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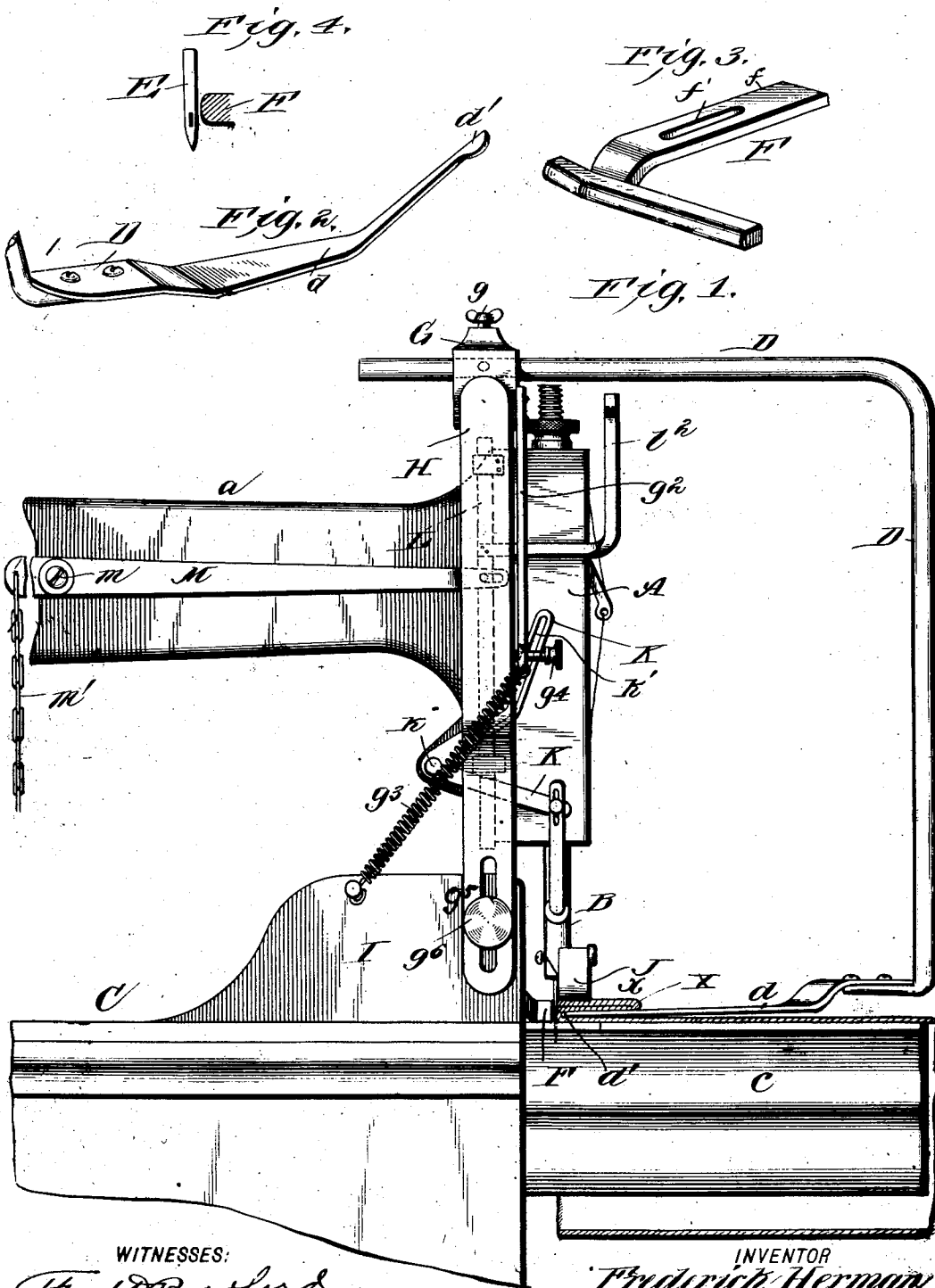
PATENTED MAR. 6, 1906.

F. HERMAN.

BLINDSTITCHING SEWING MACHINE.

APPLICATION FILED FEB. 2, 1904.

3 SHEETS—SHEET 1.



WITNESSES:

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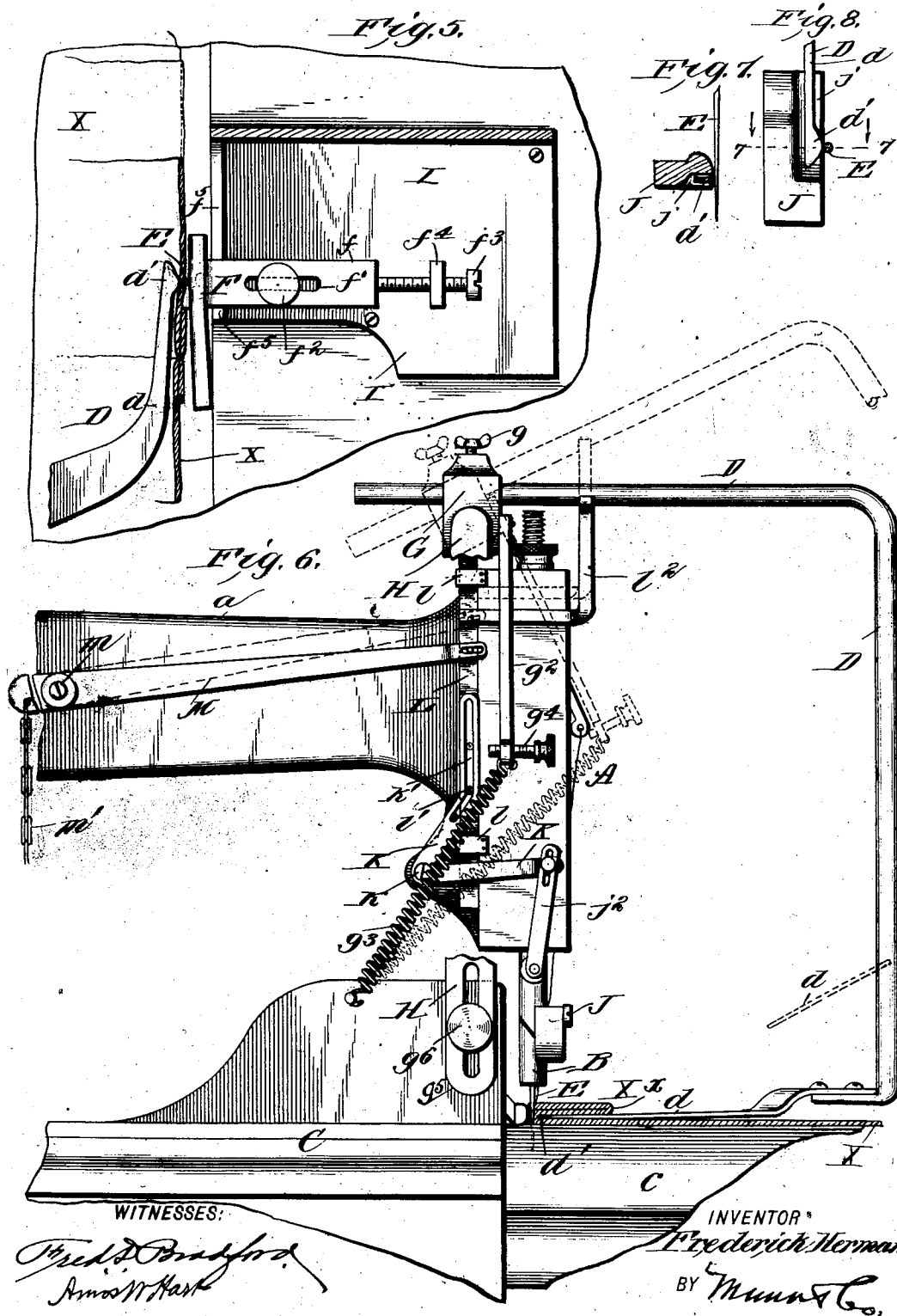
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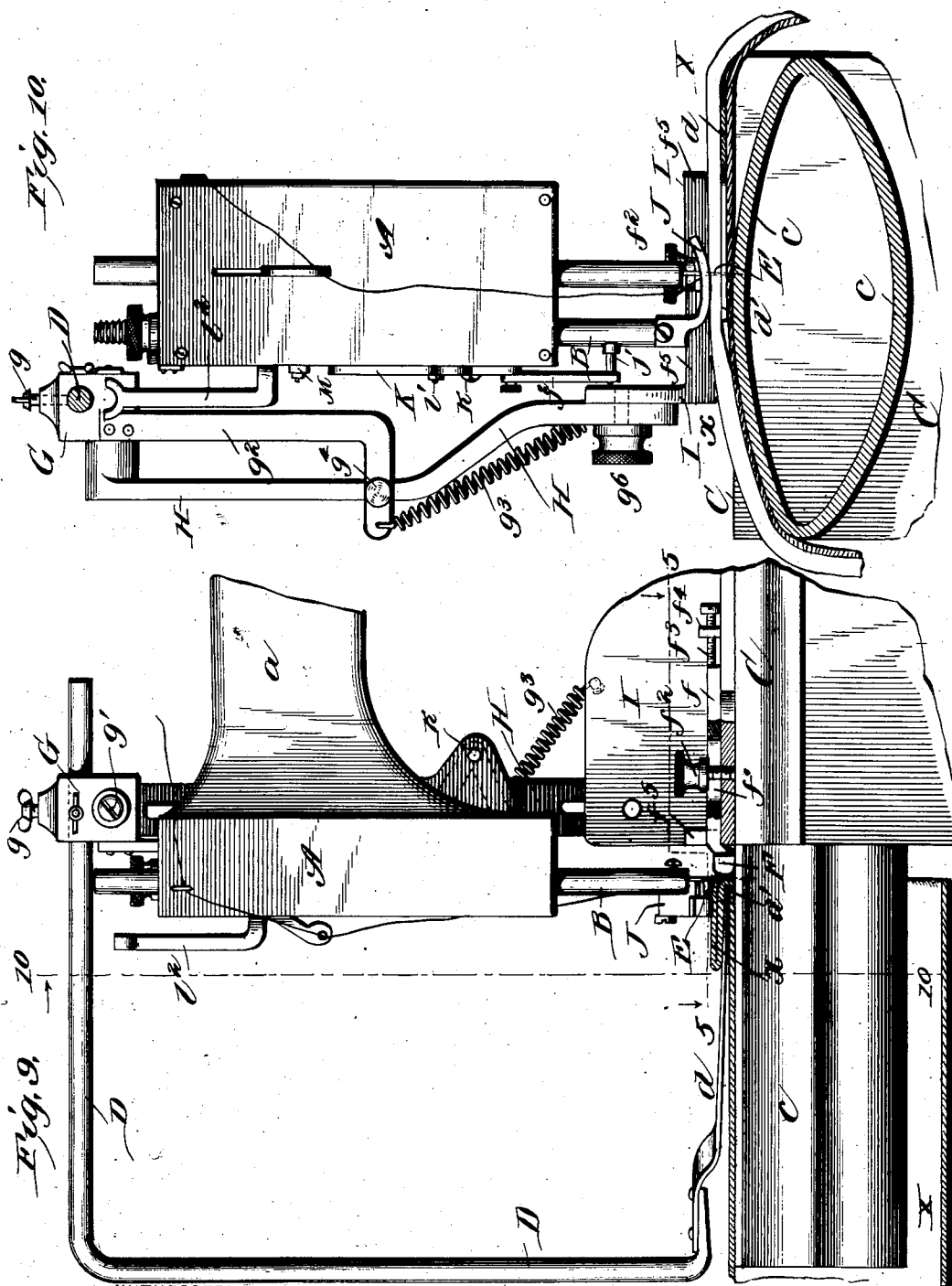
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UNITED STATES PATENT OFFICE

FREDERICK HERMAN, OF LINCOLN, NEBRASKA.

BLINDSTITCHING SEWING-MACHINE.

No. 814,603.

Specification of Letters Patent.

Patented March 6, 1906.

Application filed February 2, 1904. Serial No. 191,646.

To all whom it may concern:

Be it known that I, FREDERICK HERMAN, a citizen of the United States, and a resident of Lincoln, in the county of Lancaster and State of Nebraska, have made certain new and useful Improvements in Blindstitching Sewing-Machines, of which the following is a specification.

The object of my invention is to provide an improved attachment for sewing-machines whereby blindstitching may be effected with a greater degree of perfection and reliability than heretofore. The attachment is secured to the bed-plate and head of an ordinary sewing-machine, preferably such as is employed for manufacturing purposes rather than of the domestic class, and but little modification of the sewing-machine proper is required.

The details of construction, arrangement, and operation of parts are as hereinafter described, reference being had to the accompanying drawings.

Sheet 1, Figure 1, is mainly a side view, a portion only being shown in section, of my improved attachment applied to the bed-plate and head of a well-known type of sewing-machine. Fig. 2 is a perspective view of a portion of the self-adjusting cloth-guide. Fig. 3 is a perspective view of the fixed cloth-guide. Fig. 4 is a detail view illustrating the construction and arrangement of the needle relative to the fixed cloth-guide. Sheet 2, Fig. 5, is a horizontal section taken just above the cloth-guides. Fig. 6 is a side view which is essentially similar to Fig. 1, save that certain portions are broken away in order to show the movable parts with better effect, and the adjustment of the movable guide is illustrated by dotted lines. Fig. 7 is a cross-section on the line 7 7 of Fig. 8. Fig. 8 is a bottom plan view of the presser-foot and the adjacent or working end of the self-adjusting cloth-guide. Sheet 3, Fig. 9, is partly a side view and partly a vertical section of the attachment and the machine parts to which it is applied, the view showing the opposite side of the attachment and the machine from that illustrated in Fig. 1. Fig. 10 is a vertical section on the line 10 10 of Fig. 9.

The head A of the sewing-machine is shown constructed in the ordinary way and provided with the ordinary needle-bar B, which is reciprocated by the usual means. The bed-plate C is also constructed in the usual way,

save that it is preferably provided with an extension c' , which (see Figs. 9 and 10) is hollow and oval in cross-section. The purpose of this is to better adapt the machine for use in sewing garments which require to be passed over the part c' —such, for example, as trousers-legs. It is to be understood, however, that the attachment will operate successfully with a bed-plate of the ordinary construction.

An important feature of my attachment is the construction and arrangement of the self-adjusting cloth-guide D, which is shown as a right-angular rod or bar having a flat horizontal extension or blade d , whose extremity is provided with a lateral lug or enlargement d' , the same constituting practically a rounded or angular head. (See especially Fig. 2.) This cloth-guide D serves to press the goods X against the needle E and against the fixed cloth-guide F. (See especially Fig. 3.) As shown in Fig. 5, the point d' of the guide D slopes both ways from the needle, or back from the line of feed. It will be further noted that the yielding guide is located outside the fixed guide, or in a direction opposite that of the head of the machine relative to the needle and said fixed guide. The latter is essentially T shape in form, the shank f having a longitudinal slot f' , which receives a clamp-screw f^2 , (see Figs. 5 and 9,) which enters the plate I. A set-screw f^3 works in a lug f^4 , forming an attachment of the said plate, and abuts the outer end of the guide-shank f . The front end of the shank fits between vertical lugs f^5 , forming projections of the plate I. As shown in Fig. 9, the shank is bent downward adjacent to the outer edge of the bed-plate, and the head or cloth-guide proper rests upon the extension c of the bed-plate. The said head is inclined to the right from the point where the needle E is located and beyond that point or in the opposite direction the guide is straight or parallel to the end of the bed-plate C. This inclination of the main portion of the cloth-guide F enables it to guide the goods to the needle with greater facility than would be practicable if the same were straight or parallel to the side end of the bed-plate C. It will be observed also (see Figs. 3 and 9) that the cloth-guide is rounded on the side adjacent to the needle E in order to obviate any danger of the point of the needle striking forcibly upon the cloth-guide, and thus being broken or bent. It is apparent that by

means of the set-screw f^3 this cloth-guide F may be adjusted with great nicety and as required for different thicknesses of cloth to which the blindstitching is applied. As is obvious, this adjustment has relation only to the minute space which is left between the needle and the guide. In some kinds of cloth it is practicable to effect blindstitching if the cloth-guide be in actual contact with the needle. While the guide F is capable of adjustment, as described, for distinguishing it from the yielding and self-adjusting guide D, it is termed the "fixed" or stationary guide, since when in use it is always held immovable.

The upper horizontal portion of the self-adjusting cloth-guide D is held adjustably in a rocking head G (see Figs. 1, 6, 9, and 10) and is clamped therein by means of a screw g . This permits it to be adjusted with the point d' in the proper relation to the needle E. Such relation is illustrated in Figs. 5 and 8, where the projection or lug d' is shown exactly opposite the needle, which is in its normal working position. It will be seen that the cloth X is fed between these parts, the adjustment being such that the needle will always pass through the portion of the cloth adjacent to the fixed guide F without, however, pressing the cloth in such manner that the stitches will appear on the other side—that is to say, on the side adjacent to the movable cloth-guide D. The head G, which carries the cloth-guide D, is mounted upon a journal g' , forming an attachment of a vertical bar H, which is secured to the right-angular plate I, forming an attachment of the bed-plate C of the sewing-machine proper. This plate I is secured by screws, so that it may be readily removed should the attachment not be required for use. The rocking head G is provided with a pendent arm g^2 , (see Figs. 1, 6, and 10,) its lower end being bent laterally and connected by a spiral spring g^3 with the right-angular plate I. It is obvious that the function of this spring is to hold the cloth-guide D pressed toward the needle to adapt it to yield when the swell or lug d' of the same passes a seam or other portion of the cloth which is of unusual thickness. In order to gage the exact distance required between the needle E and the lug d' of the cloth-guide D, as may be required for different thicknesses of cloth, I provide a set-screw g^4 , the same passing through the bent lower end of the pendent arm g^2 and its free end abutting the vertical bar H, which supports the rocking head G, as before stated. It is apparent that by adjusting this screw g^4 the cloth-guide D may be adjusted to a nicety and that the screw by contact with the bar H will always arrest the guide D at the right point when thrown down by the contraction of the spring g^3 .

It should be here stated that the shank d of the cloth-guide D is cut away back of the

point d' on the side adjacent to the fixed cloth-guide F (see especially Fig. 5) in order to allow a seam or increased thickness of the cloth X to pass freely or without obstruction up to a point where the needle operates. As indicated in Fig. 5, the lateral bend or inclination of the fixed cloth-guide F also cooperates to the same end. Thus in blindstitching the bottoms of trousers-legs the seam and thickened portions pass without obstruction to the needle, and then the increased pressure, due to the increased thickness of the cloth, forces the point d' of the cloth-guide F backward, this being allowed by expansion of the spring g^3 and the rocking of the head G on its journal. The point d' of the yielding cloth-guide is also sloped away from the needle on the side farthest from the front of the machine, since otherwise the thickened seam of the cloth would continue to hold the movable guide away from the fixed guide until clear of the former, whereas, as is now the case, the instant the seam passes beyond the point d' of guide D the latter again presses on the single thickness of the cloth, so that the latter is held in the manner required for the proper action of the needle thereon.

An important feature of my machine is the arrangement of the fixed cloth-guide nearer and the movable or yielding cloth-guide farther from the base of the head of the machine. By this arrangement the line of stitching is of equal depth in single thickness of the cloth or in a seam or thickened part, whereas in those machines in which the yielding guide is arranged on the side nearest to the base of the head of the machine the line of stitching is so thrown that when the thickened part or seam comes to the needle the cloth is pushed under the needle that much farther, and the needle must consequently pierce nearly the entire thickness, or, more correctly speaking, it must pierce the entire thickness due to the seam, which is fatal, for the following reasons—namely, because a light or thin needle, which is necessary in this class of work, cannot pierce the thickened part, and if a heavier needle be used thin goods cannot be operated upon with accuracy and success, and when the needle pierces the seam the thread in the bend of the goods subtends a larger arc, so that a pucker is formed in the cloth.

As best indicated in Figs. 7 and 8, the presser-foot J is grooved or cut away on the under side at j in order to provide space for the shank and the point of the cloth-guide D. In all other respects the presser-foot is constructed in the usual way and, as before stated, is operated by the usual means. As shown in Fig. 4, the point of the needle E is located eccentrically. In other words, the point is so located that the side of the needle adjacent to the fixed cloth-guide F approaches more nearly a straight line than the opposite side. This enables the needle to pass through

very thin goods without danger of piercing the same in such manner as to expose stitches on the opposite side of the cloth. Further, to obviate danger of the needle striking forcibly upon the presser-foot J the side of the latter adjacent to the needle is rounded, as indicated in Fig. 7.

As indicated in Figs. 1, 6, and 9, the vertical bar H, which carries the main parts of the attachment, is slotted at its lower end g^b , and a clamp-screw g^a passes through the slot, and thus secures the bar adjustably to the plate I. In other words, this construction and attachment permit the bar H to be adjusted higher or lower, as may be required to better adapt the cloth-guide D for its function.

I will now describe the means which I have devised whereby the presser-foot J and the cloth-guide D may be thrown up or raised, as indicated by dotted lines, Fig. 6.

The shank of the presser-foot J (see Figs. 1 and 10) is provided with a lateral stud or pin j , and the latter is connected by a link j^2 with an elbow-lever K, which is pivoted at its angle to a lug or projection k on the head A of the sewing-machine. The upper and longer arm of the lever K is bent at an obtuse angle and also provided with a longitudinal slot k' . (See especially Fig. 6.) A bar L, Fig. 6, is adapted to slide in guides l on the head of the machine and is operatively connected with the angular lever K by means of a lateral pin l' , which works in the aforesaid slot k' . It is apparent that if the rod L be raised the pin l' will ride up in the slot and while in the lower portion of the same the lever K will be operated in such manner as to raise the presser-foot and that after the said pin l' shall have passed the angle of the slot k' the presser-foot will remain at rest or remain unaffected while the pin slides farther upward along with the bar L. Such movement of the bar L is effected by a lever M, which is pivoted at m to the side of the arm a of the sewing-machine and is connected by a chain m' or other device with a treadle or knee-action mechanism, (not shown,) which will form an attachment of the sewing-machine proper. Such treadle and knee-action mechanism being already well known require no description nor illustration in this connection. I further provide the sliding bar L with a right-angular arm l^2 , (see especially Figs. 1, 6, 9, and 10,) the upper end of the same being crotched or notched to adapt it for engagement with the horizontal upper arm of the cloth-guide D. When the parts are in working position, as indicated by full lines in several figures, the said arm l^2 is lowered to a point where it is out of contact with the cloth-guide D; but when the lever M is operated for raising the presser-foot, as before described, the arm l^2 is also carried up along with the sliding bar L, and thus brought into contact with the cloth-guide D, whereby the

latter is raised to the position indicated by dotted lines, Fig. 6, this movement being permitted by the expansion of the spring g^3 and the rocking of the head G on its journal. Thus whenever required the operator by a simple and easy movement may throw the presser-foot up and the cloth-guide D backward and upward simultaneously, and upon releasing pressure upon the treadle or knee-action mechanism the parts are restored to their former working position indicated by full lines. As before indicated, the angular arm l^2 of the sliding bar L does not come in contact with or begin to raise the cloth-guide D until the pin l' of bar L passes the angle of the slot k' of lever K and rides upward in the upper portion of the slot without further affecting the position of the presser-foot, which is, however, held in the raised position until the sliding bar L is again lowered to release the cloth-guide D.

It will be seen that by my improvement I provide a self-adjusting cloth guard and guide which operates to hold the cloth being operated on firmly to the needle and yet yields when required to allow thickened portions of the cloth to pass the needle, so that the operation of the blindstitching is effected rapidly, easily, and accurately. It will be further seen that the rounded projection d of the said guard or guide by reason of its arrangement and position insures the holding of the cloth up to the needle until the cloth comes in contact with and is duly engaged by the needle and that this occurs accurately whether the cloth be of uniform or an irregular thickness; further, that the so-called "fixed" guide coöperates with the movable guide in effecting this result in the manner described. The invention is applicable for blindstitching trousers of any material, dresses of thin or thick cloth, also for work on leather and other materials, the attachment requiring only slight adjustment for varying degrees of thickness of the cloth, &c., and also a change from a coarse to a fine needle, or vice versa.

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

1. In a sewing-machine for blindstitching, the combination with a stationary cloth-guide arranged on the bed-plate and alongside the needle, of a yielding cloth-guide arranged opposite the stationary guide and outside the same, a needle arranged between the two guides, the yielding guide having a bearing-point adjacent to the needle and sloping away from the line of feed in front of the needle or on the operator's side of the machine, and yielding means for holding the cloth down while being operated upon, substantially as described.

2. In a sewing-machine for blindstitching, the combination with a stationary cloth-

guide arranged on the bed-plate, a yielding cloth-guide opposite the stationary guide, a needle arranged between the two guides, the said yielding guide having a bearing-point which slopes away from the line of feed on the side of the needle that is farthest from the operator's side of the machine, substantially as described.

3. In a sewing-machine for blindstitching, the combination with a normally stationary cloth-guide, a movable cloth-guide arranged on the outer side thereof and farther from the base of the head of the machine, and lying substantially in the direction of the line of feed, a needle interposed between the two guides, and a presser-foot arranged adjacent to the needle and having a bearing or friction surface on the side which is farthest from the head of the machine, substantially as described.

4. In a sewing-machine for blindstitching, the combination with a fixed cloth-guide, a yielding cloth-guide having a rounded point and a needle interposed between such point and the fixed guide, a presser-foot arranged adjacent to the needle, both the presser-foot and movable guide being farther from the base of the head of the machine than the fixed guide and thus outside the latter, substantially as described.

5. In a sewing-machine for blindstitching, the combination with a stitch-forming mechanism, and a normally stationary guide, of a yielding guide working opposite the stationary guide and a presser-foot having a groove in its under side to receive said yielding guide, substantially as described.

6. In a sewing-machine for blindstitching, the combination with a stitch-forming mechanism, a yielding cloth-guide, and a normally stationary guide, of a presser-foot which is provided on the under side adjacent to the stationary guide and nearest to the base of the head of the machine with a groove arranged lengthwise of the presser-foot, for reception of the yielding cloth-guide, as described.

7. In a sewing-machine for blindstitching, the combination with stitch-forming mechanism including a reciprocating needle, of a normally stationary cloth-guide arranged on the bed-plate of the machine and having its working face formed of two parts arranged at an obtuse angle, a yielding cloth-guide having a rounded point which when in working position is adjacent to the angle of the stationary guide, the latter being nearer the base of the head of the machine than the yielding guide, and the needle interposed between the two guides whereby the yielding guide yields to the seams of the cloth and allows the seams to approach the needle so that the latter enters the turned edge of the cloth always at an equal depth or distance from the normally stationary cloth-guide.

8. In a sewing-machine for blindstitching, the combination with a stationary cloth-guide, a yielding cloth-guide arranged adjacent to, but outside, the said stationary guide and thus farther from the base of the head of the machine, a needle interposed between the two guides and a presser-foot arranged adjacent to the needle and having its adjacent under side cut away to receive the movable cloth-guide.

9. In a sewing-machine for blindstitching, the combination with a fixed cloth-guide, a yielding cloth-guide arranged adjacent to, but outside, the fixed guide and thus farther from the base of the head of the machine, a needle arranged to work between the two guides and having a point which is at one side of the longitudinal axis of the needle and on the side toward the base of the head of the machine, substantially as described.

10. In a sewing-machine for blindstitching, the combination with a stationary cloth-guide and stitch-forming mechanism including a reciprocating needle, of a yielding cloth-guide located outside the stationary guide or farthest from the machine-head, and serving as a cloth-carrier, and having a shank which is extended substantially in the direction of the line of feed and provided with a rounded bearing-point and a concave curve adjacent to said point on the side nearest the front of the machine, in order to facilitate feeding the goods, the apex of said point being adjacent to the needle, substantially as described.

11. In a sewing-machine for blindstitching, the combination with a movable guide, of a yielding cloth-guide having a rounded bearing-point, and a reciprocating needle arranged adjacent to said point, the point of said needle being out of line with the longitudinal axis of the same and on the side farthest from the point of the movable guide, substantially as described.

12. In a sewing-machine for blindstitching, the combination with a stitch-forming mechanism including a needle and a stationary cloth-guide, of the yielding cloth-carrying guide whose point is adapted to work opposite the stationary guide both guides being adjacent to the needle, a pivoted and swinging holder for the movable guide by which it is held in working position, and a set-screw forming an attachment of the holder and serving as an adjustable stop for arresting the movement of the movable holder relative to the needle, substantially as described.

13. In a blindstitch sewing-machine, the combination with a stitch-forming mechanism, a stationary cloth-guide, a movable cloth-guide and a presser-foot, of a lever under the control of the operator, and means connecting it with the movable cloth-guide and the presser-foot whereby the operation of said lever raises the presser-foot to the required height and holds it substantially at

rest while acting on the movable cloth-guide, substantially as specified.

14. In a sewing-machine for blindstitching, the combination, with stitch-forming mechanism, a stationary cloth-guide and a presser-foot having a bottom recess, of a yielding, cloth-carrying guide whose free end projects, when in normal working position, into said recess in the presser-foot, and lies adjacent to the said stationary cloth-guide, it being adapted to yield laterally away from the stationary guide and the base of the head of the machine, substantially as described.

15. In a sewing-machine for blindstitching the combination with stitch-forming mechanism, a stationary guide, a yielding cloth-carrying guide, a needle constituting an element of the stitch-forming mechanism interposed and adapted to work between the two guides, and yielding means for holding down the work while being operated on, substantially as described.

16. In a sewing-machine for blindstitching, the combination with a suitable stitch-forming mechanism, and a normally stationary guide, of the movable cloth-guide having a lower horizontal portion adapted to work opposite the stationary guide, a rocking holder for such movable guide, in which the latter is adjustable for varying the distance between the working point and the stationary guide, and a device for clamping the movable guide in any adjustment, substantially as described.

17. In a sewing-machine for blindstitching, the combination with suitable stitch-forming mechanism, and a normally stationary cloth-guide, of a movable cloth-guide whose lower portion is adapted to work opposite the stationary guide for pressing the cloth against the same, and a support and holder for the movable guide which is adjustable vertically, substantially as described.

18. In a sewing-machine for blindstitching, the combination with suitable stitch-forming mechanism, and a normally stationary cloth-guide, of a movable cloth-guide adapted to work opposite the stationary one, a rocking holder for the same, a vertical bar upon which the rocking holder is mounted, and means for adjusting such holder higher or lower substantially as described.

19. In a sewing-machine for blindstitching, the combination with suitable stitch-forming mechanism, and a normally stationary cloth-guide, of a movable cloth-guide, a rocking holder for the same, a vertical support on which such holder is mounted, a rigid arm pendent from the holder, a set-screw passing through the free end of such arm and bearing upon the aforesaid support for the rocking holder, and a retracting-spring connected with the said arm, and a fixed portion of the machine, substantially as and for the purpose specified.

20. In a sewing-machine for blindstitching, the combination with suitable stitch-forming mechanism, a vertically-movable presser-foot, a stationary cloth-guide, and a movable cloth-guide adapted to work opposite the stationary guide, of an angular lever having one of its arms connected with the presser-foot and its other arm having an obtuse angular portion and provided with a slot extending longitudinally of the arm and past the angle thereof, a vertically-slidable bar having a pin adapted to work in the obtuse-angle slot, an arm connected with said rod and adapted to engage the movable cloth-guide, and means under the control of the operator for raising the slidable bar, whereby the presser-foot is first raised and then the movable cloth-guide, substantially as described.

21. In a sewing-machine for blindstitching, the combination with suitable stitch-forming mechanism, a normally stationary cloth-guide, a vertically-movable presser-foot, and a movable cloth-guide whose lower horizontal portion is adapted to work opposite the stationary guide for pressing the cloth against the latter, and a rocking support for the movable guide, of an angular lever pivoted to a fixed portion of the machine, one arm thereof being connected with the presser-foot and the other having an obtuse angular portion, a movable device which is operatively connected with such obtuse angular arm and provided with a member adapted to engage the movable cloth-guide for raising the same out of normal working position, a spring for retracting the movable cloth-guide, and a lever pivoted to the arm of the machine and operatively connected with the aforesaid device, said lever being under the control of the operator, whereby he may raise first the presser-foot and then the movable cloth-guide when the work is to be removed or adjusted, substantially as described.

22. In a sewing-machine for blindstitching, the combination with suitable stitch-forming mechanism, including a vertically-reciprocating needle, a normally stationary cloth-guide, a presser-foot having the portion which is directly opposite the vertically-reciprocating needle rounded or sloped backward on its upper side, and the under portion provided with a groove extending lengthwise of the presser-foot and opening on the side adjacent to the stationary guide, of the movable cloth-guide having a horizontal shank adapted to swing into and lie in the groove of the presser-foot, substantially as described.

23. The improved blindstitching attachment for a sewing-machine proper, comprising an angular plate adapted to be secured upon the bed-plate of the sewing-machine, an adjustable cloth-guide attached to and sup-

ported upon such angular plate, means for
adjusting and clamping such guide, a verti-
cal bar attached to the vertical member of
the angular plate, a rocking device mounted
5 thereon, a movable cloth-guide supported
and held in said device, a rigid arm which is
pendent from said device, and a spiral spring
connecting said arm with the angular plate

for holding the movable cloth-guide in nor-
mal position when in use, substantially as de- 10
scribed.

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Witnesses:

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