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BUTTONHOLE SPACING APPARATUS.

APPLICATION FILED OCT. 12, 1916.

1,237,569. Patented Aug. 21, 1917.

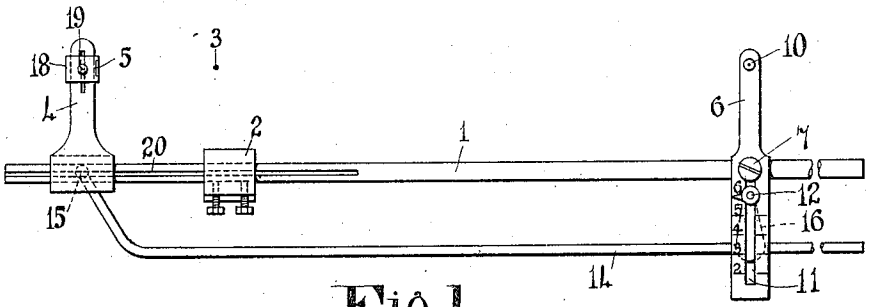


Fig 1.

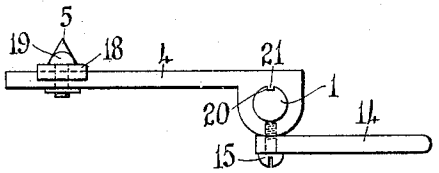


Fig 2.

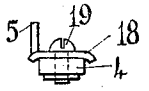


Fig 3.

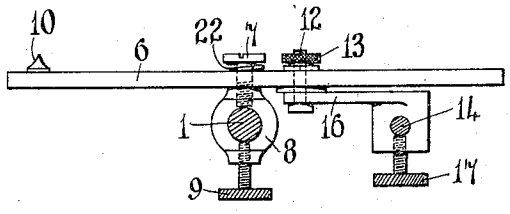


Fig 4.

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UNITED STATES PATENT OFFICE.

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BUTTONHOLE-SPACING APPARATUS.

1,237,569. Specification of Letters Patent. Patented Aug. 21, 1917.

Application filed October 12, 1916. Serial No. 125,320.

To all whom it may concern:

Be it known that we, ARTHUR BEDWARD SPENCER and FRANK EDWARD WALKER, both subjects of the King of Great Britain, and both citizens of Hucknall Torkard, England, residing at Hucknall Torkard, Nottinghamshire, England, have invented new and useful Improvements in Buttonhole-Spacing Apparatus, of which the following is a specification.

This invention relates to spacing or dividing apparatus for use with such machines as those employed for button-holing, sewing on buttons or performing other operations which are analogous with the aforesaid operations in so far as a predetermined or definite spacing is necessary, and particularly throughout a given length which may be variable.

For instance, in making buttonholes in or sewing buttons on a garment front, it is desirable that the certain number of holes or buttons should be equally spaced although in garments of different sizes the length of front may vary.

The present invention comprises an attachment for a buttonholing machine, sewing machine or the like, by the use of which the proper spacing may be readily determined irrespective of variation in the total length of the garment front or other material to be operated upon. The attachment is normally set to give a certain number of divisions or spacings for a given length, and then if when in use, the total length varies at all, the apparatus may be extended or shortened according to the difference in length, and will when so adjusted, give the same number of spacings each of greater or less length in proportion to the total increase or decrease.

Thus it may be said that the apparatus effects a variation of the spacings in proportion to any variation in the total length such spacings are to occupy.

The apparatus comprises a carrier upon which is movably mounted a limit member, point or gage, the relationship of which to the needle of the machine corresponds to the length of one spacing. At another locality on the carrier is a pivoted member furnished with a point or gage and connected with the aforesaid limit member. The distance between the points represents the total length and a connection between them is so arranged that when the total distance between them is altered the same ratio from the needle to the points is maintained.

To enable the invention to be clearly understood it will be further described with reference to the accompanying drawing in which:—

Figure 1 is a plan of an apparatus of convenient construction according to this invention.

Fig. 2 is a side elevation of the limit member.

Fig. 3 is an end view of same.

Fig. 4 is a side elevation of the pivoted member which coöperates with the limit member.

Fig. 1 is drawn to a smaller scale than the other figures and like parts are designated by the same reference characters in all the figures.

In the convenient constructional form of the apparatus illustrated in the drawing, a carrier consisting of a rod 1 is supported by a bracket 2 or other device to be attached to the front of the machine or the bench upon which the machine is fixed. Slidable along the rod and situated on one side of the machine needle 3 is a finger 4 furnished at its end with an upstanding point 5, or a hook or other device adapted to engage the buttonhole or button or otherwise constitute a gage for the spacings. Situated on the opposite side of the needle is a lever 6 the fulcrum 7 of which is adapted to be fixed at different positions along the rod. For instance, the fulcrum may be screwed into a block 8 slidable along the rod 1 and fastened by a thumb-screw 9 (Fig. 4), the adjustability being provided to enable the lever to be altered to suit different lengths.

The lever 6 on one side of its fulcrum is furnished with a point or gage 10, and on the other side of the fulcrum is slotted at 11 and provided in the slot with a pivot pin 12 adapted to be fastened in different positions along the slot by a thumb-screw 13 or other suitable means. The pivot pin forms a pivotal connection between the lever 6 and a rod 14 the latter being also pivotally attached at 15 to the aforesaid sliding finger 4.

The pivot pin 12 is set in a certain position along the slot 11 in the lever 6 according to the number of spacings required in the total length, and then any movement of the

lever on its pivot 7 to increase or decrease the total length between the two points 5 and 10 will also cause a movement of the sliding finger 4 so that the ratio of the distance of each of said points from the needle 3 will remain unaltered.

In using the device, the first buttonhole is made or the first button attached, and then the said hole or button is put upon, engaged by, or moved to the point, gage or equivalent 5 on the sliding finger 4, after which the opposite end of the garment front or material is put upon the other point 10 and the lever 6 is moved on its pivot 7 to make the distance between the points 5 and 10 equal to the length of the front, the material itself being used to determine such distance. The material then occupies the correct position under the machine needle 3 for the next hole to be made or button to be attached, and by moving each hole or button when made or attached, to the point or gage 5 on the finger 4 the correct position of the succeeding hole or button is determined.

To facilitate the correct setting of the pivot pin 12 in the lever slot 11, the side of the lever 6 may have markings representing the different numbers of spacings and the pin may be furnished with an index pointer.

The rod 14 is connected to the pivot pin 12 by means of an arm 16 (Fig. 4) fastened to the rod by a thumb screw 17 to admit of adjustment of the lever along the carrier rod. When the lever is to be moved along the rod 1, the thumb-screws 9 and 17 are slackened so that the block 8 and arm 16 are free to slide along the rods 1 and 14.

To initially set the apparatus, the points 5 and 10 on the sliding finger 4 and lever 6 are set by known measurement from the needle 3 while the lever is in the square position shown in Fig. 1, and the pivot pin 12 is fixed in the slot 11 to give the proper leverage for the number of spaces required.

The point 5 is preferably formed by an upstanding portion of a plate 18 adjustable along the finger 4 and fastened by a screw 19. To prevent the finger from turning upon the rod 1 the latter is grooved longitudinally at 20 and a feather or key 21 (Fig. 2) in the bore of the finger fits the groove.

The fulcrum screw of the lever 6 may have thereon a spring 22 to prevent free movement of the lever.

The invention is not to be limited to the details of construction herein described as these may be varied if desirable or necessary without departing from the scope of the invention as defined by the appended claims.

What we claim then is:—

1. A spacing apparatus for use on a sewing machine for the purpose described, comprising, a carrier, a gage member slidable thereon, a gage member pivoted thereon, and a rod pivotally attached to said members and forming an operative connection between them whereby they are caused to move in relatively opposite directions, the point of pivotal attachment of the rod on the pivoted gage member being adjustable relatively to the fulcrum of the latter.

2. A spacing apparatus for use on a sewing machine for the purpose described, comprising, a carrier, a finger slidable thereon, a point or gage on said finger, a lever pivotally mounted on said carrier, a point or gage on said lever adapted to be employed in conjunction with the point or gage on the finger, a pivot pin adjustable to and fro along a slot in said lever on the opposite side of the fulcrum thereof to the point or gage, and a rod one end of which is attached to said pivot pin and the other end thereof to the sliding finger, substantially as described.

3. A spacing apparatus for use on a sewing machine for the purpose described, comprising, a carrier, a finger slidable thereon, a point or gage on said finger, a lever pivotally mounted upon and adjustable along said carrier, a point or gage on said lever adapted to be employed in conjunction with the point or gage on the finger, a pivot pin adjustable to and fro along a slot in said lever on the opposite side of the fulcrum thereof to the point or gage, a rod pivotally attached at one end to the sliding finger, and a crank adjustable along said rod and connected to the pivot pin in the lever, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ARTHUR BEDWARD SPENCER.
FRANK EDWARD WALKER.

Witnesses:
E. N. Lewis,
George Lester.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."