

(Model.)

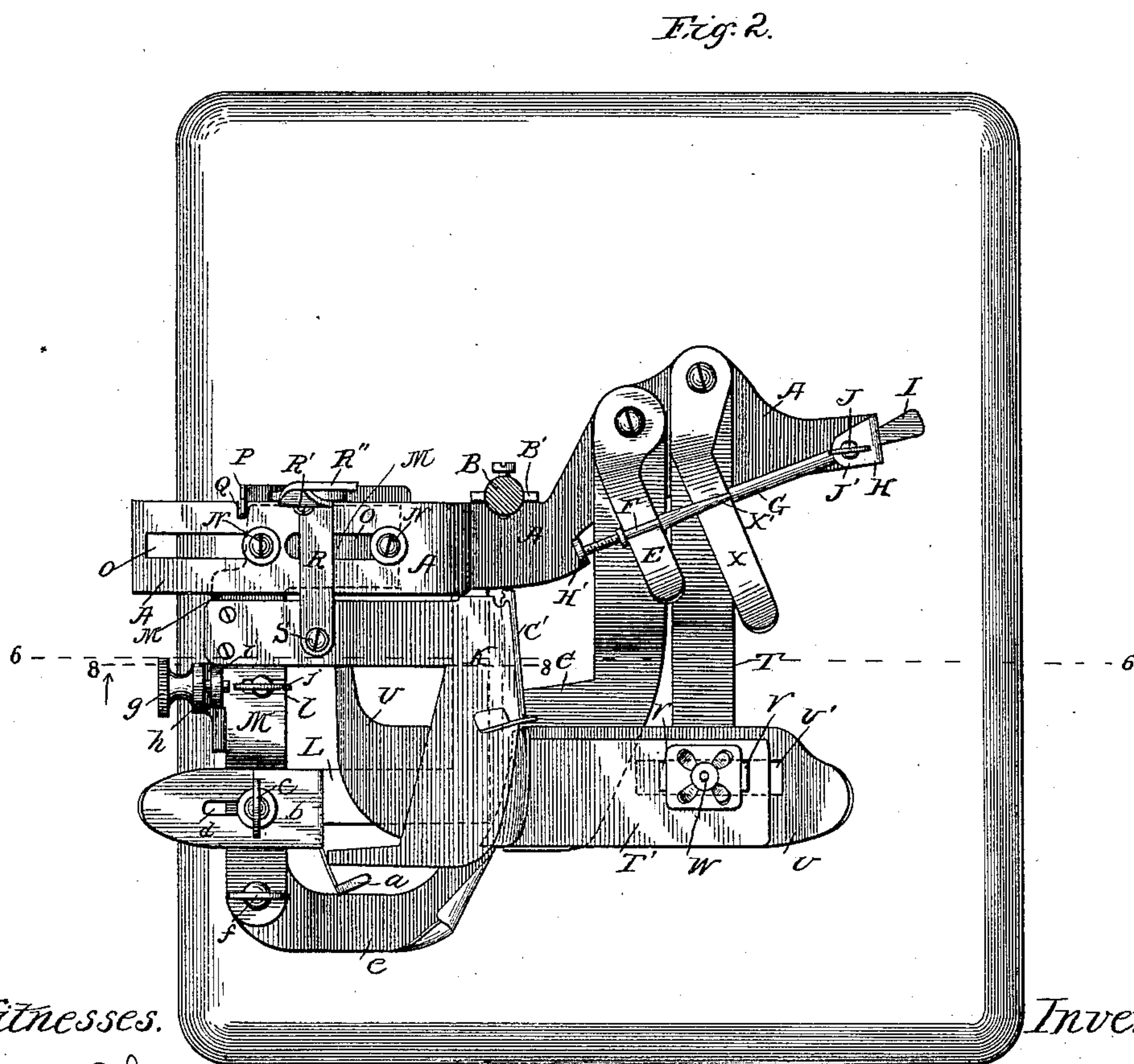
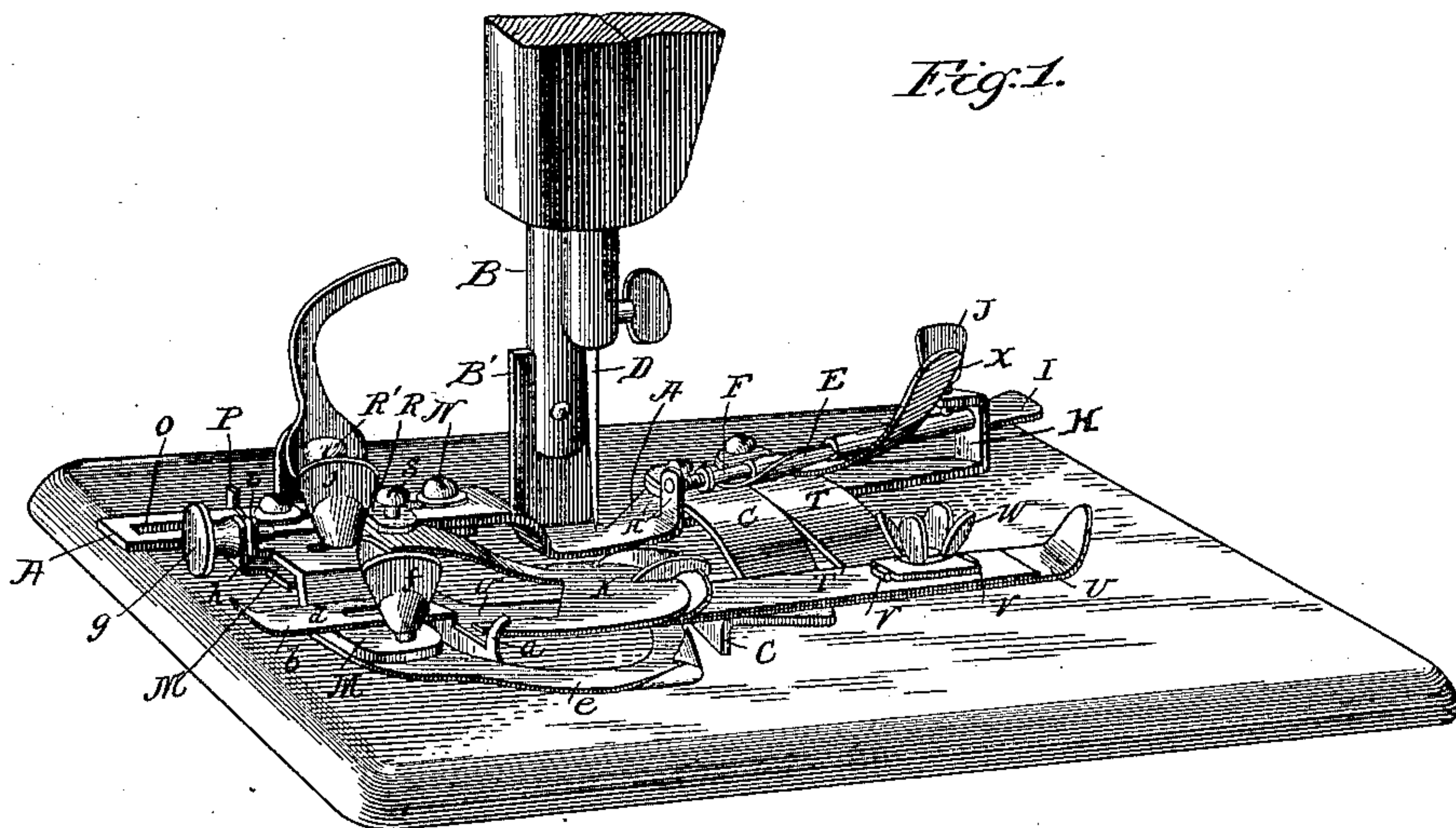
3 Sheets—Sheet 1.

E. S. YENTZER.

BLIND STITCH HEMMER FOR SEWING MACHINES.

No. 427,944.

Patented May 13, 1890.



Witnesses.

Wm. R. Rheem  
J. M. J. J. J.

Inventor.

Enoch S. Yentzer  
By Jno. G. Elliott  
Atty.

(Model.)

3 Sheets—Sheet 2.

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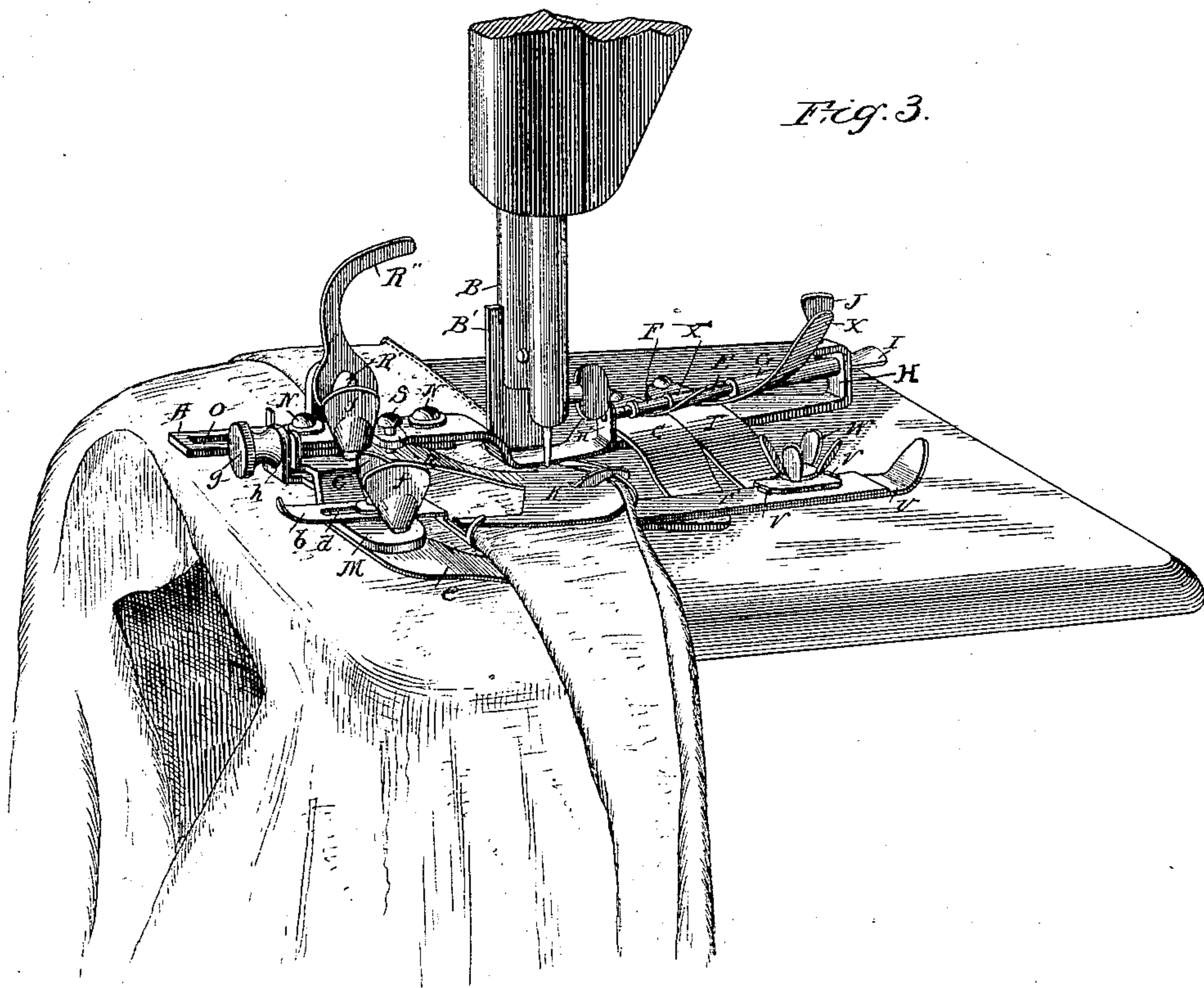
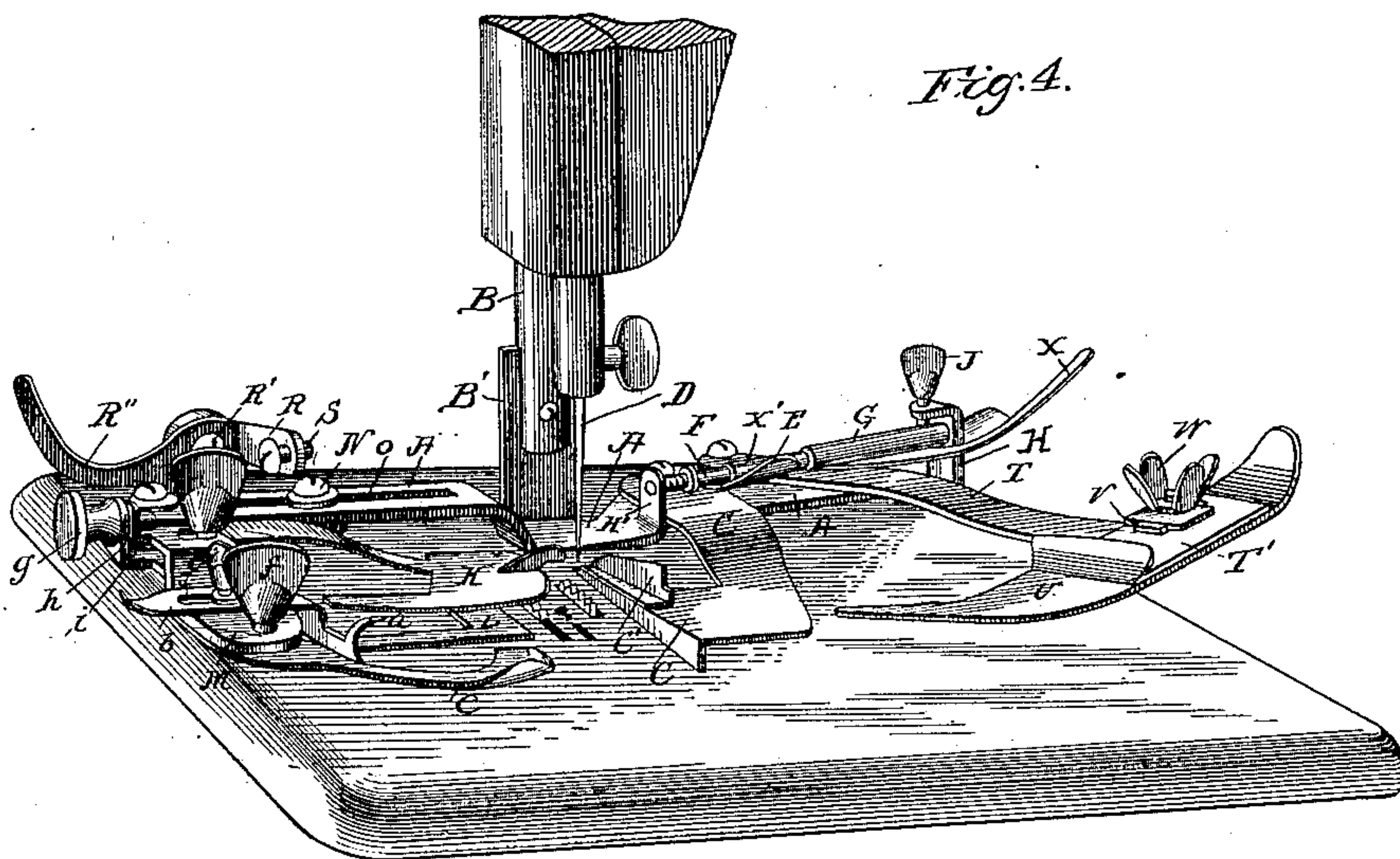


Fig. 4.



Witnesses,

Wm. R. Rheem.

Jno. H. Smith.

Inventor.

Enoch S. Yentzer

By Jno. G. Elliott

Att'y.



E. S. YENTZER.

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Fig. 5.

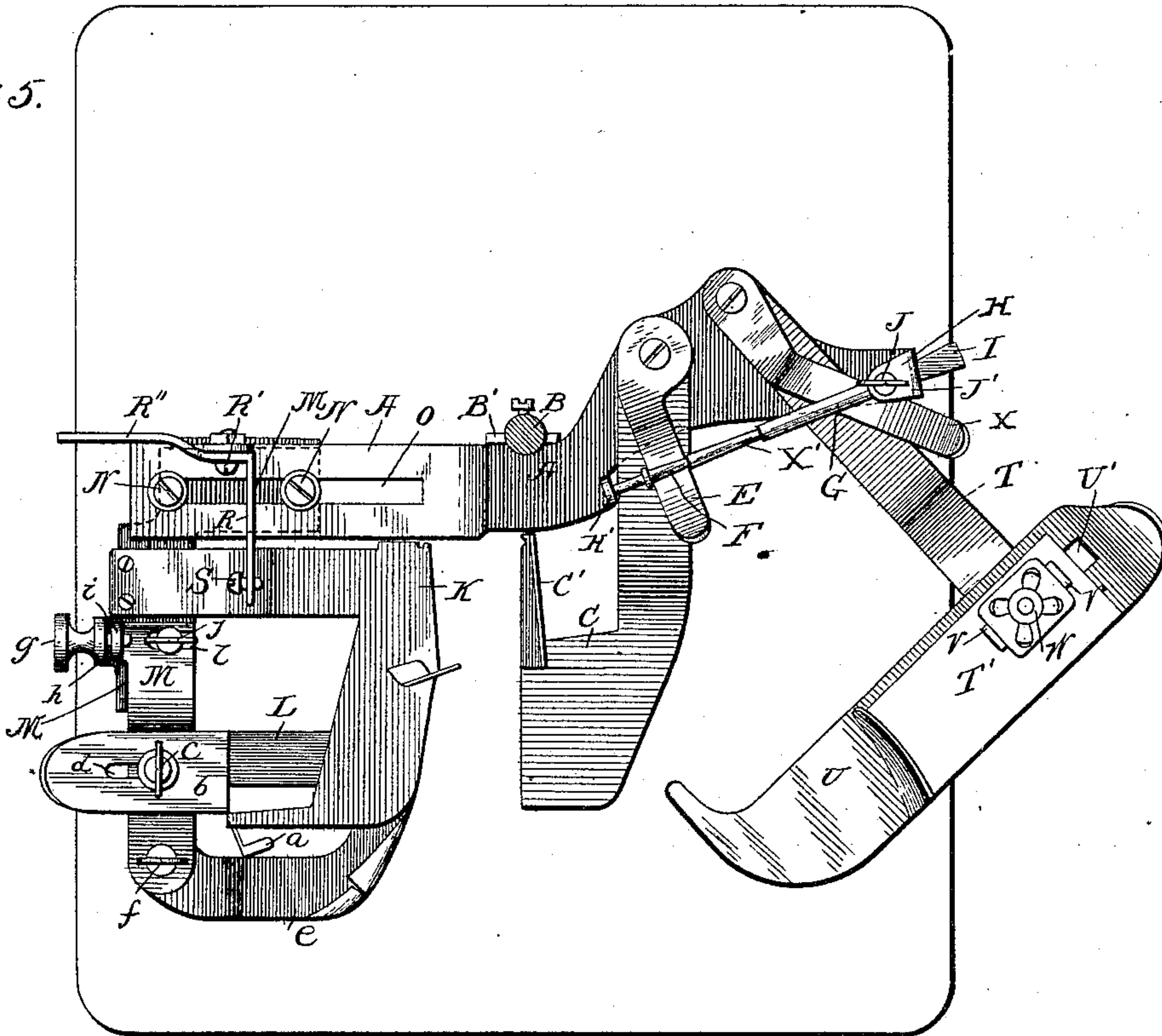


Fig. 6.

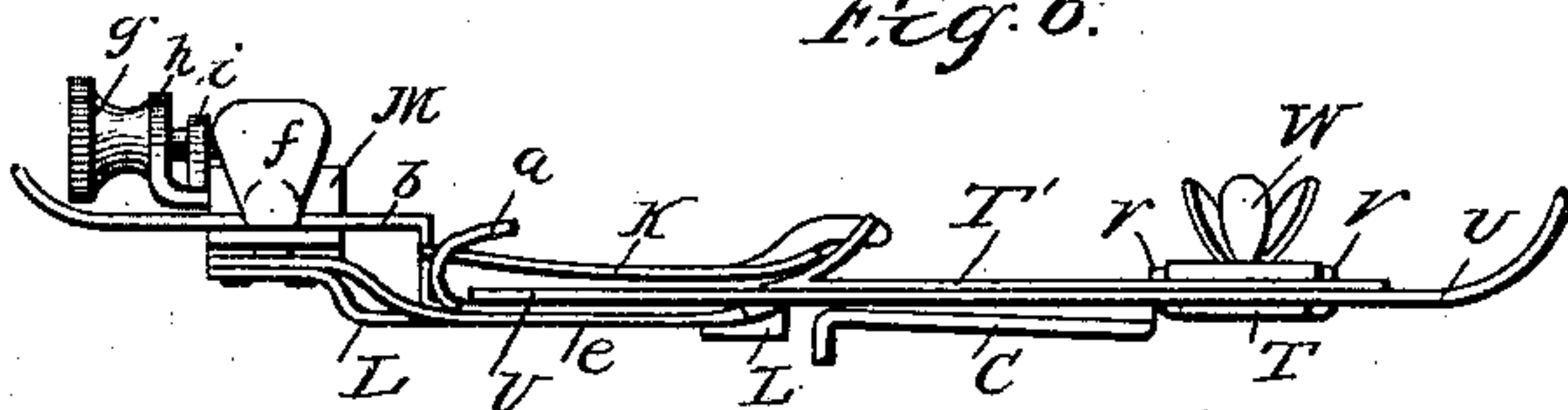


Fig. 7.

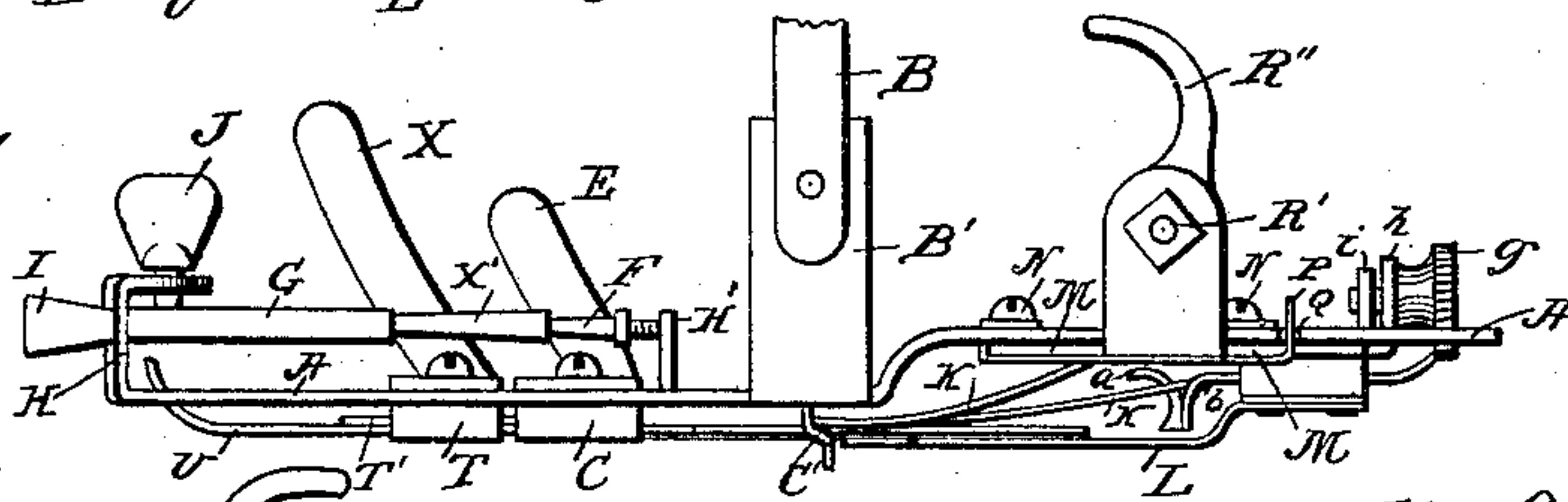


Fig. 8.

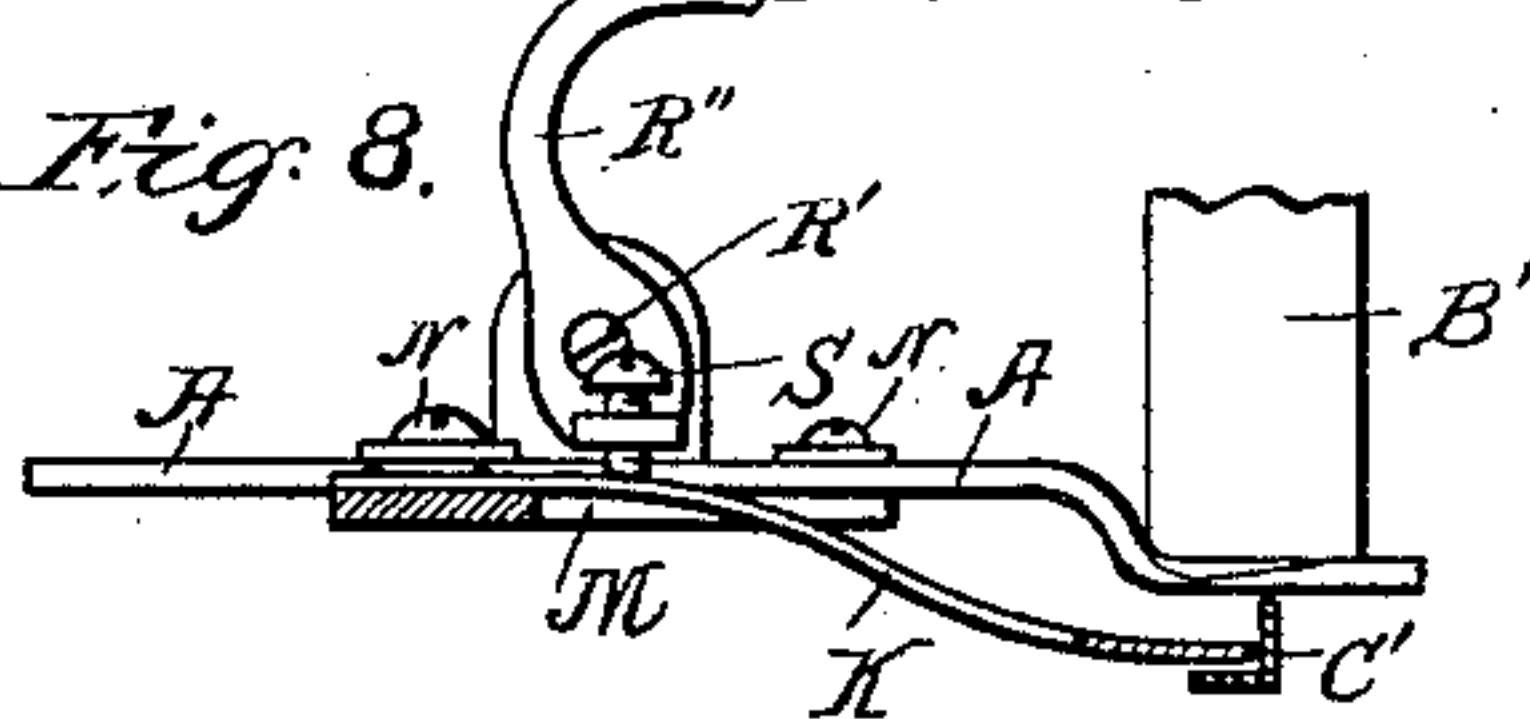
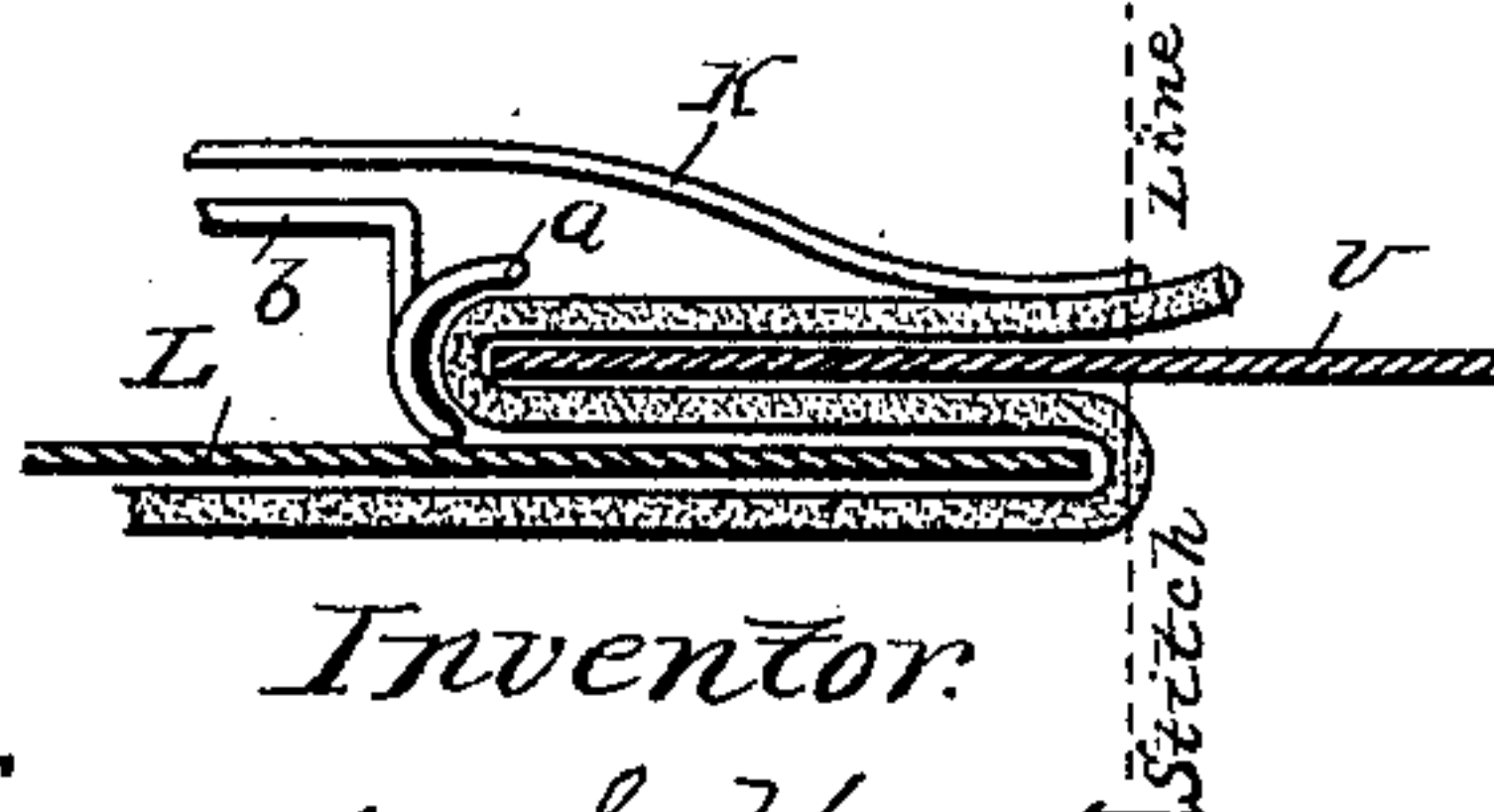


Fig. 9.



Witnesses.

Wm. Rheem.  
Jm. H. Felt.

Inventor.

Enoch S. Yentzer.  
By Jno. G. Elliott Atty.



# UNITED STATES PATENT OFFICE.

ENOCH S. YENTZER, OF OTTAWA, ASSIGNOR OF ONE-HALF TO JOHN L. FLANNERY, OF CHICAGO, ILLINOIS.

## BLIND-STITCH HEMMER FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 427,944, dated May 13, 1890.

Application filed June 13, 1889. Serial No. 314,139. (Model.)

*To all whom it may concern:*

Be it known that I, ENOCH S. YENTZER, a citizen of the United States, and a resident of Ottawa, in the county of La Salle and State of Illinois, have invented certain new and useful Improvements in Blind-Stitch Hemmers, of which the following is a specification.

This invention relates to improvements in blind-stitch-hemming attachments for sewing-machines, by means of which the stitch which forms the hem passes through the fold of the goods, and is thereby concealed, so as to produce what is technically known as a "blind" stitch, because the line of thread does not appear upon the outer surface of the goods. In these machines heretofore, especially in the sewing of woollen, cotton, and other soft fabrics, it has been customary and necessary to turn over in forming the hem a fold of greater width than is actually necessary for the hem, in order that the edge may be trimmed by trimming-knives working automatically with the hemmer, and thus present a uniform appearance, which trimming is rendered necessary by the extreme difficulty experienced with such machines in making a straight seam, it being practically impossible for such machines to hem and make a perfect finish without the necessity of trimming the edge of the goods; but even at best these prior machines draw or twist the goods along the line of hem in such manner as to render the machine useless upon some classes of work, especially where striped goods are employed and where any particular degree of accuracy is required in the shape of the hemmed goods. The twisting, overlapping, and forcing of the goods in making the hem and allowing for trimming renders the use of the machine impracticable for such purposes.

The prime object of this invention is to dispense with the trimming attachment for blind-stitch hemmers and to produce a hemmer capable of forming a perfect hem without the necessity for subsequent trimming, either by hand or machinery.

Another object is to have the hemmer of such a character that soft or curling edged goods are guided and delivered to the needle with such accuracy that the hemming along

the edge of the goods may be effectually accomplished without the necessity for trimming.

A further object is not only to have the hemmer adjustable in such manner that hems of various widths may be made thereby, but also to have the parts thereof separable in such manner as to materially facilitate the introduction or removal of the goods from the hemmer without disturbing the relative adjustment between the parts, and, finally, to provide certain details of construction in the carrying out of my invention, all as illustrated in the accompanying drawings, in which—

Figure 1 represents a perspective view of a blind-stitch hemmer embodying my invention, showing the same in position as applied to a sewing-machine and the parts in position for work; Fig. 2, a plan view thereof; Fig. 3, a similar view to Fig. 1, showing the goods inserted in the hemmer ready for sewing; Fig. 4, a perspective view showing the parts separated after the removal of the goods and ready for the insertion of the goods; Fig. 5, a plan view showing the parts in the position represented in Fig. 4; Fig. 6, a front elevation of the parts of the hemmer forward of the line 6 6 of Fig. 2; Fig. 7, a rear elevation of the hemmer; Fig. 8, a detail section on the line 8 8 of Fig. 2, and Fig. 9 a diagram view more clearly illustrating the position of the parts when the goods are in the hemmer ready for hemming.

Similar letters of reference indicate the same parts in the several figures of the drawings.

Referring by letter to the accompanying drawings, A indicates the base-plate, which also constitutes the presser-foot of the hemmer, and may be attached to the presser-bar B of any sewing-machine, either by means of the upturned portion B', fitting into a slot in the presser-bar, or by means of a socket-piece, as the presser-foot of sewing-machines generally is attached, or in any other well-known and convenient manner. This base-plate projects to the sides of the presser-bar at substantially a right angle to the line of feed and sufficiently to constitute a support for all parts of the hemmer, which as a whole is



consequently elevated and lowered by the presser-bar the same as the usual presser-foot.

To one side of, and preferably toward the inside, or toward the arm supporting the head of the machine, is pivotally secured to said base-plate a guide C, the operative edge of which is on a line with the needle D of the machine, so as to guide the goods properly to the needle and to indicate the line of the stitch. This guide is pivoted principally for the purpose of adjusting it to goods varying in thickness to any considerable extent, although under all ordinary circumstances such adjustment will not be required; but, when required, may be readily effected by means of the spring-tongue E, secured to and projecting upwardly from the guide and engaging a notch F, in a longitudinal adjustable shaft G, bearing in lugs H H', through the former of which it works freely, while through the latter it has a screw-threaded connection, by means of which, when the shaft is rotated by a thumb-piece I on the projecting end thereof, the shaft will be longitudinally adjusted in its bearings. This shaft is prevented from rotating by means of a set-screw J, working through an overhanging portion J' of the lug H and binding directly upon the shaft.

Thus it will be seen that whenever it is desired to swing the guide back from its operative position it is only necessary to depress the spring-tongue until it clears the notch in the shaft, when the guide may be swung upon its pivot, and thus expose the feed of the machine without the necessity for removing the base-plate or presser-foot from the machine.

Opposing the guide C is a tension-plate K and an angular feed-plate L immediately underlying the same, both of which are secured at their ends to and project forward from a slidable supporting-plate M, which is in turn adjustably secured to the bed-plate or presser-foot by means of set-screws N working freely through slots O in the bed-plate, or vice versa, by means of which the said supporting or adjusting plate, carrying with it the tension and feed-plates, may be adjusted laterally toward and away from the guide-plate, and when adjusted in its operative position with the forward edge of the tension-plate opposing the upturned edge C' of the guide the said adjusting-plate will be automatically locked in that position by means of a spring-catch P, secured to said plate, engaging a corresponding notch or socket Q in the bed-plate, or vice versa.

The tension of the plate K is regulated, removed, and applied by means of a hand-operated presser R, pivoted to the slidable plate M and provided with an adjusting-screw S in the forward end thereof above the tension-plate, by means of which the pressure of said presser R upon the spring-tension plate may be increased or diminished, causing the same to clamp the goods with a greater or less de-

gree of tension, as will hereinafter be more fully described. This presser R is, in all essential respects, a cam, consisting of an angular crank-plate, as more clearly shown in Figs. 2 and 4, having a horizontal and vertical portion and pivoted through the vertical portion at R', so that when swung upon said pivot the horizontal portion will be elevated and lowered, so as to press upon or clear the tension-plate, as the case may be. The vertical portion R'' thereof is utilized as a thumb-piece for operating the presser, and at the same time is so arranged with reference to the spring-catch P that after the tension is removed by the operation of said presser, and it is desired to operate or slide the adjustable-supporting plate laterally, a sufficient movement of the presser may be made to cause the thumb-piece to bear upon the projecting end of the spring-catch P and depress the same, so as to clear the notch in the bed-plate, when the supporting-plate may be readily adjusted or slid laterally.

Pivotally secured to the bed-plate at the opposite side of the presser-bar and needle of the machine from that on which the adjustable supporting-plate is located is an arm T, carrying upon the outer end thereof a plate T' provided with an upturned portion on the forward edge thereof, constituting a continuance of the upturned edge C' of the guide C, and beneath this plate is a folder-gage U, adjustable and slidable upon the arm independent of the plate T', (which latter is fixed relative to said arm,) by means of a slot U' therein, through which projects upturned ears V upon said arm, which ears also project up through the plate T', so as to prevent end movement thereof, both of said plates being secured in position by means of a set-screw W, secured to the arm in any well-known and convenient manner. This arm is also provided with a spring-tongue X, similar to the spring-tongue E of the guide, and arranged to engage a second and corresponding notch X' in the shaft G, so as to prevent the turning of the arm upon its pivot, or to permit the turning thereof when the tongue is disengaged, carrying with it the plate T' and the folder-gage, as clearly illustrated in Fig. 5 of the drawings. This folder-gage is adapted and arranged to lie between the tension-plate K and the feed-plate L during the hemming operation, as illustrated in Figs. 2 and 3, and, by reason of its adjustability laterally toward and away from said plate, is the means by which the width of the hem is regulated and determined, it being understood that this folder-gage lies in between the folds of the goods during the hemming operation, the front edge thereof being rounded, as illustrated, to afford a more perfect guide for the goods and avoid the catching thereof upon this plate.

Attached to the adjustable supporting-plate M, forward of the feed-plate L and of the folder-gage, is another guide for the fold of the



goods, consisting of a U-shaped piece *a*, projecting from a plate *b*, adjustable upon the supporting-plate by means of a set-screw *c* working through a slot *d* in said plate, this guide being adjusted laterally relative to the folder-gage, so as to receive the fold of the goods made by the folder-gage, and properly guide the same through the hemmer. Forward of this guide and rigidly secured to the supporting-plate is another tension-plate *e*, composed of spring metal, lying in substantially the same plane as the feed-plate *L*, and operating as a tension upon the bottom layer of goods, the tension or pressure of which upon the goods is adjusted by means of an adjusting-screw *f* working through the end of the supporting-plate and bearing upon the tension-plate in such manner as to depress the free end thereof. That portion of the supporting-plate to which the feed-plate *L*, guide *a*, and tension-plate *e* are attached is adjustable upon the other portion of said plate and independent thereof by means of a thumb-screw *g*, working through an upturned lug *h* in the main portion of said plate and engaging a lug or ear *i*, upon the adjustable portion of said plate, causing such portion to be adjusted laterally, in which movement it is guided by a binding-screw *j*, working through a slot *l* in the adjustable portion of said plate and engaging the main body or portion thereof, so as to bind the two parts together in any adjustable position.

When inserting the goods into the hemmer, the parts are moved to the position shown in Figs. 4 and 5 of the drawings, in which the folder-gage is shown as thrown back out of the way and the adjustable supporting-plate, carrying with it the tension and feed plates, is drawn back laterally to the limit of its outward movement, leaving sufficient space between the forward edges thereof and the guide and needle for the insertion of the goods, the base-plate being bent up, as shown, at this side of the machine, in order to permit the tucked edge to pass thereunder more freely. In this position the body of the goods is laid upon the cloth-plate of the machine, the edge to be hemmed bent back to the left, over the feed-plate *L* and tension-plate *e*, and the said plates are then moved up to their forward position, after which the folder-gage is swung around into position, the end thereof projecting between the feed-plate and the upper tension-plate *K*, leaving the edge of the goods folded over said gage beneath the said tension-plate against the guide and just forward of the line of stitching, the position of the parts at this time, when ready for sewing, with the line of stitching shown in diagram, being clearly illustrated in Fig. 9 of the drawings. When in this position, the free angular end of the feed-plate *L* rests upon the fabric over the feed of the sewing-machine, so as to prevent a buckling or backward movement of the goods during the sewing operation, and after the tension is put upon the

upper tension-plate by manipulating the presser *R* the goods are ready for sewing.

When hemming around a skirt or any article that would form an endless hem when finished, as the starting-point nears the folder-gage the operator presses on spring *X* and moves the arm *T* to the right, as shown in Fig. 5, withdrawing the folder-gage from between the folds of the goods, so as to allow the hem to be closed and completed, thus forming an endless hem. When the hem is finished, however, the thumb-piece of the presser *R* is turned over to the left and the plate *M* withdrawn, carrying with it the feed and tension plates, as shown in Fig. 5, when the goods can be readily taken out, leaving the hemmer ready for replacing more goods. The peculiar arrangement of these parts is such that the tension upon the goods is exactly neutralized on each edge of the fold, and the goods are therefore drawn through the hemmer in a perfectly straight line, and, in fact, with such accuracy that even though the goods be soft and curling upon the edge, as is usual in woolen and gauze fabrics, this curling edge will be held in position by the upper tension-plate *K* against the guide, between which two parts the said edge must pass and be delivered thereby direct to the needle without the possibility of slipping or becoming disarranged or out of alignment therewith, and the line of stitching will pass through this edge and through the thickness of the fold of the material upon the side with which the edge unites, and produce what is technically known as a "blind" stitch.

In the drawings I have shown the edges of the various plates upturned, rounded, and bent in the manner best adapted for operation upon soft and curling fabrics with a view to straightening them out and delivering them in a perfectly-smooth condition to the needle without the twisting of the goods in passing through the hemmer, and while such folds and curves are very desirable in the handling of such goods they are not absolutely necessary and may be dispensed with, especially when operating upon coarse or stiff fabrics.

Thus it will be seen that while the guide tension-plate and the supplemental guide-plate *T'* are adjustable toward and away from each other still in their operative positions they at all times have a uniform and fixed relation to each other, notwithstanding the independent adjustment of all of their parts, and I may here state that this independent adjustment of all of their parts renders the adaptation of the hemmer for work upon all kinds of fabrics simply and readily effected even by a novice, for the effect of such adjustments are apparent upon the goods and may be easily regulated by the operator.

By the employment of a hemmer such as herein shown and described I am enabled to dispense entirely with the trimming-knives and attachments heretofore found necessary



in connection with hemmers, because of the accuracy and smoothness with which the goods are delivered to the machine, due principally to the adjustability of the parts to goods of varying thicknesses, but also to the employment of the tension-plates described and the relative arrangement and location of the several parts of the machine, for in the prior machines, so far as I am aware, these tension-plates are wholly binding, and the main difficulty with such machines is that the goods in passing through the hemmer become twisted and stretched to such an extent that the sewed edge thereof is rendered uneven, giving an unfinished appearance to the goods and necessitating the trimming of the edges, as a result of which these prior hemmers are rendered unfit for use upon certain classes of work, especially upon striped goods, by twisting the same out of alignment and making an unsightly hem upon the same, and are especially objectionable in the hemming of goods in which the measurement, size, or shape of the hemmed goods is of any importance, for obviously with such machines, in which such trimming is necessary, accuracy of the finished garment is out of the question.

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

1. In a hemming attachment for sewing-machines, the combination, with the base-plate, the guide, the feed-plate, and the tension-plate attached thereto, of the folder-gage pivotally secured to said base-plate and adapted and arranged to lie between said tension and feed plates above and forward of the guide, substantially as described.

2. In a hemming attachment for sewing-machines, the combination, with the base-plate, the guide, the feed-plate, and tension-plate, all adjustably secured to said base-plate, of the adjustable folder-gage pivotally secured to said base-plate and adapted and arranged to lie between said tension and feed plates above and forward of the guide, substantially as described.

3. In a hemming attachment for sewing-machines, the combination, with the base-plate, the guide secured thereto at one side of its attachment to the presser-bar, the tension-plate, and the feed-plate opposing said guide and attached to the base-plate at the opposite side thereof, of the folder-gage pivotally secured to the base-plate and adapted and arranged to lie between the said tension and feed plates forward of and above the guide, substantially as described.

4. In a hemming attachment for sewing-machines, the combination, with the base-plate, the guide attached thereto, the adjustable supporting-plate, and a sliding connection between the supporting-plate and base-

plate, and the tension and feed plate secured to and projecting from said support, of the folder-gage pivotally secured to the base-plate and adapted and arranged to lie between said tension and feed plates, substantially as described.

5. In a hemming attachment for sewing-machines, the combination, with the base-plate, the guide attached thereto, an adjustable supporting-plate composed of two sections adjustable upon each other, a sliding connection between one of said sections and the base-plate, a tension-plate attached to said section, an adjustable presser secured to the adjustable supporting-plates and adapted and arranged to bear upon said tension-plate, and the feed-plate attached to the adjustable section of said support, of the adjustable folder-gage pivotally secured to the base-plate and adapted and arranged to lie between said tension and feed plates, substantially as described.

6. In a hemming attachment for sewing-machines, the combination, with the base-plate, the guide, the upper tension-plate, the feed-plate lying below the same, and the lower tension-plate lying in the same plane with said feed-plate, all of said plates being attached to the base-plate, of the folder-gage adapted and arranged to lie between the upper tension-plate and the feed-plate, substantially as described.

7. In a hemming attachment for sewing-machines, the combination, with the base-plate, the guide attached thereto, the upper tension-plate, the feed-plate underlying the same, and the lower tension-plate lying in substantially the same plane as said feed-plate, of the adjustable folder-gage adapted and arranged to lie between the upper tension-plate and the feed-plate, and an adjustable fold-guide opposing the operative edge of said folder-gage, substantially as described.

8. In a hemming attachment for sewing-machines, the combination, with the base-plate, the tension-plate and the feed-plate attached to said base-plate at one side of its attachment to the presser-bar, of the guide and the adjustable folder-gage, both pivotally secured to said base-plate at the opposite side, a notched and longitudinally-adjustable shaft journaled on said base-plate, and spring-tongues projecting from said guide and gage adapted and arranged to engage the notches in said shaft, so as to lock said members in their operative positions, substantially as described.

ENOCH S. YENTZER.

Witnesses:

CLARENCE GRIGGS,  
KENT GREEN.