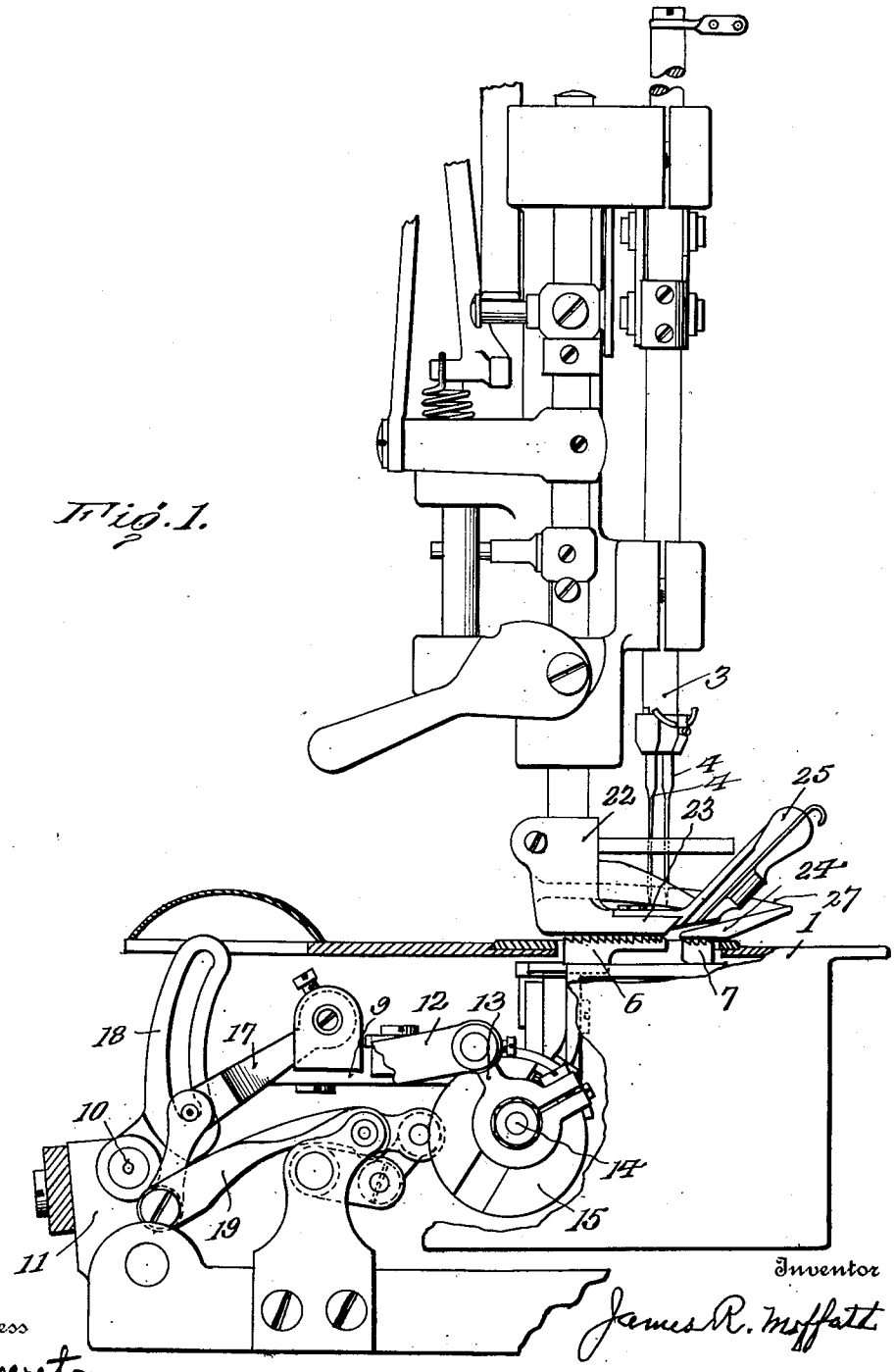
Sept. 2, 1924. 1,506,916

J. R. MOFFATT

RUFFLING SEWING MACHINE

Filed May 2, 1919 7 Sheets-Sheet 1

Fig. 1.



Witness
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RUFFLING SEWING MACHINE

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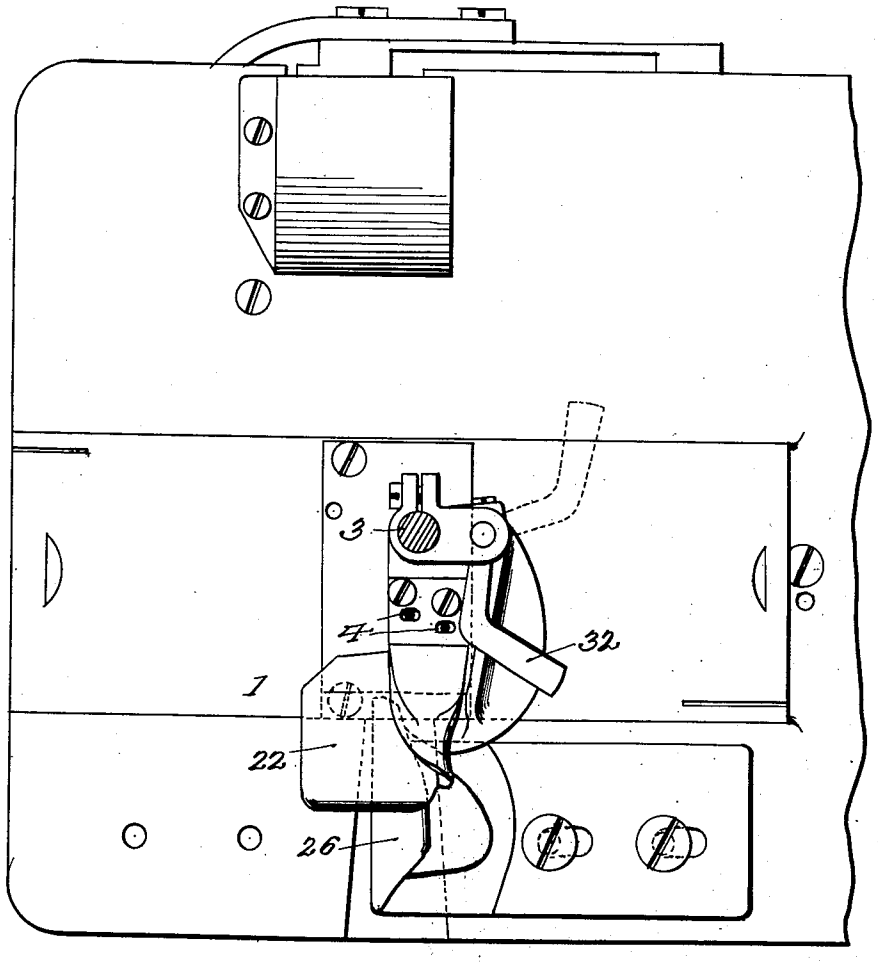


Fig. 2.

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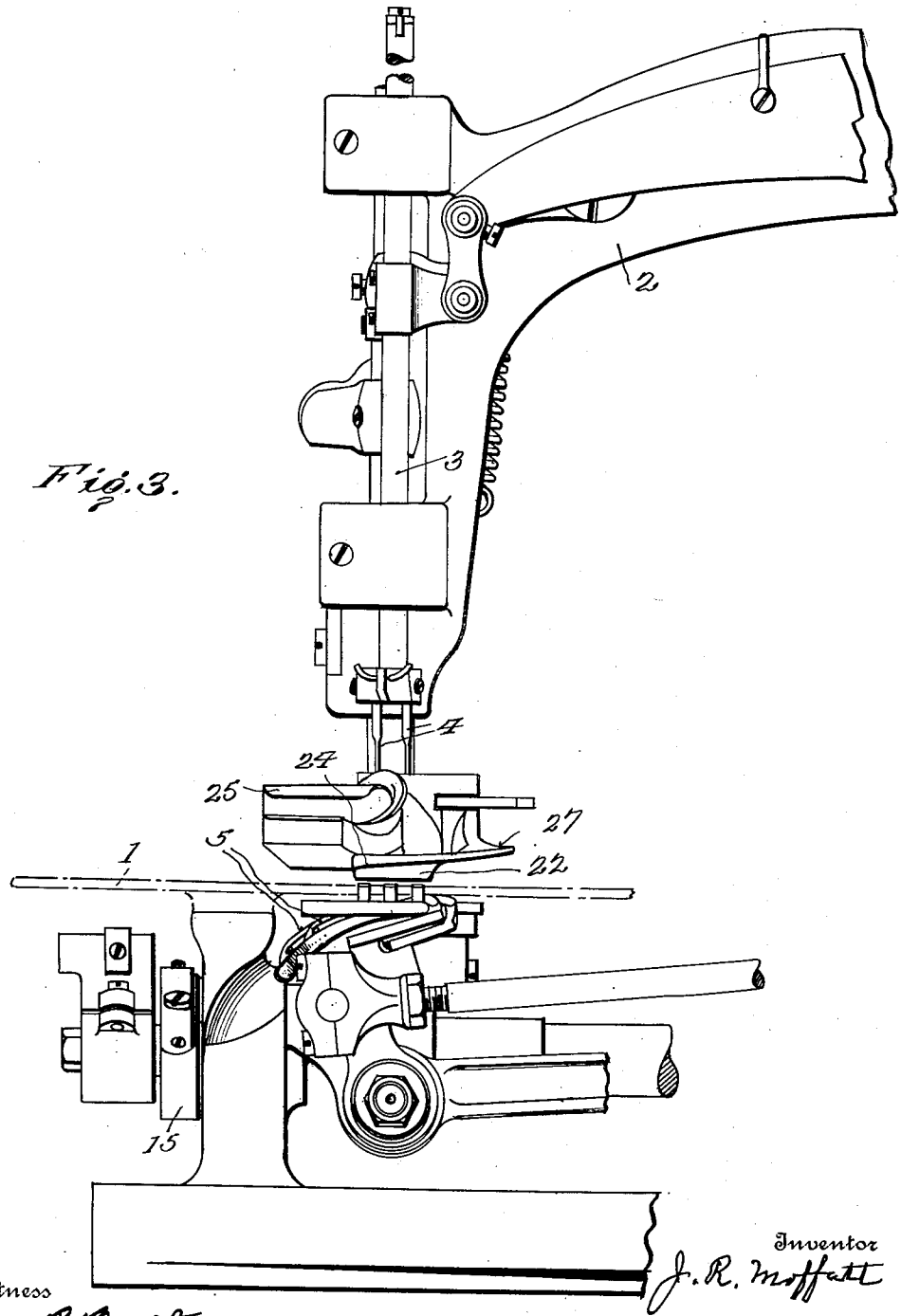
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RUFFLING SEWING MACHINE

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Fig. 3.



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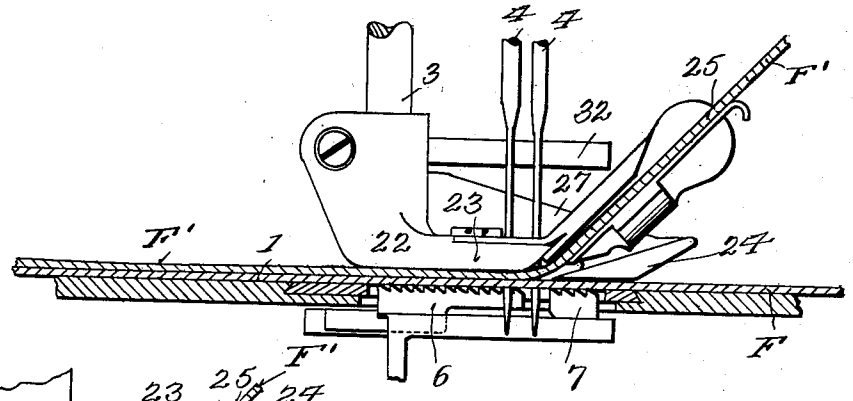
Sept. 2, 1924. 1,506,916

J. R. MOFFATT

RUFFLING SEWING MACHINE

Filed May 2, 1919 7 Sheets-Sheet 4

Fig. 4.



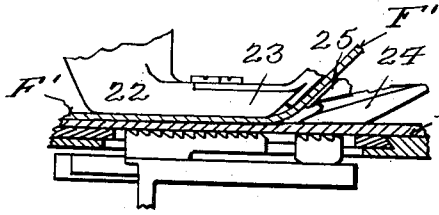


Fig. 8.

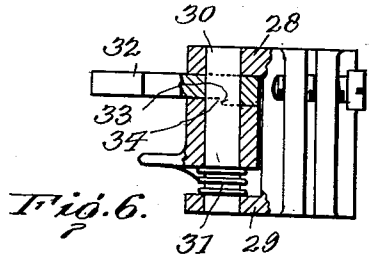


Fig. 6.

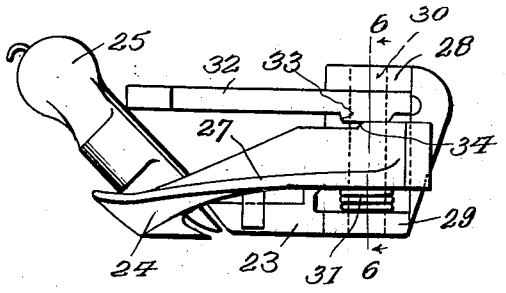


Fig. 5.

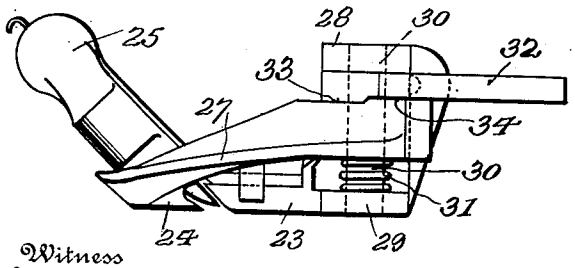


Fig. 7.

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RUFFLING SEWING MACHINE

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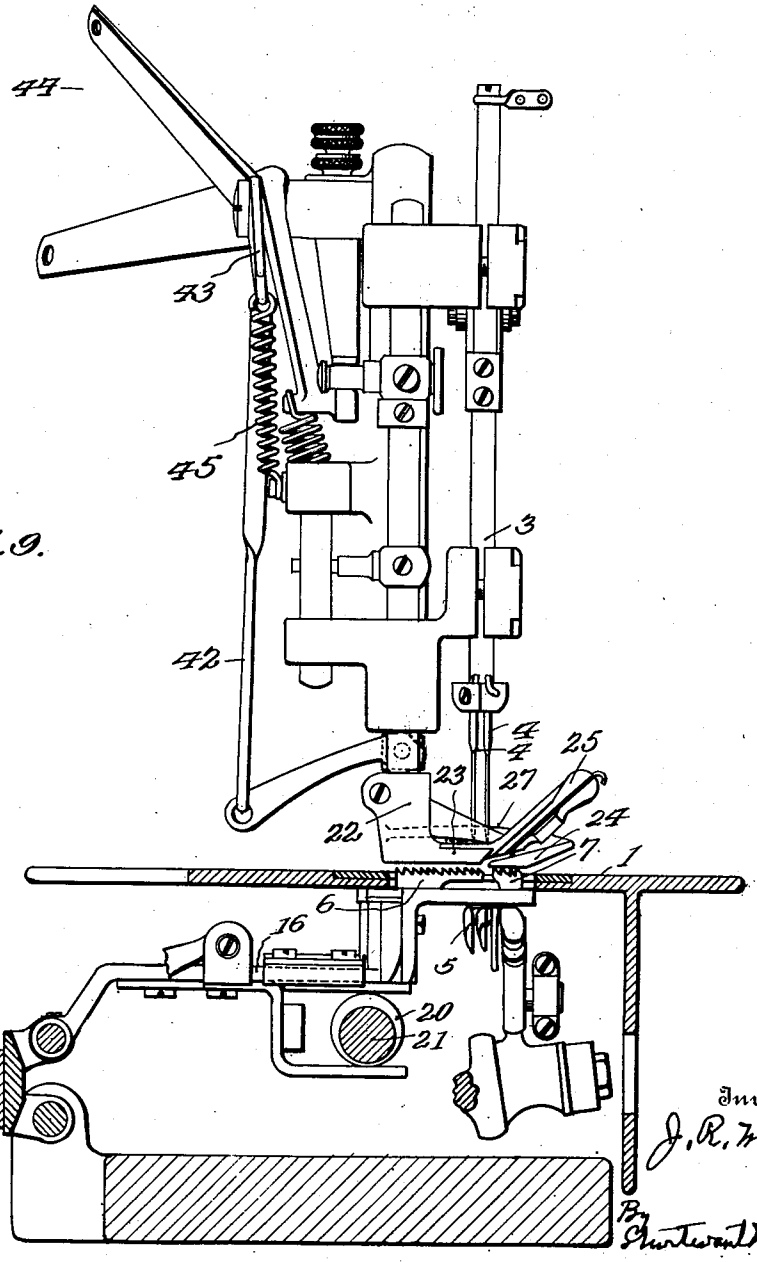


Fig. 9.

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RUFFLING SEWING MACHINE

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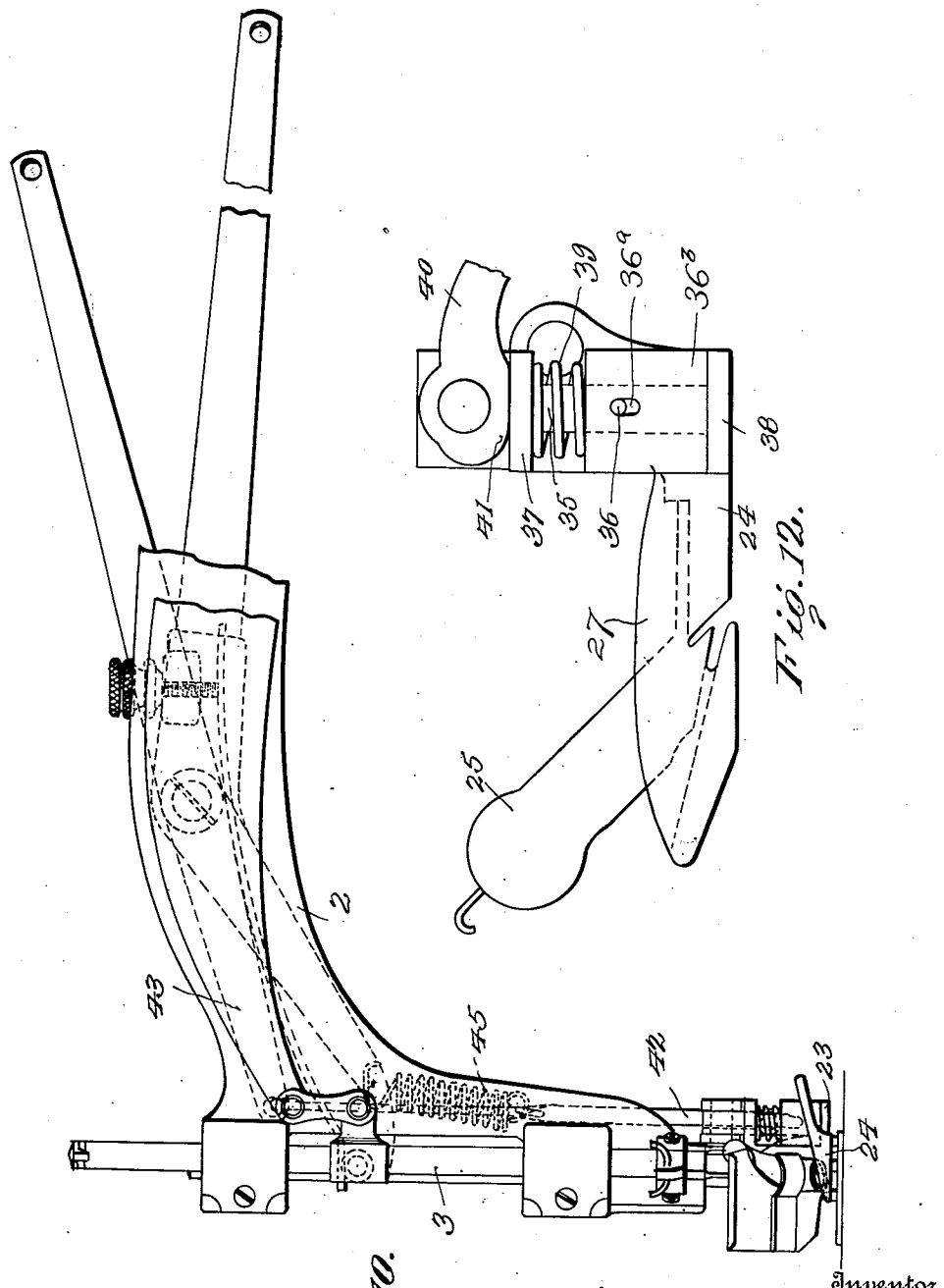


Fig. 12.

Fig. 10.

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RUFFLING SEWING MACHINE

Filed May 2, 1919 7 Sheets-Sheet 7

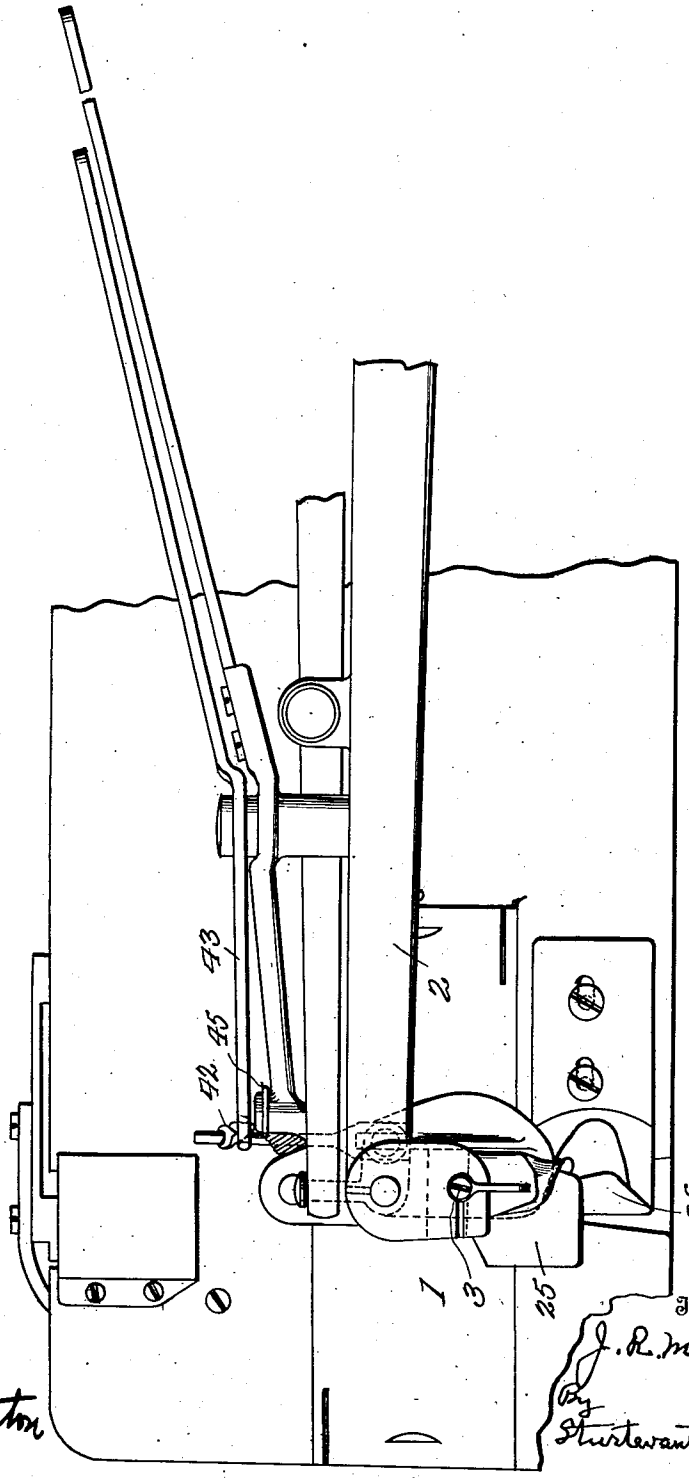


Fig. 11.

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Patented Sept. 2, 1924. 1,506,916

UNITED STATES PATENT OFFICE.

JAMES R. MOFFATT, OF CHICAGO, ILLINOIS, ASSIGNOR TO UNION SPECIAL MACHINE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

RUFFLING SEWING MACHINE.

Application filed May 2, 1919. Serial No. 294,157.

To all whom it may concern:

Be it known that I, JAMES R. MOFFATT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Ruffling Sewing Machines, of which the following is a description, reference being had to the accompanying drawing and to the figures of reference marked thereon.

The invention relates to new and useful improvements in sewing machines, and more particularly to a sewing machine wherein the feeding mechanism operates to ruffle or gather one strip of fabric which is being stitched to another, and wherein the ruffling or gathering action of the feeding mechanism may be controlled by the operator.

In the patent granted to Joseph Berger, No. 1,228,393, June 5, 1917, there is shown a sewing machine of the above type, wherein the presser foot is formed in two sections, one of which co-operates with the main feed dog, while the other co-operates with the auxiliary feed dog, which may be given a differential movement relative to the main feed dog, and treadle controlled means is provided so that the foot section co-operating with the auxiliary feed dog may be lifted to cause the feeding mechanism to feed both strips of fabric without gathering either strip.

The present invention is directed to an improvement in the machine of the Berger patent, and has for its object to provide an arrangement of presser foot control for the auxiliary feed dog which permits a strip of fabric to be led to the feeding mechanism in rear of the auxiliary feed dog which is located directly in front of the main feed dog.

A further object of the invention is to provide a controlling means for the sections of the presser foot, whereby the section co-operating with the auxiliary feed dog may be raised to inoperative position and thereby render the auxiliary feeding action ineffective.

A still further object of the invention is to provide a treadle controlled cam means for regulating the position of the sections of the presser foot co-operating with the auxiliary feed dog.

In the drawings which show by way of illustration one embodiment of the invention—

Figure 1 is a view partly in section and partly in end view showing a sewing machine embodying my improvements;

Figure 2 is a view partly in section and partly in plan, showing the work support and the presser foot, together with the controlling means for the presser foot;

Figure 3 is a front view of a portion of the machine;

Figure 4 is an enlarged view partly in section and partly in side elevation, showing the feed dogs and the presser foot co-operating therewith;

Figure 5 is a view of the presser foot from the opposite side from that shown in Figure 4;

Figure 6 is a sectional view on the line 6—6 of Figure 5;

Figure 7 is a view similar to Figure 5, but showing the section of the presser foot co-operating with the auxiliary feed dog as raised to render the feeding action of the auxiliary feed dog ineffective;

Figure 8 is a view showing more or less diagrammatically the position of the parts when the auxiliary feed dog is ineffective;

Figure 9 is a view partly in section and partly in end elevation of the machine having a slightly modified form of controlling means for the auxiliary section of the presser foot;

Figure 10 is a view showing a portion of the overhanging arm, a portion of the throat plate, and a presser foot with the controlling devices therefor;

Figure 11 is a top plan view of a portion of the machine having the modified form of the invention embodied therein;

Figure 12 is a side view of the presser foot embodying the modified form of the invention.

The invention consists broadly of a sewing machine having a main feed dog and an auxiliary feed dog and wherein the auxiliary feed dog is given a differential feed movement relative to the main feed dog. The auxiliary feed dog is located directly in front of the main feed dog and is spaced a sufficient distance therefrom so that a strip of fabric may be led to the main feed dog at a point in rear of the auxiliary feed dog.

Co-operating with the feed dogs is a presser foot having a main section directly over the main feed dog and an auxiliary section which is carried by the main section and which is directly over the auxiliary feed dog. This auxiliary section of the presser foot is so mounted on the main section that it is moved one way in a vertical direction by means of a spring and in the opposite direction by cam means, so that the auxiliary section of the presser foot may be positioned relative to the main section to co-operate with the auxiliary feed dog, which, having a differential movement relative to the main feed dog, will cause the strip of fabric fed thereby to be gathered or ruffled slightly as it is led to the stitching mechanism. This auxiliary section of the presser foot may be raised through the cam means so as to relieve the strip of material passing over the auxiliary feed dog from any pressure or rather from sufficient pressure to cause the auxiliary feed dog to feed the strip to gather or ruffle the same.

This control of the auxiliary section of the presser foot may be either a hand control, as shown in one form of the invention, or a treadle control, as shown in another form of the invention.

Referring more in detail to the drawings, I have shown a hand controlled means for the auxiliary section of the presser foot in Figures 1 to 8, inclusive.

The sewing machine in which the invention is embodied is of the usual construction, having a work support 1, an overhanging arm 2, in which a needle bar 3 is reciprocated. This needle bar 3 carries as herein shown, two needles 4—4, and co-operating respectively with each needle is a looper 5. The material is fed to the stitching mechanism by a feeding mechanism which includes a main feed dog 6 and an auxiliary feed dog 7. The main feed dog 6 is carried by a feed bar 9 which is pivoted at 10 to a feed rocker 11, and this feed rocker 11 is provided with an arm 12 connected to a link 13, which co-operates with a crank 14 carried by a disk 15 mounted on the main shaft. The crank is eccentric to the axis of the shaft and through the arm 12 oscillates the feed rocker and thus moves the feed bar carrying the feed dog 6 back and forth. The auxiliary feed dog 7 is carried by a feed bar 16 which is mounted on the main feed bar so as to move up and down therewith, but also so as to have a movement on the main feed bar independent of the movement of the main feed bar. The auxiliary feed bar 16 is connected to a link 17, which in turn is connected to a slotted arm 18 carried by the feed rocker. Through suitable mechanism 19 the point of connection of the link 17 to the arm 18 may be varied. The feed bars are both raised and lowered simultaneously by an eccentric 20 on the main shaft, which is indicated in Figure 9 at 21. This feeding mechanism is of a well known construction and per se forms no part of the present invention. The essential feature of the feeding mechanism consists of the main and auxiliary feed dogs, which are so operated that the auxiliary feed dog may be moved a greater distance than the main feed dog while in engagement with the material so as to gather or ruffle the same. The auxiliary feed dog is also directly in advance of the main feed dog.

The material is held on the work support and against the feed dogs by means of a presser foot 22. This presser foot 22 consists of a main section 23 directly above the main feed dog 6 and the auxiliary section 24 directly above the auxiliary feed dog 7. The two sections of the presser foot are spaced from each other and the auxiliary section is directly in front of the main section. Mounted on the main section of the presser foot is a fabric guide 25 which directs a strip of fabric F′ over the top of the auxiliary presser foot and underneath the main section of the presser foot, so that this strip of fabric is acted upon only by the main feed dog 6. The strip of fabric F led to the auxiliary feed dog 7 passes underneath the auxiliary section 24 of the presser foot. Said strip of fabric may be directed by a suitable guide 26. The shape of the guides 25 and 26 may be greatly varied, but, as disclosed in these drawings, each guide is formed so as to form a folded edge on the respective strips of fabric guided thereby.

In the invention illustrated in Figures 1 to 8, inclusive and in Figures 9 to 12, inclusive, the parts so far described are identical and like numbers have been applied thereto.

The auxiliary section of the presser foot is mounted so as to have a movement on the main section of the presser foot and independent of the movements of said main section of the presser foot for the purpose of raising said auxiliary presser foot to a point so that the material passing underneath the same will not be pressed against the auxiliary feed dog with sufficient force to cause said auxiliary feed dog to ruffle or gather the material—this is when the auxiliary section of the presser foot is in its raised position. The purpose, also, of this movement of the auxiliary section relative to the main section, is to permit said auxiliary section to be lowered to a position so as to press the material against the auxiliary feed dog and cause said auxiliary feed dog to not only feed the fabric strip engaged thereby but to ruffle or gather the

same inasmuch as said auxiliary feed dog has a differential movement relative to the main feed dog.

The means for raising and lowering the auxiliary section 24 of the presser foot, as illustrated in Figures 1 to 8, inclusive, is as follows:

The auxiliary section 24 of the presser foot is carried by an arm 27. The main section of the presser foot has two laterally extending ears 28 and 29. Mounted in these ears is a post 30. The arm 27 at its inner end is in the form of a sleeve surrounding said post and is free to slide up and down on said post. Underneath said arm and forcing the same in an upward direction, is a spring 31. Freely mounted on the post is a hand lever 32. The lower face of the hand lever 32 is formed with a cam 33, while the upper face of the arm 27 is formed with a cam 34. When the lever 32 is in the position shown in Figure 7, the cam faces 33 and 34 are out of engagement and the spring 31 forces the arm 27 to its extreme upward position. When, however, this lever 32 is swung to the position shown in Figure 5, then the cam faces 33 and 34 are brought one above the other and this forces the arm 27 downwardly compressing the spring 31. It will readily be seen that the operator may quickly throw the lever 32 so as to position the auxiliary section 24 of the presser foot either in its extreme lower position or in its extreme raised position. When this auxiliary section of the presser foot is lowered then it will force the fabric strip passing underneath the same into engagement with the auxiliary feed dog and the strip will be ruffled or gathered. On the other hand, when the auxiliary section 24 of the presser foot is raised the pressure is relieved from the fabric strip passing underneath the same and the auxiliary feed dog will be ineffective to ruffle or gather the same.

In Figures 8 to 12, inclusive, I have shown a modified form of means for raising and lowering the auxiliary section of the presser foot which is treadle controlled. In this form of the invention the auxiliary section 24 is carried by an arm 27. The arm 27 is mounted on a sleeve 36^b which slides freely on the post 35. Said sleeve is formed with a slot 36^a through which the pin 36 extends. Said pin 36 is fixed to the post 35 and is so disposed that when the post is raised by means hereinafter described, the sleeve 36^b and arm 27 carried thereby will be raised. This pin and slot connection also permits the arm and sleeve to yield when passing across seams, as the spring 39 is disposed between the sleeve 36^b and the ear 37 and normally forces said sleeve 36^b downwardly. The post 35 slides freely in the projecting ears 37 and 38 carried by the main section of the presser foot. Pivotally connected to the upper end of the post 35 is a lever 40 which is formed with cam faces 41. The lever 40 projects rearwardly and is connected at its extreme end to a depending link 42. This link 42 is in turn pivoted to a lever 43 which is connected to a treadle (not shown). A spring 45 normally depresses the end of the lever 43 which is connected to the link 42 for raising the treadle. It will readily be seen that when the outer end of the lever 40 is raised the cam faces 41 engaging the ear 37 as a fulcrum will raise the post 35, and thus raise the arm 27. On the other hand, when the lever 40 is lowered the cams release the post and the spring 39 will force the arm to its extreme lower position. It will be obvious, therefore, that when the operator depresses the treadle the lever 40 will be raised and this will raise the auxiliary section of the presser foot, so that the auxiliary feed dog becomes ineffective to ruffle or gather the material. While on the other hand, when the operator releases the treadle the springs will automatically position the parts so that the auxiliary section of the presser foot will hold the material forcibly against the auxiliary feed dog and said material passing underneath the auxiliary section of the presser foot will be ruffled or gathered.

By my arrangement the ruffling or gathering action of the auxiliary feed dog may be regulated, so that a strip may be ruffled or gathered throughout a greater portion of its extent as it is stitched to the fabric section and the ruffling action may be caused to cease at the will of the operator, so that sections may be left unruffled or gathered, and so that the ruffling or gathering action may be varied through a sufficient extent to bring the ends of the strip and the fabric section to which it is stitched out even and without changing the relative feeding movements of said feed dogs.

It is obvious that minor changes in the details of construction and the arrangement of parts may be made without departing from the spirit of the invention as set forth in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. The combination with a main feeding mechanism including a main feed dog and an auxiliary feeding mechanism including an auxiliary feed dog having a differential movement relative to the main feed dog, of a presser foot having a main section co-operating with the main feed dog and an auxiliary section co-operating with the auxiliary feed dog, means for mounting said auxiliary section of the presser foot on said main section of the presser foot, whereby said auxiliary section may be shifted

vertically to render the feeding action of the auxiliary feed dog effective or ineffective, and means for shifting said auxiliary section at the will of the operator, said main section of the presser foot having a guide for directing the fabric strip underneath said main section, and means for guiding a separate strip of fabric underneath the auxiliary section of the presser foot.

2. The combination with a main feeding mechanism including a main feed dog and an auxiliary feeding mechanism including an auxiliary feed dog having a differential movement relative to the main feed dog, of a presser foot having a main section co-operating with the main feed dog and an auxiliary section co-operating with the auxiliary feed dog, an arm carrying said auxiliary section of the presser foot, laterally projecting ears mounted on the main section of the presser foot, a post freely slidable in the ears on which said arm is fixed, a spring normally forcing the post in a downward direction, and cam means for raising the post to lift the auxiliary section of the presser foot.

3. The combination with a main feeding mechanism including a main feed dog and an auxiliary feeding mechanism including an auxiliary feed dog having a differential movement relative to the main feed dog, of a presser foot having a main section co-operating with the main feed dog and an auxiliary section co-operating with the auxiliary feed dog, an arm carrying said auxiliary section of the presser foot, laterally projecting ears mounted on the main section of the presser foot, a post freely slidable in the ears on which said arm is fixed, a spring normally forcing the post in a downward direction, cam means for raising the post to lift the auxiliary section of the presser foot, said cam means including a lever, a treadle controlled lever connected to the lever of the cam means, and a spring connected to said treadle controlled lever, whereby when said treadle is released the cam means will be operated so as to lower the auxiliary section of the presser foot into co-operative relation with the auxiliary feed dog.

In testimony whereof I affix my signature, in the presence of two witnesses.

JAMES R. MOFFATT.

Witnesses:
S. GEORGE TATE,
ARTHUR F. LARRABEE.