

(Model.)

C. E. WILKINSON.

MACHINE FOR SEWING STRAW BRAID.

No. 269,251.

Patented Dec. 19, 1882.

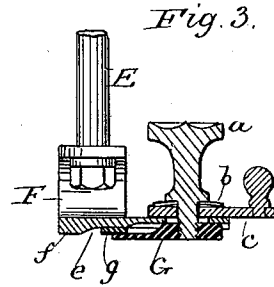
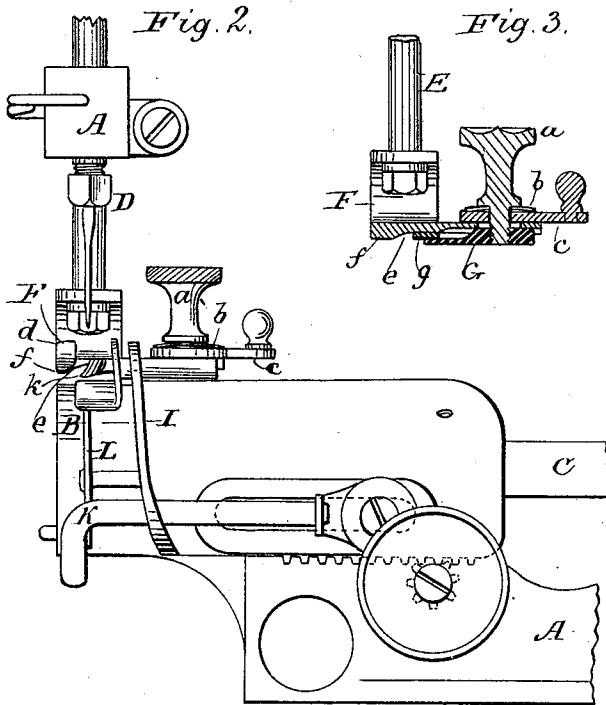
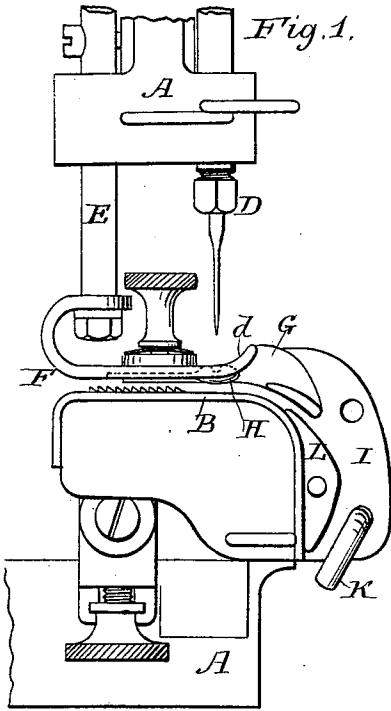


Fig. 4.

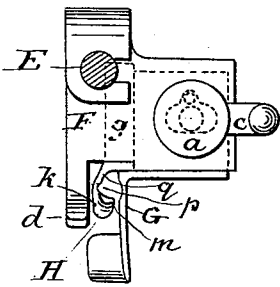


Fig. 5.

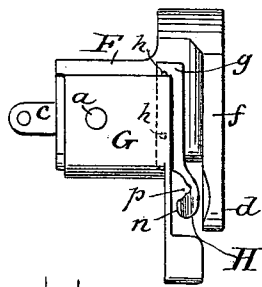


Fig. 6.

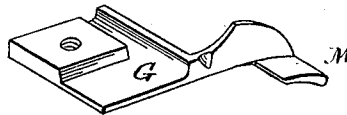


Fig. 7.

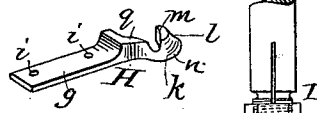


Fig. 9.

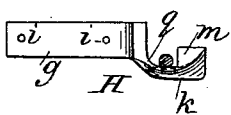


Fig. 8.

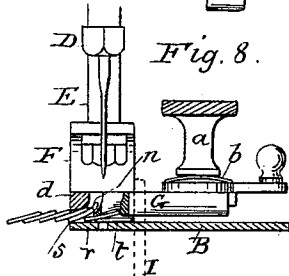
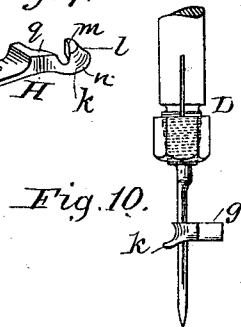


Fig. 10.



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 his attorney.

UNITED STATES PATENT OFFICE.

CHARLES E. WILKINSON, OF FISHKILL ON THE HUDSON, ASSIGNOR TO THE
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MACHINE FOR SEWING STRAW BRAID.

SPECIFICATION forming part of Letters Patent No. 269,251, dated December 19, 1882.

Application filed May 22, 1882. (Model.)

To all whom it may concern:

Be it known that I, CHARLES E. WILKINSON, of Fishkill Landing on the Hudson, in the county of Dutchess and State of New York, have invented a new and useful Improvement in Machines for Sewing Straw Braid, which improvement is fully set forth in the following specification.

This invention relates to machines for sewing straw braid (or other material in strips) so that the stitches will not appear upon the outer or right side of the article made, but will be hid by the edge of an overlying braid, (or strip,) and specially to machines of this kind wherein a guide is provided for turning up the edge of the overlying or concealing braid to allow the needle to penetrate that portion of the braid beneath, which in the finished article is covered by the said overlying or concealing braid.

The invention comprises several features of improvement in the construction of the turning-up guide, and also in the attachment of the same to the machine, and in the arrangement with respect to and the combination with other elements of the machine.

During the sewing operation the machine is acting on three braids, (or overlapping portions of braid,) to wit, the braid at the outer end of the work, which may be called the "middle" braid, the underlying or entering braid to be stitched to the former braid, and the overlying or concealing braid, that is turned up to allow the stitching to be performed under the edge thereof. The seam is run preferably just within the edge of the overlying or concealing braid and as near as may be to the inner edge of the underlying or entering braid. A lateral projection on the turning-up guide enters between the upper or concealing braid and the middle braid, and, being provided with an inclined surface, it serves to raise and to uphold the edge of the former braid. This projection extends under the overlying or concealing braid beyond the inner edge of the entering braid, so that between the edge thereof and the work-plate of the sewing-machine only the single thickness of the middle braid intervenes, while between the body of the guide and the work-plate there is the double thickness of the middle braid and the entering braid. To accommodate the different

thicknesses and allow the turning-up guide to bear at its edge upon the single braid without exerting undue pressure upon the double thickness through which the stitching is to be made, the turning-up guide is cut away or inclined on the bottom, so that the extreme edge of the guide projects below the main body thereof.

It is not new to make a turning-up guide with a lateral projection to enter between the braid; but it is a new improvement to cut away or otherwise impart to the under side of the projection the shape indicated.

When the turned-up edge is released from the guide it tends naturally to resume its original position and to fall across the rear of the guide, and if the guide is entirely in front of the needle it is obvious that this tendency is toward bringing the outer edge under or against the needle, and to obviate it the guide must turn the braid at an angle greater than would otherwise suffice to clear it of the needle, so as to allow for the greater or less fall in the braid after it is released from the guide and before it has passed the needle. In the present invention this disadvantageous effect is overcome by constructing the guide so as to sustain the upturned braid behind as well as in front of the needle, and the said braid therefore be upturned no more than required to be clear of the needle. It is obvious that the turning up could be effected wholly by a guide behind the needle. The guide or portion thereof behind the needle, by entering between the edge of the upturned braid and the needle-thread, (when the work is advanced by the feed,) prevents the thread from catching in or over the edge of said braid.

The terms "front" and "rear" as used in this specification refer to the direction of the feed movement, front being the direction from which and rear the direction to which the feed moves the work. The terms "inner" and "outer" (applied to the braids) refer to the body of the work which is usually to the left of the operator, inner being on the side of the work and outer on the opposite side.

Heretofore the turning-up guide has been attached to and carried by the work-plate of the sewing-machine; or it has been attached to an auxiliary presser, independent of the presser-foot proper, and supported on the work-plate. In the present invention it is attached

to or carried by the presser-foot itself of the sewing-machine, so that it is lifted with the presser-foot, and the work being properly placed when the foot is raised is in position for sewing when the same is lowered. Moreover, being held by the presser-foot, which bears at other points on the work, it retains its proper relation to the work and to other parts of the machine without undue friction upon the braid. Heretofore, also, the turning-up guide and the guide for what has been called the "middle" braid have been independently supported on the work-plate. In the case of the turning-up guide attached to an auxiliary presser-foot, the shank of the latter is adapted to serve as a work-guide; but it cannot be adjusted independently of the turning-up guide. In the present invention the facility for adjusting the work-guide independently of the turning-up guide is retained, while at the same time the two guides are attached to a common support, (the presser-foot,) so that when once the work-guide is adjusted their relative positions are not altered by raising and lowering. The attachment of both the turning-up and the work guide to the presser-foot is the arrangement best adapted to the ready insertion and removal of the work. The guide or guides for the entering braid are attached to and carried by the work-plate.

In order the better to adapt the presser-foot to its work, the bottom is grooved or cut away behind the turning-up guide to receive the up-turned edge of the overlying or concealing braid.

As the turning-up guide need not alter its position relatively to the needle, it may be made in one piece with the presser-foot; but, for convenience of manufacture and to allow of renewal in case of wear or injury to the guide, it is made separate, and is attached thereto, the means adopted as most simple and convenient being to clamp the tail-piece of the guide between the presser-foot and a portion of the work-guide.

In the accompanying drawings, which form a part of this specification, is represented a portion of a straw-hat-sewing machine having applied thereto the several improvements which constitute the present invention.

Figure 1 is an end view, and Fig. 2 a front view, of the machine; Fig. 3, a section of the presser-foot and attached guides; Figs. 4 and 5, respectively, a plan and bottom view of the same; Fig. 6, a perspective view of the work-guide detached; Fig. 7, a similar view of the turning-up guide, and Fig. 8 a section illustrating the operation of the machine. Figs. 9 and 10 represent a modified construction of the turning-up guide and needle.

The sewing-machine represented is a Willcox & Gibbs sewing-machine adapted to the sewing of straw braid into hats by having applied thereto the improvements described in Letters Patent No. 218,413, dated August 12, 1879, and No. 246,700, dated September 6, 1881, granted to Charles H. Willcox. The

present invention may, however, be applied to other types of sewing-machines, (to lock-stitch machines, for example,) or be used in part, if not in whole, in connection with other systems of guides.

A is the machine-frame; B, the cloth-plate; C, the main shaft; D, the needle and needle-bar; E, the presser-bar; F, the presser-foot; G, the work-guide; H, the turning-up guide, and I K L the braid-guides or guides for the entering braid.

The machine, with the exception of the presser-foot F and the attached guides G H, is the same in construction as set forth in the aforesaid Letters Patent, and the description thereof need not be here repeated.

The work-guide G makes a tongue-and-groove joint with the presser-foot, to which it is held by the set-screw *a* and spring-washer *b*, and whereon it is adjusted by the lever *c*, (as described in the later of the before-mentioned patents.) It is provided with a separator, M. The presser-foot is cut away in front to leave a toe, *d*, between which and the work-guide the turning-up guide H is placed. On the bottom the presser-foot is cut away at *e*, so as to leave a sort of depending rib, *f*, at the left or side opposite the work-guide. The tail *g* of the turning-up guide is clamped between the work-guide and the bottom of the presser-foot, and its thickness is such as to bring its lower surface on a level with that of the rib, leaving between itself and the latter a groove for the up-turned braid to lie in. The turning-up guide is held from lateral movement by steady-pins *h*, that project from the presser-foot through the holes *i* in the tail of the guide. The front or operating end of the turning-up guide has immediately in front of the needle a lateral projection, *k*, which is adapted to enter between the braids and turn up the edge of the overlying one out of the path of the needle. At *l*, also, the material composing the guide is cut away, leaving the guiding-surface descending from the thick portion *m* toward the front and side. The edge *n* of the lateral projection *k* is the lowest point of the guide, being on a level with the lower edge of the work-guide opposite. From said edge *n* the bottom rises to the right. (See Figs. 2 and 8.) The lateral projection *k*, with inclined upper surface, preferably extends past and alongside of the needle. It is grooved at *p* to allow it to pass over the shank of the needle, when raised with the presser-foot, while the needle is at its lowest point. Behind the needle is the portion *q*, of the same depth as the portion *m* in front, and, except for groove *p*, forming a continuation thereof. It is narrow at the front and widens toward the rear.

Instead of grooving the turning-up guide to enable it to clear the shank of the needle, the latter may be cut away adjacent to the guide, said guide being left with a straight edge. This construction, the equivalent of the foregoing, is shown in Figs. 9 and 10.

The operation of the machine is as follows:

The article having been begun, the work is placed under the presser-foot, with the free edge of the braid *r* last sewed (hereinbefore called the "middle" braid) against the work-guide *G*, above the separator *M*, and the lateral projection *k* of the turning-up guide is inserted between said braid and the next inner braid, *s*, (hereinbefore called the "overlying" braid.) The work-guide is preferably adjusted so that the needle will penetrate the braid *r* just inside the normal position of the overlying braid *s*; but, if desired, the seam can be made a greater distance inside the edge by adjusting the work-guide away from the needle. Ordinarily the work-guide will be separated from the needle by a distance equal to something less than half the width of the braid. The entering braid *t* passes under the guide *K* and between the guides *L I*, which are adjusted to allow the needle to pierce the braid at the desired distance from the edge, preferably as near the edge as possible to make a strong seam. The machine being started, the work is fed to the stitching mechanism, and the edge of the overlying braid *s* being turned up against the portions *m p* of the guide, the needle penetrates the braid *r* where normally it is covered by the upturned portion of the braid, and stitches it to the entering braid *t*. After passing the turning-up guide the edge of the braid *s* resumes its normal position and conceals the stitches. The portion *q* of the guide *H* is from its shape not liable to catch the needle-thread which slips over and in contact with its side when long stitches are made.

Modifications may be made in the details of construction without departing from the spirit of the invention, and portions of the invention may be used separately. For example, the new features in the structure of the turning-up guide can be used singly or all together in a guide supported on the work-plate of the sewing-machine, and, on the other hand, a turning-up guide of any suitable construction may be attached to the presser-foot, or, what is equivalent, may be attached to the presser-bar.

Having now fully described my said invention and the manner of carrying the same into effect, what I claim is—

1. A turning-up guide adapted to enter between the braids or layers of fabric, and having a guiding or upholding portion in the rear of the needle, substantially as described.

2. A turning-up guide adapted to enter between the braids or layers of fabric, and having guiding or upholding portions both before and behind the needle, substantially as described.

3. A turning-up guide having the bottom cut away or inclined upward from the extreme edge thereof, so as to accommodate different thicknesses between the said edge and the work-plate on the one hand and the body of the guide and the work-plate on the other, substantially as described.

4. A turning-up guide having the guiding or upholding portion which enters between the

braids arranged alongside of and in close proximity to the needle, and adapted by means of a groove in said guide or an equivalent construction to clear the shank of the needle when lifted, substantially as described.

5. A turning-up guide having the lateral projection which enters between the braids alongside of the needle, substantially as described.

6. A turning-up guide having the portion behind the needle narrow in front and widening gradually to the rear, substantially as described.

7. A turning-up guide carried by the presser-foot of the sewing-machine, in contradistinction to an auxiliary presser, substantially as described.

8. The turning-up guide, in combination with means for detachably securing the same to the presser-foot proper, in contradistinction to an auxiliary presser, substantially as described.

9. The combination, with the ordinary or proper presser-foot of the sewing-machine, of the turning-up guide and the work-guide attached thereto or carried thereby, substantially as described.

10. The combination, with the presser-foot cut away in front to leave a projecting toe, and the work-guide, of a turning-up guide between the said toe and the work-guide and in close proximity to the needle, substantially as described.

11. The combination, with a turning-up guide, of a presser-foot recessed or cut away on the bottom to receive the upturned edge of the braid or fabric, substantially as described.

12. The combination, with the presser-foot and work-guide attached thereto, of the turning-up guide having the tail-piece thereof clamped between the work-guide and the presser-foot, substantially as described.

13. The combination of the presser foot, the turning-up guide attached to and carried by said foot, and the independently-adjustable work-guide, substantially as described.

14. The combination, with the presser-foot, of the turning-up guide carried by said foot, and having the edge thereof which enters between the braids projecting below the bottom of the presser-foot, substantially as described.

15. The turning-up guide and the work-guide carried and connected by a common support, so as to be lifted together, said work-guide being adjustable independently of the turning-up guide, substantially as described.

16. The turning-up guide having guiding or upholding portions both in front and rear of the needle, in combination with the work-guide, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CHAS. E. WILKINSON.

Witnesses:

CHAS. H. WILLCOX,
W. B. LASSCELL.