E. F. LE FEVRE.

RUFFLING MECHANISM.

APPLICATION FILED OCT. 4, 1917.

1,320,248.

Patented Oct. 28, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

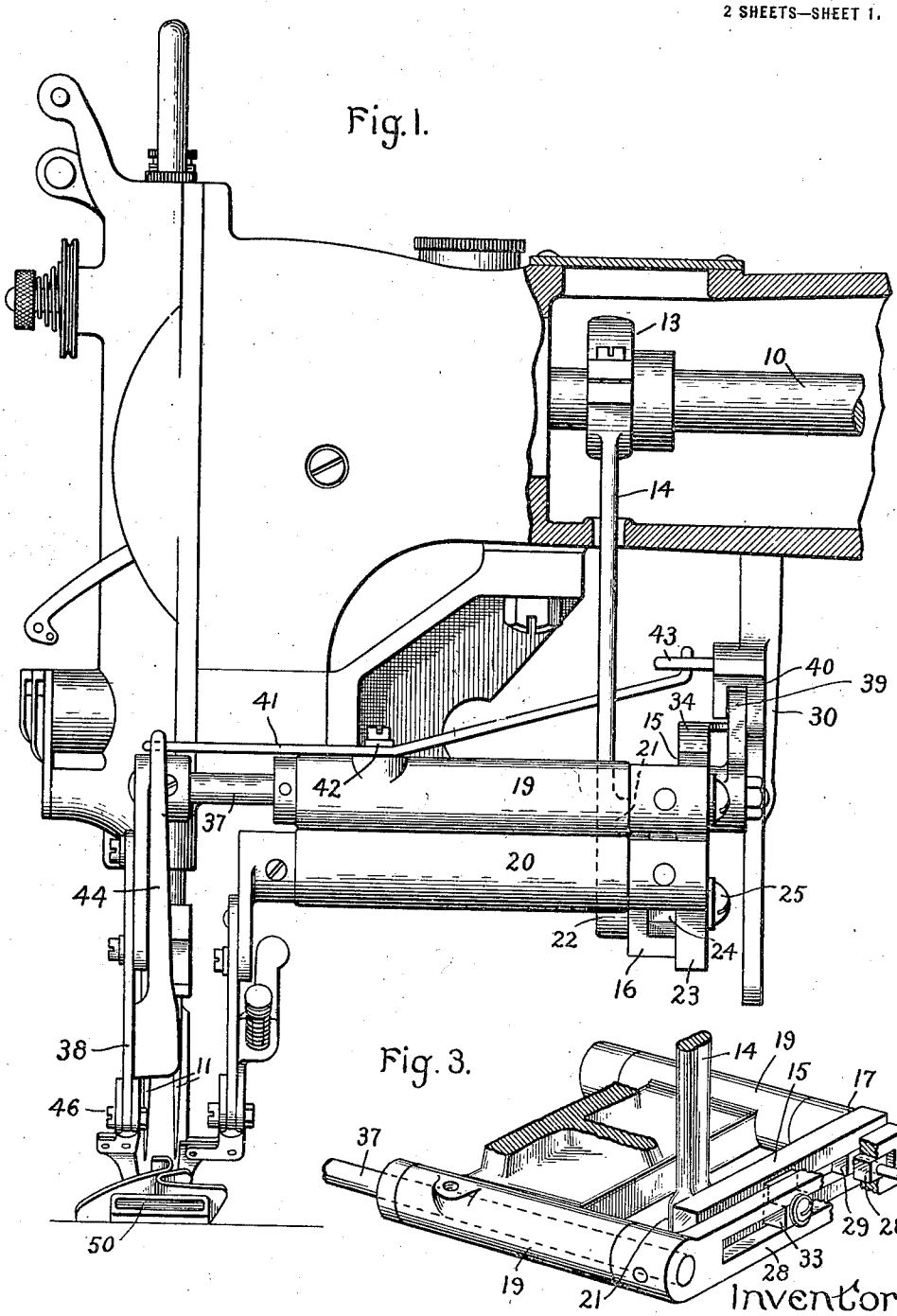


Fig. 3.

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2 SHEETS—SHEET 2.

Fig. 2.

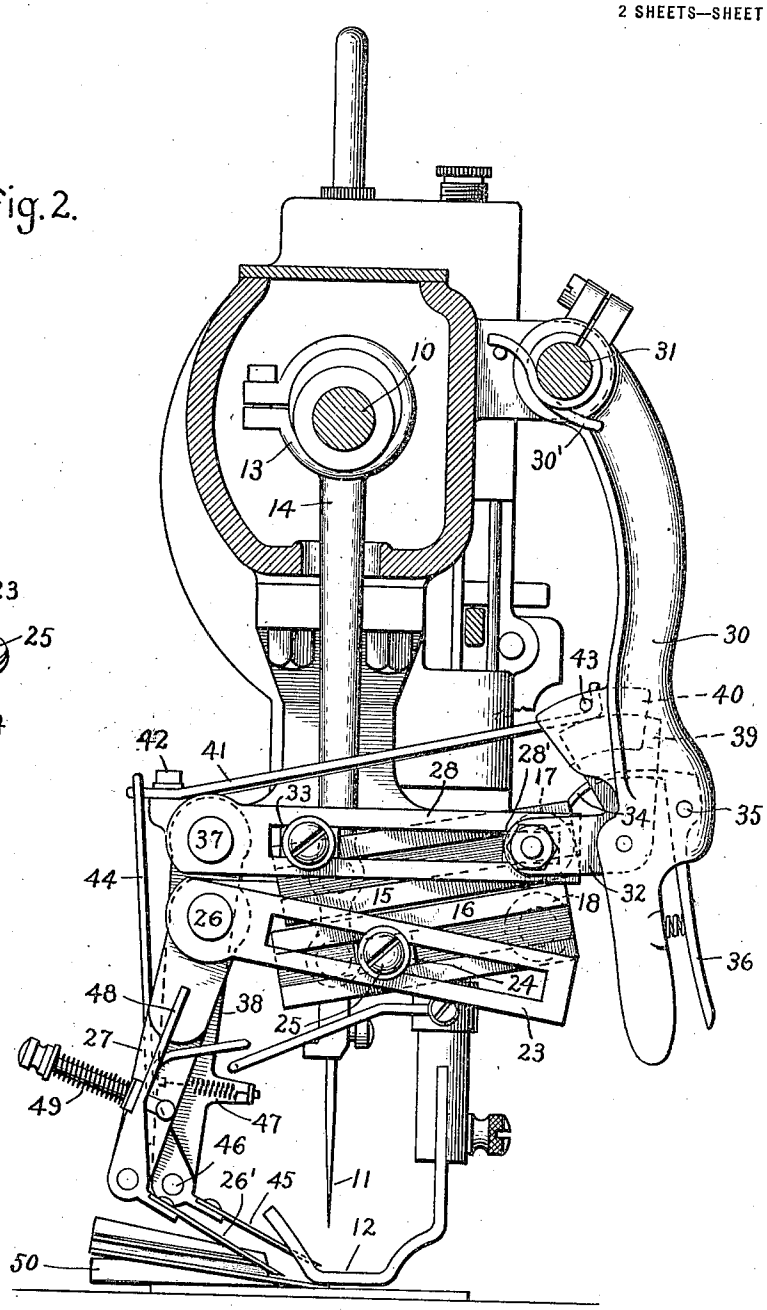
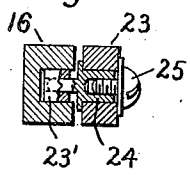


Fig. 4.



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UNITED STATES PATENT OFFICE.

EUGENE F. LE FEVRE, OF SCHENECTADY, NEW YORK, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE SINGER MANUFACTURING COMPANY, OF ELIZABETH, NEW JERSEY, A CORPORATION OF NEW JERSEY.

RUFFLING MECHANISM.

1,320,248. Specification of Letters Patent. Patented Oct. 28, 1919.

Application filed October 4, 1917. Serial No. 194,670.

To all whom it may concern:

Be it known that I, EUGENE F. LE FEVRE, a citizen of the United States, residing at Schenectady, in the county of Schenectady, State of New York, have invented certain new and useful Improvements in Ruffling Mechanisms, of which the following is a specification.

My invention relates to ruffling mechanisms and the like for sewing machines and has for its object the provision of means whereby the mechanism is adapted for performing two operations either simultaneously or separately, and varying the operation in each case independently so that if desired two ruffling operations having either the same or different gathering fullness may be performed at one time. In certain kinds of work where the material is gathered on both sides of a central tape or band either to form ruffles or to shape a garment, as for instance a one-piece dress which is gathered on both sides of the waist band, it has heretofore been necessary to put the work through the machine twice, first gathering or ruffling on one side of the band, and then putting it through so as to gather on the other side. In the case of a dress where there is fuller gathering on one side than on the other it was necessary to adjust the throw of the ruffler before putting it through the second time. I have found that it is possible to perform both of these operations at one time and vary the gathering fullness of the ruffling so as to produce any desired effect. The two ruffling elements may be thrown into and out of action so that only one may be operated if desired.

In the accompanying drawing illustrating one form of my invention, Figure 1 is a side elevation showing my invention applied to a standard form of sewing machine. Fig. 2 is a front elevation partly in section. Fig. 3 is a perspective view of certain of a portion of the operating mechanism, and Fig. 4 shows a detail of the sliding block.

In illustrating my invention I have not attempted to show a complete sewing machine, but have only illustrated such parts as are necessary to a clear understanding of my invention. Referring, therefore, to the drawings, 10 represents the needle actuating shaft of the machine which operates the needles 11 and 12 is the presser foot. An eccentric 13 operates a pitman 14, the lower end of which is connected to two levers 15 and 16. These two levers are pivoted at 17 and 18 respectively, on shafts mounted in bearing supports 19 and 20 respectively. The outer ends of these levers are connected to the lower end of the pitman at 21 and 22 respectively, so that the levers 15 and 16 will be vibrated up and down at a constant rate about their respective axes in accordance with the speed of the needle shaft. Coöperating with the lever 16 is a slotted arm 23 which operates a ruffling blade over a greater or less range depending upon the position of its connections with the lever. To make this connection adjustable, the sliding block 24 may be located in the slotted arm 23 in any position, by means of screw 25. This sliding block has a stud portion projecting into the channel-shaped opening in the lever 16. A block 23′ turns on this stud and fits in the channel in the lever 16.

This arm 23 is secured to a shaft 26 which has a bearing in the elongated member 20 upon which it pivots. This shaft 26 is the operating shaft for the ruffling blade 26′ and extends forward into the vicinity of the needles where its end is provided with an arm 27 secured thereto. It will be seen, therefore, that while the lever 16 vibrates constantly over a definite range, the range of movement of the arm 23 and, therefore, the arc of rotation on the shaft 26 will depend upon the position of the block 24. If, for instance, the block were to be moved in its channel over to the pivotal point 18 of the lever, no movement of the arm would result, whereas if the block were moved out to the free end of the lever a maximum movement of the arm would take place. At any intermediate position the movement of the arm and hence the throw of the ruffling blade will be between the minimum and the maximum.

The lever 15 which is similar to lever 16 is carried on a shaft which is mounted in a bearing member 19 and is operated by the pitman 14 through the connection at 21. The arm 28 has a connection with lever 15

similar to that between lever 16 and arm 23. A sliding block 29 moves in the channel of the lever and a block 28′ which turns upon a stud 29′ secured to the block 29 slides in the arm 28. In the arrangement shown the arm is thrown from a position of movement to one of no movement by a lever 30 pivoted at 31 and connected with the sliding block by a link 32. The lever 30 is spring pressed to the operative position (to the left in Fig. 2) by a spring 30′ so that unless restrained the block will be moved to the left until it is stopped by an adjustable stop 33 in the slotted arm. This movement in response to the spring tension is restrained by a latch 34 pivoted in lever 30 at 35 and having a handle 36. The latch engages the end of lever 15 as shown and positively prevents movement. When the handle 36 is depressed, the latch is raised and the sliding block 28′ moves over to the left until the stop 33 is engaged. As shown, the movement of lever 15 will transmit no motion to the arm since the pivotal center of the arm coincides with that of the lever. If the lever 30 is released, however, the pivot of the arm will move to the left and when it engages the stop 33, the pivotal point of the arm will move over about the same range as the pivotal point of the lever 15 on the pitman. By adjusting the stop 33 the range of movement of the arm 28 and hence that of the ruffling blade operated thereby may be varied. The arm 28 is secured to a shaft 37 mounted in bearing 19 and having secured to it the ruffler arm 38. The connection between the arm 28 and the lever 30 is, as before stated, through a link 32. This link connection is such that while the arm 28 vibrates the handle will be stationary. This link 32 has a projecting portion 39 which slides in a guideway 40 and keeps the parts properly lined up so as to prevent the sliding block from binding. In order to lift the ruffling blade at the same time that its operation is stopped, there is provided a bell crank lever 41 pivoted at 42 and operated by a connection 43 with the lever 30. The other end of this bell crank lever engages a rod 44 secured to the ruffling blade 45 which is pivoted at 46 to the arm 38. A spring 47 connects the arm 38 with the rod 44. When the lever 30 is moved outward to stop the operation of the ruffler which it controls, the lever 41 is turned on its pivot and the upper end of the rod 44 is forced outward. This turns the ruffling blade 45 on the pivot 46 so as to lift it to inoperative position as shown in the drawing. The blade 26′ is lifted by pressing the arm 48 against the compression spring 49.

The slotted element 50 is commonly used on machines of this general character for receiving and guiding the tape. Ordinarily the tape is folded in passing through this member but this is not always necessary and I may utilize any of the well-known devices for this purpose.

In operation the tape and the material are fed to the machine in a manner that will be easily understood. If it is desired to ruffle on both sides of the tape, the latch handle 36 will be compressed and the lever 30 will shift over to the left until stopped by the stop 33. This will set ruffling blade 45 in operation. The other ruffling finger 26′ being normally in operation, the two blades will gather the material along the tape where it will be secured in place. By adjusting the stop 33, the throw of the gathering blade 45 may be varied, or it may be thrown out of operation during the operation of the machine. The throw of blade 26′ may be varied by adjusting the block 24. By my arrangement it is possible to obtain any ruffling effect. The fullness may be greater on one side than on the other or it may be the same. The ruffling may be stopped on one side and continued on the other for an interval and any desired fullness on either side may be obtained.

While I have described my invention as embodied in concrete form and as operating in a specific manner in accordance with the provisions of the patent statutes, it should be understood that I do not limit my invention thereto as various modifications thereof will suggest themselves to those skilled in the art without departing from the spirit of my invention the scope of which is set forth in the annexed claims.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. The combination with a sewing machine and an element for receiving a tape, of a ruffling device on each side of the element, mechanism for operating said devices simultaneously and means for varying the action of the devices independently of each other so as to produce simultaneously different ruffling effects.

2. The combination with a sewing machine and an element for receiving a tape, of a ruffling blade on each side of the element, a reciprocating member, connections between the said member and the ruffling blades whereby the latter are reciprocated and means for varying the said connections independently so as to produce different ruffling effects.

3. The combination with a sewing machine having a needle, of ruffling mechanism coöperating therewith comprising two ruffling blades one on each side of the needle, a reciprocating member, a connecting arm between said member and each of said ruffling blades for operating the same and means for varying the relation between the member and each arm independently to vary the ruffling effects.

4. The combination with a sewing machine and an element for receiving a tape, of a ruffling device on each side of the element, mechanism for operating said devices simultaneously, means for varying the action of the devices independently of each other so as to produce simultaneously different ruffling effects, and means for throwing one device out of operation while the machine is in operation.

In witness whereof I have hereunto set my hand this 2nd day of October, 1917.

EUGENE F. LE FEVRE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."