

M. B. GARDNER.
 BINDING ATTACHMENT FOR SEWING MACHINES.
 APPLICATION FILED AUG. 18, 1910.

1,007,936.

Patented Nov. 7, 1911.

2 SHEETS—SHEET 1.

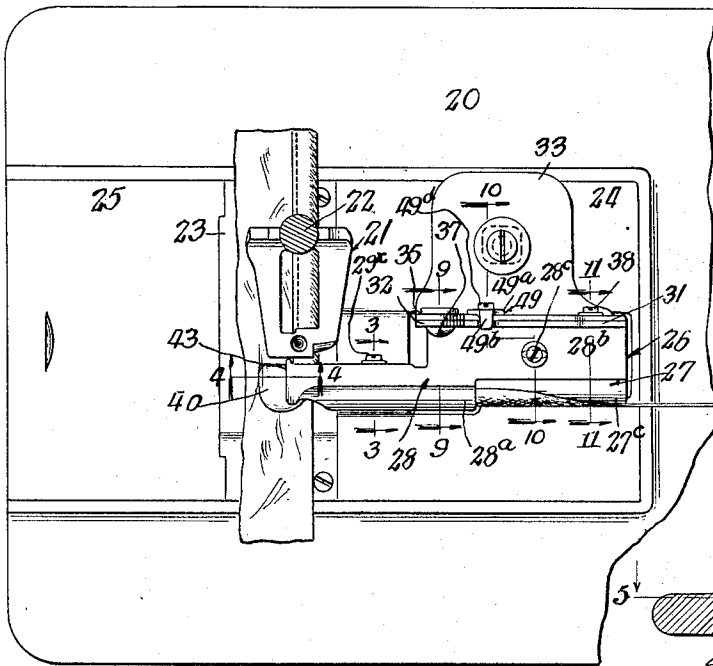


Fig. 1.

Fig. 4.

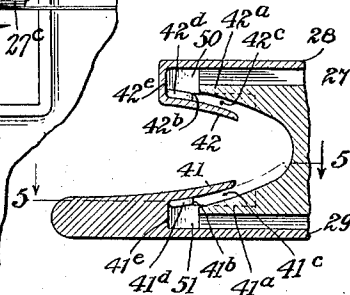


Fig. 3.

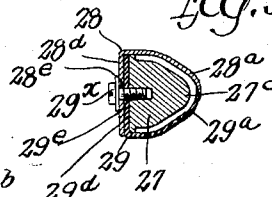


Fig. 2.

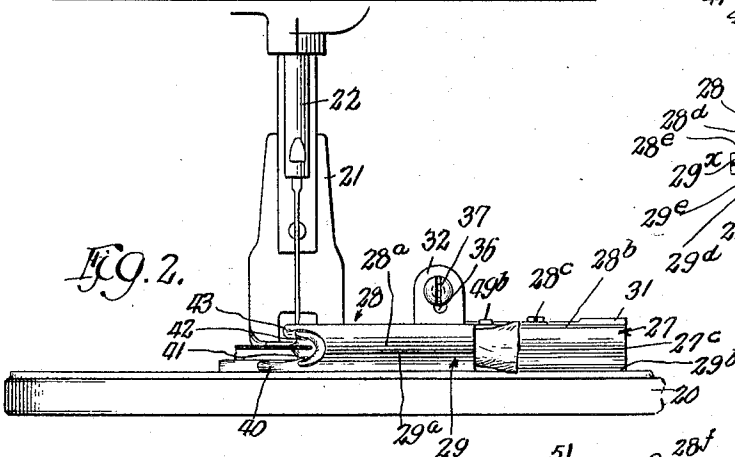
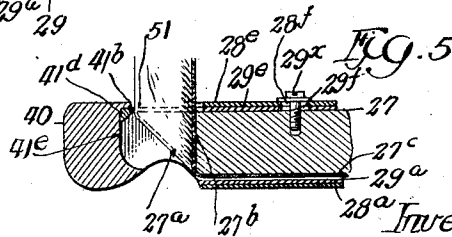


Fig. 5.



Witnesses:
 J. H. Alfede
 L. Q. Williams

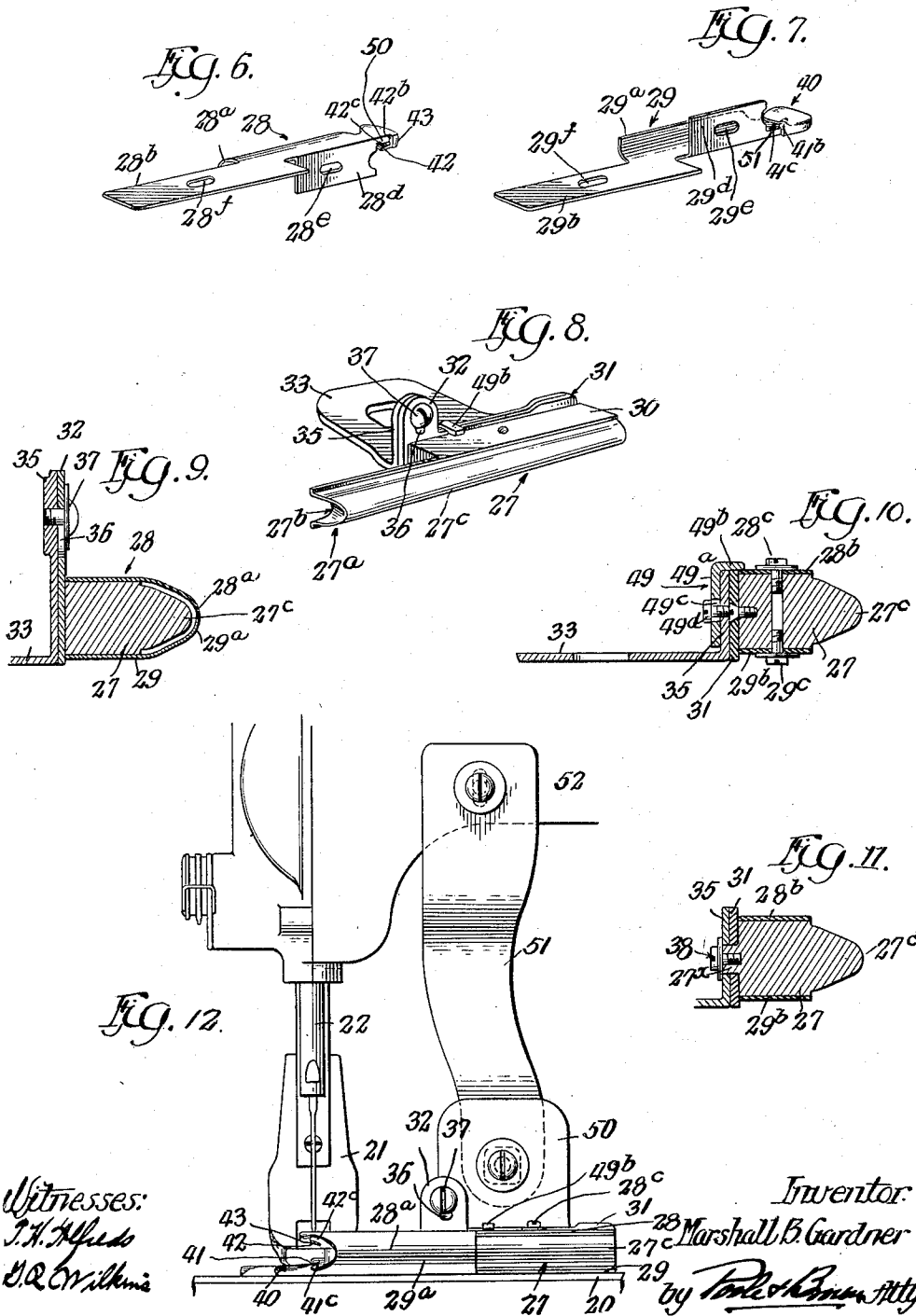
Inventor:
 Marshall B. Gardner
 by *Polk & Brown* Attys

M. B. GARDNER.
 BINDING ATTACHMENT FOR SEWING MACHINES.
 APPLICATION FILED AUG. 18, 1910.

1,007,936.

Patented Nov. 7, 1911.

2 SHEETS—SHEET 2.



Witnesses:
 J. H. Alfred
 E. R. Williams

Inventor:

Marshall B. Gardner

by *Paul H. Allen* Attys

UNITED STATES PATENT OFFICE.

MARSHALL B. GARDNER, OF AURORA, ILLINOIS.

BINDING ATTACHMENT FOR SEWING-MACHINES.

1,007,936.

Specification of Letters Patent.

Patented Nov. 7, 1911.

Application filed August 18, 1910. Serial No. 577,749.

To all whom it may concern:

Be it known that I, MARSHALL B. GARDNER, a citizen of the United States, and a resident of Aurora, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Binding Attachments for Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to an improved binder attachment for sewing machines and consists in the matters hereinafter described and more particularly pointed out in the appended claims.

In the drawings:—Figure 1 is a top plan view of one end of a sewing machine base with the needle-bar and presser-bar shown in cross-section. Fig. 2 is a front elevation of the parts shown in Fig. 1. Fig. 3 is a transverse section through the binder on the line 3—3 of Fig. 1. Fig. 4 is a partial longitudinal, vertical section through the binder on the line 4—4 of Fig. 1 said view being shown on an exaggerated scale. Fig. 5 is a section through Fig. 4 on the line 5—5 thereof. Figs. 6 and 7 are perspective views of the guide plates which form the outer casing of the binder. Fig. 8 is a perspective view of the binder and attaching plate, with the guide-plates shown in Figs. 6 and 7 removed. Fig. 9 is a transverse vertical section through the binder on the line 9—9 of Fig. 1. Fig. 10 is a transverse vertical section through the binder on the line 10—10 of Fig. 1. Fig. 11 is a transverse vertical section through the binder on the line 11—11 of Fig. 1. Fig. 12 is an elevation similar to that shown in Fig. 2 illustrating another means for attaching my improved binder to the sewing machine.

In the drawings, 20 designates the base of a machine head; 21 the presser-foot; 22 the presser-bar; 23 the throat-plate, and 24 and 25 slides inclosing the shuttle-way. 26 indicates my improved binder as a whole.

My improved binder in the embodiment illustrated in the drawings, embraces a form-block 27 having on its front face a rounded rib 27^c about which the binder-

strip is folded to give it its initial form, and guide-plates 28, 29 which are adapted to inclose said form-block and hold the binder-strip in contact with the rib 27^c. Said form-block is provided with an integral lateral extension 30 to which is secured a plate 31 having an upright extension 32 at one end.

33 is a plate removably attached to the slide-plate 24 and having an upright angular extension 35 of the general form of the plate 31. The upright member 32 of the plate 31 has a slot 36 and through said slot passes a screw 37 which is threaded into the upright angular extension 35 of the plate 33. The screw is thus located in a position where it may be gotten at from the front of the machine. 38 is a second screw connecting the angular extension 35 to the plate 31.

As shown in Fig. 11, the rear face of the form-block 27 has a projecting stud 27^x which engages through suitable apertures in the plate 31 and the extension 35 and the screw 38 is threaded into said boss. The binder is thus secured against vertical movement. By reason of the slot 36, the binder may be swung in a vertical direction upon the boss 27^x as a fulcrum to adjust the end of the binder with reference to the plane of the throat plate, for a purpose which will presently appear.

A stop 49 is secured to the upright extension 35 of the attaching plate 33 in position to engage and limit the upward movement of the binder when the same is being adjusted vertically. Said stop comprises a bar 49^a having an angular extension 49^b at its upper end which overhangs the extension block 30 of the binder. Said bar 49^a has a vertically elongated slot 49^c which is engaged by a set-screw 49^d threaded into the upright extension 35. By reason of this construction the stop may be adjusted in a vertical direction.

28 is the upper guide-plate and 29 the lower guide plate. Said guide plates are adapted for attachment to the form-block 27 and are so constructed and arranged that when secured to the form-block they inclose a narrow space about the rib 27^c through which the binder-strip is drawn, the guide-plates holding the binder-strip in contact

with said rib while it passes through said space. The front edges 28^a, 29^a of said guide-plates overlap as clearly to be seen in Fig. 9. The guide-plates are about half the length of the form-block, projecting at one end beyond the form-block and at the other end being provided with laterally extending attaching plates 28^b, 29^b which are of the general shape of the lateral extension block 30 of the form-block, to which they are secured by means of screws 28^c, 29^c, (Fig. 10). Slots 28^f, 29^f, are shown in the attaching plates 28^b, 29^b, for the passage of said screws. Said guide-plates are also provided with vertical flanges 28^a, 29^a, which are adapted to engage the rear of the form-block and hold the guide-plates in proper spaced relation therewith. The flange 29^a of the lower guide-plate comes directly in contact with the rear face of the form-block, while the flange 28^a of the upper plate rests against the flange 29^a of the lower guide-plate. Said flanges are respectively provided with elongated slot 28^e, 29^e for a screw 29^x which is threaded into the rear face of the form-block and retains said flanges rigidly connected to the form-block. By reason of the slots 28^e, 29^e and the slots 28^f and 29^f, the guide-plates may be adjusted in a longitudinal direction with reference to the form-block either together or independently.

The form-block 27 is provided as usual with a beveled end 27^a in which is formed a rounded notch 27^b, said notch forming upper and lower lips 42^a, 41^a at the end of the form-block. The binder-strip is first bent transversely in one direction as it passes through the space between the form-block and the guide-plates, and then as it passes in engagement with the notched beveled end of the form-block its direction of feed is turned at right angles to the length of the form-block and parallel with the line of stitching while its transverse curvature is reversed so as to open toward the line of stitching in position to embrace the edge of the piece that is to be bound, my binder in this respect being similar to other binders.

The lower guide-plate is provided with a foot extension 40 (see Figs. 4 and 5) which is adapted to rest upon and hold down a piece of lace or other fabric to which is to be attached a second piece to which the binder strip is to be sewed, it being possible with my improved binder to attach the binder-strip to one piece and to sew that piece bound to a second piece, by means of one operation. Said foot extension, as shown in the drawings, is made comparatively large and has a rounded end, its shape and size being such that it will not become entangled with the lace or other fabric passing under it and to which the bound strip is being sewed. The foot extension 40 is provided with an inwardly projecting lip 41 which

extends above the lower lip 41^a of the forming block 27. The upper guide-plate 28 is also provided at the end with an inwardly extending lip 42 which is preferably made integral with a depending flange 43 formed at the end of said guide-plate. Said lip 42 extends below the upper lip 42^a of the forming block 27. The lips 41 and 42 are spaced slightly from the lips 41^a and 42^a, respectively, and are adapted in connection with said lips to engage the marginal edges of the binder-strip and give them guiding support.

41^b, 42^b indicate abutments formed on the guide-plates which close the slots 41^c, 42^c between the lips 41 and 41^a and the lips 42 and 42^a on the side toward the needle. Thus, when the guide-plates are properly adjusted longitudinally of the form-block, it will be apparent that the marginal edges of the binder-strip or tape will be engaged between the lips 41, 41^a and 42, 42^a and that the relative position of the edges will be determined by the abutments 41^b, 42^b. Thus the line of fold of the binding strip may be accurately determined and may be made to coincide either with the median line of the strip, in which case the edge of the upper fold will fall below the edge of the lower fold, or the line of fold may be formed so that the edge of the upper fold will fall either beyond, or within the edge of the lower fold, by adjusting the guide-plates independently on the form-block.

50, 51 indicate narrow, vertical flanges formed respectively on the guide plates 28, 29 which are adapted in effect to form longitudinal extensions of the lips 42^a, 41^a of the form-block 27, when in the adjustment of the guide-plates on the form-block the lips 42, 41 are moved so that they are beyond a position in which they may co-act with the lips 42^a, 41^a of the form-block. In such case the lips 42, 41 of the guide-plates co-act with said flanges 50, 51 to give guiding support to the marginal edges of the binding strip.

To prevent the abutments 41^b, 42^b from wearing the edges of the binder-strip, lugs 41^d, 42^d are formed on the lips 41, 42 of the guide-plates, said lugs being rounded to present a smooth bearing for the edge of said strip. (See Figs. 4 and 5.) Said lugs are spaced a vertically short distance from the guide-plates to permit the lips 41^a, 42^a of the form-block to pass between them and the guide-plates. The movement of the guide-plates on the form-block is limited by stops or shoulders 41^e, 42^e.

It will be apparent from the description that my improved binder may be adjusted for use with binder-tapes of slightly different widths and of different textures, it being necessary simply to adjust the guide-plates longitudinally on the form-block by

means of the screws 28^c, 29^c and 29^x, until the edges of the binding tape when fed through the groove 27^b engage between the lips 41, 41^a and 42, 42^a, and against the abutments 41^b, 42^b. It is also apparent that by guide-plates, and thereby the relative positions of said abutments that the line of fold of the binding tape may be caused to coincide with the medial line of the tape or other line parallel thereto.

When it is desired to secure the piece that is being bound to a second piece within the margin of said second piece, as for example when it is desired to bind an edge of lace and at the same time to sew the bound edge of the lace to a second piece of material within the margin of the latter, the two operations may be done at the same time by the use of my improved binder. In this case the piece to be bound is fed through the groove in the end of the forming block in position to be embraced by the binding strip, while the second piece to which the bound strip is to be sewed is fed under the foot 40 of the lower guide-plate, said foot being adjusted vertically to accommodate materials of different thicknesses by means of the screw 32. The same stitching which sews the binding to the piece to be bound also sews the latter with the binding to the second piece.

In Fig. 12, I have shown another arrangement for attaching my improved binder to the machine. In this case the binder is connected as before to an attaching plate 50 so as to be adjustable vertically, but said attaching plate, instead of lying in a horizontal plane, is located in a vertical plane and is bolted to a hanger 51 which is secured to the overhanging arm 52 of the machine. This attachment has the advantage that a bound piece, such as lace, may be sewed at any distance within the margin of a second piece, since the latter may pass completely under the binder.

While in illustrating one embodiment of my invention I have shown herein certain details of mechanical construction, it is apparent that these may be modified in various ways without departing from the spirit of my invention and I do not wish to be in any way limited to the same except so far as indicated in the appended claims.

I claim as my invention:—

1. A binder attachment for sewing machines, embracing a form-block and guide-plates, said guide-plates being spaced from said form-block to provide a transversely curved slot through which the binder-strip is fed, said form-block being beveled at one end and having a horizontal groove forming vertically separated lips and the guide-plates projecting beyond the form-block and having inwardly projecting lips adapted to co-act with the lips on the form-block

and guidingly support the marginal edges of the binder strip as its transverse curvature is reversed in passing through said groove, and abutments adapted to engage the edges of the binder strip and determine their relative horizontal positions.

2. A binder attachment for sewing machines, embracing a form-block and guide-plates, said guide-plates being spaced from said form-block to provide a transversely curved slot through which the binder-strip is fed, said form-block being beveled at one end and having a horizontal groove forming vertically separated lips and the guide-plates projecting beyond the form-block and having inwardly projecting lips adapted to co-act with the lips on the form-block and guidingly support the marginal edges of the binder-strip as its transverse curvature is reversed in passing through said groove.

3. A binder attachment for sewing machines, embracing a form-block and guide-plates, said guide-plates being spaced from said form-block to provide a transversely curved slot through which the binder-strip is fed, said form-block being beveled at one end and having a horizontal groove forming vertically separated lips and the guide-plates projecting beyond the form-block and abutments formed on said guide-plates beyond the lips of the form-block adapted to engage the edges of the binder-strip and determine their relative horizontal position.

4. A binder attachment for sewing machines embracing a form-block and guide-plates, said guide-plates being spaced from said form-block to provide a transversely curved slot through which said binder-strip is fed, said form-block being beveled at one end and having a horizontal groove forming vertically separated lips, guide-plates projecting beyond the form-block and having inwardly projecting lips adapted to co-act with the lips on the form-block and guidingly support the marginal edges of the binder-strip as its transverse curvature is reversed in passing through said groove, abutments secured to the guide-plates adapted to engage the edges of the binder-strip and determine their relative horizontal positions, and means for securing said guide-plates to said form-block so that they will be independently adjustable longitudinally of said form-block.

5. A binder attachment for sewing machines, embracing a form-block and guide-plates, said guide-plates being spaced from said form-block to provide a transversely curved slot through which the binder-strip is fed, said form-block being beveled at one end and having a horizontal groove forming vertically separated lips and the guide-plates projecting beyond the form-block, abutments formed on said guide-plates beyond the lips of the form-block adapted

to engage the edges of the binder-strip and determine their relative horizontal position, and means for securing said guide-plates to said form-block so that they will be independently adjustable longitudinally of said form-block.

6. A binder attachment for sewing machines embracing a form-block and guide plates, said guide-plates being spaced from said form-block to provide a transversely curved slot through which the binder-strip is fed, said form-block being beveled at one end and having a horizontal groove forming vertically separated lips, the guide-plates projecting beyond the form-block and having inwardly projecting lips adapted to co-act with the lips on the form-block and guidingly support the marginal edges of the binder strip as its transverse curvature is reversed in passing through said groove, a foot extension on the lower guide-plate and means for attaching said binder to the sewing machine adapted to permit vertical adjustment.

7. A binder attachment for sewing machines embracing a form-book and guide plates, said guide-plates being spaced from said form-block to provide a transversely curved slot through which the binder-strip is fed, said form-block being beveled at one end and having a horizontal groove forming vertically separated lips, the lower guide-plate projecting beyond the form-block and being there provided with a foot extension, and means for attaching said binder to the sewing machine adapted to permit vertical adjustment.

8. A binder attachment for sewing machines embracing a form-block and guide-plates, said guide-plates being spaced from said form-block to provide a transversely curved slot through which the binder-strip is fed, said form-block being beveled at one end and having a horizontal groove forming vertically separated lips, the guide-plates projecting beyond the form-block and having inwardly projecting lips adapted to co-act with the lips on the form-block and guidingly support the marginal edges of the binder-strip as its transverse curvature is reversed in passing through said groove, an attaching member adapted to secure said binder to the machine-head in operative relation, a foot extension on the lower guide-plate and means for adjusting said form-block to vary the vertical position of said foot extension.

9. A binder attachment for sewing machines embracing a form-block and guide-plates, said guide-plates being spaced from said form-block to provide a transversely curved slot through which the binder strip is fed, means for adjusting the longitudinal position of said guide-plates on said form-block independently of each other, said

form-block being beveled at one end and having a horizontal groove forming vertically separated lips, the guide-plates projecting beyond the form-block and having inwardly projecting lips adapted to co-act with the lips on the form-block and guidingly support the marginal edges of the binder-strip as its transverse curvature is reversed in passing through said groove, abutments adapted to engage the edges of the binder-strip and determine their relative horizontal positions, said abutments being located on said guide-plates, and stops on said guide-plates adapted to limit the longitudinal adjustment of the guide-plates on the form-block.

10. A binder attachment for sewing machines, embracing a form-block and guide-plates adjustable longitudinally on said form-block, said guide-plates being spaced from said form-block to provide a transversely curved slot through which the binder-strip is fed, said form-block being beveled at one end and having a horizontal groove forming vertically separated lips and the guide-plates projecting beyond the form-block and having inwardly projecting lips adapted to co-act with the lips on the form-block and guidingly support the marginal edges of the binder-strip as its transverse curvature is reversed in passing through said groove, and said guide-plates having each a narrow vertical flange adapted to co-act with said lips of the form-block when the inner ends of the lips of the guide-plates are beyond a position to co-act with the lips of the form-block.

11. A binder attachment for sewing machines, embracing a form-block and means forming a transversely curved slot about said form-block through which slot the binder-strip is fed, said form-block being beveled at one end and having a horizontal groove forming vertically separated lips, said slot forming means including members longitudinally adjustable on said form-block and having inwardly projecting lips adapted to co-act with the lips on the form-block and guidingly support the marginal edges of the binder strip as its transverse curvature is reversed in passing through said groove and abutments carried by said longitudinally adjustable members adapted to engage the edges of the binder-strip and determine their relative horizontal positions.

12. A binder attachment for sewing machines, embracing a form-block and means forming a transversely curved slot about said form-block through which slot the binder-strip is fed, said form-block being beveled at one end and having a horizontal groove forming vertically separated lips, said slot forming means including members longitudinally adjustable on said form-

block and having inwardly projecting lips adapted to co-act with the lips on the form-block and guidingly support the marginal edges of the binder-strip as its transverse curvature is reversed in passing through
5 said groove.

In testimony, that I, claim the foregoing

as my invention I affix my signature in the presence of two witnesses, this 9th day of August A. D. 1910.

MARSHALL B. GARDNER.

Witnesses:

CLARENCE E. MEHLHOPE,
GEORGE R. WILKINS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."