

No. 738,054.

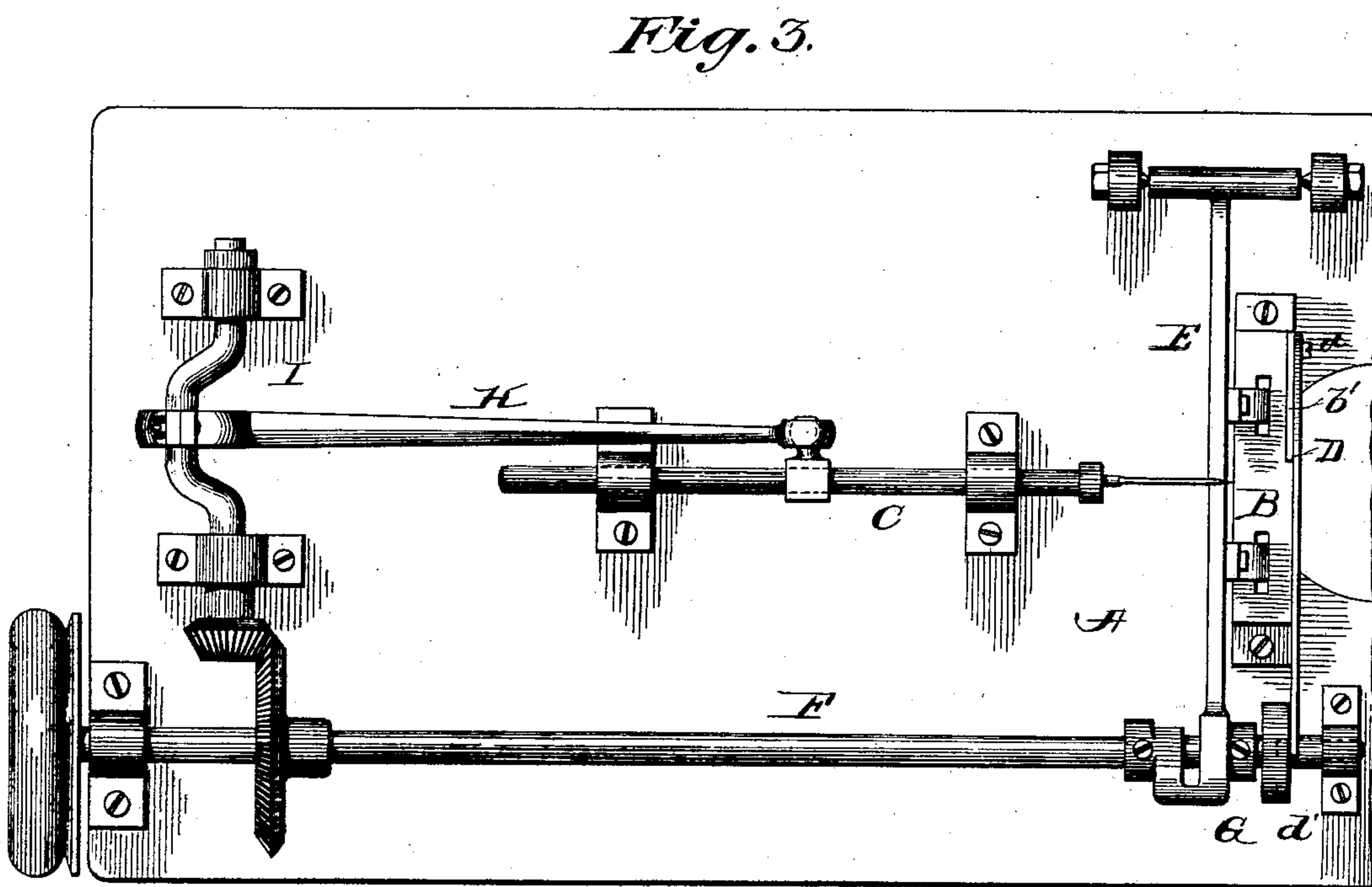
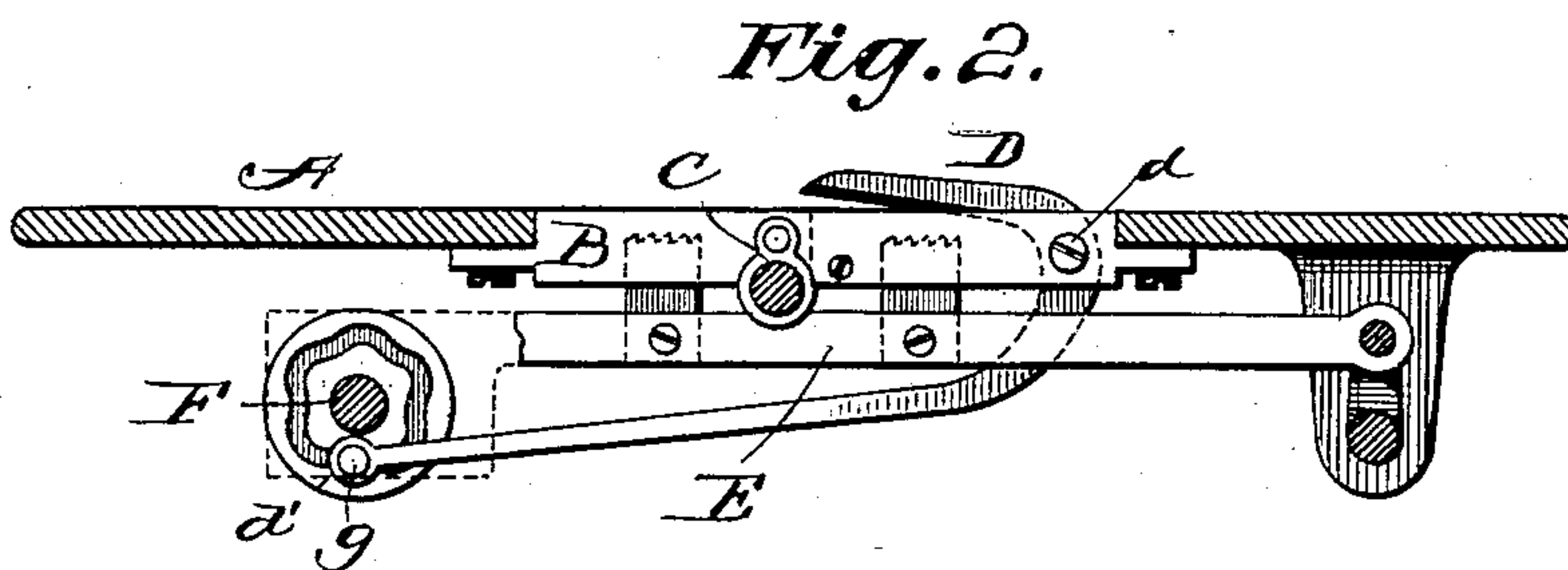
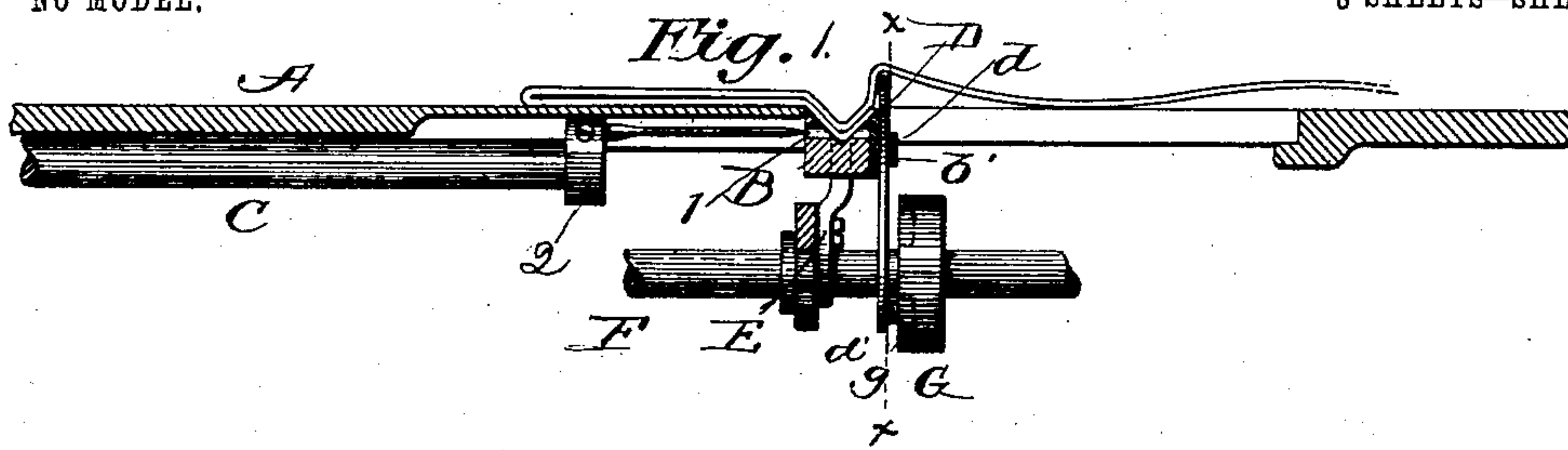
PATENTED SEPT. 1, 1903.

C. McNEIL & C. L. STURTEVANT.
BLIND STITCHING AND TRIMMING MACHINE.

APPLICATION FILED NOV. 29, 1899.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses
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3 SHEETS—SHEET 2.

Fig. 4.

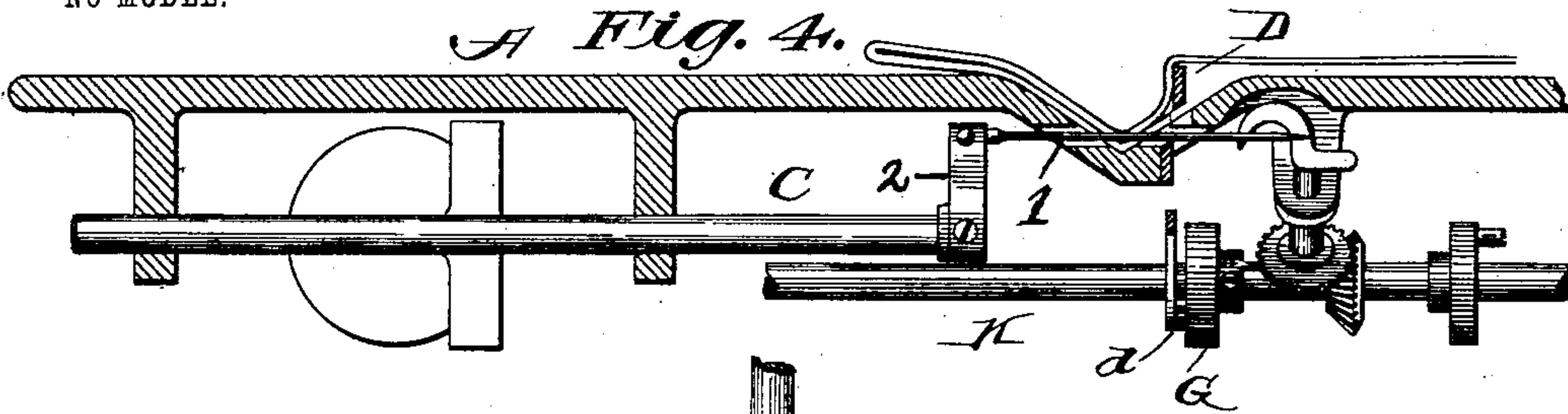


Fig. 5.

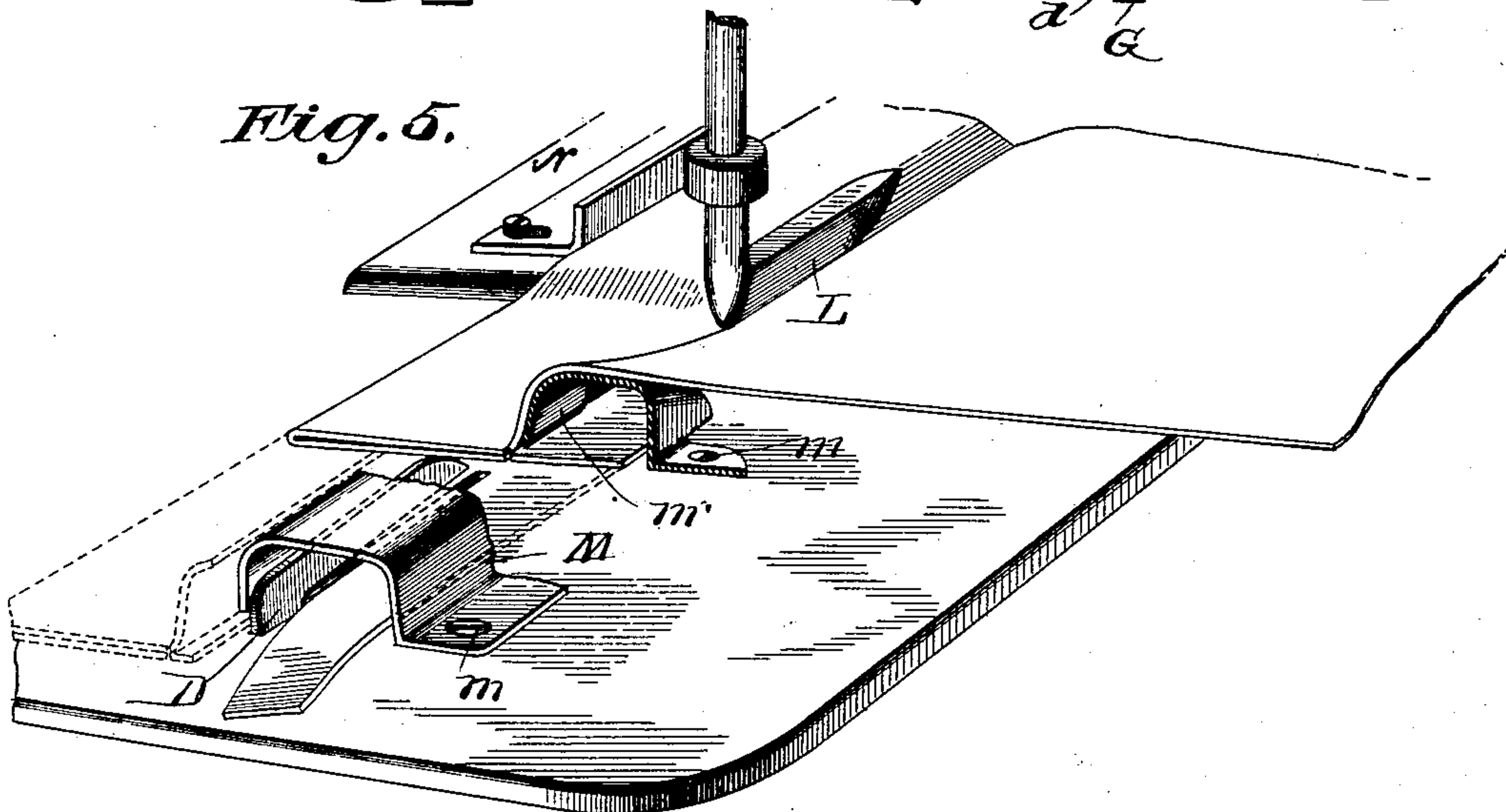
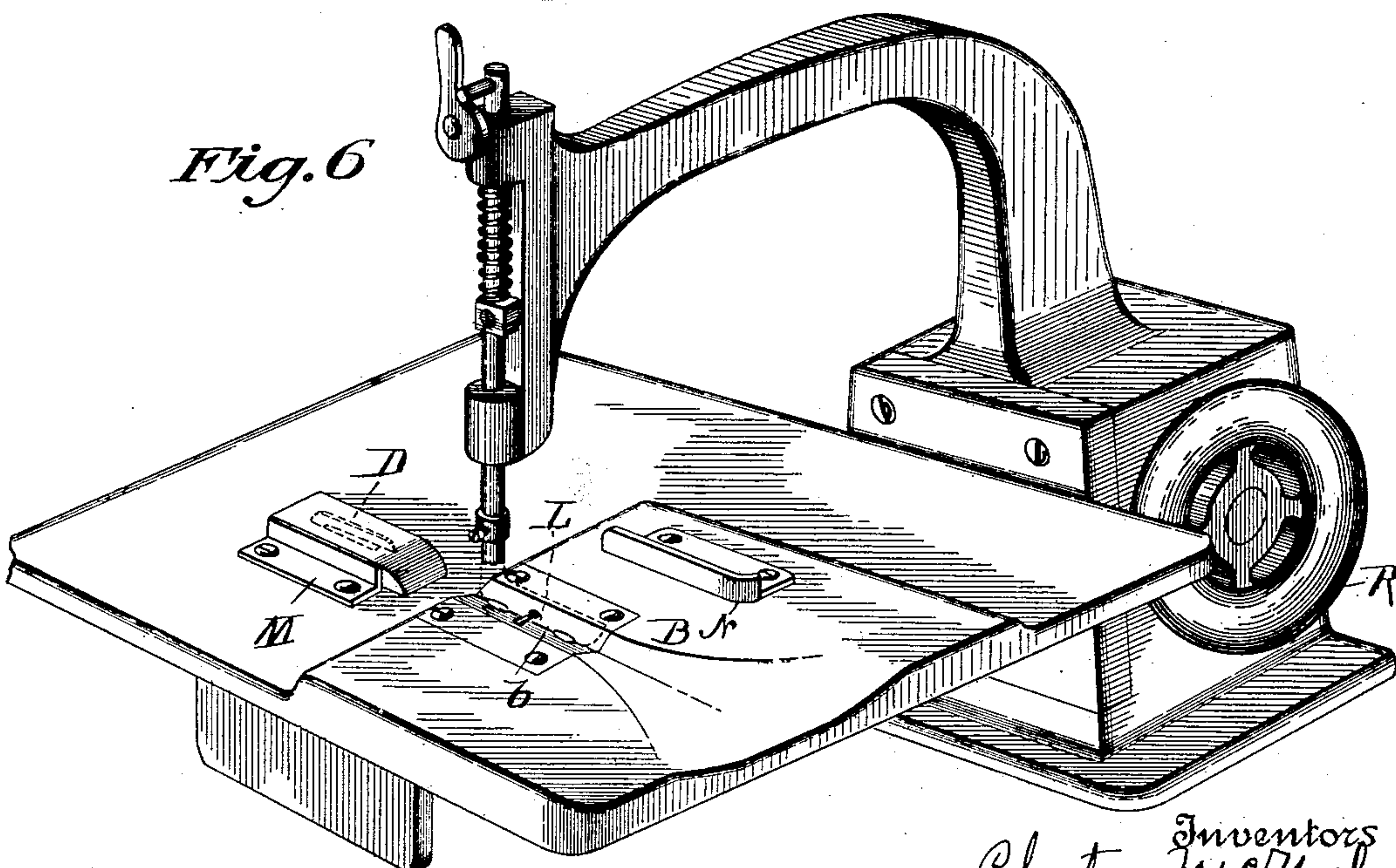


Fig. 6.



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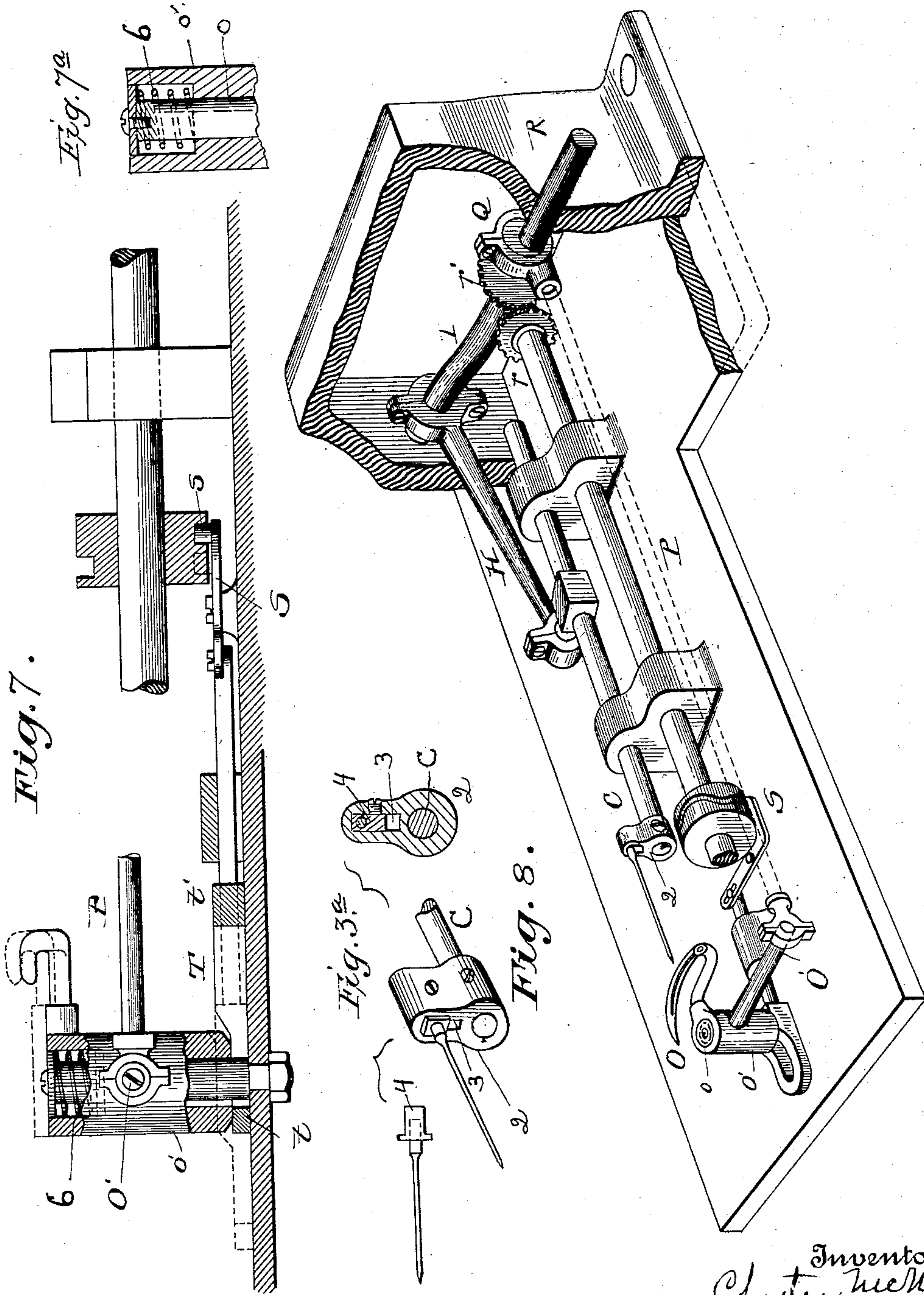
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3 SHEETS—SHEET 3.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

CHESTER MCNEIL, OF CHICAGO, ILLINOIS, AND CHARLES L. STURTEVANT, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNORS TO THE UNION SPECIAL SEWING MACHINE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

BLINDSTITCHING AND TRIMMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 738,054, dated September 1, 1903.

Application filed November 29, 1899. Serial No. 738,666. (No model.)

To all whom it may concern:

Be it known that we, CHESTER MCNEIL, of Chicago, Cook county, Illinois, and CHARLES L. STURTEVANT, of Washington, District of Columbia, citizens of the United States, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a description, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon.

Our invention relates to an improvement in sewing-machines, and particularly to sewing-machines adapted for blindstitching, as in hemming the tops of stockings, the bottoms of trousers' legs, or in any other connections where blindstitching is desirable.

The idea of the invention is, first, to provide a combined trimming and blindstitch-forming mechanism without reference to whether the stitch-forming mechanism is above or below the work-plate and without reference to the location of the trimmer, whether in advance of or in rear of the stitch-forming mechanism. The location of the trimmer in rear of the needle and arranged to trim off the surplus fabric beyond the line of stitching in a machine of this character would be especially useful in the forming of hems, while the arrangement of trimmer ahead of the stitch-forming mechanism would be especially useful in finishing the edges of fabrics where it is desired to trim off the surplus material and then overseam or cover the reared edge. So, also, in this arrangement the edges of two pieces may be overlapped, trimmed, and the fabrics then united. While with slight changes this trimming mechanism may be applicable to machines where the work is laid upon the work-support and crimped by means of a ridge thereon, it is shown herein as applied to a machine in which the work is pressed into a groove in the throat-plate, thus the part through which the stitches pass being held at an angle to the body of the goods, these two classes of blindstitch-machines distinguishing from those machines in which the needle passes vertically down through the fold of the goods and is then bent back at an

angle of one hundred and eighty degrees, more or less, so as to lie flat. In the present invention the needle passes substantially in a horizontal plane through the crimped part of the goods, this thread being suitably secured on the face of the fabric, the needle-thread entering and emerging on the same face of the fabric. Thus when the goods are spread out flat no stitches will be on the upper face of the fabric.

As above mentioned, while in the present application we have shown the invention as applied only to machines in which the goods are pressed down into a V-shaped opening in the work-plate, the needle working horizontally within said work-plate, it will be understood that as far as the trimming apparatus is concerned it may be applied to those machines in which the needle and looper mechanism are above the work-support and the work instead of being depressed within a groove in the work-support is bent over a ridge or fin projecting therefrom.

The invention therefore consists primarily of a sewing-machine having a suitable work-support and means for crimping the goods, whereby that portion through which the stitches are to pass is held at an angle to the body of the goods to enable the needle to get a bight therein, of a needle reciprocating transversely across the line of feed in a substantially horizontal plane to pierce the goods while held at such angle and entering and emerging on the same face of the fabric, a loop-taking device cooperating therewith to form stitches, and a trimmer arranged and operating to trim off the surplus fabric parallel with the line of stitching.

Secondly, the invention consists of a sewing-machine having a suitable work-support and means for crimping the goods, whereby that portion through which the stitches are to pass is held at an angle to the body of the goods to enable the needle to get a bight therein, of a needle operating in a substantially horizontal plane back and forth across the line of feed to pierce the goods while held at such angle and entering and emerging on the

same face of the fabric, a loop-taking device cooperating therewith to form stitches, a trimmer arranged and operating to trim off the surplus fabric parallel with the line of stitching, and a separator between the body of the goods and the part operated upon by the trimmer to properly guide said latter portion of the goods.

Thirdly, it consists in the combination, with a machine of the character described adapted for making a blind-hem, of a trimmer inclosed within a suitable casing over which the body of the goods is guided and through which the hem fold is guided to the trimmer, and, finally, it consists in the various matters hereinafter described, and referred to in the appended claims.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a sectional view of the work-plate of a sewing-machine looking from the rear and showing so much of the machine as is adjacent to the throat-plate thereof. Fig. 2 is a cross-sectional view looking outwardly, the section being taken on the line *x x* of Fig. 1. Fig. 3 is a bottom plan view of the machine work-plate. Fig. 3^a is an enlarged detail view of the head in which the needle is supported, showing the means for adjusting the needle. In these four figures the invention is shown as applied to a machine of the type shown in patent of Thomson and Phelps, No. 469,610, February 23, 1892. Fig. 4 is a view similar to Fig. 1, showing the invention as applied to a machine of the type illustrated in the patent to B. Refsum, No. 271,515, January 30, 1883. Fig. 5 is a rear perspective view of a sewing-machine work-plate, showing the guide for the body of the goods and for the hem fold and showing the trimmer, part of the guiding portion being broken away. Fig. 6 is a front perspective view of a sewing-machine embodying our invention. Fig. 7 is a side view. Fig. 7^a is a sectional view of the looper-support; and Fig. 8 is a perspective view of a sewing-machine with the bed-plate removed, illustrating mechanism we have devised for operating the needle and looper in our machine.

In the drawings, Figs. 1, 2, and 3, A is the work-plate of a sewing-machine of the type mentioned, B is the throat-plate, and C the needle-bar. The throat-plate is formed with a V-shaped groove *b* and has formed upon one side of the same toward the rear of the machine a stationary blade *b'*, secured to the throat-plate by screws or other suitable fastening devices. A movable blade D is herein shown as secured immediately in the rear of the needle, so that as the goods with its hem is fed forward that part of the hem which extends beyond the shear-blades will be severed. E is the feed-bar and F the feed-operating shaft. G is a cam having a groove *g*, engaged by a roller *d'*, which imparts motion to the blade D. In Fig. 3 H is the connecting-rod, secured to the needle-bar C to im-

part the reciprocating motion received from the crank-shaft I. The shuttle of the machine is omitted, but a portion of the race is shown in Fig. 3. The opening in the throat-plate through which the needle passes is shown at 1 and is of such diameter as to allow for the adjustment of the needle up or down to vary the bight taken in the goods. This adjustment is illustrated in Fig. 3^a, where the head 2, on which the needle is supported, is provided with an elongated slot 3, in which is adjustably secured a clamp 4, in which the needle-shank fits. The looper-shank also may be adjusted up and down in its supporting-block to correspond with the adjustment of the needle. Instead of making the diameter of the slot 1 sufficient to allow for the adjustment of the needle that portion of the throat-plate in which the slot is formed may be made vertically adjustable.

Fig. 4 shows our invention as applied to the machine illustrated in the Refsum patent above referred to. The cam G is placed upon the looper-operating shaft K and the shears operated through a slot in the V-shaped groove in the rear of the needle-bar, as above. In this figure we have shown the movable blade in section.

In Fig. 5 is shown a perspective view of the work-plate of the machine, the goods being depressed into the V-shaped groove thereof by the presser-foot L, the work-plate being thickened adjacent the throat-plate, so that, as shown, the hem enters the guide with the stitches on a level with the valley of the throat-plate. In this figure the guide M is broken away for the sake of clearness and is provided with fastening-screws *m* and a wall *m'* for elevating the body of the fabric, so as to permit the shears to operate close to the stitches. The wall *m'* permits the waste portion of the hem to pass under, as shown. The shears, as is apparent, are removed toward the rear and may be operated from the feed-operating shaft in the same manner as has been described. N is a guide for the hem before the same is stitched.

Figs. 7 and 8 show in sectional and perspective, respectively, a looper and needle operating mechanism for chain-stitch machines. The looper O is mounted on a sleeve *o'*, journaled in the stud *o*. The looper-rod or pitman P connects by a ball-and-socket connection with an arm O' on the sleeve *o'*, to which the looper is secured, and at the other end has a strap connection to the eccentric Q on the driving-shaft R of a side-wheel machine. Beveled pinions *r r'* impart motion to the feed-shaft, and a connection-rod and crank on the driving-shaft impart a reciprocating movement to the needle-bar, which is guided in lugs on the machine-bed. The oscillating movement of the looper is caused by the eccentric Q acting through the pitman P upon the arm O', connected to the sleeve *o'*, to which the looper O is secured. A cam having a groove in its periphery is engaged by a roll

s upon the rocking-lever S, which in turn is pivotally secured to a reciprocating slide T, which has a reduced portion *t* and a thickened portion *t'*, which causes the sleeve *o'* to be elevated and depressed alternately, so that the looper passes the needle first upon one side and then on the other, the cam-groove causing the cam-surfaces *t t'* to remain in a stationary position with relation to the sleeve *o'* during the oscillation of the looper when no vertical movement is desired. A spring 6 keeps the looper normally depressed.

Various minor modifications and changes in the construction of the parts may be made without departing from the spirit of my invention.

The operation of making a blind-hem and trimming off the surplus portion of the fabric is clearly shown in the drawings and need not be further explained.

The particular needle and looper operating mechanism herein shown form the subject-matter of a divisional application filed by us on the 1st day of June, 1903, Serial No. 159,648.

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

1. A sewing-machine having a suitable work-support, a means for crimping the goods, whereby that portion through which the stitches are to pass is held at an angle to the body of the goods to enable the needle to get a bight therein, of a needle reciprocating transversely across the line of feed, in a substantially horizontal plane to pierce the goods while held at such angle, and entering and emerging on the same face of the fabric, a loop-taking device coöperating therewith to form stitches, and a trimmer arranged and operating to trim off the surplus fabric parallel with the line of stitching; substantially as described.

2. A sewing-machine having a suitable work-support, and means for crimping the goods whereby that portion through which the stitches are to pass is held at an angle to the body of the goods, to enable the needle to get a bight therein, of a needle operating in a substantially horizontal plane back and forth across the line of feed to pierce the goods while held at such angle, and entering and emerging on the same face of the fabric, a looper coöperating therewith to form stitches, and a trimmer arranged and operating to trim off the surplus fabric beyond the line of stitching; substantially as described.

3. A sewing-machine having a suitable work-support, and means for crimping the goods whereby that portion through which the stitches are to pass is held at an angle to the body of the goods, to enable the needle to get a bight therein, of a needle operating in a substantially horizontal plane, back and forth across the line of feed, to pierce the goods while held at such angle, and entering and emerging on the same face of the fabric, a looper coöperating therewith to form stitches,

said needle and looper operating mechanism being located below the work-support of the machine, and a trimmer arranged and operating to trim off the surplus fabric beyond the line of stitching; substantially as described.

4. A sewing-machine having a suitable work-support, and means for crimping the goods whereby that portion through which the stitches are to pass is held at an angle to the body of the goods, to enable the needle to get a bight therein, of a needle operating in a substantially horizontal plane, back and forth across the line of feed, to pierce the goods while held at such angle, and entering and emerging on the same face of the fabric, a looper coöperating therewith to form stitches, said needle and looper operating mechanism being located below the work-support of the machine, and a trimmer arranged and operating to trim off the surplus fabric beyond the line of stitching, the trimmer-operating mechanism being also located below the work-support of the machine; substantially as described.

5. A sewing-machine having a suitable work-support, means for crimping the goods whereby that portion through which the stitches are to pass is held at an angle to the body of the goods to enable the needle to get a bight therein, of a needle operating in a substantially horizontal plane back and forth across the line of feed to pierce the goods while held at such angle, and entering and emerging on the same face of the fabric, a loop-taking device coöperating therewith to form stitches, a trimmer arranged and operating to trim off the surplus fabric parallel with the line of stitching, and a separator between the body of the goods and the part operated upon by the trimmer to properly guide said latter portion of the goods; substantially as described.

6. A sewing-machine having a suitable work-support, means for crimping the goods, a needle operating in a substantially horizontal plane back and forth across the line of feed, entering and emerging on the same face of the fabric, a loop-taking device coöperating therewith to form stitches, a trimmer arranged to trim off surplus fabric parallel with the line of stitching, means for separating the goods to be trimmed off from the body of the goods, means for guiding the body of the goods, and for guiding and holding that part of the goods to be operated upon by the trimmer, whereby a fabric upon which a hem has been turned may have the raw edge of the hem portion trimmed and united to the body of the goods by blindstitching which does not appear upon the opposite face of the fabric; substantially as described.

7. A sewing-machine, having a suitable work-support, a means for crimping the goods, whereby that portion through which the stitches are to pass is held at an angle to the body of the goods to enable the needle to get a bight therein, of a needle operating in a sub-

stantially horizontal plane back and forth across the line of feed to pierce the goods while held at such angle, and entering and emerging on the same face of the fabric, a loop-taking device cooperating therewith to form stitches, and a trimmer arranged and operating to trim off the surplus fabric parallel with the line of stitching, and a guide to deflect the trimmed-off strip, and to guide the body of the goods; substantially as described.

8. In a sewing-machine adapted for blind-stitching, a suitable work-plate provided with a depression, a presser-foot for forcing the goods into said depression, a horizontally-operating needle below the work-plate, and a looper cooperating therewith to form stitches, and a casing adjacent the stitch-forming mechanism, provided with an inclined front face over which the body of the goods is guided and a trimming-blade located within said casing, said casing at one side being above the bed-plate to allow the passage therethrough of the part to be trimmed off; substantially as described.

9. In a sewing-machine, the combination with a work-plate having a depression therein, extending in the direction of the feed, and means for forcing a portion of the goods to be sewed into said depression, a trimmer having a stationary member secured to the work-

plate on one side said depression, and a movable member cooperating therewith, and a needle and looper operating beneath the work-plate cooperating to form stitches; substantially as described.

10. In a sewing-machine adapted for blind-stitching of goods upon which a hem fold has been turned, means for crimping the goods, a needle reciprocating in a substantially horizontal plane, and a looper cooperating therewith to form stitches, and a device for guiding the body of the goods and the hem fold, including a casing over which the body of the goods is passed, and within which that portion of the hem fold beyond the line of stitching into the body of the goods is guided, and a movable trimmer-blade operating within said casing; substantially as described.

In testimony whereof we affix our signatures in the presence of witnesses.

CHESTER McNEIL.

CHARLES L. STURTEVANT.

Witnesses to the signature of Chester McNeil:

JULIUS SHIRE,

ANNA S. KATZ.

Witnesses to the signature of Charles L. Sturtevant:

GEO. H. EVANS,

GEORGIE A. BRERETON.