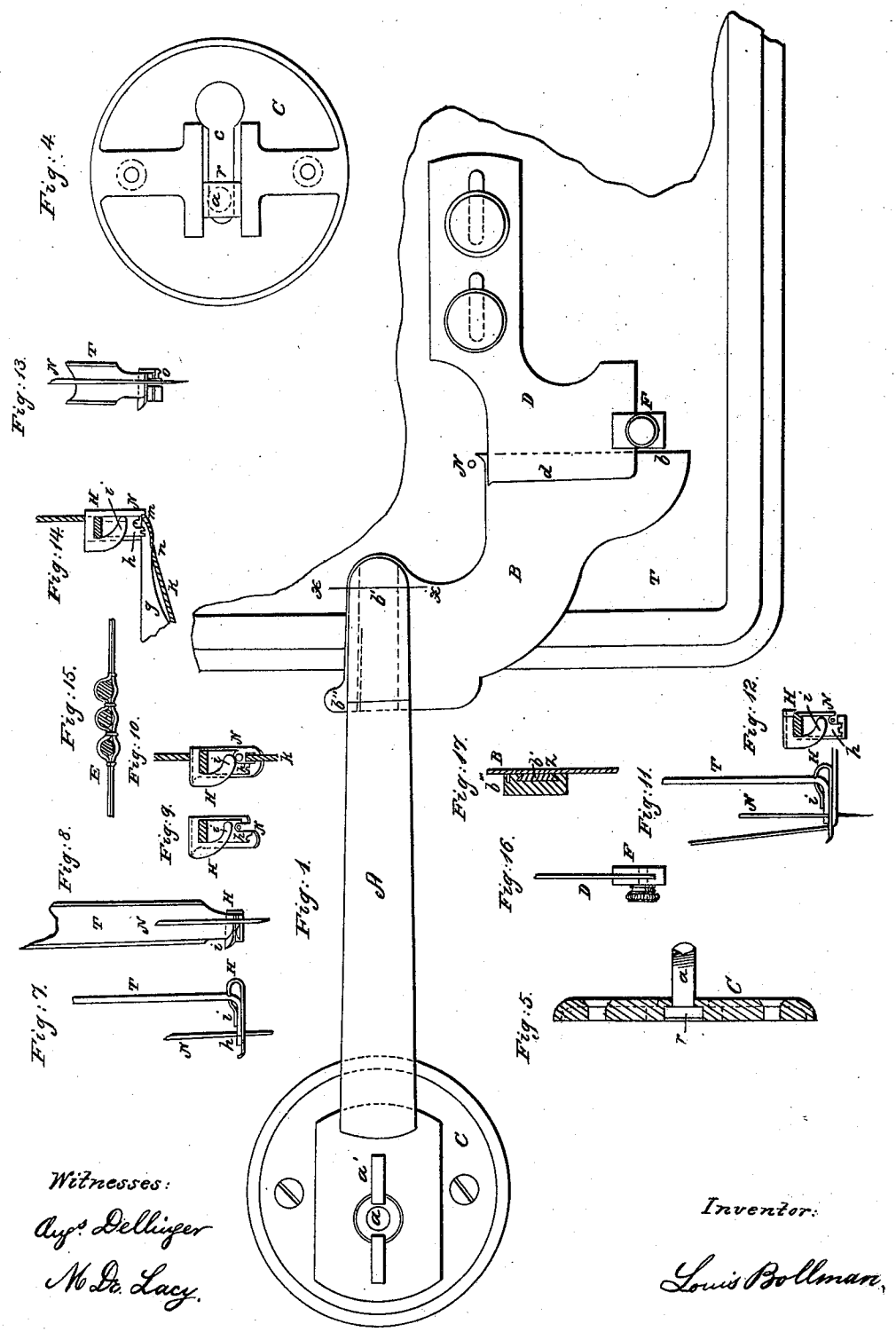
2 Sheets—Sheet 1.

L. BOLLMAN.

Sewing Machine.

No. 40,657. Patented Nov. 17, 1863.



Witnesses:
Aug. Dellinger
N. De Lacy.

Inventor:
Louis Bollman.

2 Sheets—Sheet 2.

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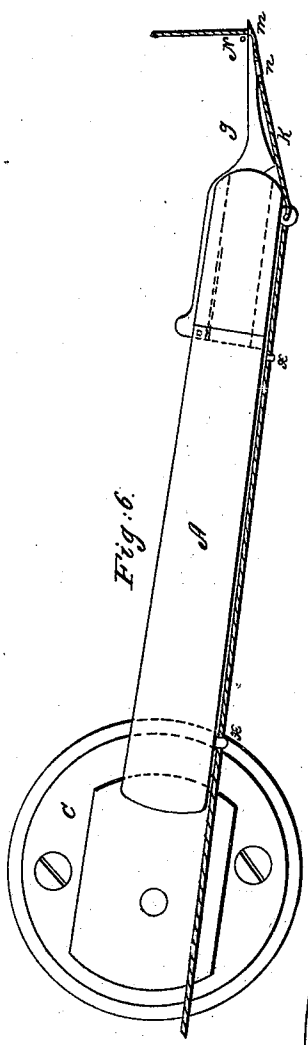

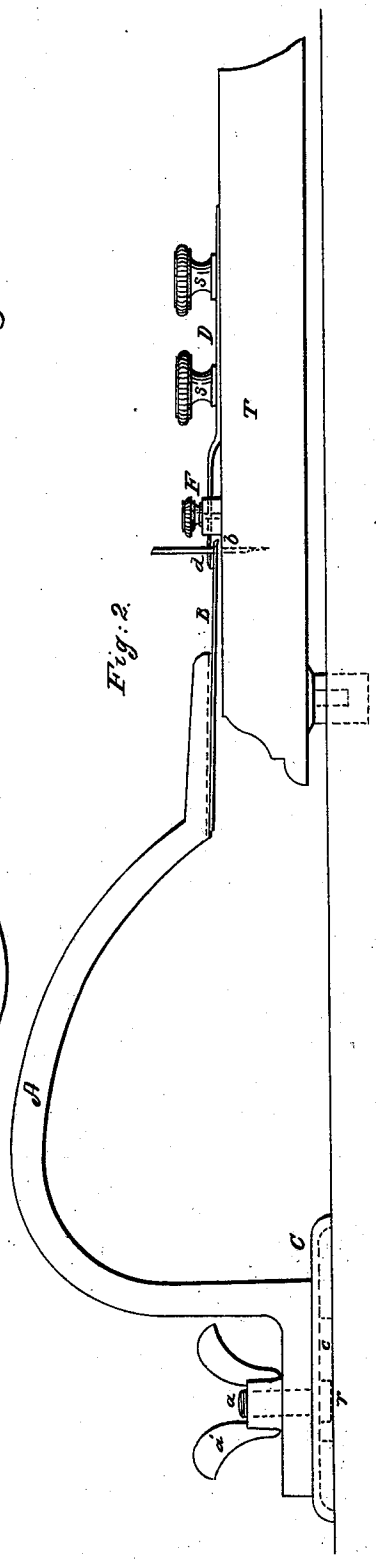

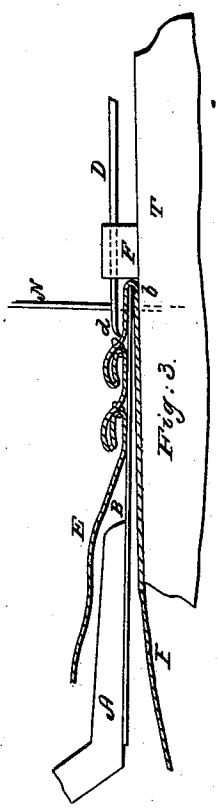

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UNITED STATES PATENT OFFICE.

LOUIS BOLLMANN, OF VIENNA, AUSTRIA, ASSIGNOR TO NICHOLAS SHAUGHNESSY, OF NEW YORK, N. Y.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **40,657**, dated November 17, 1863.

To all whom it may concern:

Be it known that I, LOUIS BOLLMANN, now of the city of Vienna, Austria, have invented certain new and useful Improvements in Sewing-Machines; 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 my improvements are shown applied to a Grover & Baker family machine.

My invention relates to certain new and useful improvements in sewing-machines, the object of which is to render such machines capable of being readily employed to execute different kinds of work, such as plain sewing, plaiting, various patterns, and cording of different styles; and to these ends my invention consists, first, in the employment, in connection with a mechanism for sewing seams, of two adjustable plates or straight-edges and an adjustable gage block or strip, when these several parts are so constructed and arranged as that the material to be plaited may be folded over the edge of one of said adjustable straight-edges and between it and the gage-block, and so that the other adjustable straight-edge will come against the previously-sewed seam, and in conjunction with said seam operate to regulate the distances apart of the plaits in forming a series of them, all as hereinafter more fully explained; secondly, in the employment, in connection with a holder-sustaining arm, of a detachable plaiting straight-edge and also a detachable corder, when these two attachments and their supporting arm or holder are so made that either one of said attachments may be readily employed on (or in attachment with) said supporting-arm for the purposes of plaiting and cording operations on the same machine, as hereinafter more fully described; thirdly, in the employment, in combination with the "presser-foot," of removable shoes or bottom pieces, which are so constructed and arranged with said presser-foot bar or holder as to clasp onto said presser-foot bar, in the manner substantially as hereinafter explained, for the purpose of adapting the presser-foot to the different kinds of sewing to be done with the plaiting and cording attachments, respectively, and without them, as hereinafter fully set forth.

To enable those skilled in the art to make and use my invention, I will now proceed to describe the construction and operation of my several features of improvement as used in connection with a Grover & Baker sewing-machine, referring by letters to the accompanying drawings, in which—

Figure 1 is a top view or plan, and Fig. 2 a side view, of the plaiting attachments, showing their arrangement with the table of the sewing-machine. Fig. 3 is a partial side elevation of the plaiting attachment, (on an increased scale,) showing the manner of folding the plaits in the goods or material. Fig. 4 is a bottom view, and Fig. 5 a cross section, of the holder-plate through the medium of which the plaiting apparatus is coupled to the sewing-machine table. Fig. 6 is a top view of the corder and its supporting arm or holder. Figs. 7 to 14, inclusive, represent the different kinds of the changeable presser-foot "shoes" and their arrangement with the presser-foot. Fig. 15 is an illustration of corded work, showing the cord sewed in between two thicknesses of material.

The same letters denote the same parts in different views.

A is an arm or holder, which is attached by means of a screw, *a*, and thumb-nut *a'* to a plate, C, which plate is secured by screws or otherwise to the table of a sewing-machine. The head of screw *a* is arranged in a slot, *c*, (formed in the under side of plate C,) in such a manner that by loosening the thumb-nut *a'* the arm A may be shifted or adjusted to bring it in different relative positions with the needle of the sewing-machine, and secured in any of such positions. By removing the nut *a'* the arm A may be entirely disconnected from plate C.

On one end of arm A (that opposite to the one where it is attached to plate C) is formed on the under surface a dovetailing groove adapted to receive a correspondingly-shaped projecting piece, *b'*, on the plate B, and also one on a corder, G. (See Fig. 17 and dotted lines at Figs. 1 and 2.) The plate B is formed with a springing portion, *b''*, which catches into a nick in the under surface of bar A, and retains the dovetail projection in its proper position in the dovetail groove of arm A. The shape of the thin plate B is clearly shown at

Fig. 1, where it will be observed that the shape of said plate is such as that the edge extends up close to and beyond the needle N of the machine. This plate B, or "straight-edge," as I have designated it, it will be seen by reference to Fig. 2, is arranged with its edge parallel with and near to the plane of the table on which the goods rests while being sewed, the space left between it and said table being only sufficient to allow the material to pass freely between them as it is fed along during the sewing operation.

D is another adjustable plate, having likewise a thin straight-edge, bent a little downward, (see Fig. 2,) and secured by means of screws *s s* to the table of the machine. This plate D is so arranged that when secured in position its straight-edge will rest lightly on the top surface of plate B and its screws *s s* pass through slots into the machine-table, so that said plate D can be adjusted and secured nearer to or farther from the needle N.

It will be understood, of course, that the two straight-edges of plates B and D, however adjusted, are always parallel.

F is an adjustable gage-block, which is arranged on one side of plate D, (see Figs. 16, 1, and 2,) and clamped to it at any given point by an ordinary thumb-screw, in the usual manner.

From the description already given of the two adjustable plates B and D and the adjustable gage-block F, in connection with the drawings, it will be understood that the goods to be plaited are folded over the edge of plate B at *b*, as seen at Fig. 3, and the gage-block F brought up against the material, when the latter is fed along and a seam sewed in it by the needle N, in the usual manner, and a plait formed. The width of the plait will of course be equal to the distance between the line of edge *b* of plate B and the needle N. When the next plait is to be formed the material E is again folded over the edge of B, and this time draws along from the under side of B until the previously-sewed seam comes against the edge of plate D, as seen at Fig. 3, which, in connection with said seam, guides the material and causes the seam being sewed to be a given distance and equidistant throughout its length from the first or previously made seam, and hence regulates the space between the plaits, and so any number of plaits may be formed in the goods E, all the same width, and with equal spaces between them, or the same distance apart. By adjusting the plate B to different positions and moving the gage-block E correspondingly the width of the plaits will be varied, while the spaces between them remain the same. By adjusting the plate D the spaces between the plaits only will be changed. Thus it will be seen by the adjustment of the several parts any style or pattern of plaiting may be executed with great accuracy and facility.

The object of extending the edge of plate B, as seen at Fig. 1, up to or beyond the needle is to form the fold at the needle and commence sewing at the commencement of the plait. In some kinds of work this extended portion may be dispensed with, if desired.

Some sewing-machines will require the removal of the plate B to effect the adjustment of the under thread of the machine. In applying my improvement to such kinds of machines the plate B may be attached to arm A in such manner as to turn on a vertical pivot and be swung around out of the way. I, however, prefer the simple mode of attachment shown, though the precise method of coupling the detachable plate B to the arm A is not material to my invention.

G is the corder, which is so formed as to fit into the dovetail groove in A, in the same manner as already described, of plate B, and which is to be used in lieu of said plate B and the other portions of plaiting apparatus when it is desired to do cording on the same machine. The corder G is clearly shown at Fig. 6 attached to the arm A, where it will be seen that the cord K passes alongside of said arm through guides *x x x*, and thence on down through an eye or guide, *u*, and finally through the eye *m*, from whence it enters between the thicknesses of goods, (or passes on top, as the case may be,) and is stitched to the material by the needle N and other sewing mechanism, in the usual manner.

In performing the different kinds of sewing with the different attachments already described it is necessary to employ a different-shaped presser-foot for each kind. To enable the operator to change with great facility the presser-foot, so that it will be adapted perfectly to the various kinds of work, I provide numerous shoes or removable and attachable bottom pieces, H, which are made of thin metal or sheet-steel, of such shape and in such a manner as that they may be sprung or clasped onto the lower portion of the pressure-foot I. These shoes, of different shapes, are clearly shown in connection with the presser-foot I at Figs. 7 to 14, inclusive, Figs. 7, 8, and 9 being a side, a front, and a plan view, respectively, of the presser-foot I, with the removable shoe H, which I employ for plain sewing, or when neither the corder or plaiting device is attached.

The presser-foot I, it will be observed, is made with a small niche in its toe or forward end, which is adapted to receive the small pin or stud *h* which projects up from the shoe H. Said shoe H is formed with an overlapping spring-arm, *i*, which extends over on top of the foot of I and presses down hard on top of said foot to keep the shoe in position on the foot. Since the portion *i* is elastic, or like a spring, it will be understood that by forcing the shoe downward (thus springing upward the arm *i*) the pin *h* may be released from its seat or receptacle in the toe of the foot I, and then the shoe H may be pulled one side and off from the foot I entirely. By thus making the shoe H and foot I, I am enabled to readily remove the shoe and substitute for it another of differ-

ent shape—that is, of a different form at that portion near the needle—and adapted to be used for that kind of work to be done with the corder or with the plaiting apparatus.

At Figs. 10 and 11 is shown, in plain and side elevation, the presser-foot I and that kind of shoe H which I propose to employ for sewing braid or cord onto the surface of a cloth for producing ornamental work. K represents the braid, which passes from a spool, generally placed to the right of the machine, toward the upper part of the presser-foot, and thence down, as seen, through a hole in the shoe close before the needle, and thence along under the shoe H, in such manner that the needle N shall pass down through it.

At Fig. 12 may be seen, in plan view, the kind of shoe H adapted to that kind of work done when the plaiting attachment is used. This shoe, it will be seen, is made very narrow on the right-hand side and short in front, in order that the plates B and D (see Fig. 1) may be set up very close to the needle.

At Figs. 13 and 14 is shown, in front elevation and top view, that kind of shoe which is employed in connection with the corder to form corded seams, such as illustrated at Fig. 15. This shoe, it will be seen, is formed with a groove, *o*, running longitudinally along its under surface, the office of which is to accommodate the cord and press the material which is over the cord down onto and around the sides of the latter, for the purpose of making the cord appear more raised on one side of the work than on the other, the upper surface of the work being required to appear more raised than the under side.

It will be understood from the foregoing that when the removable arm A is secured to the table of the sewing-machine various patterns of plaiting or plaited work may be executed, and that by simply removing the plate D and detaching the plate B from arm A, and then slipping on the corder G and shifting the shoe on presser-foot, the machine is ready to execute the different kinds of corded work; and it will be observed that the changes required in the machine in order to render it capable of performing these different kinds of work are very readily effected by means of the single holder or arm A, adapted to receive either the plate B or corder G, detachable plates B and D, and corder G, and the changeable or removable shoes H.

I am aware that a folding mechanism has been (previously to by invention) employed in connection with a sewing-machine by means of which the goods to be sewed were plaited by means of plates constructed somewhat similarly to those employed by me—as, for instance, in the patent granted September 4, 1860, to R. Brady; but in all such folding or plaiting mechanisms the goods were so folded as to be sewed through three thicknesses, and the mode of operation involved in the plaiting mechanism was somewhat different from that of my improved plaiting mechanism, and I do not wish to be understood as laying claim to any thing embodied in such previously-existing plaiting mechanism; but,

Having fully described the construction and operation of the several features of my improvements as I have successfully practiced them, and not wishing to be understood as either limiting my invention to any given mode of connecting or attaching the plate B to arm A, or claiming broadly the employment of two adjustable plates for plaiting, what I claim as new, and desire to secure by Letters Patent, is—

1. The employment, in connection with a mechanism for sewing seams, of two adjustable plates or straight-edges, B and D, and an adjustable block or stop, F, when the said plates or straight-edges B and D are so made and arranged as that while one serves to have the plait formed over it and regulates the width of the plait the other acts, in conjunction with the previously-sewed seam, as a gage to regulate the distance between the plaits, substantially as hereinbefore set forth.

2. The employment, in connection with a single supporting arm or holder, A, of a plaiting-plate, B, and a corder, G, when these several parts are so constructed as that either of the last-named two may be used in combination with the first named, substantially as and for the purposes hereinbefore described.

3. The employment for the purposes hereinbefore explained of removable or changeable presser-foot shoes or bottom pieces, H, which are so constructed and combined with the presser-foot as that they may be clasped or sprung onto the latter in the manner substantially as hereinbefore described.

In testimony whereof I have hereunto set my hand this 16th day of May, 1863.

LOUIS BOLLMANN.

Witnesses:

E. H. LARKIN,

JOY KNAPP.