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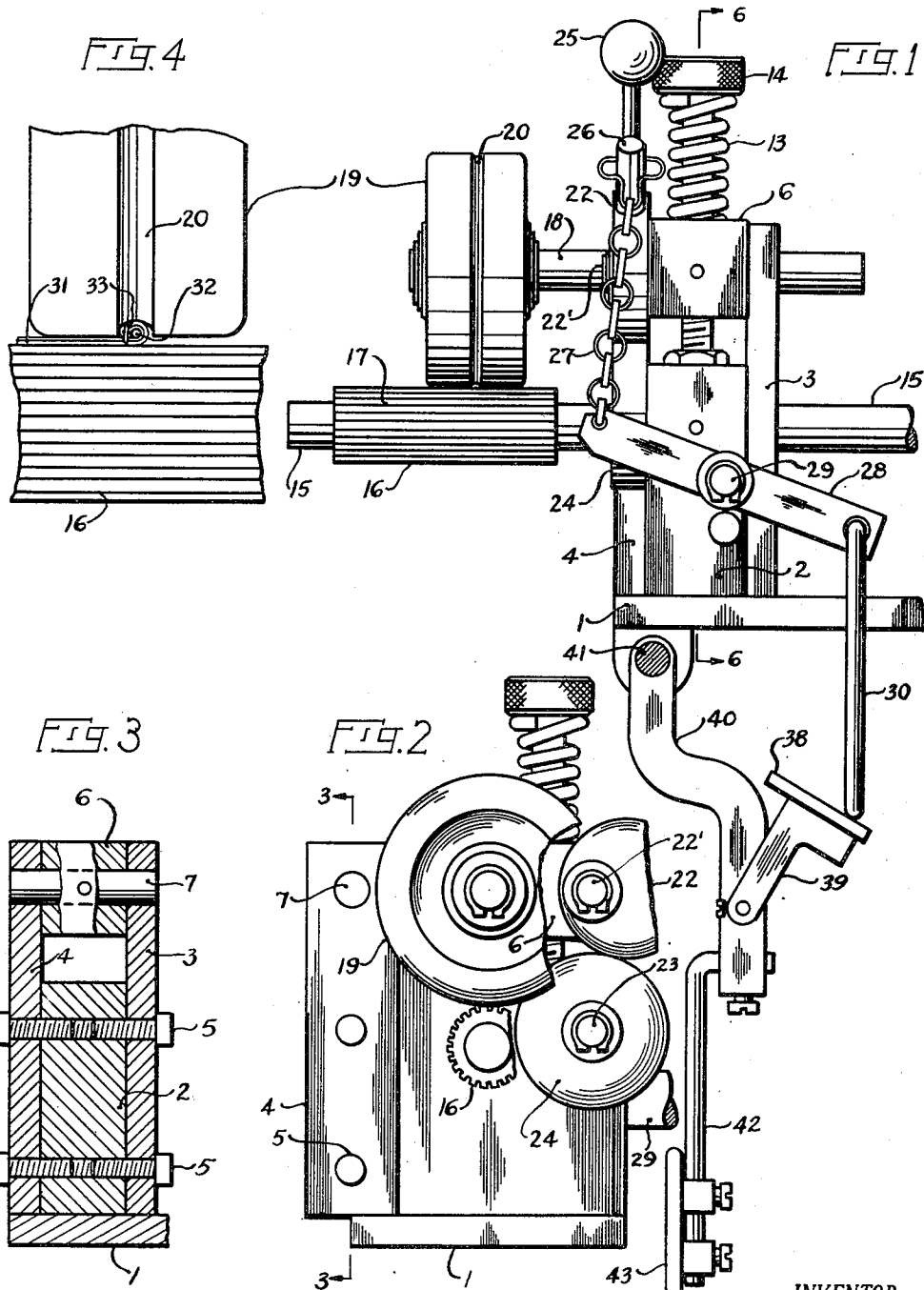
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2,709,413

FABRIC FEED DEVICE FOR SEWING MACHINES

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2 Sheets-Sheet 1



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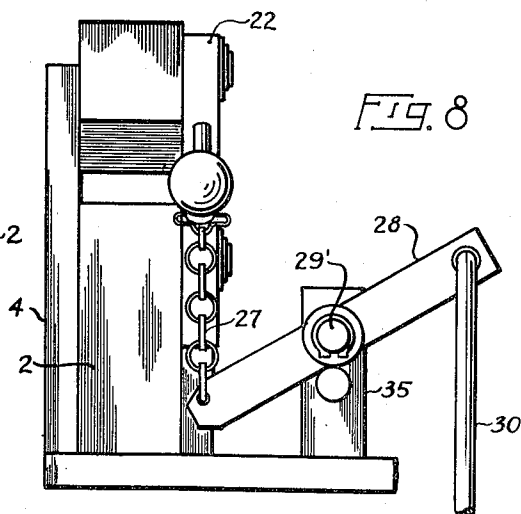
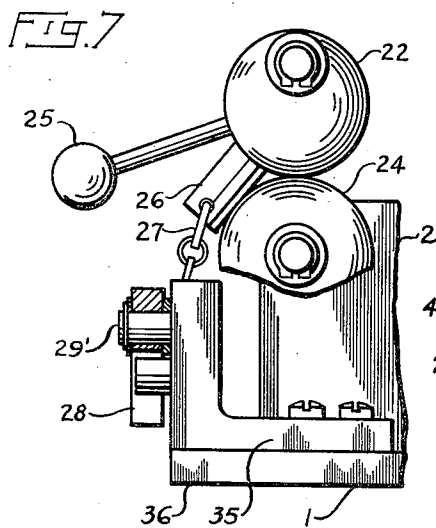
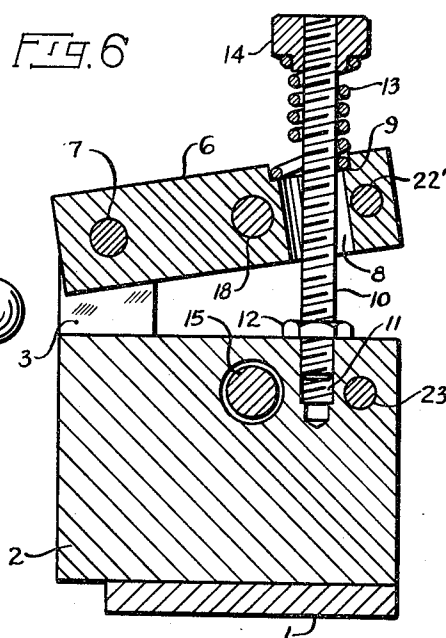
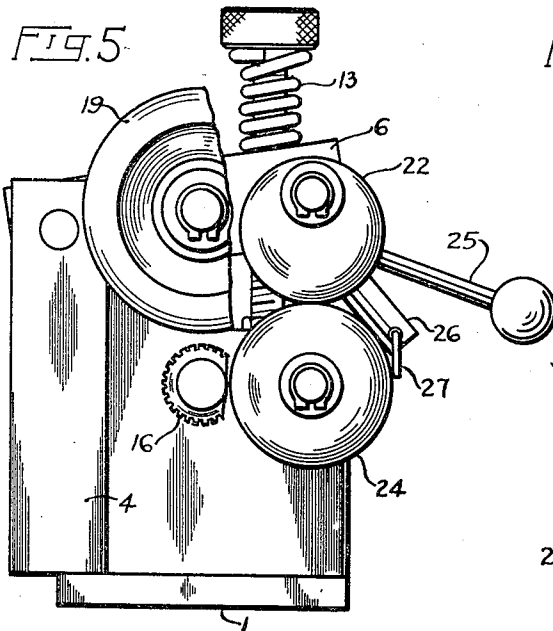
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FABRIC FEED DEVICE FOR SEWING MACHINES

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11 Claims. (Cl. 112—214)

The present invention is directed to sewing machines, more particularly to a device adapted to be attached to the bed of such a machine for the purpose of feeding fabric thereto.

In many cases it is desired to not only sew a hem on a piece of fabric but also to include therein a cord or the like in order to provide a rolled portion along the edge of the fabric. It is necessary in such case to provide means for feeding the cord and for separately feeding the fabric and to cause said elements to meet in the proper relationship and to be drawn through the sewing machine.

The present invention is directed to a device of the character described, it being among the objects of the present invention to provide a fabric feeding device which is relatively simple in construction and highly effective in operation.

It is also among the objects of the present invention to provide a device of the character described, which may be attached to various types of sewing machines and which is a complete unit in itself, requiring only attachment to a source of power.

In practicing the present invention there is provided a feeding device consisting of a base with a shaft in said base adapted to be rotated, usually by the source of power for the sewing machine and usually connected to the main shaft thereof. There is provided a roll on the end of the shaft, said roll being corrugated, the fabric being adapted to pass over said roll.

There is also provided an idler roll on a stub shaft which is adapted to contact the first mentioned roll. It has a peripheral groove in order to accommodate the rolled edge of the fabric and to frictionally engage it while the remainder of said idler frictionally engages the fabric itself. The idler is mounted on a pivoted arm which is biased towards the base and means are provided for raising the arm when feeding of the fabric is no longer required. The device is preferably placed on the sewing machine behind the needle although it may be utilized to feed the fabric in other positions, if desired.

In the accompanying drawing constituting a part hereof, in which like reference characters indicate like parts, and in which:

Fig. 1 is a front elevational view of a fabric feed device made in accordance with the present invention;

Fig. 2 is a side elevational view thereof, some parts being broken away for clearness;

Fig. 3 is a vertical cross-sectional view taken along line 3—3 of Fig. 2;

Fig. 4 is a detailed fragmentary view showing the roll and idler in operation;

Fig. 5 is a view similar to Fig. 2 showing the arm in raised position;

Fig. 6 is a vertical cross-sectional view taken along line 6—6 of Fig. 1;

Fig. 7 is a side elevational view of a modified form of the device, and

Fig. 8 is a front view thereof.

Referring to Figs. 1 to 6 inclusive, there is provided a plate 1 which may be secured to the bed of a sewing machine, having fixed thereto a base 2. A pair of brackets 3 and 4 on opposite sides of base 2 extend upwardly and are secured thereto by bolts 5.

An arm 6 is hinged or pivoted at 7 between brackets 3 and 4. It has an opening 8 having a shoulder 9 at the upper end thereof. A threaded rod 10 is held in threaded opening 11 and base 2 and is fixed in position by lock nut 12. At the upper end thereof is a spiral spring 13, the lower end of which fits onto shoulder 9 and the upper end bears against tension adjusting screw 14.

A shaft 15 has its right hand end fitted with a pulley or other means, not shown, for connection to a source of power. It is journaled in base 2 and carries at its left end a roll 16 having longitudinal corrugations 17. A stub shaft 18 has at the left end an idler roll 19 having a central peripheral groove 20 therein.

A cam 22 is mounted on stud 22' fixed in the forward end of arm 6. Immediately below the same and secured in base 2 is a similar stud 23 carrying follower 24. A handle 25 extends from cam 22 and permits manual operation thereof to raise or lower frame 6. There is also provided an extension 26 on cam 22 having a chain 27 extending therefrom and secured to one end of lever 28 pivoted at 29 on base 2. An operating rod 30 extends downwardly from the opposite side of said lever.

In operation of the device, fabric 31 as shown in Fig. 4, has its edge rolled around cord 32, the assembly resting in groove 20 of idler 19. Handle 25 is in the position shown in Fig. 1 so that idler 19 contacts roll 16. Power is applied to the sewing machine, shaft 15 being operatively connected to said source of power, causing rotation of roll 16 and operation of the sewing machine to form hem or stitch 33. The rotation of roll 16 draws the fabric from the needle because groove 20 frictionally engages the corded edge and the flat part of the idler engages the flat part of the fabric.

Rod 30 generally extends below the bed of the machine and is coupled either with a foot pedal or with a device actuated by the knee of the operator. Thereby the raising and lowering of arm 6 may be accomplished by the operator without the use of hands.

In the modification shown in Figs. 7 and 8 the general arrangement is as shown in Figs. 1 to 6. In the first described modification, the cam 22 and follower 24 were placed on the side of base 2 adjacent to roll 16 and idler 19. Such an arrangement is desirable in certain types of sewing machines where there is very little space for the mechanism. In other machines where there is ample space, the cam and follower are placed on the right hand side of base 2, as shown in Figs. 7 and 8. In such case the lever 28 is not attached to the base itself. The pivot 29' thereof is journaled in bracket 35 which rests upon and is fixed to an extension 36 of plate 1. Said plate may be considered a part of base 2. The operation of this form of device is substantially identical with the operation as described above.

In order to operate cam 22 without using the hand, there is provided means for operation by the knee. The lower end of rod 30 contacts an inclined shoe 38 secured to angle 39, which in turn is fixed in bracket 40, the upper end of which is pivoted at 41 to the under side of plate 1. Downwardly extending arm 42 has one end secured to bracket 40 and has a knee pad 43 at its other end. The movement of the knee to the right swings shoe 38 upwardly and to the left lifting rod 30 and pulling down extension 26 to raise arm 6. This leaves the hands of the operator free for application to other operations of the machine.

I claim:

1. A fabric feed device adapted to be placed in aline-

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ment with fabric being sewn on a sewing machine which comprises a base, a shaft journaled in said base and having means for rotating the same, a roll on the end of said shaft over which said fabric is adapted to pass, an arm hinged to said base, a stub shaft carried by said arm and parallel to said first shaft, an idler roll on said stub and adapted to contact said roll, a peripheral groove centrally of said idler, spring means on said arm and base biasing said arm toward said base, a cam and cooperating follower mounted on said arm and base, the movement of said cam adapted to raise said arm against the tension of said spring, and a handle on said cam.

2. A feed device according to claim 1 characterized in that there is a lever pivoted on said base and a connection from said cam to one side of said lever.

3. A feed device according to claim 1 characterized in that there is a lever pivoted on said base and a connection from said cam to one side of said lever, and an operating rod on the other side of said lever extending downwardly.

4. A feed device according to claim 1 characterized in that said cam and follower are mounted on a side of said arm and base.

5. A feed device according to claim 1 characterized in that said cam and follower are mounted on a side of said arm and base between said arm and said idler.

6. A feed device according to claim 1 characterized in that there is a lever pivoted on said base and a connec-

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tion from said cam to one side of said lever, said lever being mounted on the front of said base.

7. A feed device according to claim 1 characterized in that a rod mounted in the upper part of said base extends through said arm, said spring surrounding said rod.

8. A feed device according to claim 1 characterized in that a rod mounted in the upper part of said base extends through said arm, said spring surrounding said rod, the upper part of said rod being threaded and an adjusting nut thereon contacting with said spring.

9. A feed device according to claim 1 characterized in that a pair of brackets extend upwardly from the sides of said base, said arm being pivoted between said brackets.

10. A feed device according to claim 1 characterized in that said roll is longitudinally corrugated and said idler is smooth.

11. A feed device according to claim 2 characterized in that an operating rod is attached to said cam and extends below said base, and means operable by the knee of the operator adapted to raise said operating rod.

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