Sept. 29, 1936. T. ANDERSON ET AL 2,055,470

FOLDING AND PRESSING ATTACHMENT FOR SEWING MACHINES

Filed Dec. 11, 1934 3 Sheets-Sheet 1

Fig. 1.

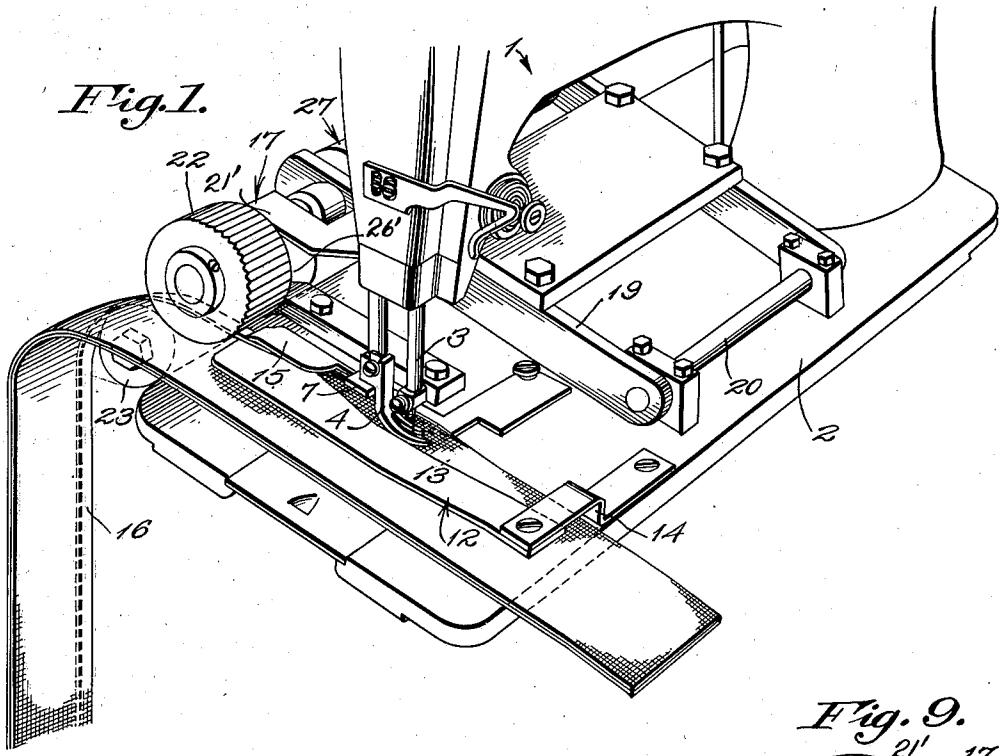


Fig. 9.

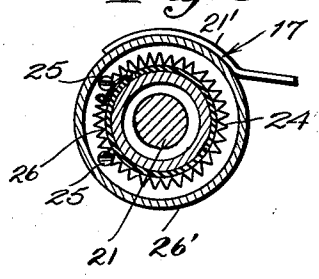
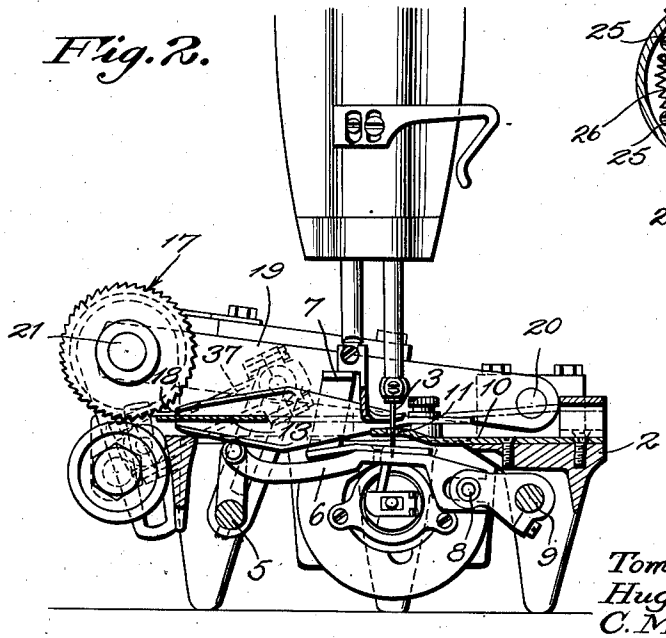


Fig. 2.



Tom Anderson
Hugh Griffith
C. M. Henson
INVENTORS

R. E. Wise.
WITNESS:

BY Victor J. Evans & Co.
ATTORNEY

Sept. 29, 1936. T. ANDERSON ET AL 2,055,470

FOLDING AND PRESSING ATTACHMENT FOR SEWING MACHINES

Filed Dec. 11, 1934 3 Sheets-Sheet 2

Fig. 3.

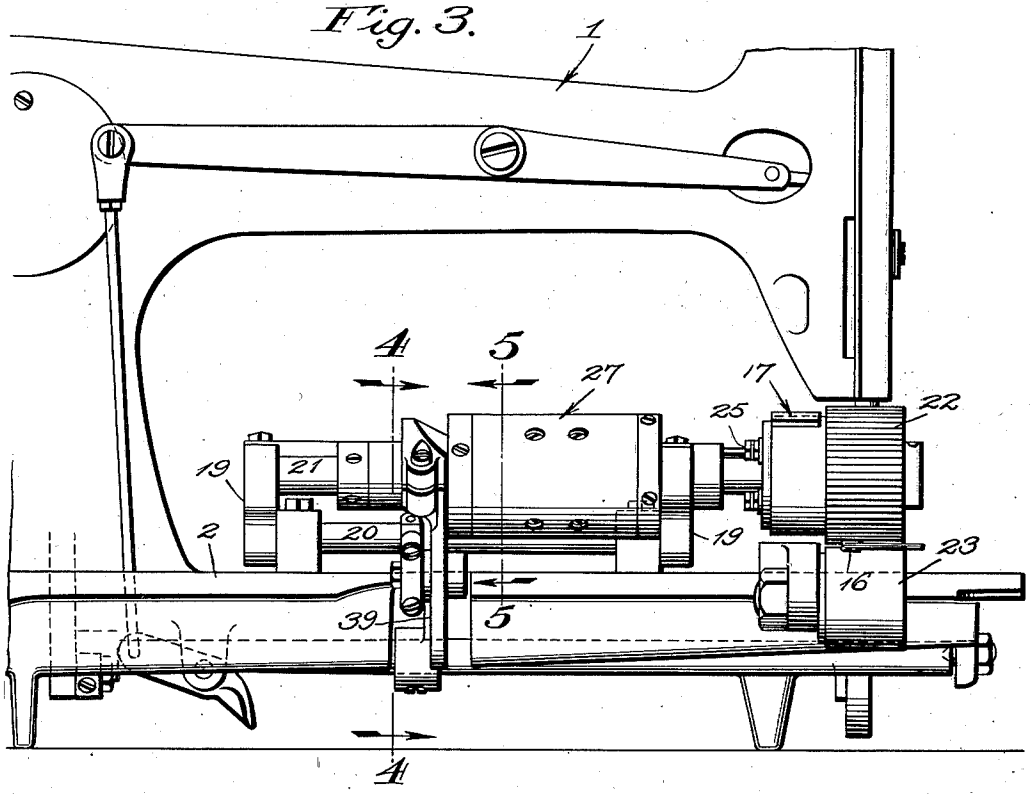


Fig. 4.

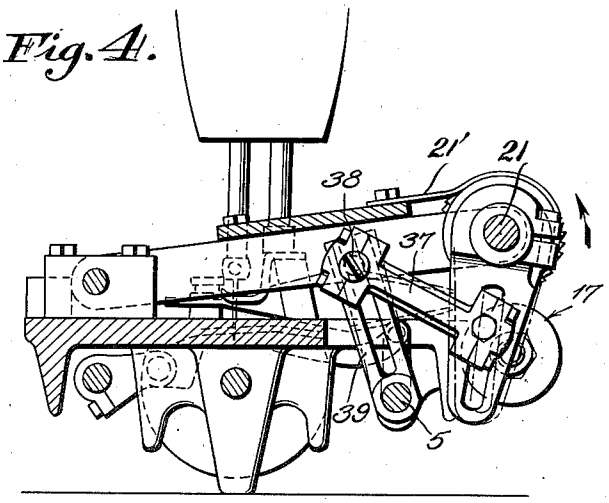
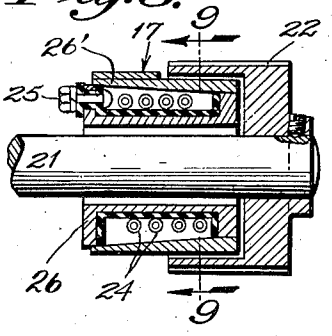


Fig. 8.



Tom Anderson
Hugh Griffith
C. M. Henson
INVENTOR

BY Victor J. Evans & Co.
ATTORNEY

R. E. Wise
WITNESS:

Sept. 29, 1936. T. ANDERSON ET AL 2,055,470

FOLDING AND PRESSING ATTACHMENT FOR SEWING MACHINES

Filed Dec. 11, 1934 3 Sheets-Sheet 3

Fig. 5.

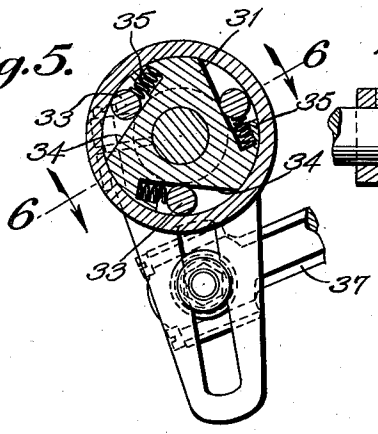


Fig. 6.

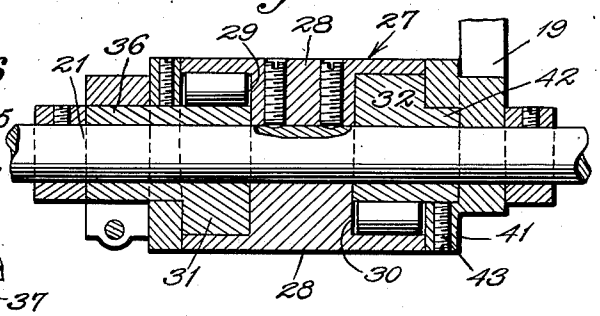


Fig. 7.

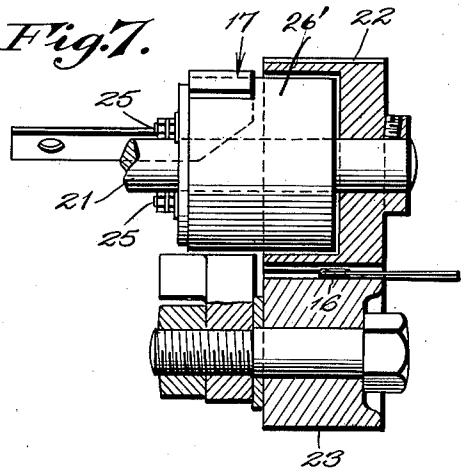
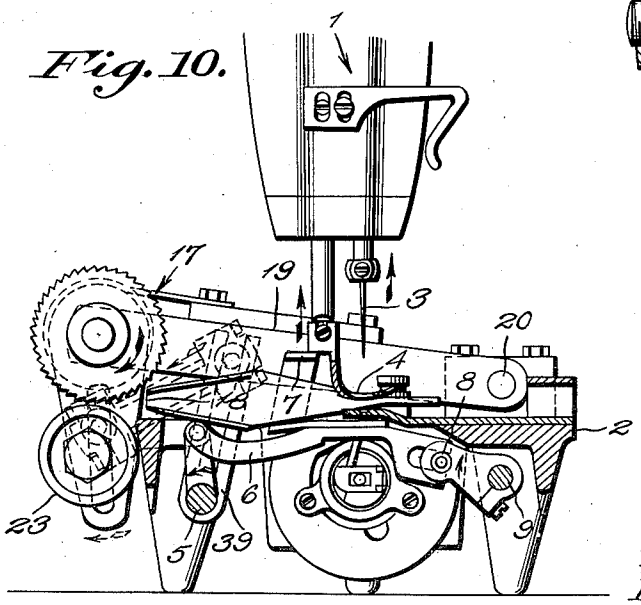


Fig. 10.



Tom Anderson
Hugh Griffith
C. M. Henson
INVENTORS

BY Victor J. Evans & Co.
ATTORNEY

R. E. Wise
WITNESS:

Patented Sept. 29, 1936 2,055,470

UNITED STATES PATENT OFFICE

2,055,470

FOLDING AND PRESSING ATTACHMENT FOR SEWING MACHINES

Tom Anderson and Hugh Griffith, Hartwell, and Carlton M. Henson, Athens, Ga.

Application December 11, 1934, Serial No. 756,998

6 Claims. (Cl. 112—217)

This invention relates to a folding and pressing attachment for sewing machines and has for the primary object the provision of a device of this character which may be easily and quickly installed on a conventional type of sewing machine for automatically folding and pressing the cloth as it leaves the sewing needle, thereby obviating a separate machine from the sewing machine for the stated operation and the manpower necessary therefor. The attachment also acts to feed the cloth past the sewing needle of the sewing machine, thus eliminating the use of the ordinary cloth feeding device of the sewing machine.

With these and other objects in view this invention consists in certain novel features of construction, combination and arrangement of parts to be hereinafter more fully described and claimed.

For a complete understanding of the invention, reference is to be had to the following description and accompanying drawings, in which

Figure 1 is a fragmentary perspective view showing a sewing machine with an attachment applied thereto and constructed in accordance with our invention.

Figure 2 is a transverse sectional view showing the means for folding the fabric and pressing said fabric after leaving the needle.

Figure 3 is a side elevation illustrating the sewing machine with the attachment applied thereto.

Figure 4 is a sectional view taken on the line 4—4 of Figure 3.

Figure 5 is a detail sectional view showing a clutch mechanism, taken on the line 5—5 of Figure 3.

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

Figure 7 is a fragmentary sectional view showing the pressing mechanism.

Figure 8 is a fragmentary sectional view showing the heating element for one of the pressing elements.

Figure 9 is a sectional view taken on the line 9—9 of Figure 8.

Figure 10 is a transverse sectional view showing the needle of the sewing machine raised and the presser foot raised by our invention.

Referring in detail to the drawings, the numeral 1 indicates a conventional type of sewing machine wherein the bed plate is indicated by the character 2, the vertical movable needle by the character 3 and the presser foot by the character 4. A sewing machine of this character employs under the bed plate 1 an oscillating shaft 5 employed for imparting movement to the usual fabric feeding mechanism and adapting our invention to the machine the fabric feeding mechanism is omitted, that is, the serrated plate or shoe thereof is removed from the oscillating arm 6 and substituted in lieu thereof is a bracket 7 provided with a vertically arranged portion to engage with the presser foot 4 for the purpose of causing upward and downward movement of the presser foot. The arm 6 of the machine of this character besides reciprocating also has a slight upward and downward movement due to the connection 8 with the shaft 9. The omission of the fabric feeding plate or mechanism requires the employment of a fabric supporting plate 10 apertured, as shown at 11, to permit the needle 3 to pass therethrough after its passage through the fabric supported by the plate 10 and held down by the presser foot.

A fabric feeding mechanism 12 is mounted on the bed plate 1 and consists of an elongated plate 13 attached to the bed plate 1 and spaced therefrom by a bracket 14. A portion of the plate 13 is disposed laterally of the presser foot 4 and needle 3 so as not to interfere with the operation of said parts but acts as a guide for the movement of the fabric over the bed plate 1 and under the presser foot 4, the plate 10 also acting to guide the fabric as well as support the fabric during its movement relative to the needle and presser foot. A folding flange 15 is integral with the plate 13 at the rear of the presser foot and overhangs the plate 13 to cause a portion of the fabric to fold over the plate 13 during its movement relative to the latter so that the fabric on leaving the plate 13 will have an overlap or seam 16 with the stitching thereunder. To crease or fold the overlap tightly against the major portion of the fabric a presser 17 is provided and which will be hereinafter more fully described in detail. The flange 15 and a portion of the plate 13 converge, as shown in Figure 10, to form a restricted throat 18 through which the folded fabric passes.

A frame 19 is hinged to the bed plate 2, as shown at 20, and rotatably supports a shaft 21 to which is secured a combined pressing and heating roller 22 cooperating with a supporting roller 23 in pressing the overlap of the fabric. The roller 22 engages on top of the fabric while the roller 23 has the fabric passing thereover and is suitably supported on the bed plate and capable of rotation. The roller 22 is chambered to receive an electrical heating means, consist-

ing of spaced inner and outer shells connected to one another, the inner shell being designated by the character 26 and the outer shell by the character 26'. The inner shell has the shaft 21 extending therethrough and is free of said shaft and the outer shell is secured to an arm 21' mounted on the bed plate to hold said shells against rotation. The inner shell supports an electrical heating coil 24, the terminals 25 of which are adapted to be connected to an electric circuit (not shown).

A clutch mechanism 27 is mounted on the shaft 21 for imparting to the shaft a step by step rotation in one direction from an oscillatory drive. The clutch mechanism 27 includes a housing 28 secured to the shaft 21 and is formed with chambers 29 and 30 in which operate clutch elements 31 and 32 both mounted on the shaft 21 for rotation free of said shaft. The clutch elements 31 and 32 cooperate with the walls of the chambers 29 and 30 in forming overrunning clutches each employing rollers 33 operating against inclined walls 34 of said clutch elements and the annular walls of the chambers of the clutch housing. Springs 35 act on the rollers to establish wedging action between the clutch elements and the clutch housing. The clutch element 32 is reversely arranged to that of the clutch element 31 and the purpose of the clutch element 32 is to prevent reverse rotation of the shaft 21, the latter being driven in one direction in a step by step movement due to the clutch element 31 receiving an oscillatory movement. An extended sleeve 36 is provided on the clutch element 31 and has secured thereto a connecting rod 37 which in turn has a pin and slot connection 38 with an oscillatory arm 39 secured to the shaft 5. The shaft 5 or oscillatory movement thereof is timed with the reciprocation of the needle 3 so that the rotation of the roller 22 will be at the time when the needle is raised and disengaged from the fabric so that said roller besides pressing the fabric will feed the fabric through the machine. The roller 22 has its face serrated to aid the roller in obtaining a grip on the fabric for feeding the latter through the sewing machine. Thus it will be seen that the attachment can be applied to a conventional type of sewing machine for the purpose of folding and pressing the fabric after being stitched and at the same time applying a desired heat to the fabric so that it will retain the crease or fold and also acting to feed the fabric through the sewing machine.

The frame 19 employed for supporting the shaft 21 on the bed plate 1 carries a collar 41 fitting over an extension 42 of the clutch element 32 and is secured thereto by a set screw 43. Thus it will be seen that the clutch element 32 is held against rotation on the sewing machine and should the clutch housing 28 attempt to rotate in a reverse direction the rollers of the clutch element 32 will wedge and prevent said rotation. However, the rotation of the clutch housing 28 in the desired direction will be permitted due to the rollers of the clutch elements 32 freeing their wedging action with the clutch housing. It is to be understood that the clutch element 31 receives an oscillatory movement and due to the clutch mechanism 27 the clutch housing 28 thereof is rotated in one direction in a step by step movement by the oscillation of the clutch element 31.

An attachment of the character described being readily adaptable to a sewing machine permits the folding and pressing operation to be accomplished by the sewing machine, consequently eliminating a separate machine for carrying out the folding and pressing of the fabric and the manpower necessary for the operation thereof.

Having described the invention, we claim:

1. In combination with a sewing machine, a fabric folding mechanism secured on the sewing machine to fold fabric as the latter leaves said sewing machine, a roller journaled on the sewing machine and having the folded fabric passing thereover, a frame movably mounted on the sewing machine, a shaft journaled in said frame, a combined pressing and heating roller secured on said shaft and cooperating with the first-named roller in pressing the folded fabric, and means for rotating the shaft in a step by step movement by the sewing machine.

2. In combination with a sewing machine, a fabric folding mechanism secured on the sewing machine to fold fabric as the latter leaves said sewing machine, a roller journaled on the sewing machine and having the folded fabric passing thereover, a frame movably mounted on the sewing machine, a shaft journaled in said frame, a combined pressing and heating roller secured on said shaft and cooperating with the first-named roller in pressing the folded fabric, electrical heating means for the second-named roller, and means for rotating the shaft in a step by step movement from the sewing machine.

3. In combination with a sewing machine, a fabric folding mechanism secured on the sewing machine to fold fabric as the latter leaves said sewing machine, a roller journaled on the sewing machine and having the folded fabric passing thereover, a frame movably mounted on the sewing machine, a shaft journaled in said frame, a combined pressing and heating roller secured on said shaft and cooperating with the first-named roller in pressing the folded fabric, electrical heating means for the second-named roller, a clutch mechanism connected to the shaft for rotating the latter in one direction and to prevent reverse rotation of said shaft, and means between the sewing machine and the clutch mechanism to actuate the latter.

4. In combination with a sewing machine, a fabric folding mechanism secured on the sewing machine to fold fabric as the latter leaves said sewing machine, a roller journaled on the sewing machine and having the folded fabric passing thereover, a frame movably mounted on the sewing machine, a shaft journaled in said frame, a combined pressing and heating roller secured on said shaft and cooperating with the first-named roller in pressing the folded fabric, electrical heating means for the second-named roller, a clutch mechanism connected to the shaft for imparting to the latter rotation in a step by step movement in one direction and adapted to hold the shaft against reverse rotation, and linkage between an oscillating part of the sewing machine and said clutch mechanism for effecting operation of the latter.

5. In combination with a sewing machine having an oscillating mechanism and a presser foot, means between said presser foot and said mechanism to cause actuation of the presser foot in accordance with the movement of the needle of the sewing machine, a fabric folding mechanism secured to the sewing machine to fold the latter as the latter moves away from the presser foot, a frame hinged to the sewing machine, a roller journaled in the sewing machine to receive the

fabric as the latter leaves the folding mechanism with a fold therein, a shaft journaled in the frame, an electrically heated roller secured to said shaft and having a knurled periphery engaging the fabric as the latter passes over the first-named roller, and means between the shaft and the oscillating mechanism to impart rotation to the second-named roller in one direction with a step by step movement.

6. In combination with a sewing machine having an oscillating mechanism and a presser foot, means between said presser foot and said mechanism to cause actuation of the presser foot in accordance with the movement of the needle of the sewing machine, a fabric folding mechanism secured to the sewing machine to fold the latter as the latter moves away from the presser foot, a frame hinged to the sewing machine, a roller journaled in the sewing machine to receive the fabric as the latter leaves the folding mechanism with a fold therein, a shaft journaled in the frame, an electrically heated roller secured to said shaft and having a knurled periphery engaging the fabric as the latter passes over the first-named roller, a clutch mechanism connected to the shaft for imparting rotation to the second-named roller in one direction in a step by step movement and to prevent reverse rotation of said second roller, and linkage between the oscillating mechanism and the clutch mechanism to effect operation of the latter.

TOM ANDERSON.
HUGH GRIFFITH.
CARLTON M. HENSON.