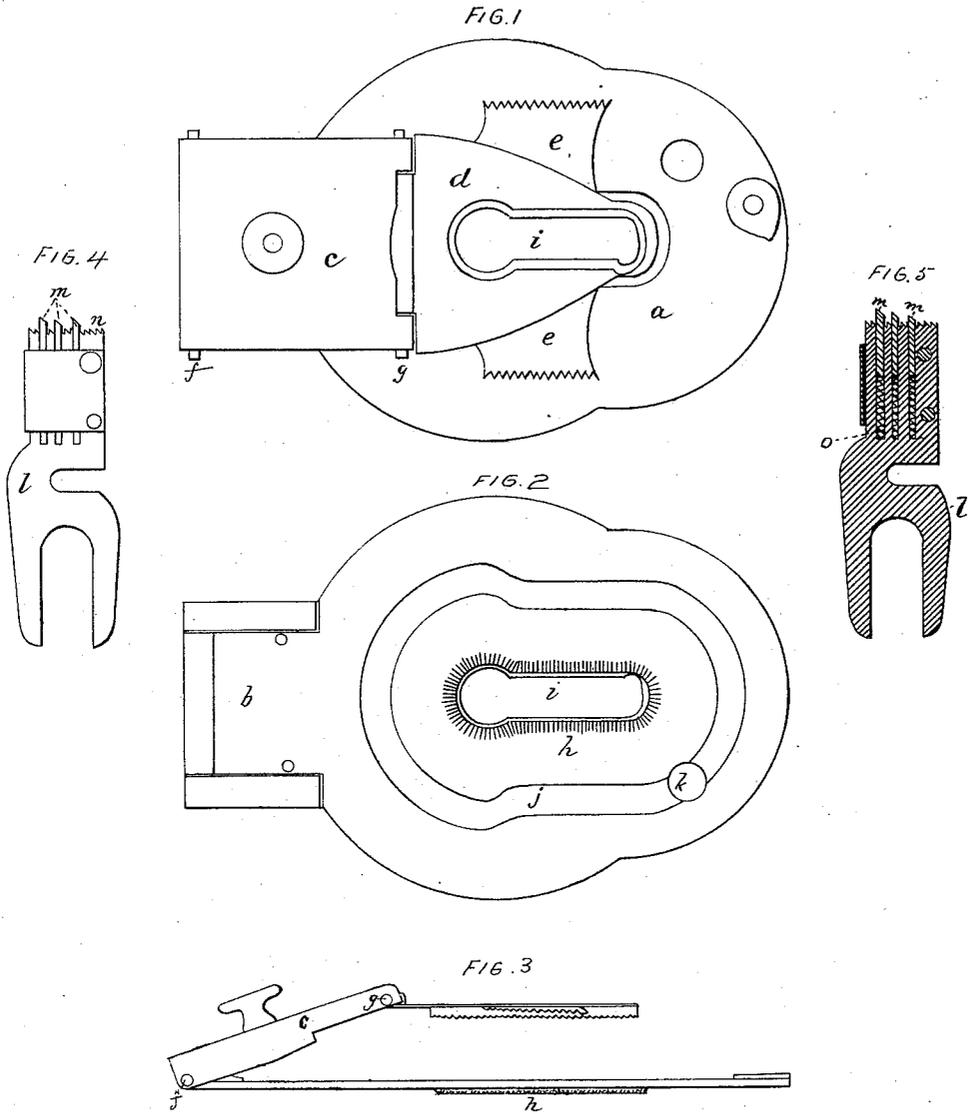


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Sewing-Machines for Button-Holes.

No. 156,048.

Patented Oct. 20, 1874.



WITNESSES.

Herbert P. Whitman.
G. W. Mayory

INVENTOR.

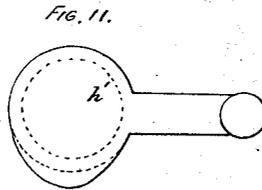
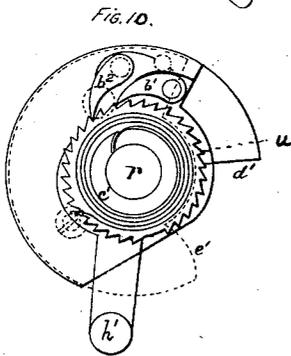
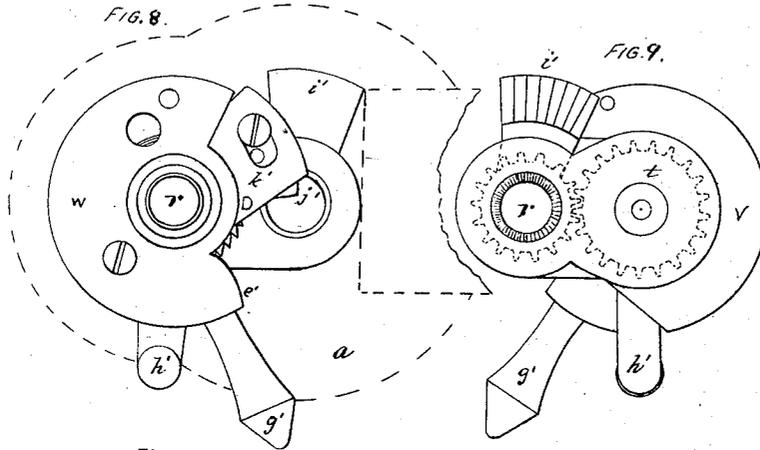
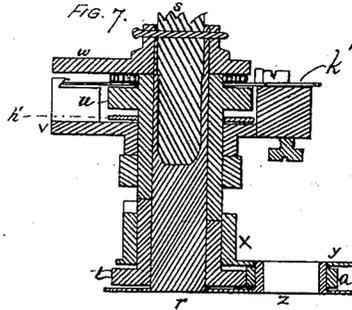
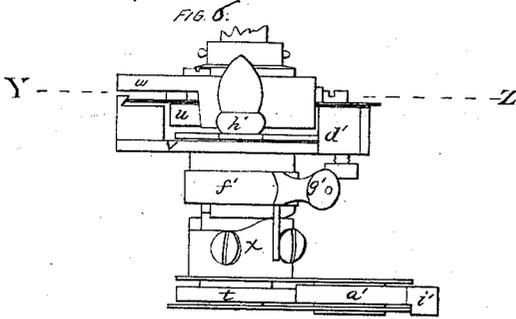
Kasimir Vogel

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UNITED STATES PATENT OFFICE.

KASIMIR VOGEL, OF CHELSEA, MASSACHUSETTS.

IMPROVEMENT IN SEWING-MACHINES FOR BUTTON-HOLES.

Specification forming part of Letters Patent No. **156,048**, dated October 20, 1874; application filed June 10, 1874.

To all whom it may concern:

Be it known that I, KASIMIR VOGEL, of Chelsea, in the county of Suffolk and Commonwealth of Massachusetts, have invented certain Improvements in Sewing-Machines, of which the following is a specification:

This invention relates to improvements which are adapted for use upon sewing-machines which are designed for the purpose of sewing seams, or upon machines to be used exclusively upon button-holes, or upon machines adapted to the work of either seams or button-holes.

My invention consists in a clamp provided with a toothed or serrated border on its under side, surrounding the button-hole shaped aperture, when used with a feed having yielding or spring teeth, as hereinafter described.

The invention further consists in a compound or double-pivoted cap, between which and the body of the clamp the fabric is secured while the button-hole is worked, the object of such double pivoting being to allow a perfect adaptation of the cap to irregularities of the fabric, thereby preventing motion of the same relatively to the body of the clamp, by the action of the presser-foot after the clamp has been closed.

The invention further consists in a presser-foot attachment, so constructed and arranged as that the reciprocating movement of the needle-bar serves, through the feeding devices attached, to produce a rotary movement of the fabric while the eye of the button-hole or an eyelet is being worked, as will be more fully described.

Figure 1 is a top or plan view of the clamp. Fig. 2 is an inverted or under-side view of the clamp. Fig. 3 is a side elevation of the clamp. Fig. 4 is a side elevation of the yielding metallic-toothed feeding device. Fig. 5 is a vertical section of Fig. 4, taken in a line parallel with the plane of the drawing-sheet. Fig. 6 is a side elevation of the presser-foot attachment. Fig. 7 is a vertical central section of Fig. 6, taken in a line parallel with the plane of the drawing-sheet. Fig. 8 is a top or plan view of Fig. 6, and showing the relative position of the clamp by dotted lines. Fig. 9 is an inverted or under-side view of Figs. 6 and 8. Fig. 10 is a horizontal section taken on

line Y Z, Figs. 6 and 7; and Fig. 11 is a top or plan view of the cam, by which the feeding-ratchet pawls are disengaged.

In the drawings, *a* represents the body of the clamp, formed with a projecting part, *b*, to which the hinge *c* is pivoted at *f*. The cap *d* is pivoted to the free end of hinge *c*, at *g*, as shown. Through clamp *a* is formed the usual button-hole aperture *i*, around the edge of which is the slightly-raised roughened or toothed border *h*, with which the feeding device engages when actuating the clamp. This border *h* may be formed of metal, in which the teeth are cut, which affords the requisite degree of contact by which the action of the feeding mechanism shall actuate the clamp. *e e* are wings attached to cap *d*, and which, by their serrated outer edges, serve to retain the fabric in position when the same has been sufficiently spread, to allow the needle to operate within the button-hole in working the same. *j* is a dovetail or locking groove, formed in the body of the clamp, and by which it is held to the bed by means of the interlocking head of a pin secured in the bed, and which is introduced within the groove through aperture *k*. By pivoting cap *d* to hinge *c*, so that the cap has an independent upward movement, and can also be depressed below the line of the hinge to the extent shown in Fig. 3, the cap is rendered susceptible of adjustment to all inequalities of the fabric, which it would not be were it rigidly attached to or formed as part of the hinge. *l*, Fig. 4, represents the body of the device, through which feed motion is imparted to the clamp, the form shown being adapted to the "American machine," so called. In the face of this device, and between the teeth cut thereon, the insertible teeth *m* are fitted to slide freely in their respective sockets. These inserted teeth are cushioned by coiled or folded springs *o*, inserted in the sockets, as shown in Fig. 5. By means of the yielding action of the teeth *m* the contact of several with the fabric is always assured, although it presents seams or other ridges, which, in case of rigid teeth in the feeder, would admit of the contact of but a limited number of teeth, insufficient to feed the fabric as intended. If still greater force

be required to impart the requisite feed motion to the goods, the pressure upon the feeder may be increased to the extent that both the inserted and rigid teeth shall act upon the fabric together.

The inserted yielding teeth shown in Figs. 4 and 5 are not only highly useful in the instances already specified, and for analogous uses, but they are also especially adapted to act in contact with the toothed border *h* formed upon clamp *a*, for the purpose of imparting motion thereto when in use, for the purposes described.

The presser-foot bar attachment is described as follows: *r*, Fig. 7, is a short spindle formed hollow in its upper portion for the insertion of the presser-foot bar *s*, as shown. *t* is a gear formed with a sleeve to revolve freely upon arbor *r*, as shown. *u* is a ratchet-wheel having a sleeve formed in connection with it, and arranged to revolve upon arbor *r*. These two sleeves are interlocked or clutched together in such manner that the rotation of the ratchet-wheel shall impart the same motion to the gear. *v* is a cam-disk, also formed with a short sleeve arranged to rotate freely on the sleeve of the ratchet *u*. *w* is a cap rigidly secured to arbor *r*. *a'* is a gear meshing into gear *t*, and is pivoted and supported between arm *z*, secured upon arbor *r*, and arm *y* formed upon the cam-sleeve *x*. *i'* is an arm secured to gear *a'* and rotating therewith. The under side of this arm is toothed or serrated, as shown in Fig. 9, for the purpose of feeding the goods, as will be described. *f'* is a collar provided with a lever, *g'*, and rotating on the sleeve of the ratchet *u*. This collar is formed with an incline corresponding to collar *x*, so that, by rotating collar *f'* in one direction arm *i'* is depressed upon the fabric, while, by an opposite movement of lever *g'*, the pressure of the arm *i'* through collar *x* is released. *b¹* and *b²* are pawls which engage ratchet *u*. The former is pivoted upon rotating disk *v*, and serves as the actuating-pawl, while pawl *b²* is pivoted upon cap *w* and serves as a holding-pawl, while *b¹* renews its hold upon the ratchet. *k'* is a thin sheet of metal secured to the raised part *a'* of disk *v*, and serves to shield the coiled spring *c'* from the ratchet *u* when it is rotated. *h'* is an eccentric or cam which, when rotated so as to bring its enlarged edge in contact with the pawls, serves to disengage them from the ratchet, when the latter can be instantly rotated to the position from whence the action of the pawls has removed it.

Rotation is imparted to disk *v*, by means of the needle-bar, through the following means: *e'* is a face or shoulder formed upon cap *w*, and *d'* is a similar face formed upon disk *v*, and between these faces the needle-bar moves. An

incline upon the bar acts against face *d'* at each ascent of the bar, thereby slightly rotating the disk and to the same extent actuating the pawls. When the bar descends the spring *c'* returns the disk into position for the action of the needle-bar, as before, the pawl *b¹* moving with disk *v*, while pawl *b²* retains the ratchet in position while the disk retreats, as before described. The rotation of the ratchet is imparted, by the means described, to gear *t*, and thence, through gear *a'*, to the feeding-arm *i'*, as described. Ratchet *u* has one tooth omitted, as shown in Fig. 13, for the purpose of arresting the action of the pawls when arm *i'* has moved the prescribed distance.

When this attachment is used in combination with clamp *a* the feeding devices connected therewith serve to move the clamp, when it travels in the straight lines, but when the circuit of the eye is to be made the eccentric *h'* is so actuated as to allow the pawls to engage ratchet *u*, when the arm *i'*, acting against the shoulder of the hinge *c* at *g*, serves to rotate the clamp and the fabric therein secured.

I claim as my invention—

1. In combination with clamp *a*, the hinge *c* and cap *d*, whereby the cap is rendered self-adjusting relatively to the surface of the goods in the clamp, substantially as described and shown.

2. The clamp *a*, having the toothed border *h*, in combination with a feed having yielding cushioned teeth *m*, substantially as and for the purpose specified.

3. The combination of arm *i'*, gear *a'*, and gear *t*, when the latter is arranged to revolve around the axial line of the presser-foot bar, substantially in manner as and for the purposes specified.

4. In combination with the rotary arm *i'*, the locking-cam *f'* and inclined lever-sleeve *x*, for depressing the arm, substantially as described and shown.

5. The combination of rotary disk *v*, cap *w*, pawls *b¹* and *b²*, and ratchet *u*, substantially as described and shown.

6. Disk *v* and cap *w*, with their respective bearing-faces *e'* and *d'*, in combination with a suitable actuating needle-bar for actuating the disk, substantially in manner as and for the purposes specified.

7. In combination with clamp *a*, the presser-foot attachment, constructed substantially as described, when arranged to rotate the clamp to present the eye portion of the button-hole to the needle, as set forth.

KASIMIR VOGEL.

Witnesses:

T. W. PORTER,
H. K. PORTER.