

H. B. JOHNSTON.
 BUTTON SEWING ATTACHMENT.
 APPLICATION FILED MAR. 4, 1912.

Patented Jan. 7, 1913.

2 SHEETS-SHEET 1.

1,049,491.

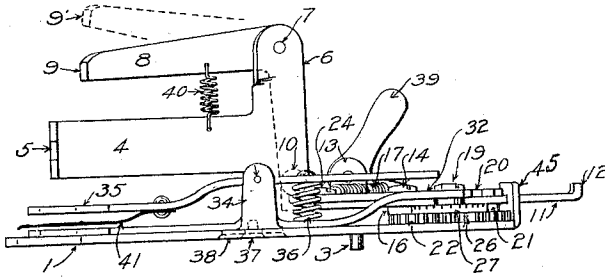


Fig. 1.

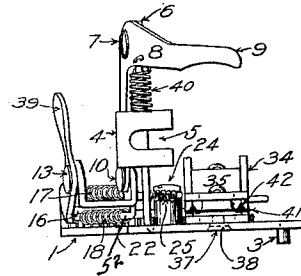


Fig. 2.

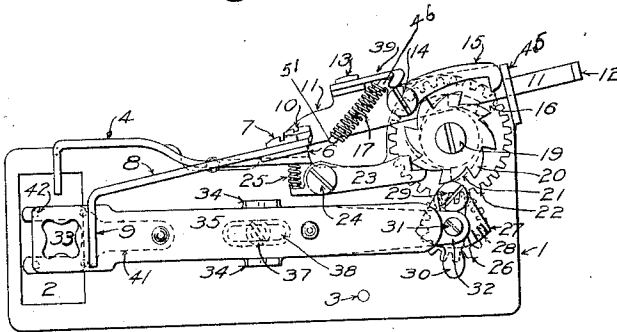


Fig. 3.



Fig. 4.

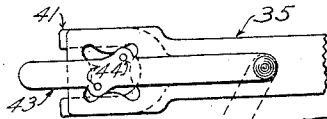


Fig. 5.

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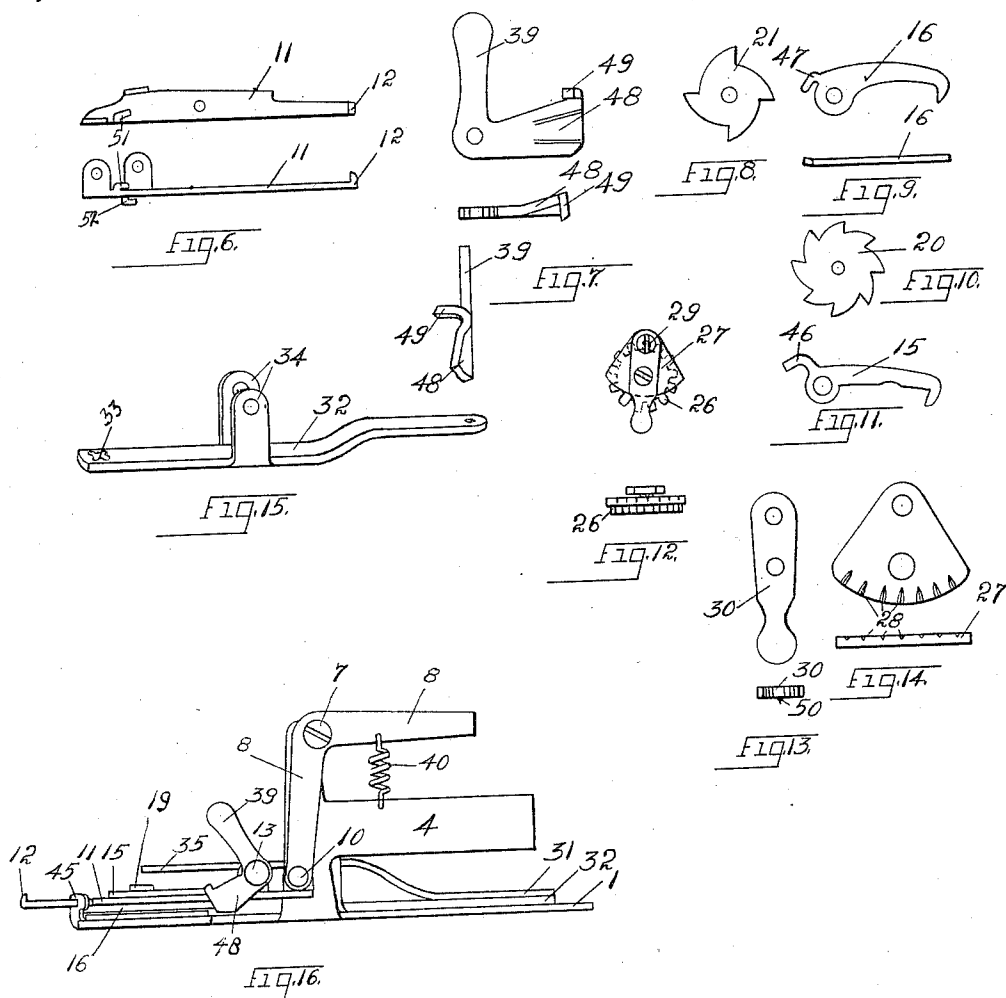
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Inventor

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Witnesses:

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UNITED STATES PATENT OFFICE.

HARRY B. JOHNSTON, OF SALT LAKE CITY, UTAH.

BUTTON-SEWING ATTACHMENT.

1,049,491.

Specification of Letters Patent.

Patented Jan. 7, 1913.

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To all whom it may concern:

Be it known that I, HARRY B. JOHNSTON, a citizen of the United States, residing at Salt Lake City, in the county of Salt Lake and State of Utah, have invented certain new and useful Improvements in Button-Sewing Attachments, of which the following is a specification.

My invention relates to a button sewing attachment for sewing machines and my purpose is to provide a device which may be fastened on any ordinary sewing machine, with which, to hold the button and move it in position to be attached to the fabric by said sewing machine and which may be adjusted to sew on either a two hole or a four hole button, and in the latter case to sew the stitches in the perimeter line joining the holes of the button with the stitches consecutive, and this is accomplished with the device illustrated in the accompanying drawings in which similar letters of reference indicate like parts throughout the several figures and as described in the specifications forming a part of this application.

Figure 1 is a front elevation. Fig. 2 is an end elevation. Fig. 3 is a plan view. Fig. 4 is a fragmentary view in side elevation of the centering device. Fig. 5 is a fragmentary view of the plan of the centering device. Fig. 6 is a plan and side elevation of the pawl carriage. Fig. 7 is a side elevation, plan and end elevation of the adjusting lever. Fig. 8 is a plan of a four-toothed ratchet. Fig. 9 is a plan and side elevation of the pawl engaging said ratchet. Fig. 10 is a plan of the eight-toothed ratchet. Fig. 11 is a plan of the pawl engaging said ratchet. Fig. 12 is a plan and side elevation of the pinion, segment plate and adjusting arm. Fig. 13 is a plan and end elevation of the adjusting arm. Fig. 14 is a plan and end elevation of the segment plate. Fig. 15 is a view in perspective of the lower button-clamp. Fig. 16 is a rear elevation of the device.

In my device the parts are secured to a base plate 1 which is adjusted on the top of the sewing machine by the depending lug 3 and has a rectangular opening 2 in one end portion to accommodate the needle and feed of the sewing machine. Said plate 1 has secured thereon or integral therewith an upright 6 and on which upright is a horizontally extended lug or arm 4 integral therewith. A portion of said arm 4 is bent

at a right angle to the main arm 4 and has an open slot 5 formed therein to receive the fastening set screw by which my device is secured to the presser-foot bar of the sewing machine. To the upper portion of the said upright 6 is pivoted a bell crank lever 8 by the pivot 7. Said lever 8 has one portion 9 thereof extended to the front to be engaged by the needle bar of the sewing machine and which lever receives upward vertical motion from the upward motion of said needle bar. A spring 40 connected to one arm of said bell crank lever 8 and to said arm 4 returns said lever 8 to its normally horizontal position. A pawl carriage 11 (see Fig. 6) is pivoted to the depending arm of said lever 8 by a screw pivot 10. Horizontal reciprocatory motion is imparted to said pawl carriage 11 by the motion of the bell crank lever 8. Said pawl carriage 11 has the outer end bent to form a lug 12 which limits the forward movement of said pawl carriage 11, and a portion of one end of said base plate 1 is bent upright and has an opening therein to receive and act as a guide for a portion of said pawl carriage 11. A portion of the side of said pawl carriage 11 is bent vertically upward to which vertical portion is pivoted the adjusting lever 39 (see Fig. 7) by a screw pivot 13. On the upper and lower sides of said pawl carriage 11 is pivoted two pawls 15 and 16 respectively by the screw pivot 14. Between a lug 51 on the pawl carriage 11 and a lug 46 on the upper pawl 15 is a spiral spring 17, and between a lug 47 on the lower pawl 16 and a depending lug 52 on the said pawl carriage 11 is the spiral spring 18.

Mounted on the base plate 1 by means of the pivot shaft 19 are two ratchets one of which 20 has eight teeth thereon and the other 21 has four teeth thereon. The pawl 15 at times engages the teeth of ratchet 20 and the pawl 16 at times engages the teeth of ratchet 21. The said springs 17 and 18 hold their respective pawls in engagement with the ratchets 20 and 21 respectively. The said lever 39 has an arm 48 extended to engage the lugs on said pawls 15 and 16 and also has a lug 49 integral with said arm 39 to limit the throw of said lever 39 by engaging the top of said pawl 15. Under the ratchet 21 and mounted upon the said pivot shaft 19 is a spur gear 22, the teeth of which mesh with the teeth of a pinion wheel 26. The ratchets 20 and 21 and the spur gear

22 are secured on the said pivot shaft 19 and move together and to the left, and to prevent any movement to the right or backward movement of said ratchets or spur gear, a detent or dog 23 is pivoted to the said base 1 by the screw pivot 24, which dog engages with one of the teeth of said ratchet 20. To hold the said dog 23 in contact with the perimeter of the said ratchet 20 a spiral spring 25 is secured around an arm of said dog with one end of the spiral spring bearing against the said upright 6. A segment plate 27 is attached to and turns with the said pinion wheel 26 and has provided in its upper side the notches 28 in which engages the projecting lug 50 on the lower side of an adjusting arm 30. Said adjusting arm is pivoted to said segment plate 27 by means of the screw pivot 29. Near the center of said base plate 1 is secured the lower jaw 32 of the button clamp (see Fig. 15) by means of the counter sunk screw 37. Near the center of said base plate 1 is cut an elongated opening 38 within which is operated the pivot 37 which forms the fulcrum of the lower jaw 32 of the button clamp. The head of said pivot 37 is formed with a flange to engage a projecting edge in the said opening 38; the purpose being to permit oscillatory and reciprocatory motion of the said jaw 32 of the button clamp. One end of said jaw 32 is pivoted to said adjusting arm 30 near the center thereof by the screw pivot 31. Adjacent the fulcrum pivot 37 on the said jaw 32 the sides of said jaw 32 are extended vertically upright forming pivot posts or bearings 34 in which the upper jaw 35 of the button clamp is pivoted. A spring 36 is secured between the said button clamp jaws 32 and 35 tending to hold their respective and adjacent ends apart and the opposed ends of said jaws in gripping contact with the button. An opening 33 is provided in the end of each of said jaws 32 and 35 adjacent the needle bar of the sewing machine, with which the holes in the button register and through which the needle of the machine is made to operate in sewing on the button. On the under side of the said jaw 35 and near the said opening 33 is secured one end of the button clip 41 (see Fig. 4). On the upper side of said jaw 35 and held by the same pin that holds the said button clip 41 is pivoted one end of the centering lever 43. Said lever 43 has depending points 44 thereon provided to fit in the holes of the button for centering or adjusting the button to the position desired. When sewing through the button this lever is turned on its pivot to the position shown in dotted lines in Fig. 5.

The movement of the button is regulated and adjusted by the position of the adjusting arm 30. One end of said arm is pivoted to the said segment plate 27 and without

the axis of said plate to give an eccentric motion of the button clamp. The relative position of the arm and plate is determined by the position of the other end of said arm, as established by the engagement of the said lug 50 of said arm in the notches 28 in said plate. The throw of the button, in order that the needle in its descent may alternate between the holes therein, is determined by the eccentric motion of that end of said jaw 32 which is pivoted to said arm 30. The distance between the holes in the button is gaged by the distance between the notches 28. To throw the screw pivot 31, connecting the arm 30 and the jaw 32, to different positions without the axis of said segment plate 27, the arm 30 is moved to the required position and held by the engagement of said lug 50 in the adjacent notch 28. The spring of the metal of the arm 30 will allow the movement of said lug from notch to notch as desired.

The operation of my device is as follows: The plate 1 is secured to the machine by the engagement of the depending lug 3 and fixed by the set screw within the slot 5 on the arm 4. The needle bar will engage the portion 9 of the lever 8 in its upward throw. If the button to be sewed on is a two holed button the lever 39 is thrown so the arm 48 thereon engages the lug 46 on the pawl 15 and frees the pawl 16. The spring 18 holds the pawl 16 in engagement with the four-toothed ratchet 21. This engagement will throw the button in the position to receive the thread through the holes alternately. Should the button to be sewed on have four holes the said lever 39 is thrown so that the arm 48 engages the lug 47 on the pawl 16 and throws it out of engagement but does not engage the lug 46 on pawl 15 and leaves said pawl in engagement with the eight toothed ratchet. This will place the four holes of the button alternately in position under the needle and will sew the button on with the thread in the perimeter line of said holes.

Having thus described my invention I desire to secure by Letters Patent and claim:

1. A button sewing attachment consisting of a base plate; a suitably actuated crank lever pivoted to a portion of said base; pawls pivotally connected with said lever; ratchet wheels engaged by said pawls; a spur gear mounted on the same shaft as said ratchet wheels and movable therewith; a pinion wheel meshing with said spur gear; a segment plate thereon; an adjusting arm pivoted to said segment plate; a button clamping jaw pivoted to said arm, having an opening in one end portion; a co-acting jaw pivotally mounted thereon and movable therewith, and having an opening in one end; a spring mounted between the end por-

tion of said jaws and adapted to hold a button between the other end portion of said jaws, the holes in said button registering with the openings in said jaws; and means to center said button in the said openings in said jaws.

2. A button sewing attachment consisting of a base plate; a suitably actuated crank lever pivoted to a portion of said base; pawls pivotally connected with said lever; ratchet wheels engaged by said pawls; a spur gear mounted on the same shaft as said ratchet wheels and movable therewith; a pinion wheel meshing with said spur gear; a segment plate thereon; an adjusting arm pivoted to said segment plate; a button clamping jaw pivoted to said arm, having an opening in one end portion; a co-acting jaw pivotally mounted thereon and movable therewith; and having an opening in one end; a spring mounted between the end portion of said jaws and adapted to hold a button between the other end portion of said jaws, the holes in said button registering with the openings in said jaws; a button holding clip fastened to said co-acting jaw adapted to hold a button against said jaw when the button is not held thereagainst by the other jaw; and a lever having depending lugs thereon adapted to hold a button when said depending lugs are inserted through the holes in the button.

3. A button sewing attachment consisting of a button clamp centrally pivoted to a base plate; an adjusting arm pivoted to one end of said button clamp; a segment plate to which said adjusting arm is pivoted; a pinion gear to which said segment plate is attached and adapted to turn on the same axis; a spur gear the teeth of which mesh with the teeth of said pinion gear; a four toothed ratchet and an eight

toothed ratchet attached to said spur gear and mounted on the same shaft as said spur gear; pawls adapted at times to engage the teeth of said ratchets; a pawl carriage; a bell crank lever one arm of which is pivoted to said pawl carriage and the other arm adapted to be moved by the needle bar of a sewing machine.

4. A button sewing attachment consisting of a bell crank lever adapted to be moved on its pivot by the needle bar of a sewing machine; a pawl carriage pivoted to one arm of said lever; pawls pivoted to said carriage; ratchet wheels and a spur gear mounted on the same shaft, the said ratchet wheels being moved at times by said pawls; a pinion wheel having teeth thereon which mesh with the teeth of said spur gear; a segment plate attached to said pinion and adapted to turn on the same axis and having notches in its upper face; an adjusting arm pivoted to said segment plate having a depending lug thereon adapted to engage in one of the notches in said plate to impart eccentric motion to a button clamp which is pivoted to said arm; a button clamp consisting of a jaw having one end pivoted to said adjusting arm and provided with an opening in the other end; pivot posts integrally formed near the middle of said jaw; an upper jaw pivoted in said posts and having an opening in one end similar to and registering with the opening in said first mentioned jaw; a spring between one end portion of said jaws adapted to keep the other end portion in gripping contact with a button therebetween.

In testimony whereof I have affixed my signature in presence of two witnesses.

HARRY B. JOHNSTON.

Witnesses:

SAM RANEY,
W. E. WOOD.