Aug. 13, 1940. C. W. MUELLER 2,211,286

WORK SUPPORT FOR SEWING MACHINES

Original Filed Aug. 18, 1937 3 Sheets-Sheet 1

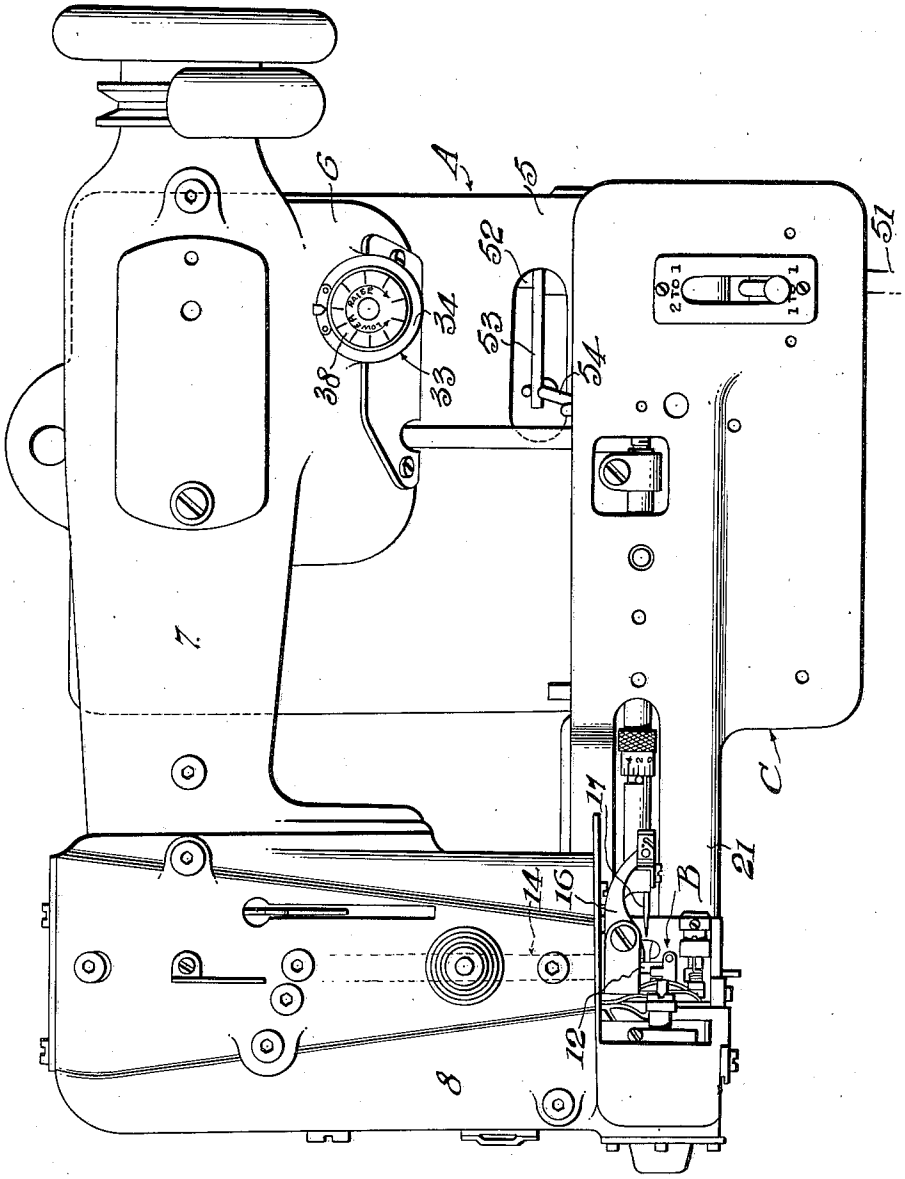

Fig. 1.

Inventor
Charles W. Mueller

By

Attorney

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Fig. 4.

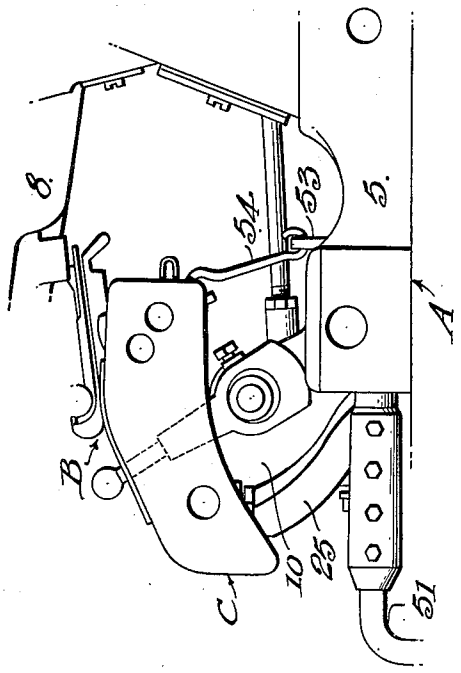
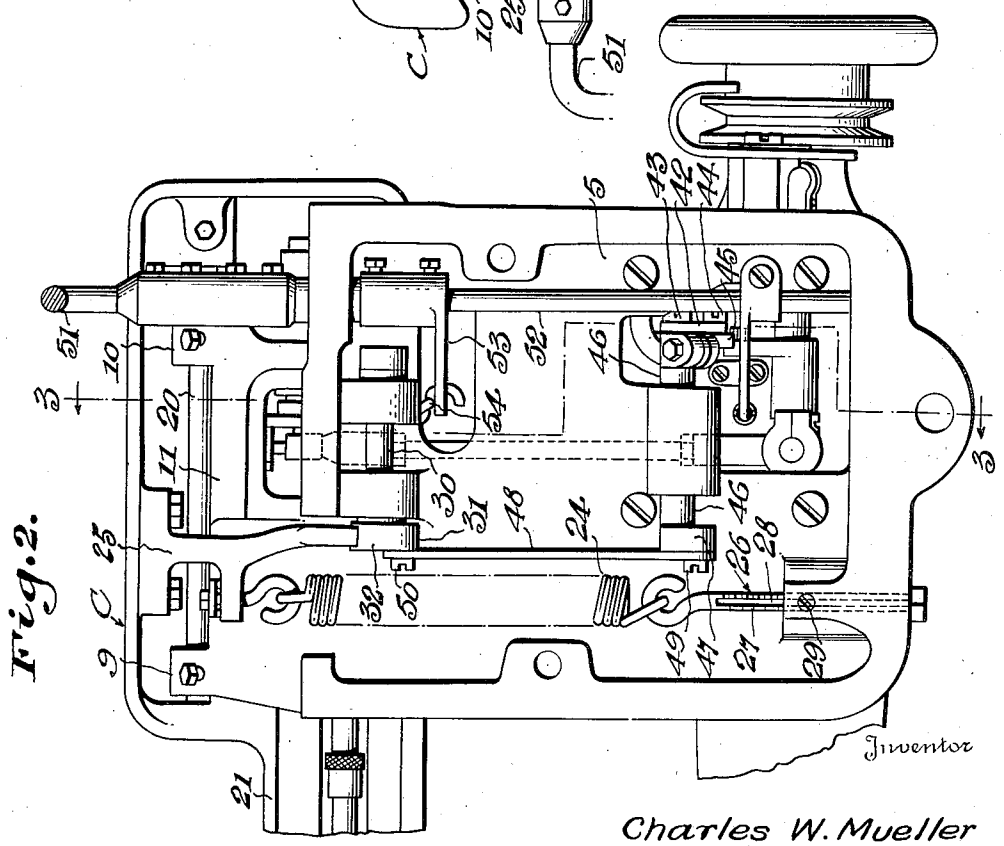


Fig. 2.



Inventor

Charles W. Mueller

By

Chas. J. Dillon

Attorney

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WORK SUPPORT FOR SEWING MACHINES

Original Filed Aug. 18, 1937 3 Sheets-Sheet 3

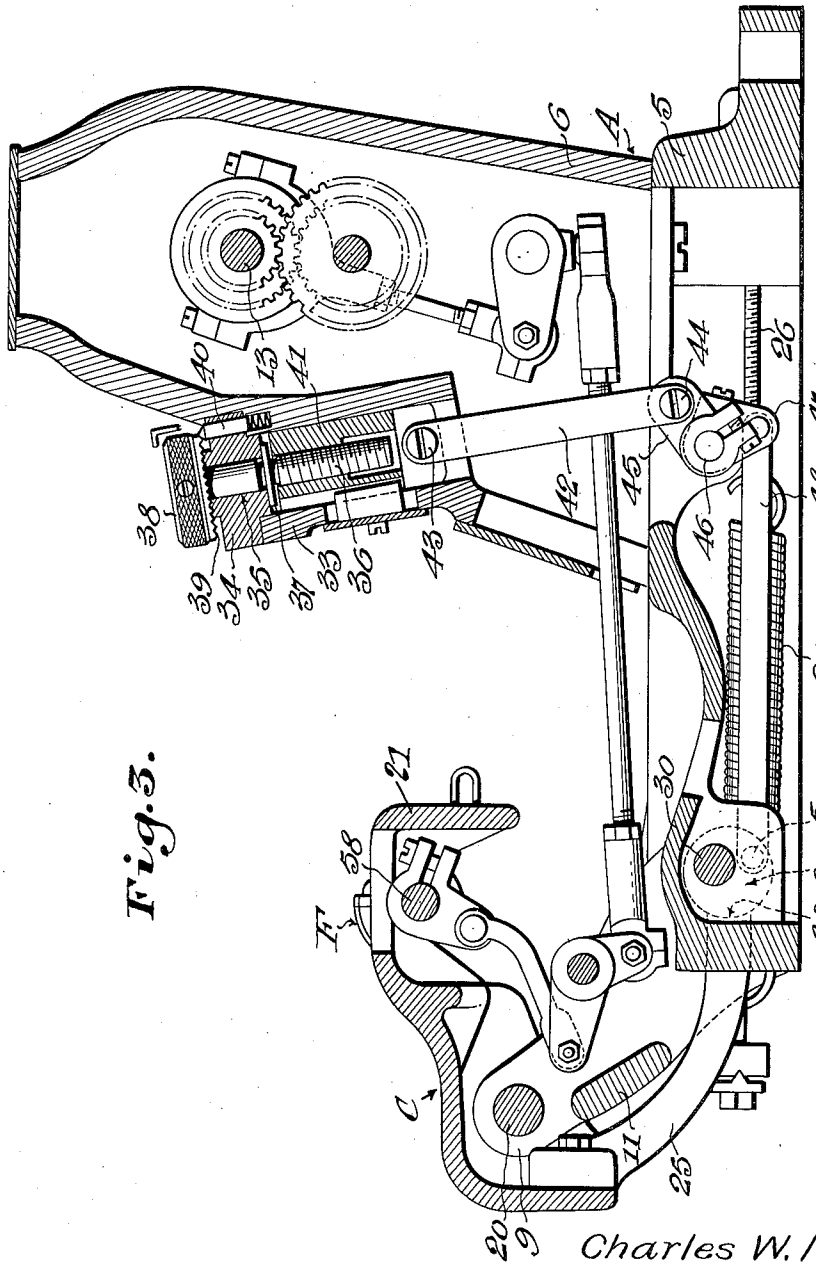

Fig. 3.

Inventor

Charles W. Mueller

By

Chas. J. Dillon

Attorney

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2,211,286

UNITED STATES PATENT OFFICE

2,211,286

WORK SUPPORT FOR SEWING MACHINES

Charles W. Mueller, St. Louis, Mo., assignor to Lewis Invisible Stitch Machine Company, St. Louis, Mo., a corporation of Maine

Original application August 18, 1937, Serial No. 159,785. Divided and this application March 19, 1938, Serial No. 196,971

9 Claims. (Cl. 112—260)

This invention relates to new and useful improvements in sewing machines generally, although more particularly to an adjustable work support thereof.

This application constitutes a division of my copending application Serial No. 159,785, filed Aug. 18, 1937 for improvements in Sewing machines.

The principal object of this invention is to provide a manually operable means of simple construction for adjusting the height of the work support which carries the ridge forming element whereby the operator may readily set the element in proper cooperative relation to the needle.

With the above and other objects in view which will more fully appear, the nature of the invention will be more clearly understood by following the description, the appended claims, and the several views illustrated in the accompanying drawings.

In the drawings:

Figure 1 is a top plan view of a blind stitch sewing machine embodying my invention,

Figure 2 is a bottom plan view thereof,

Figure 3 is a vertical section taken on the line 3—3 of Figure 2 and

Figure 4 is a detail view showing the link connection between the knee-press shaft and the work support.

Like reference numerals designate corresponding parts throughout the several figures of the drawings.

The machine which embodies my invention includes a main frame A having a base 5, a standard 6 rising from the rear right hand corner thereof, and an arm 7 which projects laterally from the upper end of the standard and terminates in a forwardly extending removable arm 8. A pair of spaced posts 9, 10 which are integral with the base 5 and project forwardly from the front edge thereof, are connected by a web 11. These posts 9, 10 are disposed in a general vertical plane in substantial parallelism with the arm 7.

A stationary and horizontal presser foot B is attached to the front end of the arm 8 and is provided with an opening 12. Journaled on the arm 7 and extending longitudinally thereof is a main shaft 13. Journaled in the arm 8 and extending longitudinally thereof is an oscillatory needle shaft which is driven from the main shaft by suitable connections. A needle arm 16 is fixed to the forward end of the needle shaft 14 and carried by said arm is a threaded curved needle 17 which reciprocates in a fixed path across the opening 12 of the presser foot B, the driving connections being such that the penetrating stroke of the needle is from right to left.

A work support C is pivoted on the posts 9, 10 through the medium of a horizontal shaft 20 mounted in said posts, the longitudinal axis of the shaft being disposed in parallelism with the main shaft 13. The left hand end of the work support is provided with a reduced portion or horn 21 which is disposed adjacent the presser foot B and is located in rear of the pivot shaft 20.

Mounted on the work support C and movable upwardly and downwardly therewith, is a reciprocatory ridge forming element F for intermittently projecting a ridge of hemmed fabric upwardly through the presser foot opening 12 into needle penetrating position, said element being fixed to a horizontal shaft 58 journaled in said work support.

The work support C is yieldably held against depression by a strong coil spring 24 which is located within the base 5, the spring being connected at its foward end to a bracket arm 25 which is rigidly connected to and depends from the front edge of the work support, the connection between the bracket and the work support being located in front of the pivot shaft 20. The rear end of the spring is anchored to the base 5 through the medium of a screw 26 whose shank 27 has threadable engagement in the base. The shank 27 is provided with a longitudinal groove 28 for receiving the inner end of a set screw 29 threadably mounted in the base to retain the anchor screw 26 against turning. Thus if it becomes desirable to adjust the tension of the spring 24, the latter is first disconnected from the anchor screw 26, the set screw 29 is then backed out from the groove 28 and the anchor screw is then rotated in the desired direction, after which the parts are reassembled. It will, therefore, be apparent that the spring 24 functions to normally urge the work support C and the ridge-forming element F in an upward direction, i. e., toward the needle path. It is, therefore, necessary to provide a stop for limiting the upward movement of the work support and the ridge forming element, otherwise the element would be projected across the path of the needle. It is also desirable to provide a stop for this purpose which is adjustable whereby the initial setting of the ridge-forming element relative to the needle path may be readily accomplished. To this end, a horizontal shaft 30 is journaled in the base 5 and has its longitudinal axis disposed in parallelism with the pivot shaft 20 of the work

support. Fixed to one end of this shaft 30 is a rock arm 31 having a cam periphery 32. The free end of the bracket arm 25 is normally held in yieldable contact with the cam periphery 32 of said rock arm 31 by the coil spring 24. It will, therefore, be apparent that the rock arm 31 constitutes an adjustable stop for limiting the upward movement of the work support C together with the ridge-forming element F. Manually operable means is provided for rocking the shaft 30 to thereby rock the arm 31 to either raise the work support and the ridge-forming element positively against the tension of the coil spring 24 or to permit the lowering thereof by the action of said spring. For this purpose the standard 6 of the main frame is provided in its front wall with a housing 33 having an exteriorly located upper end and an interiorly located lower end. The upper end of the housing is closed by a cap 34 having a centrally located vertical bore 35 in which is rotatably mounted the upper end of a manually operable screw 36. The screw 36 is provided intermediate its ends with a flange or stop collar 37 which is positioned between the under face of the cap 34 and the upper end of the housing to retain the screw against longitudinal movement with respect to said housing. The upper end of the screw projects above the cap 34 and secured thereon is a disc shaped head 38 having a knurled periphery and provided on its under face with a concentric line of teeth 39 engageable by a spring pin 40 mounted in the cap 34 for frictionally retaining the screw 36 in any position of angular adjustment. It will thus be seen that the screw 36 is capable of rotation in either direction but is retained by the flange 37 and head 38 against longitudinal movement. Slidably mounted within the housing 33 is a nut 41 having threaded engagement with the lower end of the screw 36 whereby upon rotation of the latter the nut will be moved upwardly and downwardly within said housing. A link 42 is pivotally connected at its upper end as at 43 to the nut 41 and has its lower end pivoted as at 44 to a rock arm 45 fixed to one end of a rock shaft 46 which is journaled in the base 5 and has its longitudinal axis disposed in parallelism with the shaft 30. A rock arm 47 is fixed to the other end of the shaft 46 and a link 48 is pivotally connected at one end as at 49 to said rock arm 47 and at its other end as at 50 to the rock arm 31. Thus upon rotation of the screw 36 in one direction the rock arm 31 will be angularly shifted and the cam periphery 32 thereof will move the bracket arm 25 forwardly and upwardly, thereby effecting a positive depression of the work support C together with the ridge-forming element F, and upon rotation of the screw 36 in the opposite direction the rock arm 31 will be angularly shifted so as to permit the coil spring 24 to effect a raising of the work support together with the ridge-forming element F.

When it is desired to insert a fabric into the machine preparatory to the seaming thereof, or to withdraw the seamed fabric from the machine, the work support is depressed a sufficient distance below the presser foot. For this purpose, a knee-press lever 51 is provided. This lever is removably secured to one end of a horizontal rock shaft 52 which is journaled in the base 5 and has its longitudinal axis disposed in a plane at right angles to the pivot shaft 20 of the work support. A rock arm 53 is fixed to the shaft 52 and is connected by a link 54 to the work support C at a point in rear of said pivot shaft 20. Thus upon movement of the knee-press lever 51 to the right, the work support C will be swung downwardly against the tension of the coil spring 24, and upon release of said knee-press lever said spring will return the work support to its initial position.

It is of course to be understood that the details of structure and arrangement of parts may be variously changed and modified without departing from the spirit and scope of my invention.

I claim:

1. In a blind stitch sewing machine, the combination with a main frame, of a stationary horizontal presser foot attached to said frame and provided with an opening, a stitch forming mechanism mounted on the frame above the foot and including a needle reciprocal across said opening, a work support located below the plane of the presser foot and mounted on the frame to swing about a horizontal axis, a ridge forming element mounted on the work support for cooperation with the needle, spring means for normally urging the work support upwardly, an adjustable stop mounted on the frame for variably limiting the upward movement of the work support, and means for adjusting said stop comprising a manually operable captive screw mounted on the frame, a nut connected with and movable longitudinally by said screw, and operating connections between the nut and the stop.

2. In a blind stitch sewing machine, the combination with a main frame including a standard, of a stationary horizontal presser foot attached to said frame and provided with an opening, a stitch forming mechanism mounted on the frame above the foot and including a needle reciprocal across said opening, a work support located below the plane of the presser foot and mounted on the frame to swing about a horizontal axis, a ridge forming element mounted on the work support for cooperation with the needle, spring means for normally urging the work support upwardly, an eccentric cam stop pivoted on the frame and engageable by the work support to limit the upward movement of the latter, and manually operable means including a captive screw mounted in accessible position on the frame standard for adjusting said stop.

3. In a blind stitch sewing machine, the combination with a main frame, of a stationary horizontal presser foot attached to said frame and provided with an opening, a stitch forming mechanism mounted on the frame above the foot and including a needle reciprocal across said opening, a work support located below the plane of the presser foot and mounted on the frame to swing about a horizontal axis, a depending arm rigidly connected to the work support, a ridge forming element mounted on the work support for cooperation with the needle, an eccentric cam stop pivoted on the frame and engageable by said arm to limit the upward movement of the work support, and manually operable means mounted on the frame for adjusting said stop.

4. In a blind stitch sewing machine, the combination with a main frame, of a stationary horizontal presser foot attached to said frame and provided with an opening, a stitch forming mechanism mounted on the frame above the foot and including a needle reciprocal across said opening, a work support located below the plane of the presser foot and mounted on the frame to swing about a horizontal axis, a ridge forming

element mounted on the work support for cooperation with the needle, spring means for normally urging the work support upwardly, a cam stop pivoted on the frame and engageable by the work support to limit the upward movement of the latter, and means for adjusting said stop comprising a manually operable captive screw mounted on the frame, a nut connected with and movable longitudinally by said screw, and operating connections between the nut and the stop.

5. In a blind stitch sewing machine, the combination with a main frame, of a stationary horizontal presser foot attached to said frame and provided with an opening, a stitch forming mechanism mounted on the frame above the foot and including a needle reciprocal across said opening, a work support located below the plane of the presser foot and mounted on the frame to swing about a horizontal axis, a depending arm rigidly connected to the work support, a ridge forming element mounted on the work support for cooperation with the needle, an eccentric cam stop pivoted on the frame and engageable by said arm to limit the upward movement of the work support, and means for adjusting said stop comprising a manually operable captive screw mounted on the frame, a nut connected with and longitudinally movable by said screw, and operating connections between the nut and the stop.

6. In a sewing machine, the combination with a main frame, of a work support mounted on the frame to swing about a horizontal axis, spring means for normally urging the work support upwardly, an adjustable stop mounted on the frame for variably limiting the upward movement of the work support, and means for adjusting said stop comprising a manually operable captive screw mounted on the frame, a nut connected with and longitudinally movable by said screw, and operating connections between the nut and the stop.

7. In a sewing machine, the combination with a main frame, of a work support mounted on the frame to swing about a horizontal axis, spring means for normally urging the work support upwardly, an eccentric disc cam stop pivoted on the frame and engageable by the work support to limit the upward movement of the latter, said work support including a depending arm engaging the periphery of said disc cam, and manually operable means mounted on the frame for adjusting said stop.

8. In a sewing machine, the combination with a main frame including a base and a standard, of a work support mounted on the frame to swing about a horizontal axis, spring means for normally urging the work support upwardly, a stop disc cam eccentrically supported on the base, an arm depending from the work support and engaging said cam for determining the position of the work support, and manually operable means for imparting movement of adjustment to said cam including an adjustment screw supported on the standard and having an operating knob disposed above and in rear of the work support.

9. In a sewing machine, the combination with a main frame, of a work support mounted on the frame to swing about a horizontal axis, spring means for normally urging the work support upwardly, an eccentric disc cam stop pivoted on the frame, a depending arm rigidly connected to the work support and engaging the periphery of said disc cam to limit upward movement of the work support, and manually operable means mounted on the frame for adjusting said cam to alter the position of the work support.

CHARLES W. MUELLER.