J. W. CONNORS.

BUTTONHOLE SEWING MACHINE.

APPLICATION FILED APR. 1, 1912.

1,030,570. Patented June 25, 1912.

Fig. 1.

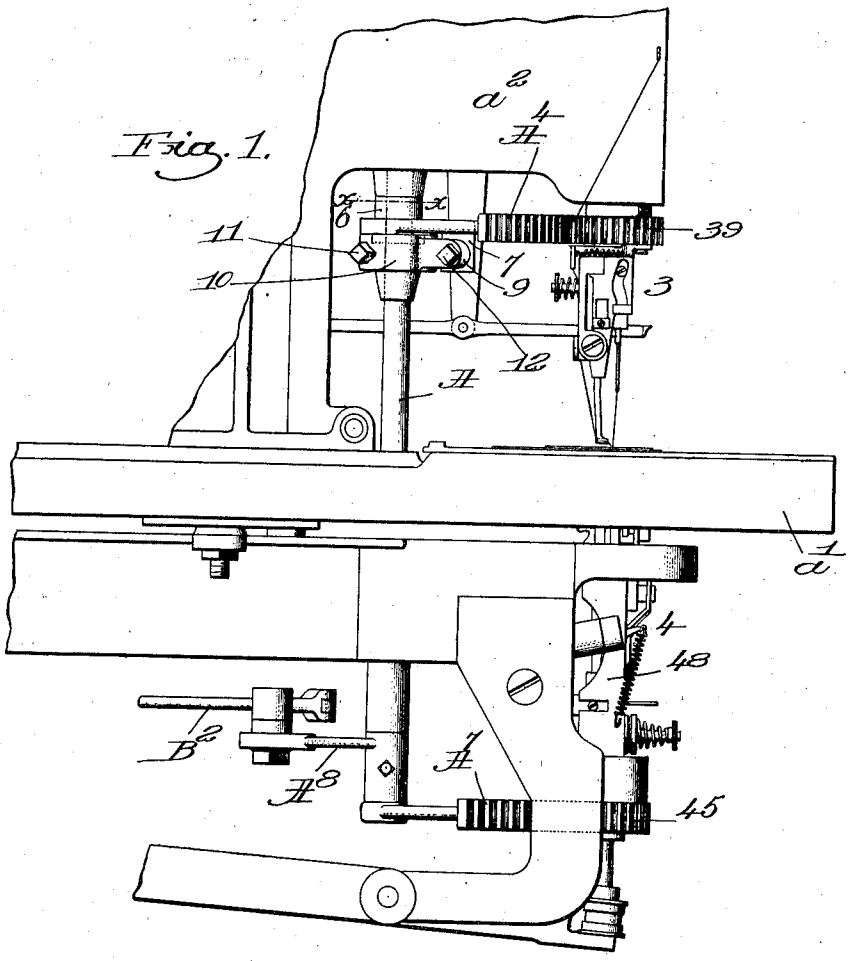


Fig. 2.

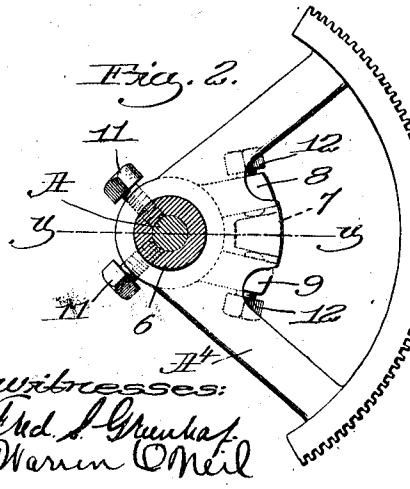


Fig. 3.

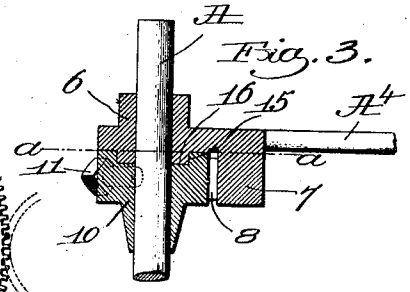
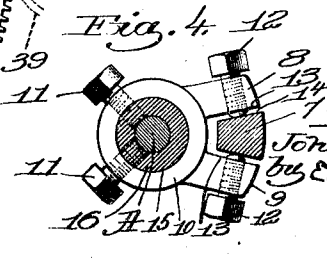


Fig. 4.



Witnesses:
Fred. J. Grunbaf.
Warren O'Neil

Inventor,
John W. Connors,
by Edwards Hardsmith
Atty's

UNITED STATES PATENT OFFICE.

JOHN W. CONNORS, OF DEDHAM, MASSACHUSETTS, ASSIGNOR TO THE REECE BUTTON HOLE MACHINE COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MAINE.

BUTTONHOLE-SEWING MACHINE.

1,030,570. Specification of Letters Patent. Patented June 25, 1912.

Application filed April 1, 1912. Serial No. 687,657.

To all whom it may concern:

Be it known that I, JOHN W. CONNORS, a citizen of the United States, and resident of Dedham, county of Norfolk, State of Massachusetts, have invented an Improvement in Buttonhole-Sewing Machines, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention relates to buttonhole sewing machines of the type familiarly known to the trade as the "Reece" sewing machine, a sewing machine of this type being illustrated in each of the following United States Patents: No. 655,637, August 7, 1900; No. 684,046, October 8, 1901; No. 692,904, February 11, 1902. Sewing machines of this type are constructed with a movable stitch frame carrying upper stitch-forming mechanism and also complemental under stitch-forming mechanism, and each stitch-forming mechanism has associated therewith a gear which meshes with a toothed sector fast on a rock-shaft, and means are provided for rocking said shaft thereby to rotate the two stitch-forming mechanisms during the operation of stitching each buttonhole so as to cause said ditch-forming mechanisms to turn around the ends of the buttonhole as the eye end thereof is being stitched. In order that the upper and lower complemental stitch-forming mechanisms may operate properly, it is essential that the two toothed sectors should always have a proper adjustment relative to each other, for otherwise the upper and lower stitch-forming mechanism would be thrown out of the proper relation one with the other.

The object of my present invention is to provide a novel means for connecting one of the toothed sectors to the rock-shaft, which means permits a ready adjustment of said sector on the shaft thereby to bring it into and maintain it in proper position with the other toothed sector.

The features wherein my invention resides will first be described and then pointed out in the appended claim.

Referring to the drawings, Figure 1 is a fragmentary view of a portion of a sewing machine, such, for instance, as shown in Patents No. 684,046, or No. 692,904, and embodying my invention; Fig. 2 is a section on the line x—x, Fig. 1; Fig. 3 is a section on the line y—y, Fig. 2; Fig. 4 is a section on the line a—a, Fig. 3.

In the drawings a' is the clamp frame, a^2 is the stitch frame, 3 designates generally the upper stitch-forming mechanism which is sustained by said frame, and 4 the under stitch-forming mechanism which is carried by the rotary block 48. The under stitch-forming mechanism has associated therewith a pinion 45 which meshes with and is driven by a toothed sector A^7 that is mounted on a rock-shaft A. The upper end of the rock-shaft A carries an upper toothed sector A^4 which meshes with and drives a pinion 39 associated with the upper stitch-forming mechanism. The rock-shaft A is oscillated by means of an arm A^8 which is connected with an oscillating lever B^2, all as shown in said Patents No. 655,637, and No. 684,046. Since the parts thus far referred to are common to said patents and form no part of the present invention, I do not regard it necessary to further describe them or their operation, as a full understanding of the mechanism can readily be obtained by referring to any one of said patents.

It will be understood that in the operation of the sewing machine the rock-shaft A is turned during the stitching of the buttonhole, so that the two stitch-forming mechanisms will be rotated in stitching around the ends of the buttonhole.

My invention relates to the manner of connecting one of the toothed sectors to the rock shaft A so as to permit said sectors to be readily adjusted into proper position relative to each other. I have herein shown my invention as applied to the upper sector A^4. This sector A^4 is provided with a hub 6 through which the shaft A extends and is also provided with a lug 7 which is received between two arms 8 and 9 formed on a collar 10 that is fixed to the shaft A. This collar 10 may be fixed in position in any suitable way, set screws 11 being herein shown for this purpose, although this particular manner of locking the collar to the shaft A is not essential. Each of the arms 8 and 9 supports an adjusting screw 12 which is adapted to engage the lug 7. The space between the arms 8 and 9 is somewhat greater than the width of the lug 7 so that when the screws 12 are backed off the sector A^4 can be adjusted about the shaft A for

a limited distance, it being understood that the sector A^4 is loosely mounted on the shaft so that it may turn thereabout.

In setting up and adjusting the machine the sector A^4 will be brought into the proper position relative to the sector A^7 and then the set screws 12 will be set up against the lug 7 thereby firmly locking the sector A^4 to the shaft. If during the operation of machine the sectors A^4 and A^7 get thrown out of proper position relative to each other, the sector A^4 can be readily brought back into its proper position by merely backing off one screw 12 and turning up the other screw. This construction provides for securing a very fine and accurate adjustment of the sector A^7, as will be obvious.

I prefer to make the lug 7 of such a shape that the side faces 14 thereof occupy radial planes and to place the adjusting screws 12 in the lugs 8 and 9 so that said screws stand perpendicular to the radial faces 13 and 14. Said screws will, therefore, be parallel to the direction of thrust between the arms 8 and 9 and the lug 7.

The nut 10 is shown as having a central recess 15 in its upper side and the hub 6 of the sector A^4 is shown as having a flange 16 which enters and fits said recess, this construction being adopted so that the nut and sector will be always held properly centered relative to each other.

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

In a buttonhole sewing machine, the combination with a stitch frame carrying upper and under complemental stitch-forming mechanisms, a pinion associated with each stitch-forming mechanism, a rock-shaft, two toothed sectors thereon meshing with the two pinions, one of said sectors being loosely sustained by said shaft and provided with a laterally-extending lug, a collar fast to the shaft provided with arms embracing the lug, and adjusting screws carried by said arm and engaging the lug.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

JOHN W. CONNORS.

Witnesses:

FREDERICK J. DORGAN,

HAROLD J. WOOD.