

No. 653,630.

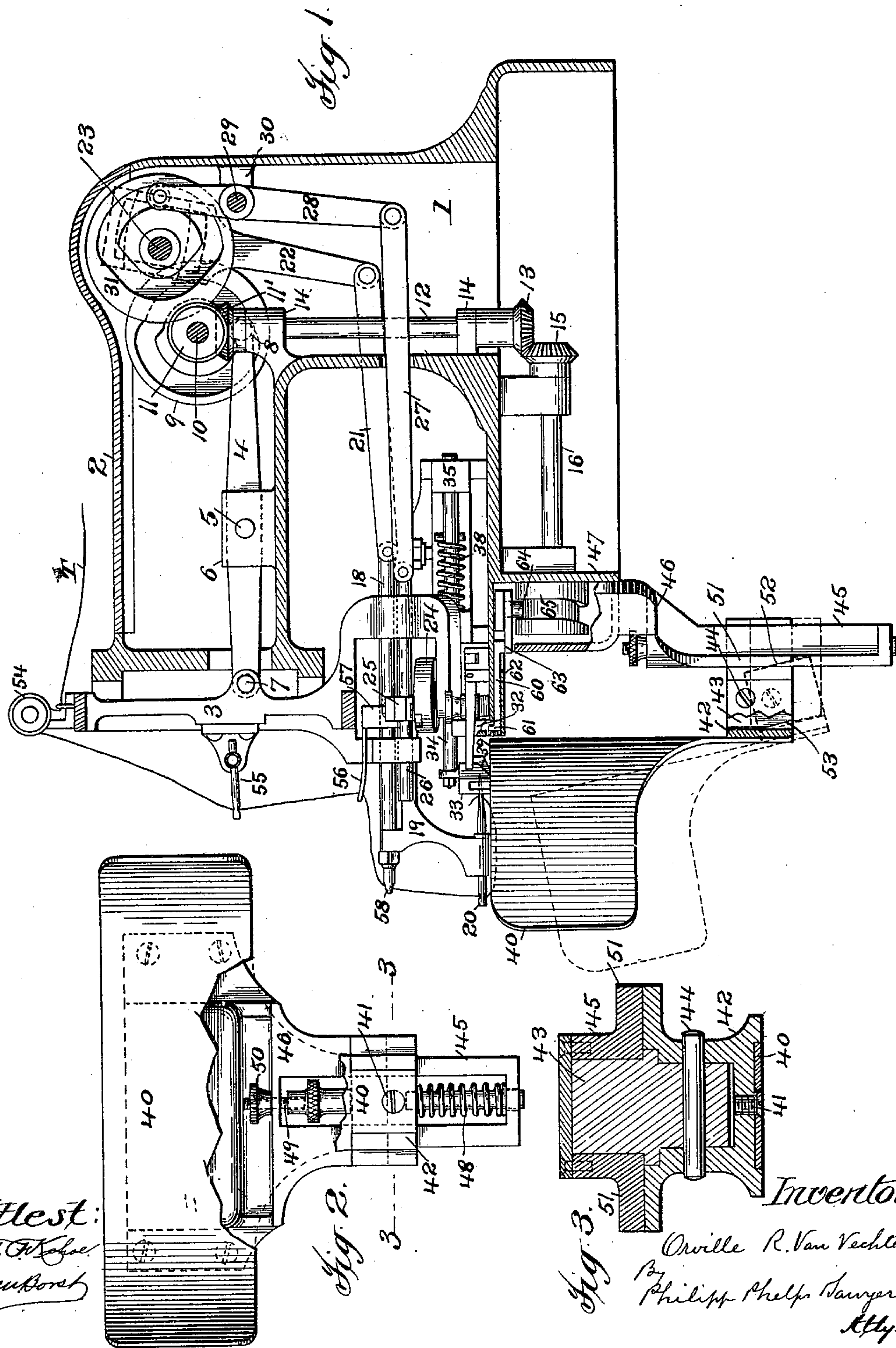
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O. R. VAN VECHTEN.

GUIDE FOR BLINDSTITCHING SEWING MACHINES.

(Application filed Apr. 28, 1899.)

(No Model.)



Attest:
T. F. Ketchum
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Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

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GUIDE FOR BLINDSTITCHING SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 653,630, dated July 10, 1900.

Original application filed November 21, 1898, Serial No. 696,983. Divided and this application filed April 28, 1899. Serial No. 714,790. (No model.)

To all whom it may concern:

Be it known that I, ORVILLE R. VAN VECHTEN, a citizen of the United States, residing at New York city, county of Richmond, and State of New York, have invented certain new and useful Improvements in Guides for Blindstitching Sewing-Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The invention embodied in this application, which application is a division of my application Serial No. 696,983, filed November 21, 1898, relates to certain improvements in sewing-machines of the blindstitching type, and more particularly concerns itself with the construction of the guide by which the work is held in position in order that the stitch-forming mechanism may act thereon. In this type of machines the work has been usually heretofore supported on a movable guide, the work and the guide being caused to move together past the stitch-forming mechanism. Such constructions are complicated and expensive and are therefore objectionable for these and other reasons.

One object of this invention is to produce an improved supporting-guide for blindstitching sewing-machines which shall be normally stationary with respect to the work which it supports and along which the work is fed to the stitch-forming mechanism.

A further object of the invention is to produce an improved guide which while in operative position shall be held against movement in the direction of travel of the work which it supports and which by improved devices shall be capable of being shifted into and out of operative position in order to enable the work to be readily placed in position thereon and removed therefrom.

With these and other objects in view the invention consists in certain constructions and in certain parts, improvements, and combinations, as will be hereinafter described and then more particularly pointed out in the claims hereunto appended.

In the accompanying drawings, which form a part of this specification, and in which like characters of reference indicate the same

parts, Figure 1 is a vertical section of a blindstitching sewing-machine having my improved guide attached thereto. Fig. 2 is a detail view of the guide detached from the machine, certain parts being broken away to more clearly show the construction. Fig. 3 is a horizontal section on the line 3 3 of Fig. 2.

In the machine which has been selected as illustrating the preferred embodiment of the invention the frame 1 is of the usual form and is provided with the usual overhanging arm 2. Located in the front end of the overhanging arm 2 is a movable frame or carrier 3. This carrier is given a vertically-reciprocating movement by means which will be hereinafter described and is guided in its movement by guides of any suitable form. This carrier serves to support the stitch-forming mechanism, which may be of any approved type suitable for forming a blind stitch.

While any suitable means may be used for giving the carrier its vertical movements, there is preferably located in the overhanging arm 2 a lever 4, which is fulcrumed on a suitable pin 5, said pin being supported in lugs 6, formed on the interior of the frame. The lever 4 is connected to the carrier 3 by means of a pin 7, which passes through the end of the lever and through suitable ears formed on the carrier. The connection between the pin 7 and the lever 4 is sufficiently loose to permit the vertically-reciprocating movement of the carrier. The opposite end of the lever 4 has a stud 8, (indicated in dotted lines in Fig. 1,) said stud being preferably in the form of a friction-roll and engaging a groove in a closed or island cam 9. This cam 9 is mounted on a shaft 10, which finds its bearing in the outer sides of the frame 1. The shaft 10 is driven at a suitable rate of speed by any suitable mechanism, and by its rotation the lever 4 is operated to produce the vertically-reciprocating movement of the carrier 3. The shaft 10 is preferably provided with a miter-gear 11, which meshes with a miter-gear 11'. The miter-gear 11' is carried on a shaft 12, the other end of which is provided with a miter-gear 13. This shaft 12 is supported in suitable bearings 14,

located in the frame of the machine. The miter-gear 13 engages with a miter-gear 15, carried on a shaft 16, this shaft being supported in suitable bearings carried on the under side of the bed-plate of the machine. The shaft 16 serves to operate the feeding mechanism, which may be of any approved type.

The carrier 3 supports in suitable bearings therein a needle-bar 18, said bar being provided with a bracket 19, in which the needle 20 is suitably supported. The bar 18 is reciprocated by means of a link 21, which is connected at one end to the bar 18 and at the other end to a lever 22, which lever is or may be rocked by suitable cams carried by or controlled from the shaft 23, which is suitably supported in the frame 1. The carrier 3 is further provided with suitable bearings in which is supported a looper-shaft, said looper-shaft being provided at its upper end with a disk 24. This disk 24 is provided with a groove which is engaged by a pin projecting from a bearing 25, which is mounted on a reciprocating rod 26, said rod being reciprocated by a link 27, which is connected to a lever 28. The lever 28 is pivoted on a pin 29 in bearings 30 and has a stud preferably in the form of a roller which engages a groove in a suitable closed or island cam 31, mounted on the shaft 23. It will be understood that through the disk and connections before referred to the looper-shaft is given a rotary reciprocating movement.

As has been before indicated, any suitable form of blindstitching mechanism may be used in connection with the guide which forms the subject of this application. Inasmuch, therefore, as the specific construction of the stitch-forming mechanism has no particular connection with the invention, it is not deemed necessary to describe it with great particularity. For a fuller description and illustration of the specific stitch-forming mechanism herein shown reference is made to my application Serial No. 696,983, of which, as has been before stated, this application is a division.

The outer end of the bed-plate is provided with a needle-plate 32, of usual construction, said plate having the usual slot, through which the needle passes. The work is clamped in position against the needle-plate 32 by means of a presser-foot 33, which in the present instance is carried by a longitudinally-moving rod or bar 34. This longitudinally-moving rod or bar 34 is carried in suitable bearings 35, which are secured to a block 36, which is secured to the bed-plate in any suitable manner. The rod 34 is provided with a spring 38. This rod may be thrown forward in any suitable manner, as by a presser-foot lever of ordinary construction. The presser-foot is provided with an overhanging lip 39, which, by means of a channel between itself and the body of the presser-foot, effects a purpose to be hereinafter stated.

The work-guide consists of a plate 40, which is herein shown as having the shape of a segment of a circle. The shape, however, may be varied and will be varied in accordance with the work which the machine is constructed to perform. While the guide 40 may be mounted in the machine in various ways, it is preferably secured to a block 42 by means of a screw 41. The block 42 is preferably pivoted to a sliding block 43 by means of a pin 44. The sliding block 42 is preferably mounted to slide between ways 45, which are formed on a casting 46, this casting being secured to the bed-plate in any suitable manner, as by being screwed to a depending flange 47 thereon. The block 43 is forced upward by a spring 48, which bears at its upper end against the block and at its lower end against the web connecting the ways or guides 45. The upward movement of the block is limited by a stop-screw 49, passing through a threaded aperture in the upper end of the web, a check-nut 50 being provided to hold the screw in position. The ways or guides 45 are provided with wings or sidewise projections 51, and the block 42 is so formed that the flat faces of its sides bear against these wings. The lower ends of the wings 51 are chamfered off, as shown, the chamfered portions being marked 52. When the work-holder 40 is pushed downward against the force of the spring 48, so as to enable the work to be placed in position thereon or removed therefrom, it carries with it the blocks 42 and 43, the block 43 being vertically guided between the ways or guides 45, as has been before stated. When the work-holder 40 has been moved downward sufficiently far to permit the work to be placed on or removed from it, the block 42 is swung forward on its pivot. At this time its inner flat sides or faces are partly below the ends of the wings 51, and these flat sides coming in contact with the chamfers 52 lock the block and its attached guide in its downward position, so that the work can be readily placed thereon or removed therefrom. In order to permit the guide to swing forward, the block 43 is chamfered off at 53, these chamfers allowing the work-holder 40 and block 42 to be swung forward, the parts taking the position shown in dotted lines in Fig. 1. When the work has been placed in position on the work-holder 40, the work-holder is swung forward and is thrown up by the spring 48 into proper position to present the work to the needle.

Any suitable form of feeding mechanism may be used to advance the work along the guide. In the machine shown a bar 60, carrying a feed-dog 61, is shown as suitably supported in the bed-plate, as by a web 62. The bar 60 is connected to a casting 63, and extending through this casting is a pin 64, which engages a cam-groove in a cam 65, suitably mounted on the shaft 16. The rotation of this cam 65 will give the feed-dog its reciprocation to and from the work. The movement

which the feed-dog has in advancing the work and in returning, so as to be reengaged with it, may be effected by any suitable combination of cams or cams and springs. Since, however, these specific devices form no part of the invention under consideration, they are not herein described. It may be remarked, however, that the mechanism may be the same as that shown in my application before mentioned.

The thread T is led from any suitable source of thread-supply to the needle through any suitable arrangement of guides, and any suitable form of take-up or stitch-setting mechanism may be used. In the machine shown the thread passes over a tension device 54 and through a suitable eye in a bar 55. From this point it is led through an eye formed in a take-up plate 56, which is secured to a block 57, carried on the reciprocating needle-bar 18. From the take-up plate 56 it is led through a guide 58 on the end of the needle-bar and thence to the needle 20. As the needle-bar reciprocates, the plate 56, in connection with the bar, will reeve off a sufficient supply of thread through the tension device 54 and at the same time will operate to set the stitch, all as is more fully described in my said application Serial No. 696,983.

Assuming that the machine which has been selected for the purpose of illustrating the invention is intended to sew sweat-leathers into hats by a blind zigzag stitch, and the construction has been described with particular reference to this work, the operation of the machine is as follows: The work-guide 40 having been pushed downward and rocked forward on its pivot, the flat sides of the carrying-block 42 come in contact with the chamfers 52 of the wings 51 and lock it in its lowered position. A hat is now placed in position on the work-guide, the crown of the hat resting against the concave inner side of the guide and the brim being folded over the edge and lying on the other side thereof, the presser-foot having in the meantime been thrown forward. The work-guide is now rocked forward, and its spring 48 forces it up into proper position to be operated upon by the stitch-forming mechanism. The presser-foot is now operated to clamp the work between itself and the needle-bar, and the end of a sweat-leather is introduced into the groove in the presser-foot formed by the overhanging lip 39. The machine being now set in operation, the needle passes through the hat-brim, presenting its loop of thread to the looper in the usual manner, the lever 4 being operated by the cam 9 between alternate stitches to produce a zigzag or overedge stitch. The machine therefore forms, as will be readily understood by those skilled in the art, one stitch through the work and the next above the work.

It will be understood that many changes may be made in the specific construction by

which the invention is carried into effect, and such changes will readily suggest themselves to skilled mechanics. The invention is not therefore to be limited to the particular details of construction shown in the drawings and described in the foregoing specification.

What I claim is—

1. In a sewing-machine, the combination with the bed-plate, of a stitch-forming mechanism, a guide over which the work is folded and along which it is fed, and connections between the guide and the bed-plate whereby the guide is held from movement in the direction of travel of the work, said guide standing at an angle to the plane of the bed-plate and being arranged beyond the edge thereof so as to support the work clear of the plate and at an angle thereto, substantially as described.

2. In a sewing-machine, the combination with the bed-plate, of a guide over which the work is folded and along which it is fed, and connections between the guide and the bed-plate whereby the guide is held from movement in the direction of travel of the work, said guide standing at an angle to the plane of the bed-plate and being arranged beyond the edge thereof so as to support the work clear of the plate and at an angle thereto, a stitch-forming mechanism acting across the folded edge of the work, and means for feeding the work along the guide, substantially as described.

3. In a sewing-machine, the combination with the bed-plate, of a guide over which the work is folded and along which it is fed, and connections between the guide and the bed-plate whereby the guide is held from movement in the direction of travel of the work, said guide standing at an angle to the plane of the bed-plate and being arranged beyond the edge thereof so as to support the work clear of the plate and at an angle thereto, a stitch-forming mechanism acting across the folded edge of the work, means for feeding the work along the guide, and means for permitting the guide to be moved away from the stitch-forming mechanism in order that the work may be placed in position thereon, substantially as described.

4. In a sewing-machine, the combination with the bed-plate, of a curved guide over which the work is folded and along which it is fed, and connections between the guide and the bed-plate whereby the guide is held from movement in the direction of travel of the work, the edge of the guide being contained in a plane which is parallel to plane of the bed-plate, a stitch-forming mechanism acting across the folded edge of the work, and means for feeding the work along the guide, substantially as described.

5. In a sewing-machine, the combination with the bed-plate, of a curved guide over which the work is folded, the edge of the guide being contained in a plane which is parallel to the plane of the bed-plate, a stitch-form-

ing mechanism operating across the line of fold, means for feeding the work along the guide, and means for permitting the guide to be moved away from the stitch-forming mechanism in order that the work may be placed in position thereon, substantially as described.

6. In a sewing-machine, the combination with a curved guide over the edge of which the work is folded and along which it is fed, and connections between the guide and the bed-plate whereby the guide is held from movement in the direction of travel of the work, the curve of the guide being such that part of the folded work travels along the convex side of the guide and the other part of the folded work travels along the concave side of the guide, of a stitch-forming mechanism acting across the folded edge of the work, and means for feeding the work along the guide, substantially as described.

7. In a sewing-machine, the combination with a bed-plate, of a curved guide arranged beyond the edge of the plate and standing at an angle to the plane of the plate, said guide being curved away from the edge of the plate and connections between the guide and the bed-plate whereby the guide is held from movement in the direction of travel of the work, the construction of the guide being such that the work is folded over the edge of the guide and a part of it travels between the guide and the end of the plate, a stitch-forming mechanism acting across the folded edge of the work, and means for feeding the work along the guide, substantially as described.

8. In a sewing-machine, the combination with a guide over which the work is folded, of a stitch-forming mechanism operating across the folded edge of the work, means for feeding the work along the guide, means for permitting the guide to have a movement toward and away from the stitch-forming mechanism, and an adjustable stop for limiting the movement of the guide toward the stitch-forming mechanism, substantially as described.

9. In a guide for sewing-machines, the combination with a sliding block, of means whereby the block is guided in its movement, a second block pivoted to the first-named block, and a guide secured to the second block, substantially as described.

10. In a guide for sewing-machines, the combination with a sliding block, of suitable ways by which the block is guided in its movement, means for causing the block to move along the ways, an adjustable stop by which the movement of the block is limited, a second block pivoted to the first-named block, and a guide carried by the second block, substantially as described.

11. In a guide for sewing-machines, the combination with a sliding block, of means whereby the block is guided in its movement, a second block pivoted to the first-named block, and a curved guide secured to the second block, substantially as described.

12. In a guide for sewing-machines, the combination with a sliding block, of suitable ways by which the block is guided in its movement, means for causing the block to move along the ways, an adjustable stop by which the movement of the block is limited, a second block pivoted to the first-named block, and a curved guide carried by the second block, substantially as described.

13. In a sewing-machine, the combination with a bed-plate, of a stitch-forming mechanism located above the plate, ways located below the plate, a sliding block mounted in the ways, a guide, and connections securing the guide and the sliding block, substantially as described.

14. In a sewing-machine, the combination of a guide over which the edge of the work is folded, a stitch-forming mechanism operating across the line of fold, means for permitting the guide to move directly away and outwardly from the stitch-forming mechanism, and means for locking it in its outward position, substantially as described.

15. In a sewing-machine, the combination of a curved guide over which the edge of the work is folded, a stitch-forming mechanism operating across the line of fold, means for permitting the guide to move directly away and outwardly from the stitch-forming mechanism, and means for locking it in its outward position, substantially as described.

16. In a guide for sewing-machines, the combination with a pair of ways having chamfered wings thereon, of a sliding block moving in said ways, a second block pivoted to the first-named block, the contacting parts of one of the blocks being cut away so as to permit the second block to swing with respect to the first block, and the second block having flat sides which cooperate with the chamfered wings when the block has reached its limit of movement away from the stitch-forming mechanism and is swung outward, whereby the block is locked in position, and a guide secured to the second block, substantially as described.

17. In a guide for sewing-machines, the combination with a pair of ways having chamfered wings thereon, of a sliding block moving in said ways, a second block pivoted to the first-named block, the contacting parts of one of the blocks being cut away so as to permit the second block to swing with respect to the first block, and the second block having flat sides which cooperate with the chamfered wings when the block has reached its limit of movement away from the stitch-forming mechanism and is swung outward, whereby the block is locked in position, and a curved guide secured to the second block, substantially as described.

18. In a guide for sewing-machines, the combination with a block, ways by which the block is guided in its movement, chamfered wings on the ways, a second block secured to the first block and constructed to have a

pivotal motion thereon, said block having
flat sides to engage the chamfered wings, and
a guide mounted on the said block, whereby
the guide may be adjusted along the ways
5 and locked in its adjusted position, substan-
tially as described.

In testimony whereof I have hereunto set

my hand in the presence of two subscribing
witnesses.

ORVILLE R. VAN VECHTEN.

Witnesses:

T. F. KEHOE,

G. M. BORST.