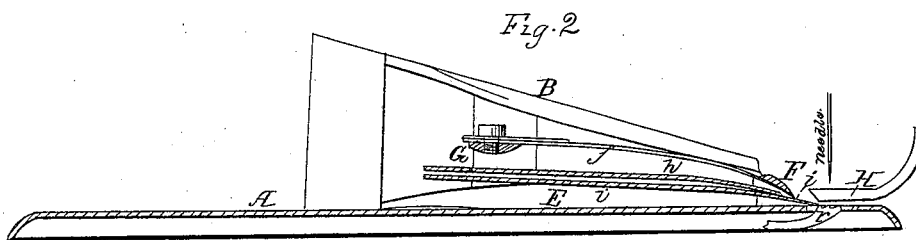
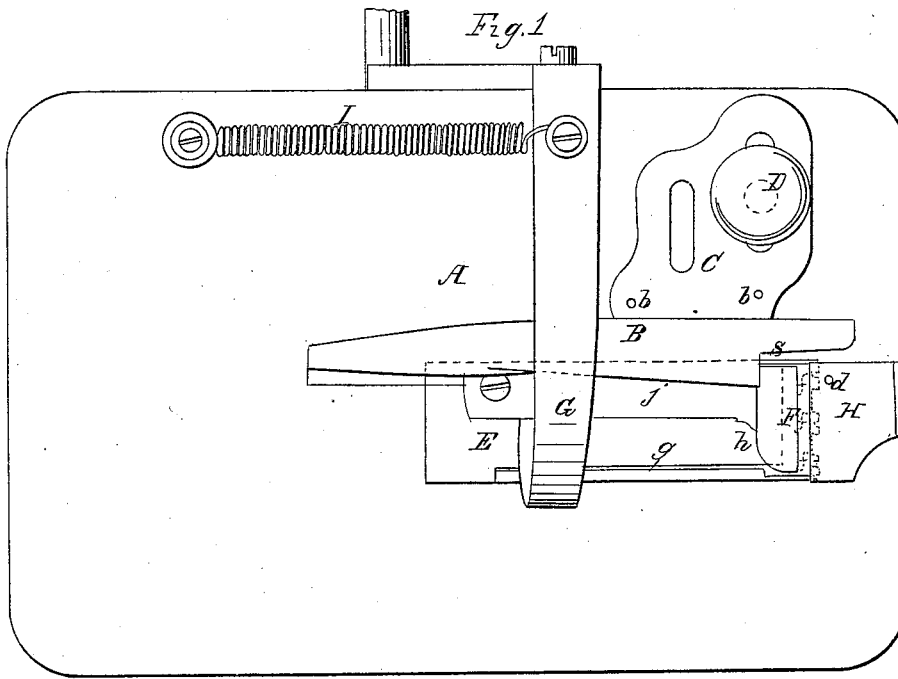


T. ROBJOHN.

Sewing Machine for Ruffling.

No. 46,424.

Patented Feb. 14, 1865.



Inventor.

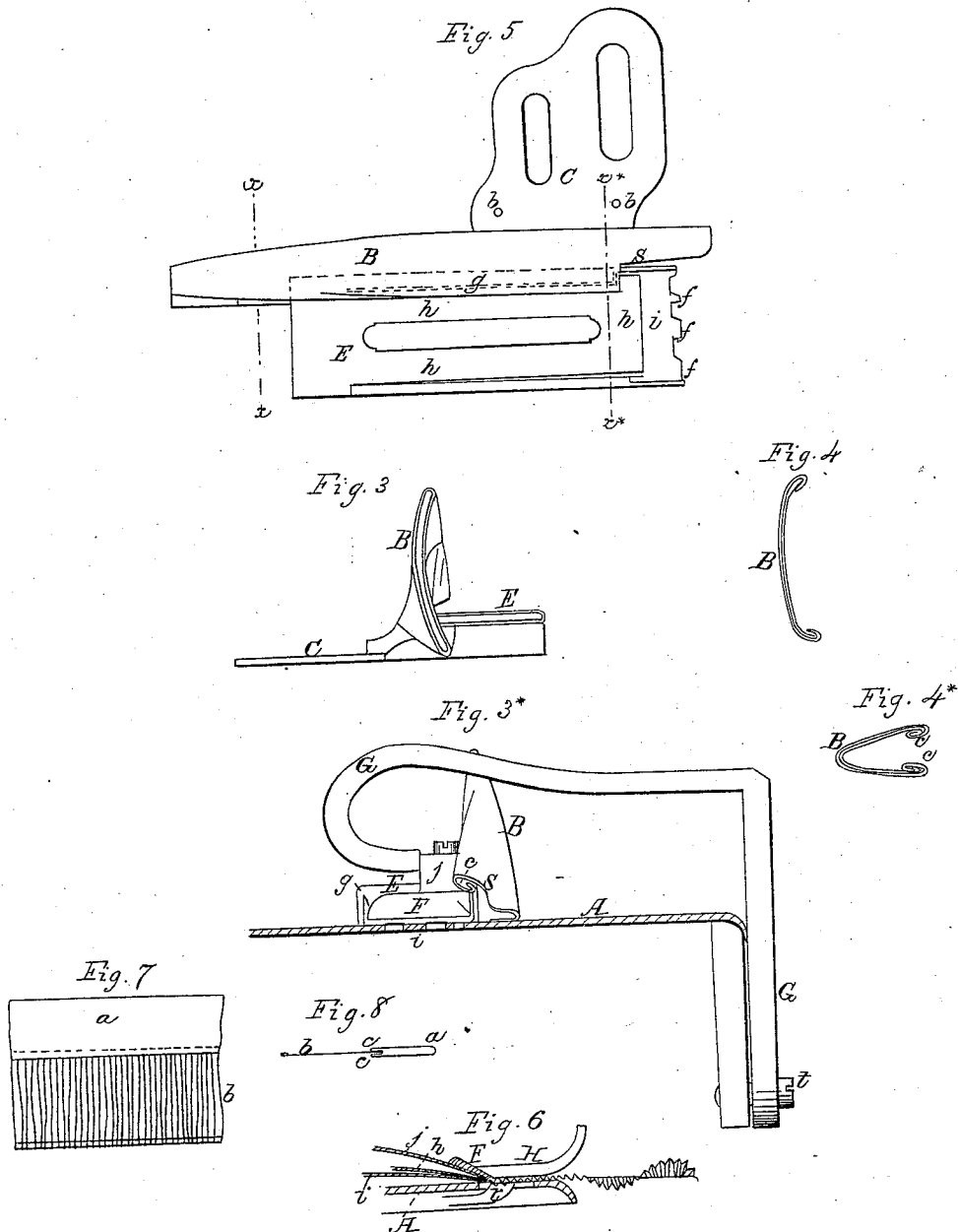
Thos Robjohn

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Witnesses.
W. S. Partridge
Charles Robertson

Inventor.
Thos Robjohn

UNITED STATES PATENT OFFICE.

THOMAS ROBJOHN, OF NEW YORK, N. Y., ASSIGNOR TO E. C. WOOSTER, OF SAME PLACE.

IMPROVEMENT IN SEWING-MACHINES FOR MAKING BAND-RUFFLING.

Specification forming part of Letters Patent No. 46,424, dated February 14, 1865.

To all whom it may concern:

Be it known that I, THOMAS ROBJOHN, of the city, county, and State of New York, have invented a new and useful Improvement in Machinery for Making Band-Ruffling; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top view of my invention and of the bed-plate of a sewing-machine to which it is applied. Fig. 2 is a longitudinal vertical section of the same. Figs. 3 and 3* are opposite end views of the ruffling machinery. Figs. 4 and 4* are transverse sections of the band-folder. Fig. 5 is a top view of the guides without the ruffling-knife. Fig. 6 is a section of the plaiting or ruffling device parallel with Fig. 2, but showing the knife in a different position. Fig. 7 is a face view of a ruffle made by the machine. Fig. 8 is a transverse section of the same.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in the combination, with a sewing-machine, of a novel system of guides and a plaiting or ruffling knife, whereby one strip of muslin or cloth has both edges turned in, and is folded longitudinally to form a double band, and plaited or formed into a ruffle, and the band and ruffle are sewed together all at the same time, thus forming a double-band ruffle at one operation.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is the bed-plate of the sewing-machine.

B is the guide by which the turning in of the edges of and the longitudinal folding of the band *a* of the ruffle are performed, said guide being attached rigidly to the gage-plate C, and secured to the bed-plate A by a screw, D, and steady-pins *b b*. This guide B is made of brass or other metal, and has one end of the form of a tube and nearly flat, as shown in Fig. 3, the width of the said tube being equal to the width of the strip of cloth of which the band *a* of the ruffle is to be formed, such strip being shown in section in red color in Figs. 4, 4*. At a short distance from the end shown in Fig. 3 one side of the tube is cut away, leaving the guide in the form of a transversely-

curved plate with its edge turned over on the concave side, as shown in Fig. 4, and toward the other end its curvature increases, and the turning in of the edges is increased until the plate is the form of the letter V, or nearly double, and its edges have a complete double turn, as shown at *cc* in Fig. 4*, so that the strip entering at the end shown in Fig. 3, and being drawn through, will come out folded along the center, and with both edges turned in, as shown in the red outline in Fig. 4*. The arrangement of this guide upon the sewing-machine is such that this folding of the band may be effected in the movement of the latter toward the needle by the ordinary feeder, *r*, of the machine. The marginal portions *cc* of the folder, by which the edges of the band are turned inward, do not extend quite to the needle-hole *d*, but are cut away at some distance therefrom, as shown at *s* in Figs. 1, 3*, and 5, though the portion which produces the central fold extends some distance beyond the needle-hole to preserve the form of the fold while the stitching is being performed.

E is a guide for the strip of cloth of which the ruffle *e* is to be formed, consisting of a flat metal tube of a width equal to that of the said strip, arranged in front of and partly within the folding-guide B, parallel with the feed movement, to deliver the strip between the two edges of the band as the latter issues from the said guide B and approaches the needle. This guide has a slight downward inclination toward the needle, and its lower end rests on the bed-plate close to the feeding device and the needle-hole, and its bottom part, *i*, is made with projections *f f*, to enable it to pass between and at the sides of the toothed surfaces of the feeding-dog. The upper part of the said guide has near its sides two longitudinal slits, *g g*, commencing at a short distance from the end farthest from the needle and extending to the end next the needle, and the end of the tongue *h*, thus formed, is made to press upon the strip in passing through the guide, and so keep it flattened and produce friction enough upon it to keep it straight on its way into the band. The said tongue *h* is shortened, so that it does not extend so near to the needle-hole by from a quarter to three-eighths of an inch as the bottom part, *i*, of the guide, (see Fig. 2,) thereby leaving the said part *i* exposed for the

plaiting or ruffling knife F to work upon, as will be presently described. This guide E is attached rigidly to the lower part of the guide B. The plaiting or ruffling knife is made with a straight and moderately-sharp but not a cutting edge, of a length equal to the width of the strip of which the ruffle is to be composed, the said edge being arranged at right angles to the feed movement. The said knife is attached by an elastic shank, *j*, to a bent lever, G, the said shank keeping the edge pressed hard down upon the bottom part of the guide and holding the knife with a downward inclination toward the needle-hole at an angle of about thirty degrees to the surface of *i*. The lever G works on a fixed fulcrum, *t*, at the back of the bed-plate, and derives motion in one direction from the rod which works the needle-arm and in the opposite direction from a spring, I, or has imparted to it by any other mechanical means the necessary motion to produce a movement of the knife upon the bottom *i* of the guide E toward and from the needle-hole *d*. This movement of the lever may be varied by means of a set-screw to give the knife a greater or less movement, according as finer or not so fine plaiting or ruffling is desired, the movement of the knife requiring to be as much greater than the feed movement as the intended width of the plaits. This knife commences its movement before the feed, and when the knife has moved a distance equal to the intended width of the plaits the feed movement commences, and the movement of the knife continues at the same speed as the feed movement, while the latter carries both band and ruffle toward the needle.

The presser H of the sewing-machine to which my invention is applied is made of a width sufficient to cover the whole width of the ruffle and a sufficient portion of the band; but it is made shorter than usual at the end where the work enters beneath it, in order to allow the knife to come close or nearly close to the needle, and its under side is beveled at that end to allow the knife to pass under and push the plaits under it as it gathers them up by its movement toward the needle. The operation of gathering up the plaits is illustrated in Fig. 6, where the strip which forms the ruffle is shown in red color.

The sewing-machine in connection with which

this invention is applied may be of any of the kinds in common use.

To set the invention in operation the strip of cloth to form the band *a* is inserted through the guide B, and the longer strip to form the ruffle (which has been previously hemmed along one edge) is inserted through the guide E and under the knife F, and with its hemmed edge in front or outward and the ends of both strips brought under the presser, and when the presser has been let down upon them the machine is set in operation, as for ordinary sewing. As the two strips are drawn forward by the feed movement the band is folded and has its edges turned in, and the ruffle-strip is delivered into the fold of the band and ruffled by the action of the knife, as hereinbefore described, and sewed into the band by the needle passing through both the upper and lower parts of the band, close to the edges thereof. In the ruffling operation the knife F is prevented from acting on the under part of the band by the extension of the lower part, *i*, of the guide E beyond the upper part and below the knife, the said part of the band passing under the extended portion of *i*, and the ruffle-strip passing over it for the knife to act upon, and the said extended portion protecting the lower part of the band from the action of the knife.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with each other and with a sewing-machine, of a guide for turning in the edges of and folding one strip of cloth to form a double band, a guide for guiding another strip of cloth into such band to form a ruffle, and a plaiting or ruffling knife, the whole operating substantially as herein specified.

2. In combination with the ruffling-knife acting above the strip which is to form the ruffle, the extension of a portion of the bottom *i* of the guide F, or its equivalent, below the said knife in such position as to be interposed between the ruffle-strip and the lower part of the band, substantially as and for the purpose herein specified.

THOS. ROBJOHN.

Witnesses :

M. S. PARTRIDGE,
DANIEL ROBERTSON.