

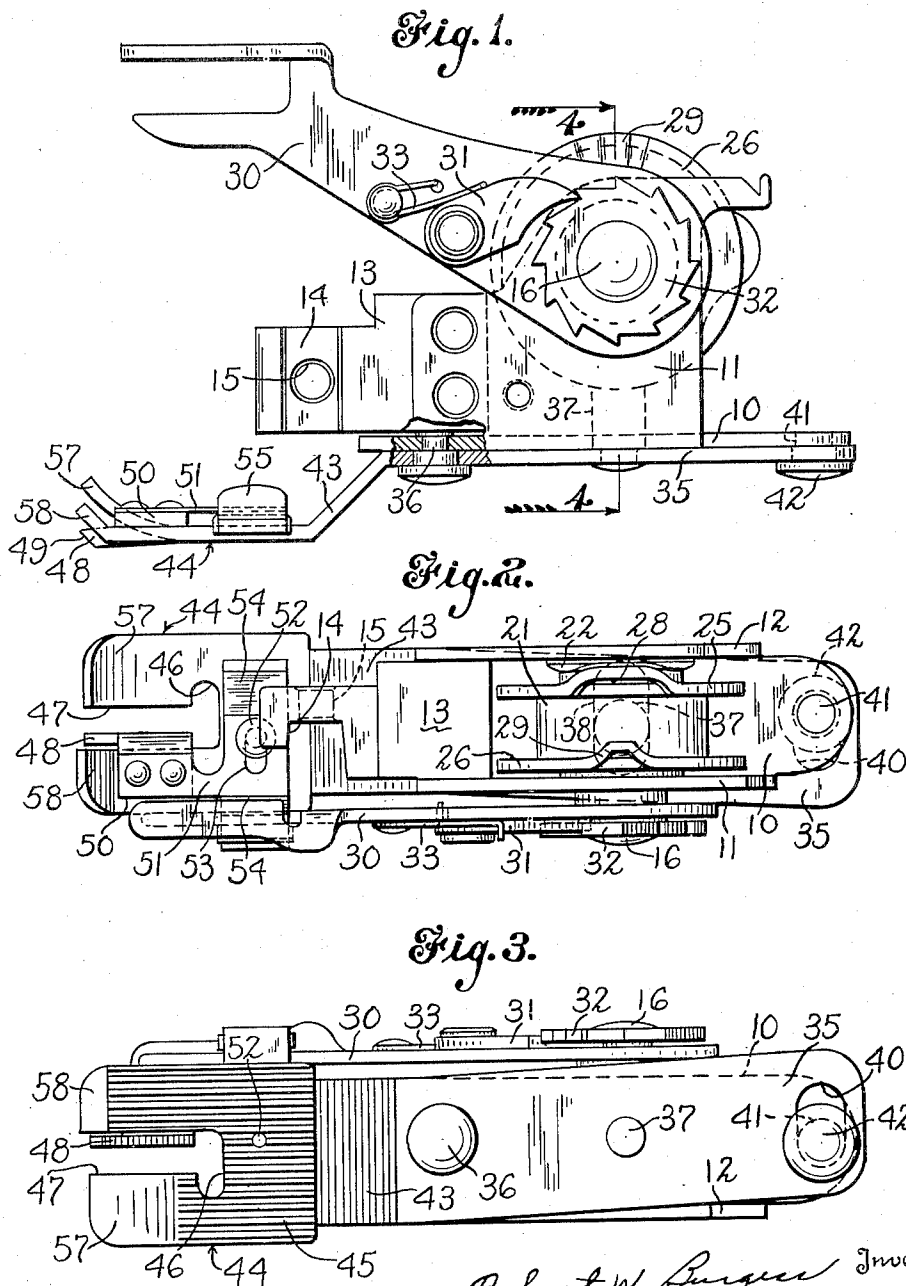
April 15, 1952

R. W. BURGESS ET AL
SEWING MACHINE ATTACHMENT

2,592,653

Filed May 4, 1949

2 SHEETS—SHEET 1



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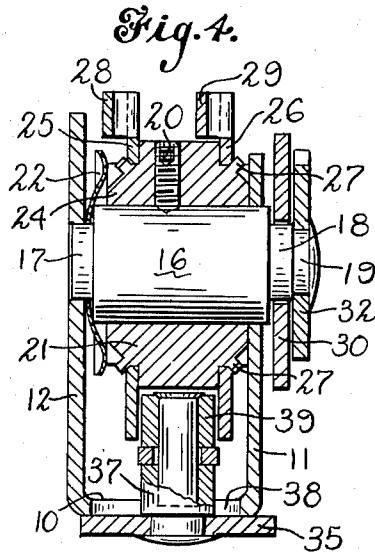
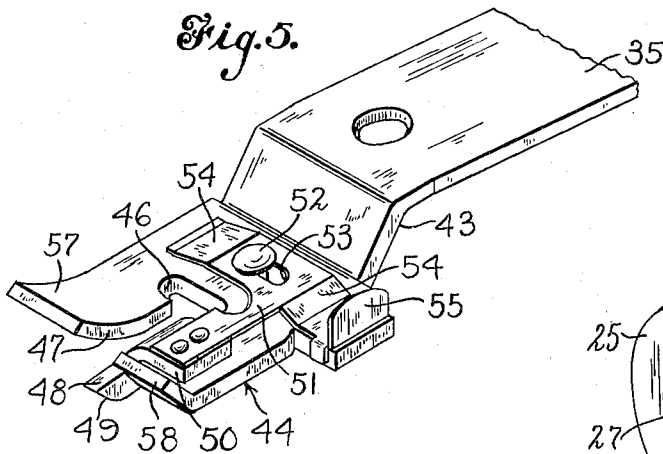
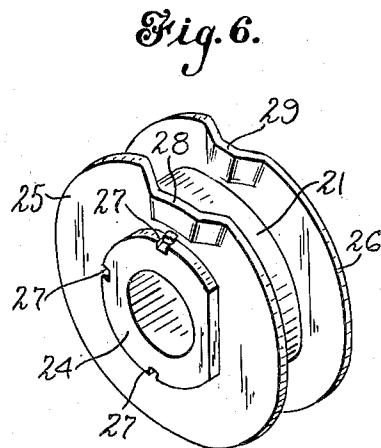
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2,592,653

Filed May 4, 1949

2 SHEETS—SHEET 2



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2,592,653

SEWING MACHINE ATTACHMENT

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Application May 4, 1949, Serial No. 91,292

4 Claims. (Cl. 112—160)

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This invention relates to an attachment for sewing machines and more particularly to an attachment which may be applied to the ordinary sewing machine designed for household use.

It is desirable that a household sewing machine be equipped for accomplishing many kinds of work in addition to plain sewing, and the present invention relates to an attachment which is designed to perform such work as hemming, for example, and to effect a so-called "blind" stitch in sewing a hem. To effect this result the attachment is adapted to produce a number of stitches in a line and at regular intervals produce an offset stitch or a stitch spaced from the line of stitches above referred to.

This is effected by means of a workholder or foot which is adapted to be shifted to one side at regular intervals in the operation of the machine and then to be returned to its original position so that the stitch or stitches made after the work has been shifted will lie in a line parallel to, but spaced from, the line of stitches made when the workholder is in its usual or normal position. The normal position is that occupied by the workholder the greater part of the time.

It is contemplated by the invention to provide a blind-stitch or hemming attachment which will be of very simple construction and which may be manufactured at a relatively low cost, and which at the same time will be satisfactory in operation and relatively easy for the operator to attach and use.

One object of the present invention is to provide a new and improved hemming attachment for household sewing machines.

A further object of the invention is to provide a hemming or blind-stitch attachment for sewing machines which will be of relatively simple construction and will be provided with relatively few moving parts subject to wear.

Still another object of the invention is to provide a hemming or blind-stitch attachment for sewing machines comprising elements which may be readily and accurately manufactured and assembled into a completed device which will operate in a satisfactory manner.

To these and other ends the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawings:

Fig. 1 is a side elevational view of a sewing-machine attachment embodying our improvements;

Fig. 2 is a top plan view of the attachment;

Fig. 3 is a bottom plan view of the attachment;

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Fig. 4 is a sectional view on line 4—4 of Fig. 1; Fig. 5 is a perspective view of the forward end of the workholding foot; and

Fig. 6 is a perspective view of the cam.

To illustrate a preferred embodiment of the invention, we have shown in the drawings a sewing-machine attachment comprising a supporting frame of U-shaped form, this frame having a base or web 10 and upstanding parallel spaced sides 11 and 12, the base being extended beyond the sides at both forward and rear ends thereof. Secured between the sides 11 and 12 is the adapter 13 having a recess 14 adapted to receive the presser bar of the usual sewing machine, and an opening 15 to receive the screw by which the attachment may be secured to the presser bar. The adapter is rigidly secured to the frame so that the attachment may be properly held in place upon the presser bar.

Rotatably mounted between the spaced upright members 11 and 12, as shown more especially in Fig. 4, is a shaft 16, this shaft having a reduced end 17 mounted in the side member 12 and provided at the other end with reduced or shoulder portions 18 and 19 which are disposed exteriorly of the side member 11. Secured upon the shaft by a set screw 20 is a hub 21, this hub being urged against the side member 11 by a spring washer 22 which fits over the end 17 of the shaft.

As shown more especially in Figs. 4 and 6, this hub is provided with reduced end portions 24 of non-circular form and cam disks 25 and 26 are mounted upon these reduced ends, the disks having non-circular openings therein whereby they will be non-rotatably mounted on the hub. It will be seen that the disks are thus held against rotation upon the hub and as shown they are held against lateral or axial movement by reason of the fact that the metal of the reduced ends of the hub is staked over at spaced points, as shown at 27, against the inner portions of the disks. The latter will, therefore, be securely positioned upon the hub against any movement relative to the hub.

These disks are provided with cam surfaces 28 and 29, the former being offset outwardly with respect to the center of the hub and the latter being offset inwardly with respect to the hub, the offsets being relative to the remainder of the periphery of the disks. While as many of these camming offset surfaces may be provided around the periphery of the disks as is desired, only one is shown in the drawings, so that as illustrated and as will be hereinafter explained, only one offset stitch would be performed during a com-

plete revolution of the cam member which comprises the hub and disks.

Rotatably mounted upon the portion 18 of the shaft 16 is a fork arm 30 which serves as the actuating arm of the attachment and which is designed to be connected with the needle bar in a well-known manner. Pivotally carried by the fork arm 30 is a pawl 31 adapted to be engaged with a ratchet wheel 32 rigidly or non-rotatably secured on the portion 19 of the shaft 16 of the cam. The pawl 31 is urged against the teeth of the ratchet wheel by the spring 33. As will be obvious, during the reciprocation of the needle bar the fork arm will be oscillated with respect to the shaft 16 and the engagement of the pawl with the teeth of the ratchet wheel 32 will effect a step-by-step movement of the shaft 16 and the cam members carried thereby.

A lever 35 is pivoted at 36 to the base or web member 10 at the under side thereof. Rearwardly of the pivot this member abuts the base closely and is provided with a pin 37 which extends upwardly through an opening 38 in the web member and upon its upper end carries a roller 39 which is disposed between the cam disks 25 and 26. Adjacent its rear end, the lever 35 is provided with a slot 40 which receives a pin 41 secured to the base, the pin being provided with an enlarged head 42 below the lever 35 to hold the lever against the base.

Forwardly of the pivot 36, the lever 35 is provided with an inclined portion 43 and this member then extends forwardly and is provided with a presser foot 44 adjacent its forward end, which presser foot is provided on its underside with a roughened surface 45 to engage the material upon which the attachment is operated.

The presser foot 44 is provided with a laterally elongated needle opening 46 and a forwardly extending slot 47, and a cloth guide 48 extends downwardly through this slot. As shown more especially in Figs. 1 and 5, the lower surface of this cloth guide extends upwardly as at 49 and this member is provided with a laterally extending arm 50 which overlies a portion of the presser foot and is secured to a flexible plate-like spring member 51. This member is secured to the presser foot by a pin 52 which extends through an elongated slot 53 in the spring.

The spring member 51 is inclined downwardly at its side edges as shown at 54 so that it is urged into frictional engagement with the lower surface of the head of the pin 52. A finger piece 55 is provided on the spring member by which it may be adjusted laterally with respect to the presser foot in order to adjust the cloth guide 48. When the spring member is moved laterally to dispose the cloth guide in its proper position, its frictional engagement with the head of the pin 52 will hold it in the adjusted position.

In operation the fork arm 30 is oscillated in a vertical plane by the movement of the needle bar to which it is attached. As previously described, the oscillations of the fork arm will, through the engagement of the pawl 31 with the teeth of the ratchet wheel 32, effect rotation of the cam, comprising the hub 21 and the disks 25 and 26, in a step-by-step movement. So long as the roller 39 upon the pin 37 engages the straight portion of the cam track between the disks 25 and 26, the workholding presser foot 44 will not be moved and the result will be straight or plain sewing just as might be done if the attachment were not used. When, however, the cam member has been moved to the position in which the

roller 39 upon the pin 37 engages the cam surfaces 28 and 29, this pin and the rear end of the lever 35 will be moved laterally, thus moving the workholding presser foot, and the material which is being operated upon, laterally so as to effect a stitch at one side of the line of stitches previously made. When the cam has been moved through a further step by continued oscillation of the fork arm 30, the roller 39 will again enter the straight portion of the cam track and the presser foot will be shifted back to its former position and stitching will be resumed in the line followed previously to the shifting of the presser foot by the cam surfaces 28 and 29.

As shown, the ratchet wheel 32 is provided with twelve teeth and the cam surfaces 28 and 29 are provided at only one place upon the cam disks 25 and 26 so that there is a lateral shifting and, therefore, a zig-zag stitch once in every twelve stitches made by the sewing machine. If it is desired that the zig-zag stitches be made more often, additional cam surfaces may be provided about the disks 25 and 26.

The cam disks 25 and 26 are of sheet metal and may be readily manufactured by a stamping operation and secured to the hub 21. Thus, the cam assembly may be manufactured very economically.

It may be noted that the section of the foot 44 at one side of the slot 47 is shaped differently from the section on the other side of the slot. Each of these sections has a horizontal portion and an upwardly directed end portion. However, the upwardly directed end 57 of one section is longer and the horizontal portion shorter than in the case of the corresponding part 58 of the other section and the end 57 is brought up on a gradual curve. This enables the foot to pass over a fold in the material on which work is being done.

While we have shown and described a preferred embodiment of our invention, it will be understood that it is not to be limited to all of the details shown, but is capable of modification and variation within the spirit of the invention and within the scope of the claims.

What we claim is:

1. Cloth-guiding means for the work-holding foot of a sewing-machine attachment, said means comprising a cloth guide, and a member on which said guide is carried, said member being of resilient material and having a bowed portion provided with a slot and a fastening member passing through said slot and engaged with the foot for frictionally holding the cloth guide in adjusted positions on the foot.

2. In a sewing machine attachment, a frame having upstanding side walls through a portion of its length, a shaft journaled in said side walls and extending laterally beyond one of said walls, a ratchet wheel fixed to the extended end of said shaft, a fork arm pivotally embracing said shaft between said ratchet wheel and the adjacent side wall and carrying a pawl engaging said ratchet wheel, a hub fixedly secured on said shaft between said side walls and having reduced end portions, cam disks fixed to the reduced end portions of said hub and forming between them a cam track, and a lever pivoted to said frame at the under portion thereof forwardly of the vertical transverse plane of said shaft and extending forwardly and rearwardly from its pivot, said lever carrying rearwardly of its pivot and upstanding member disposed within said cam track, said lever being provided forwardly of its pivot with a work-holding foot.

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3. In a sewing machine attachment, a frame having upstanding side walls through a portion of its length, a shaft journaled in said side walls and extending laterally beyond one of said walls, a ratchet wheel fixed to the extended end of said shaft, a fork arm pivotally embracing said shaft between said ratchet wheel and the adjacent side wall and carrying a pawl engaging said ratchet wheel, a hub fixedly secured on said shaft between said side walls and having reduced end portions, cam disks fixed to the reduced end portions of said hub and forming between them a cam track, and a lever pivoted to said frame at the under portion thereof forwardly of the vertical transverse plane of said shaft and extending forwardly and rearwardly from its pivot, said lever carrying rearwardly of its pivot an upstanding member disposed within said cam track, said lever being provided forwardly of its pivot with a work-holding foot, said foot being disposed below the plane of the main portion of said lever and being connected to the lever by an integral upwardly and rearwardly sloping portion.

4. In a sewing machine attachment, a frame having upstanding side walls through a portion of its length, a shaft journaled in said side walls and extending laterally beyond one of said walls, a ratchet wheel fixed to the extended end of said shaft, a fork arm pivotally embracing said shaft between said ratchet wheel and the adjacent side wall and carrying a pawl engaging said ratchet wheel, a hub fixedly secured on said shaft between said side walls and having reduced end por-

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tions, cam disks fixed to the reduced end portions of said hub and forming between them a cam track, and a lever pivoted to said frame at the under portion thereof forwardly of the vertical transverse plane of said shaft and extending forwardly and rearwardly from its pivot, said lever carrying rearwardly of its pivot an upstanding member disposed within said cam track, said lever being provided forwardly of its pivot with a work-holding foot, said foot being disposed below the plane of the main portion of said lever and being connected to the lever by an integral upwardly and rearwardly sloping portion, said foot having a slot extending to its forward end and having a cloth guide member extending downwardly through said slot and laterally adjustable in the slot.

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