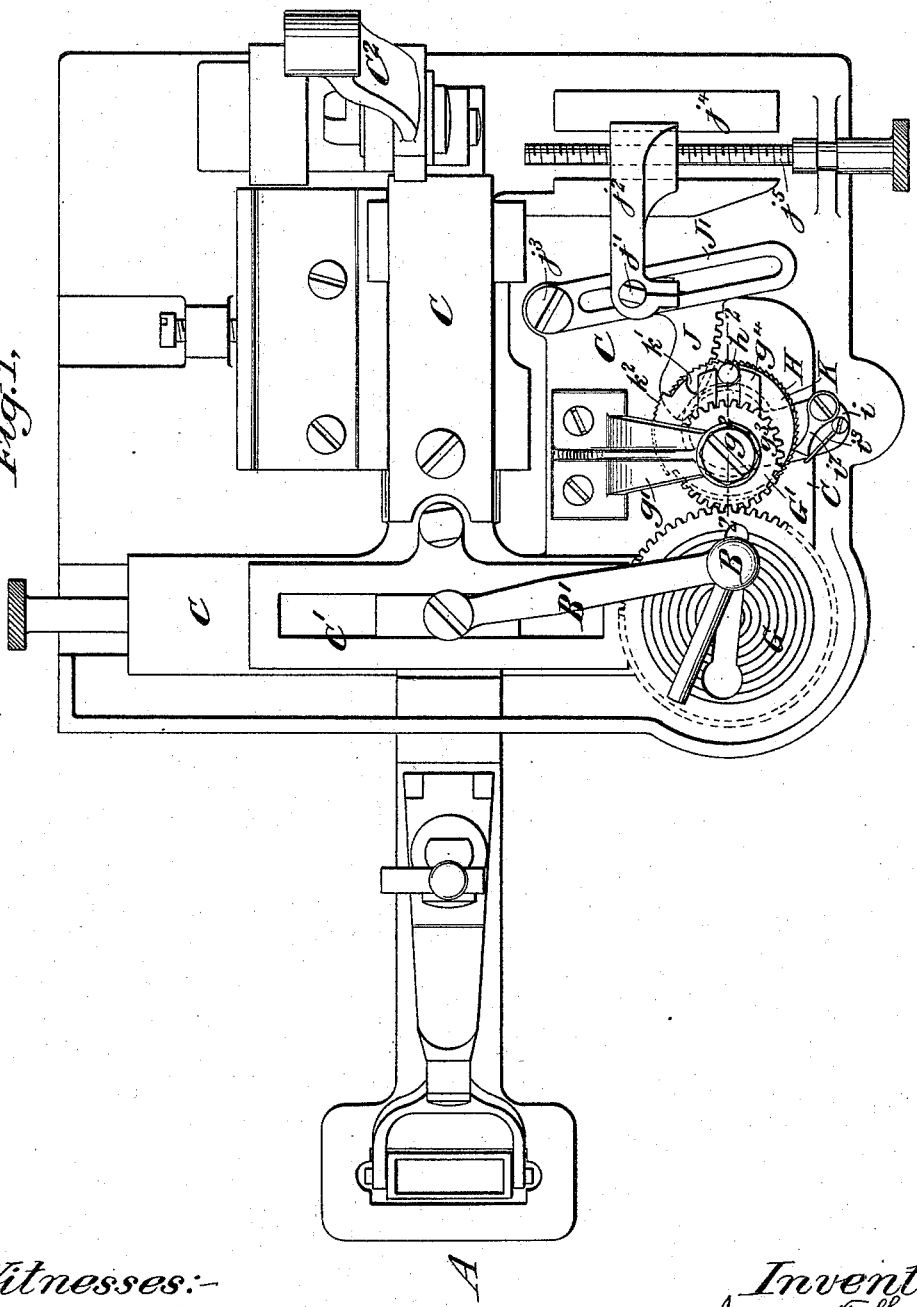
(No Model.) 2 Sheets—Sheet 1.

J. T. HOGAN.

FEEDING MECHANISM FOR BUTTONHOLE SEWING MACHINES.

No. 526,393. Patented Sept. 25, 1894.

Fig. 1.



Witnesses:-
D. K. Kayrod
William M. Iliff

Inventor:-
James T. Hogan
By his Attorney
Edwin H. Brown

(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

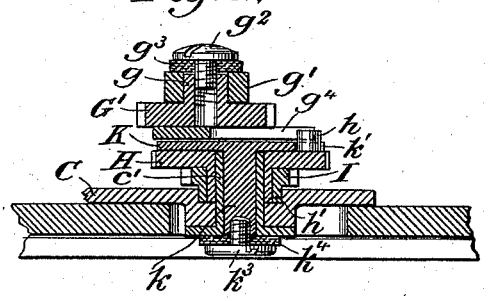


Fig. 3,

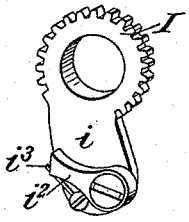


Fig. 4,

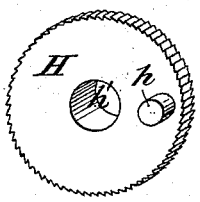
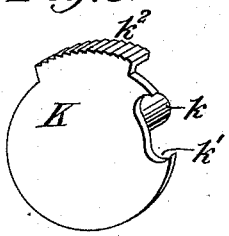


Fig. 5.



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UNITED STATES PATENT OFFICE.

JAMES T. HOGAN, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO THE NATIONAL MACHINE COMPANY, OF TROY AND NEW YORK, N. Y.

FEEDING MECHANISM FOR BUTTONHOLE SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 526,393, dated September 25, 1894.

Application filed August 14, 1893. Serial No. 483,050. (No model.)

To all whom it may concern:

Be it known that I, JAMES T. HOGAN, of Jersey City, county of Hudson, and State of New Jersey, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification.

The object of this improvement is to provide for a dwell at a given point in the feed of a fabric being sewed to allow of some special operation. This will be useful for example, in sewing a buttonhole, to facilitate the making of barring stitches.

I will describe a machine embodying my improvement and then point out the novel features in the claims.

In the accompanying drawings, I have chosen to illustrate my improvement in connection with a buttonhole sewing machine. Figure 1 is a top view of a mechanism comprising parts embodying my improvement. Fig. 2 is a vertical section of the same taken on the plane of the line 2—2, Fig. 1. Fig. 3 is a perspective view of a toothed sector. Fig. 4 is a perspective view of a feed wheel. Fig. 5 is a perspective view of a plate combined with the feed wheel.

Similar letters of reference designate corresponding parts in all the figures.

A designates a work clamp for receiving, holding and feeding the fabric in which the buttonhole is to be worked. It is attached to a vibrating plate C having a grooved extension C′ into which the shank of the work clamp is fitted. A lever C^2 imparts the to and fro or vibrating movement to the work clamp for producing the movement necessary for the depth and edge stitches. A crank B, connected by a link B′ with the shank of the work clamp produces the feed movement of the work clamp in the direction of the length of the buttonhole.

G designates the feed disk, having adjustably connected to it the crank B by which the feed lengthwise of the buttonhole is produced. It is made in the form of a gear wheel. With it engages a smaller gear wheel or pinion G′, formed integral with, or affixed to a stud g extended upwardly through a bracket g' affixed to the vibrating plate C. A screw g^2 extending down through the top of the bracket engages with a tapped hole in the stud, and a leather washer g^3 arranged between the head of the screw and the bracket, produces friction, so as to preclude the pinion from moving readily.

The pinion G′ is provided with a bifurcated arm g^4 embracing a pin h extending from the upper surface of the feed wheel H, which may be made in the form of a ratchet wheel.

The feed wheel H is journaled upon a stud c' rising from the vibrating plate C. This is shown as made in the form of a tubular stud fitted in a hole in the vibrating plate C, and as having a flange at the lower end extending beneath that portion of the said plate C in which the hole is formed. It is tubular in form. The feed wheel is provided with a long, downwardly extending hub h' that surrounds the stud c'. Fitted to rotate about the hub h' of the feed wheel is a toothed sector I, having an arm i upon which is pivotally supported a propelling device which as the feed wheel is made in the form of a ratchet wheel, is made in the form of a pawl i^2 that engages with the ratchet teeth of the feed wheel, it being held in action with the said teeth by means of a spring i^3. This sector engages with a quadrant arm J.

An oscillating lever J′ is fulcrumed to a pin j' fitted to a bracket j^2 and pivotally connected at one end by a screw j^3 to the vibrating plate. The quadrant arm J extends from this lever J′. The bracket j^2 is fitted to a slide-way j^4 and may be adjusted lengthwise of the slide-way by means of a screw j^5 for the purpose of changing the position of the fulcrum of the lever J′ so as to vary the spacing between stitches.

The tooth sector I, is shown as having a hub which extends downwardly with the hub of the feed wheel H into a groove formed in the vibrating plate C, around the stud c'.

K designates a plate combined with the feed wheel. It is provided with a downwardly extending stud k which fits the interior which is supported by the stud c' of the vibrating plate C. This plate K may be made in disk shape. It is provided at one point with shoulders or projections, which may consist of the ends of a peripheral notch k' into which the pin h of the feed wheel H projects,

and it has a downwardly extending segment shaped bracket k^2 which overlaps the periphery of the feed wheel H. A screw k^3 extends upwardly into the stud k of the plate K; a washer k^4 of leather or other suitable material being interposed between the head of the screw and the under side of the vibrating plate C for the purpose of producing friction, sufficient to preclude the plate K from turning loosely. To avoid any misapprehension, I will add that this friction is to hold the plate K stationary at all times except when it is moved by the pin h of the feed wheel H, or by the feed pawl i^2.

The purpose of the friction on the pinion G′ is to prevent backlash.

It will be seen that the feed wheel H, the toothed sector I, and the plate K are concentrically arranged, but that they are all arranged eccentrically to the pinion G′.

The function of the plate K is to render the pawl i^2 inoperative periodically, so far as regards imparting motion to the feed wheel, and as this is accomplished by moving the pawl into a position where it cannot reach the ratchet teeth of the feed wheel, it is obvious that the plate K is in function, a pawl lifter or a pawl intercepter or a pawl stop, in the sense that it stops the only motion for which the pawl is desirable. Obviously, if the pawl were made wider, the ratchet teeth of the plate K need not be made with a flange. In any case, however, they ought to project outwardly beyond the teeth of the feed wheel.

In the operation of the machine after the feed pawl has passed the teeth of the plate K, and then begins co-acting with the teeth of the feed wheel, the plate K will be held stationary by the friction provided in the manner heretofore described, until the pin h co-acts with the shoulders or projections of the peripheral notch of the plate K, whereupon the plate will be carried forward to be properly presented for another operation.

As already implied, I am unwilling to be limited to the use of a feed wheel having ratchet teeth and a pawl co-acting with the ratchet teeth, as my improvement is applicable to a feed wheel constructed and combined with a feeding device to be actuated by frictional engagement; it being with such modification only necessary to use my lifter, intercepter, or stop in connection with the device for imparting motion to the feed wheel.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a sewing machine the combination of a feed wheel, a supplementary plate moved at times by said feed wheel, and a device for imparting motion at times to the feed wheel and at other times to the supplementary plate independently of the feed wheel, substantially as specified.

2. In a sewing machine, the combination of a feed wheel, a supplementary plate moved at times by said feed wheel, a device for imparting motion at times to the feed wheel and at other times to the supplementary plate independently of the feed wheel, and means for producing friction to hold the supplementary plate in position except when it is positively actuated either by the feed wheel or by the feed device, substantially as specified.

3. In a sewing machine the combination of a feed wheel provided with ratchet teeth, a pawl for actuating said feed wheel, a supplementary plate mounted upon a support enabling it to move with said feed wheel, and a pin or projection on the feed wheel for imparting motion to the supplementary plate, said supplementary plate being provided with ratchet teeth which, when the said plate is carried into a certain position, will engage the said pawl so that the latter thereafter will, for a time, impart motion to the supplementary plate, leaving the feed wheel idle meanwhile, substantially as specified.

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

JAMES T. HOGAN.

Witnesses:
ANTHONY GREF,
S. A. PALMER.