(Model.) 2 Sheets—Sheet 1.

M. G. TURNER.

RUFFLER FOR SEWING MACHINES.

No. 312,306. Patented Feb. 17, 1885.

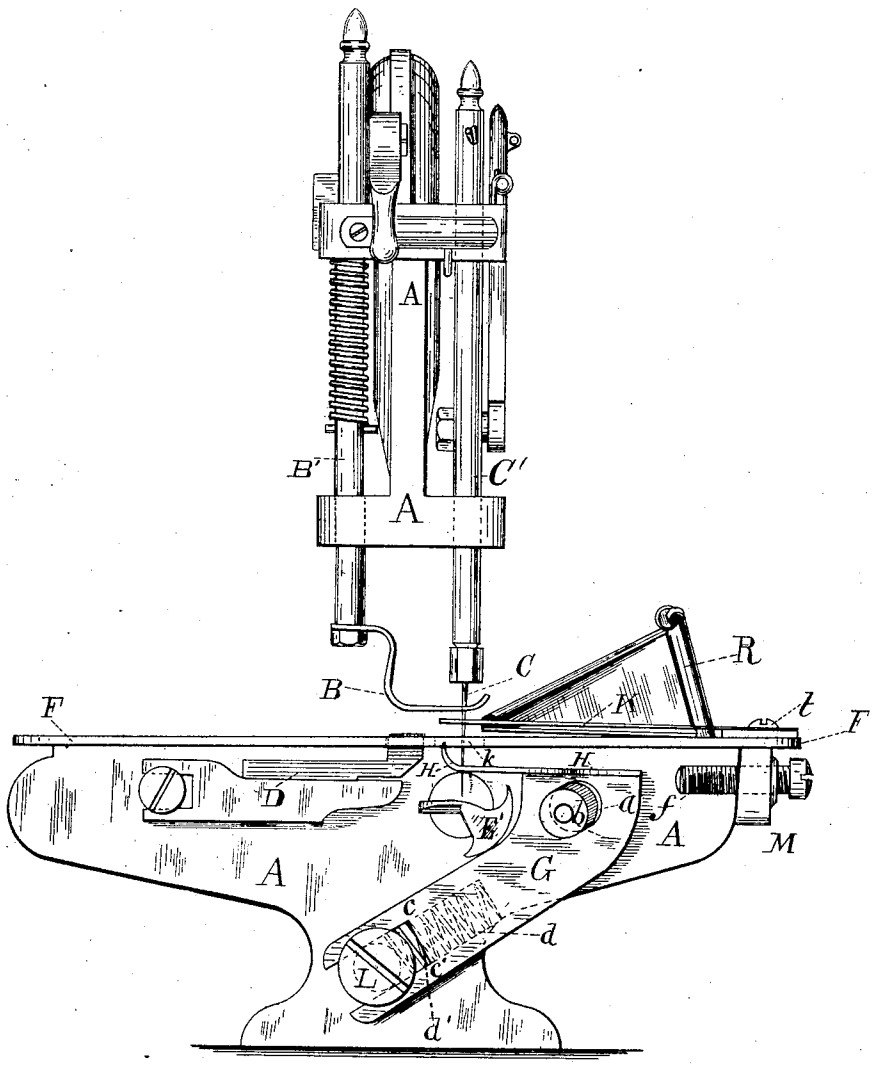


Fig 1.

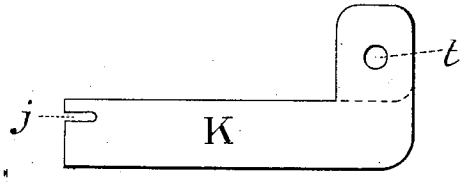


Fig 3.

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Robert Wallace.

INVENTOR:

Melzar G. Turner

by Wm. A. Macleod

his atty.

N. PETERS, Photo-Lithographer, Washington, D. C.

(Model.) 2 Sheets—Sheet 2.

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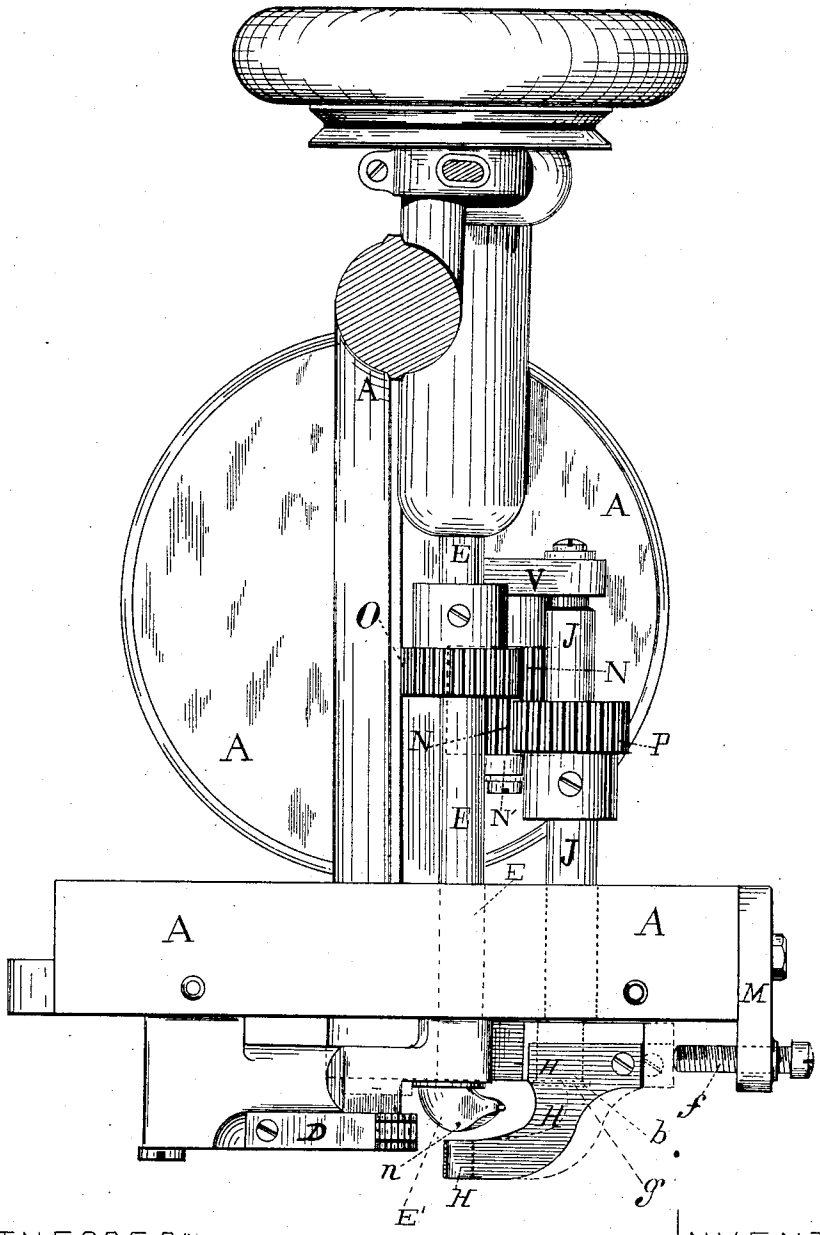


Fig. 2.

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UNITED STATES PATENT OFFICE.

MELZAR G. TURNER, OF WESTBOROUGH, MASSACHUSETTS.

RUFFLER FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 312,306, dated February 17, 1885.

Application filed March 19, 1884. (Model.)

To all whom it may concern:

Be it known that I, MELZAR G. TURNER, of Westborough, county of Worcester, and State of Massachusetts, have invented a new and useful Improvement in Rufflers for Sewing-Machines, of which the following is a full, clear, concise, and exact description, reference being had to the drawings accompanying and forming a part hereof, in which—

Figure 1 is a front elevation of a machine with my improved ruffler attached. Fig. 2 is a plan view of a machine below the work-plate and with the work-plate removed. Fig. 3 is a detail.

My invention consists of a ruffling device for sewing-machines, the essential working parts of which may be attached to the sewing-machine below the work-plate in the manner hereinafter more fully described.

The description following contains letters of reference to the accompanying drawings.

A represents the frame of a well-known form of sewing-machine. B is the presser-foot, and C the needle. The presser-foot and needle-bars B′ and C′, respectively, are shown in Fig. 1 in position.

D represents a work-feed of well-known construction, operated by an eccentric-pin on the end of the main shaft E.

E′ is the looper, of common form.

F is the work-plate.

The principal parts of my ruffler are the block G, the ruffling-blade or feed-plate H, arranged as shown, and hereinafter described, and operated by the short shaft J, set parallel with and geared to the main shaft of the machine, (see Fig. 2,) and the strip or plate K, against which the cloth is pressed while forming the ruffle-plaits. The block G is provided at its upper end with a slot, *a*, cut obliquely upward, (see Fig. 1,) which receives the pin *b*, set eccentrically on the end of the shaft J. The shaft J is set parallel with the main shaft, and is journaled, as shown, (Fig. 2,) in the frame A at one end, while the other end is supported by the piece V, which rises from the base of the frame. Below the shafts and between them is set the middle gear, N, journaled in a block, N′, which is secured to the frame A, and meshing with this is the gear O on the main shaft, and the gear P on the shaft J. Both shafts revolve, therefore, in the same direction, and corresponding movements are imparted to the machine-feed D and ruffler-feed simultaneously.

By means of the eccentric-pin *b* a reciprocating feed movement is given to the block G, and the ruffling-blade or ruffling feed-plate H, which is secured to the upper end of the block. The lower end of the block is slotted to form the forks *c c′*, which embrace the pin L, secured to the frame, and between the forks is placed, in a socket, *d*, indicated by dotted lines in Fig. 1, a spiral spring, *d′*, which acts to press the block upward, and thus keeps the eccentric-pin *b* always bearing against the lower end of slot *a*, except when the block is in contact with the gage-pin *f*.

The gage consists of a block, M, secured to the frame A, and provided with the screw-pin *f*, fitted to a screw-threaded socket in the block, so that it may be set forward or backward. (See Fig. 2.) It will be obvious that when the pin *f* is set forward the motion of the block will not be so great, and consequently the throw of the feed will be less, and smaller plaits will be formed in the ruffle. The backward movement of block G and plate H is indicated by dotted lines, Fig. 2. A cap, *g*, is secured by a screw to the end of the eccentric-pin *b*, to hold the block G in position on the pin.

The ruffling feed-plate H consists of a strip or thin piece of metal cut in the form shown, Fig. 2, and turned upward and toothed at its free end, in order to seize the cloth, the toothed or operative portion of the said plate H being wholly outside of the needle. On top of the work-plate is secured a thin metallic separator plate or strip, K, preferably of the shape shown in Fig. 3. The point *t*, where it is secured to the work-plate, is out of line of the work, and presents no obstruction thereto, and that part of the plate K which projects over the work is raised slightly from the work-plate in order to admit of the free passage of the cloth under it. (See Fig. 1.) The free end of the plate K projects underneath the presser-foot, and is slotted at *j*, Fig. 3, to permit the passage of the needle. When the presser-foot is thrown down, it springs down the end of the strip K, pressing it against the cloth and holding the cloth down to the action of the ruffler-feed H, which moves past

the needle and wholly outside of it, as shown in Fig. 2, in which the line of passage of the needle is indicated at *n*. The term "outside," as herein used, means outside of the needle, or on that side of the needle to the left of the operator. The work-plate F is slotted or cut away at *k* to allow of the action of the ruffler-feed H.

By virtue of the construction above described I am enabled to secure more room for the operation of my ruffling-plate than is obtained in other similar machines heretofore in use, and I am also enabled to arrange the working part of the ruffling-plate wholly outside of the needle, and thus nearly out of line from the machine feeding device, whereby my machine is adapted for certain classes of work for which the old machines were not well fitted.

It will be noticed that my ruffling attachment is situated chiefly below the work-plate, and presents no obstruction above the plate. I am enabled, therefore, to use the binding attachment (one of well-known form is shown at R, Fig. 1) in connection with my ruffler, and thus not only plait and sew the ruffle to the cloth, but at the same time bind the edge.

It will be obvious to any person skilled in the art that the block G may be operated by a cam instead of by the eccentric-pin shown, and that for many forms of machines the cam movement will be preferable.

What I claim is—

1. The combination, with a sewing-machine the work-plate of which is provided with an opening, of a ruffling feed-plate arranged beneath said work-plate and having its feeding portion wholly outside of the needle and working through said opening, means for pressing the fabric to be ruffled against the ruffling feed-plate, and means for reciprocating said ruffling-plate, substantially as set forth.

2. The combination, in a sewing-machine, of a ruffling feed-plate arranged beneath the work-plate thereof, means for pressing the fabric to be ruffled against said ruffling-plate, a block by which said ruffling-plate is carried, a main shaft, a stitch-forming mechanism operated thereby, a secondary shaft geared to rotate coincidently with said main shaft, and having an eccentric for operating said block, and a spring for effecting the return movements of the latter, substantially as set forth.

3. The combination, in a sewing-machine, of a main shaft, a stitch-forming mechanism operated thereby, a secondary shaft geared to rotate therewith and having an eccentric, a block operated by the latter and carrying a ruffling-plate, a spring for moving said block in opposition to said eccentric, means for regulating the movements of said block and its attached ruffling-plate, and means for pressing the fabric to be ruffled against the latter, substantially as set forth.

4. The combination, with a sewing-machine, of a ruffling feed-plate and its operating mechanism, all arranged beneath the work-plate thereof, of a separator-plate placed above said work-plate, and having an offset part by which its main portion is slightly raised above said work-plate, a presser-foot and a binding-guide, also arranged above said work-plate, substantially as set forth.

5. The combination, with a sewing-machine, of the gears O, N, and P, shaft J, having eccentric-pin *b*, a separator-plate, a ruffling feed-plate, and means for moving the latter in opposition to the movements imparted thereto by said eccentric-pin, substantially as set forth.

MELZAR G. TURNER.

Witnesses:
WM. A. MACLEOD,
ROBERT WALLACE.