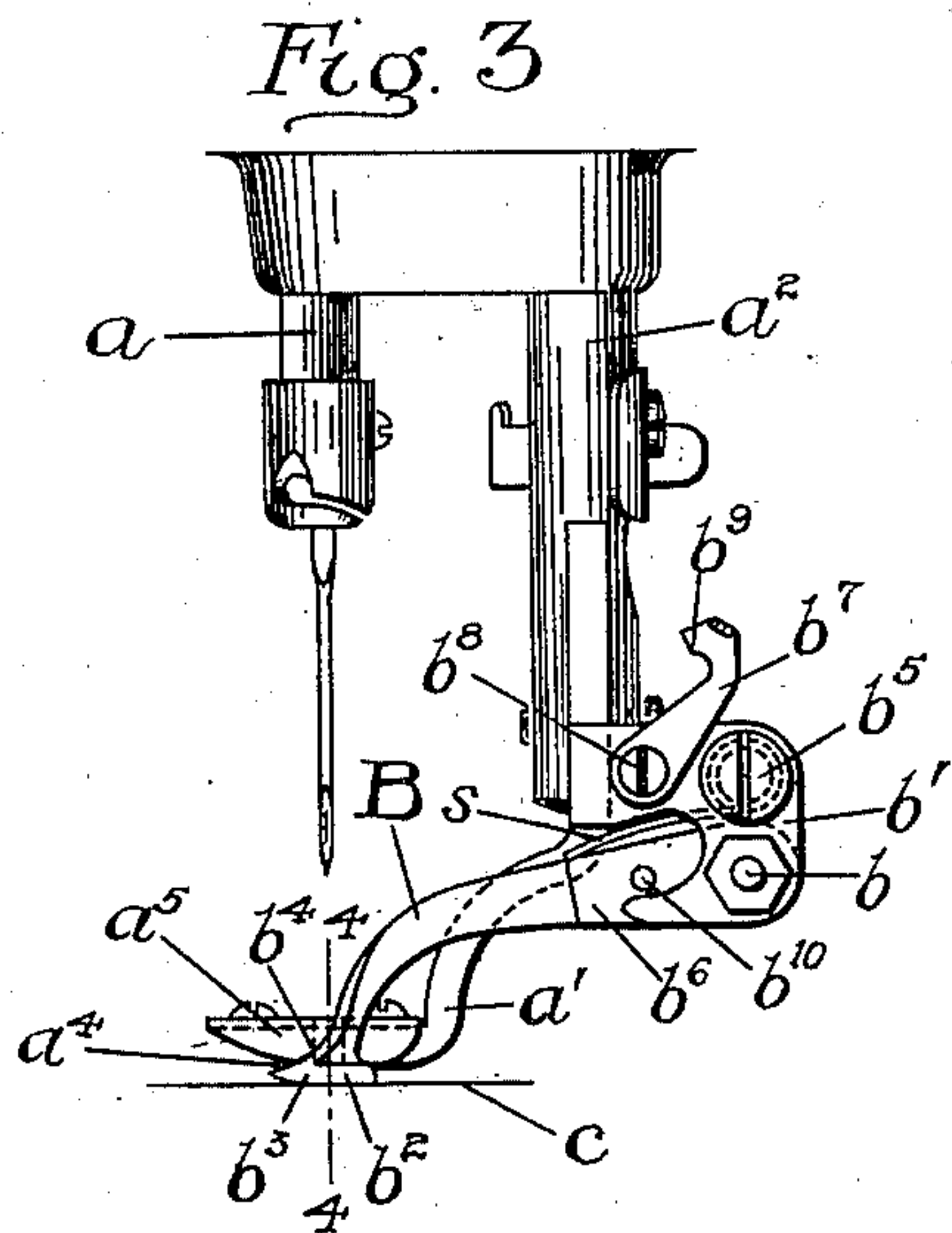
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

DONALD NOBLE, OF LONDON, ENGLAND, ASSIGNOR TO THE WHEELER & WILSON MANUFACTURING COMPANY, OF BRIDGEPORT, CONNECTICUT.

TRIMMING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 663,780, dated December 11, 1900.

Application filed September 9, 1898. Serial No. 690,550. (No model.)

To all whom it may concern:

Be it known that I, DONALD NOBLE, of London, England, have invented an Improvement in Trimming Attachments for Sewing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention is a novel trimming attachment for sewing-machines, which automatically trims or cuts the fabric as it is being stitched and is capable of cutting one or more thicknesses of the material as desired when several are being stitched together.

It is frequently desirable to stitch letters, figures, or fancy designs of cloth, leather, or other fabric of one color, for instance, on a background of another color, stitching the outline of the required pattern by stitches through and through the materials and then trimming away the upper material close to the lines of stitches; but so far as I am aware no mechanism has heretofore been provided for accomplishing the trimming automatically as the stitching progresses, and accordingly I have devised the present mechanism, in which I provide a cutter which permits of the passage of one or more of the thicknesses of material between it and the throat-plate or other support for the material while engaging and trimming the remaining thicknesses of material as the stitching proceeds. My invention as herein disclosed is, however, not limited to cutting or trimming a portion only of the layers of material, inasmuch as it is capable of cutting through all the thicknesses neatly and automatically, with a minimum of wear of the machine and of power required. The details of construction and further advantages thereof will be more fully set forth in the following description, and the invention will be more particularly defined in the appended claims.

In the accompanying drawings, in which I have shown a preferred embodiment of my invention, Figure 1 is a transverse section through the overhanging arm of a machine, showing a rear view of the head thereof, my improved trimmer being shown in the lower part of the figure in right-hand side elevation. Fig. 2 is an enlarged detail of the cutting end

of the trimmer, together with the cooperating parts adjacent thereto, showing in dotted and full lines the positions assumed when the upper thickness of material alone is being cut or trimmed. Fig. 3 is a detail in elevation similar to Fig. 1, showing the trimmer cutting all the thicknesses of material being stitched. Fig. 4 is an enlarged vertical transverse section taken on the line 4 4, Fig. 2. Fig. 5 is an enlarged perspective view of my trimming attachment.

For convenience of illustration I have herein shown my invention applied to a single-needle sewing-machine of the Wheeler & Wilson type having an overhanging arm A, supporting at its forward end a head A', in which reciprocates a needle-bar a , adjacent which is a usual presser-foot a' , carried at the lower end of a presser-bar a^2 , raised and lowered in usual manner by a cam-lever a^3 , although it will be understood that my invention is in no wise restricted to any particular style of machine or kind of work, but may be applied wherever an automatic cutter and trimmer is required.

The trimmer B is herein shown in the form of an arm pivotally supported at b in a bracket b' , secured to the lower end of the presser-bar a^2 and extending forwardly therefrom and downwardly at its free end, where it is provided with a shoe or blunt edge, preferably extended, as shown at b^2 , to ride normally on the work or work-support, as the case may be. The shoe b^2 extends forwardly at b^3 to lift or sustain the fabric being trimmed, the front edge of the trimmer, just back of the toe or lifter b^3 , being beveled and sharpened at b^4 to cooperate with an adjacent part in cutting the fabric, preferably with a shear-like motion. As herein shown, the trimmer edge b^4 cooperates with the sharpened edge a^4 of a plate a^5 , fastened on the presser-foot a' , although it will be understood that I am not restricted to this arrangement.

At its rear end the trimmer B is held normally downward by suitable means, as a spring, wrapped around a stud b^5 of the bracket b' and extending at its forward end into engagement with an offset b^6 of the trimmer-arm. The bracket b' also carries a latch b^7 , pivoted thereto at b^8 and having a beveled edge b^9 ,

which when it is desired to throw the trimmer out of action or raise it with the presser-foot is turned down into its dotted-line position, Fig. 1, under a pin b^{10} , projecting from the trimmer.

From the above description it will be evident that the front or down-hanging end of trimmer is held constantly down toward the throat-plate c or other work-support of the machine, resting directly thereon when the entire thickness of work is being cut, and when part only of the work is being cut or trimmed resting on the portion of the work not being trimmed and which passes between the trimmer and the work-support as the work is being fed.

The cutting motion is herein shown as given by means of the feed-bar d , and as the mechanism for operating it is well known I have omitted showing it herein. As the feed-bar is raised and lowered in its feeding movement it correspondingly raises and lowers the presser-foot in usual manner; but as the trimmer B remains held firmly down at its forward end the result is that a relative up-and-down movement takes place between the cutting edge b^4 of the trimmer and the opposite cooperating part, (herein shown as the presser-foot, or rather the plate a^5 thereof,) whose cutting edge a^4 , together with the cutting edge b^4 , acts like a pair of shears, cutting the cloth by successive nips corresponding to the movement of the feed-bar and progressing evenly with the stitching.

By this preferred construction I am enabled to trim the fabric close to the line of stitches with an accuracy impossible otherwise and without danger of any false cuts, the trimming following the intricacies of the pattern with as much facility as the stitching.

If it is desired to cut entirely through the several thicknesses being stitched together, the point b^3 is entered beneath the material, with the shoe b^2 resting directly on the work-support, whereupon the work is cut through and through as it is fed step by step between the relatively moving cutting edges of the trimmer and presser-foot. If, however, only the upper thickness, for example, of the material being stitched is to be trimmed, the point b^3 is entered just under said upper thickness and between it and the next lower thickness of material, and then as the stitching proceeds the lower thickness of material is simply fed along beneath the trimmer without being in any wise affected thereby, whereas the upper thickness of material is trimmed close to the line of stitches simultaneously with the stitching.

When it is desired to stitch without trimming, the trimmer is rendered inoperative simply by hooking the latch b^7 under the pin b^{10} .

It will be understood that I am in no wise restricted to any of the mechanical details herein shown, inasmuch as very many changes, modifications, and substitutions therein may be

resorted to without departing from the spirit and scope of my invention.

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

1. In a sewing-machine, a presser-foot to hold the material upon the work-support, said foot presenting at its lower side a cutting edge, a cooperating cutting member presenting at its upper side a cutting edge and shaped to rest at its lower end upon an under ply of material, said member entering the space between two plies to sustain the upper ply to be cut, a feeding device for imparting vertical movement to said foot to separate said cutting edges, that the material may be fed into the space between said cutting edges, and means to cause said foot to descend and cut the material as the feeding device retires therefrom.

2. In a sewing-machine, a work-support, a feeding device to engage and move the material, combined with trimming mechanism to trim an upper ply of material being stitched to an under ply in the production of applique-work, said mechanism presenting vertically-acting trimming members located entirely above the plane of the work-support, and acting to cut the material in advance of the stitch-making point, that one of said members which is directly opposed to the action of the feeding device having at its under side a downturned cutting edge, the other of said members presenting at its upper side an upturned cutting edge which in the cutting operation lies under the material to be cut, and yielding means acting normally to press one of said cutting members toward the other of said cutting members supported only by an under ply of the material, whereby only the upper ply is cut between said two members.

3. In a sewing-machine, a presser-foot bearing upon the work and provided with a cutting edge at the plane of its bottom surface, a spring acting normally to depress the foot, and a second cutting member or blade yieldingly connected to said presser-foot and located above the work-support, and having at its upper side a cutting edge located at the side of the stitch-making point and cooperating with the cutting edge at the bottom of said foot, combined with means to lift said foot independently of said blade for the entrance of the material between said cutting edges, said material being cut by the descent of the presser-foot.

4. In a trimming mechanism for sewing-machines, the presser-foot, provided at one side with a cutting edge along its bottom edge, a trimmer carried by the overhanging arm of the sewing-machine, and normally held constantly toward the work-support, the lower end of said trimmer having at its upper edge a cutting edge resting against the said first-mentioned cutting edge, said trimmer having a toe or lifter projecting forward immediately below the presser-foot, and feeding mechan-

ism vertically reciprocating the presser-foot and thereby effecting the trimming, substantially as described.

5. In a trimming mechanism for sewing-machines, the presser-foot, provided at one side with a cutting edge along its bottom edge, a trimmer carried by the overhanging arm of the sewing-machine, and normally held constantly toward the work-support, the lower end of said trimmer having at its upper edge a cutting edge resting against the said first-mentioned cutting edge, said trimmer having a toe or lifter projecting forward immediately below the presser-foot, and a shoe extending laterally just back of said toe, and feeding mechanism vertically reciprocating the presser-foot and thereby effecting the trimming, substantially as described.

6. In a trimming mechanism for sewing-machines, the presser-foot, provided at one side with a cutting edge along its bottom edge, a trimmer carried by the overhanging arm of the sewing-machine, and normally held constantly toward the work-support, the lower end of said trimmer having at its upper edge a cutting edge resting against the said first-mentioned cutting edge, said trimmer having a toe or lifter projecting forward immediately below the presser-foot, feeding mechanism vertically reciprocating the presser-foot and thereby effecting the trimming, and means for raising said trimmer in line with said presser-foot out of cutting position, substantially as described.

7. In a trimming mechanism for a sewing-machine, a presser-bar, a presser-foot carried thereby and provided with a bottom cutting edge, a trimmer secured to said presser-bar, means normally holding said trimmer with the upper edge of its lower end extending obliquely forward across said bottom cutting edge, said upper edge being sharpened to constitute a cutting edge, and a pin and latch, the latter having a beveled edge to cooperate with said pin and lift the said trimmer out of its said normal position, substantially as described.

8. In a sewing-machine, the combination with the needle of a stitch-forming mechanism, a work-support to sustain said material, a presser-foot bearing on said material and presenting a blade at its under side, a feeding device cooperating with said presser-foot to feed a plurality of plies of material sustained by the work-support and acted upon by the presser-foot, of a cutting-blade interposed between said plies and cooperating with the presser-foot in its descent to trim the upper ply of material close to the line of stitching leaving the upper ply presenting an edge in pattern and coinciding with the line of stitching uniting the plurality of plies of material.

9. In a sewing-machine, a work-support, a trimming-cutter presenting two members located above the work-support, one of said members bearing upon a plurality of plies of material to be stitched and having at its un-

der side a cutter, the other of said members entering between said plies and constituting a second cutting member, means to separate said members for the entrance between their cutting edges of an upper ply of said material to be cut and left in pattern stitched to the under ply, said members being operated to cut the material interposed between them as said members descend.

10. In a sewing-machine, a work-support, a needle forming part of a stitch-forming mechanism, feeding mechanism to feed the material, a cutting device consisting of a presser-foot to bear on the material and having at its under side a cutting edge, and a lever also located above said material and presenting at its upper side a cutting edge cooperating with said first-mentioned cutting edge, the acting end of said lever entering between two plies of said material, said cutting device when operated cutting an upper ply of said material to a point substantially in line with but at one side of the last stitch made.

11. A trimming device consisting of a presser-foot having at its under side a cutting edge, combined with a cooperating blade mounted on a horizontal pivot behind the stitch-forming point, and having at its upper side a cutting edge, the under side of said blade presenting a laterally-extended surface to bear upon and slide over an under ply of material and between it and an upper ply of material, the cutting edges cutting the material close to the stitch-forming point and a little behind the last stitch made to provide for stitching and cutting sharp curves and corners.

12. A trimming device consisting of a presser-foot having at its under side a cutting edge, and a cooperating vertically-movable connected blade having at its upper side a cutting edge, the under side of said blade presenting a surface to bear upon and slide over an under ply and between it and an upper ply of material, and means to lock said blade in its inoperative position that its under side may occupy a position in substantially the same plane with the under side of the presser-foot to provide for stitching without trimming.

13. A work-support, a needle forming part of a stitch-forming mechanism, a trimming device composed of two members, one mounted to turn on or with relation to the other and both located above the material sustained on the work-support, a feeding device to feed said material and in its action raise one of said members, means acting normally to separate said members when one of them is raised by the action of the feeding device for the introduction between said members of one ply of material to be cut in pattern when the feed is lowered, said upper ply being left stitched on a lower ply.

14. In a sewing-machine for trimming material in applique-work, a presser-foot to bear upon a plurality of thicknesses of material

resting on the usual work-support and carry-
ing at its under side near one edge a cutting
edge, and an arm connected with said presser-
foot and provided at its upper side with a cut-
5 ting edge, a spring acting normally to keep
said arm in contact only with an under ply
of said material, and a feeding device acting
upon the material below said presser-foot and
lifting the same to open the space between
10 said cutting edges, and means to thereafter
depress the presser-foot on the retirement of

the feeding device below the work-support,
the descent of the presser-foot effecting the
cutting of the material between it and the said
arm.

In testimony whereof I have signed my
name to this specification in the presence of
two subscribing witnesses.

DONALD NOBLE.

Witnesses:

GEO. H. MAXWELL,
FREDERICK L. EMERY.