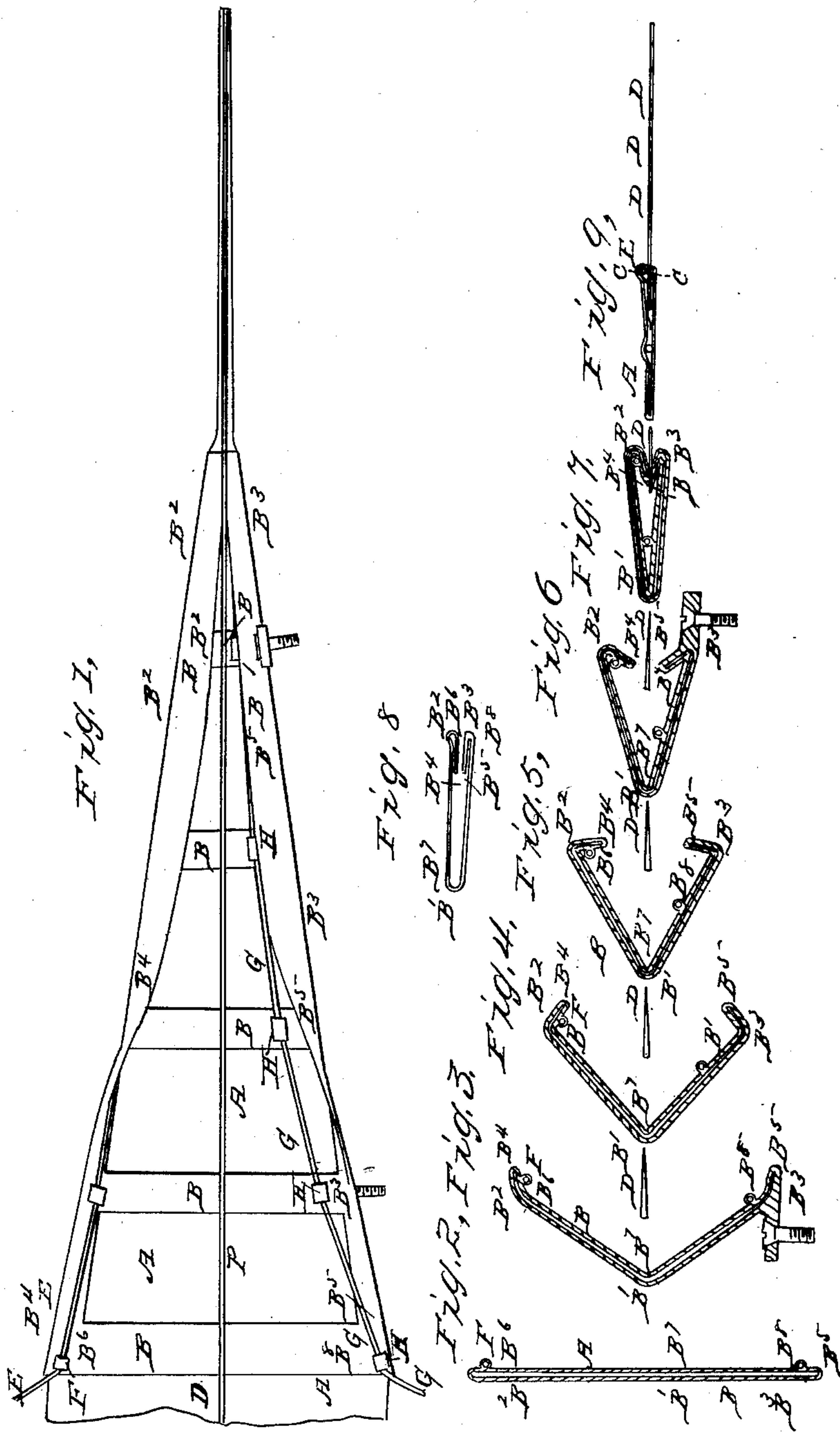


Sewing Machine Guide.

No. 21,659.

Patented Oct. 5, 1858.



UNITED STATES PATENT OFFICE.

ALEXANDER DOUGLAS, OF NEW YORK, N. Y.

IMPROVEMENT IN FOLDING-GUIDES.

Specification forming part of Letters Patent No. **21,659**, dated October 5, 1858.

To all whom it may concern:

Be it known that I, ALEXANDER DOUGLAS, of the city and county of New York, in the State of New York, have invented a new and Improved Fixture for Conducting and Folding Cloth to Form Bindings; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 is a side view of my invention. Figs. 2, 3, 4, 5, 6, and 7 are transverse sections. Fig. 8 is a transverse section, showing a different method of construction to be adopted at that end. Fig. 9 is a cross-section of a binding as it issues from my fixture.

Similar letters of reference indicate corresponding parts in all the drawings.

My invention consists of a peculiar tube of such interior dimensions and form that it sustains and accurately guides the cloth, (which must be previously cut to the proper width,) and by folds in the said tube compels the cloth drawn through it to be folded along three lines, so as to produce a binding with both edges concealed without destroying the stiffness of the cloth or giving it any disposition to curl. The term "binding" is applied to tapes and strips of leather, which tightly embrace the edges of hats, coats, shoes, &c., and also to strips of cloth or similar material, which are folded and sewed by their edges loosely upon another piece.

My invention is intended for the production of the second class of bindings, such as are employed in shirts, skirts, &c. The material is generally cheap cloth cut into strips of a uniform breadth. My device folds it so that a perfect binding is produced with both raw edges turned in.

My invention is intended for use in connection with a sewing-machine, and is to be secured to the table of the latter by any obvious means. In a simple but imperfect form it may be described as a tube of uniform shape from one end to the other, the section whereof is represented by Fig. 7 or by Fig. 8.

A represents the cloth to be folded, and B the metal tube constituting my invention.

The peculiarity of Fig. 8 lies entirely in the mode of constructing the tube, as its effect is precisely similar to that of Fig. 7. The width of the tube on its interior, measuring all the folds, is but little greater than that of the cloth to be folded, and the thickness of the tube, or, rather, of the cavity therein, is but little greater than the thickness of the said cloth. The cloth in its passage through is consequently supported and guided on all parts of its surface. The right extremity, Fig. 1, is in very close proximity to the presser or foot of the sewing-machine, so that the folded cloth, as it issues from the tube, shall be immediately pressed down and retained by the said foot until the stitches C have been inserted to complete the operation. Any other piece of cloth, D, to which the binding is to be attached, is inserted, as represented, and of course moves along with a motion corresponding with that of A.

The invention as now described would require the spool from which the strip A is received to be located at a distance from the tube B, so as to allow the folds to be commenced in mid-air; but the inequalities in the stiffness of the cloth would throw it into wrong positions and cause it to assume false folds or become entangled, besides which the operation would bend the cloth throughout and affect its stiffness. I consequently extend the tube in the direction from which the cloth is received and give it the form represented, so that the cloth is supported and guided on all sides while the folds are being produced. The strip is received plain, as shown in Fig. 2, and is gradually folded along the three lines B', B², and B³ as it moves forward in the tube. It is important to confine the folding entirely to those lines and not to bend the strip at other points so much as to limber its fibers, as any bending of the cloth at other points gives it a tendency to curl and impairs the perfection of the work.

To construct the tube B in the easiest manner, I take sheet metal of a proper width, and fold over so much of the edge as will make the portion B² B⁶ on one edge and B³ B⁸ on the other. I next fold the metal again at B'. All these folds must be complete, or nearly so, at that end nearest the needle; but they become

less and less sensible, as represented, toward the other end. I then solder strips $B^6 B^7 B^8$ to the edges $B^6 B^8$, as represented, and thus complete the tube in effect; but I leave spaces between the strips, as represented. These spaces aid in inserting the strip of cloth in commencing to work, and facilitate the arranging of it in case, from any cause, it becomes deranged or entangled; but they must not be made so large as to deprive the cloth of its proper support.

It is frequently desirable to insert cords in the binding, as represented by E in Fig. 9. I therefore solder eyes or short tubes F F at the points represented to conduct the same; and as it is also sometimes desired to stitch one or more cords within the other edge of the binding, or at intermediate points, I guide in such cord or cords G through eyes H, as represented, and allow it or them to be loosely inclosed in the binding, in order to be secured by stitching at a subsequent operation. Near that end next the needle one or both the eyes F and H may be dispensed with, and the construction of the tube may also be modified with advantage by adopting near that end the form shown in Fig. 8, in which the cross-strips are soldered to the folds B^4 and B^5 instead of the edges B^6 and B^8 .

It is essential to the success of my invention that the cloth be supplied to the tube in a condition entirely void of wrinkles, and also free from any strains tending to compress its edges against the tube. I fulfill these conditions by rolling the strip of cloth on a spool and mounting the spool with its center in the line B' , prolonged, and with its axis exactly at right angles thereto.

I do not confine my invention to the sewing of any particular material, but only to such work as requires both edges of the material to

be turned under and protected from wear. I do not know or believe that it is practicable to produce bindings similar to mine by any means previously known. Bindings have been folded along the middle by means analogous to mine; but the edges of the binding were left exposed. Various hemmers have also been invented for folding under the edges of cloth; but they are not capable of being crowded into so limited a space as is required for this purpose, nor of being constructed so cheaply as mine, besides which they offer more resistance to the passage of the cloth, and bend or fold the same in a manner which impairs its stiffness and gives it a disposition to curl, which renders it impossible to produce so evenly-folded and evenly-sewed work as mine, if, indeed, it is possible, as I doubt, to accomplish the object at all by such means. To enable the work to go on continuously and smoothly, the cloth must be delicately and gently supported on all sides, and carefully preserved from any deranging influences, among the worst of which influences would be severe pulls in any direction, and the curling and limbering effect produced by being drawn through hemmers.

Having now fully described my binder, what I claim as my invention, and desire to secure by Letters Patent, is—

The peculiar flattened tube B, folded upon itself, as described, so as gradually to fold the inclosed material along three lines, and at the same time to support it on all sides and preserve its stiffness at all other points, substantially as described, and for the purposes set forth.

ALEX. DOUGLAS.

Witnesses:

THOMAS D. STETSON,
E. F. LEEDS.