

(No Model.)

D. MILLS.

BUTTON HOLE SEWING MACHINE.

No. 298,607.

Patented May 13, 1884.

FIG. 1.

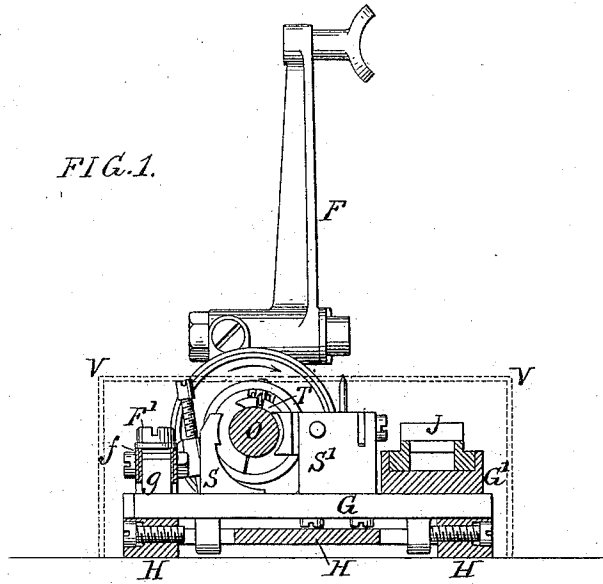


FIG. 4.

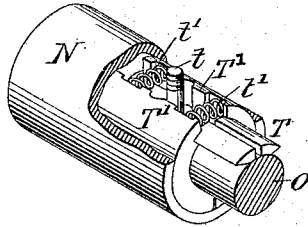


FIG. 3.

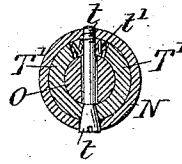
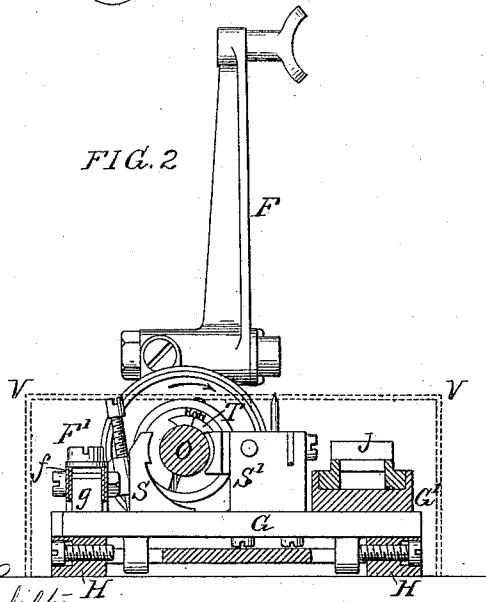


FIG. 2.



WITNESSES:

James F. Johns  
Harry L. Ashenfelter

INVENTOR:  
Daniel Mills  
by his Attys  
Howson & Sons

# UNITED STATES PATENT OFFICE.

DANIEL MILLS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE UNITED STATES AUTOMATIC BUTTONHOLE SEWING MACHINE COMPANY, OF NEW JERSEY.

## BUTTON-HOLE SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 298,607, dated May 13, 1884.

Application filed June 14, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, DANIEL MILLS, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Button-Hole Sewing Mechanism, of which the following is a specification.

My present invention consists of an improvement in the construction of the button-hole feed mechanism described in an application for Letters Patent filed by me March 5, 1883, Serial No. 87,153, and in Letters Patent referred to in said application.

In the accompanying drawings, Figure 1 is a transverse section of the sewing-machine attachment; Fig. 2, a precisely similar view with parts in a slightly different position; Fig. 3, a detached transverse section of the stop-cam devices; and Fig. 4, a perspective view, partly in section, of the same parts.

My present invention consists in the combination, with the stop-cam T for the primary slide G, of devices for allowing a portion of the cam to yield to a limited extent in case its forward edge should come into contact with one of the projecting stops. The remaining parts of the mechanism may remain unaltered, and in the drawings I have illustrated precisely the same parts and used the same letters of reference as in my aforesaid application.

For the purpose of explaining my present invention, it will suffice to note that H is the base-plate of the attachment, on which is guided the transverse primary slide G, with ways G' for the secondary slide J. Intermittent reciprocating motion is imparted to this slide G from the lever F' through the medium of springs *f f* acting on a stud, *g*, on the slide. On this slide G are mounted the projections S S', which together form the usual yoke on opposite sides of the shaft O, mounted in bearings on the base-plate H. These projections S S' are provided with the usual curved faces, which are acted on by the adjustable stop-cam T on the shaft O, the latter having an intermittent rotary motion imparted to it by means of a suitable friction-feed.

I find that in operating the machine at a high speed, the shaft O turning intermittently in the direction of the arrow, Fig. 1, the cam

T may strike the edge of the curved face of one of the projections S S' and be arrested, as indicated in Fig. 1, for a sufficient length of time to break or injure some part of the machine before the movement of the slide G carries the projection S or S' out of the line of movement of the cam T. To prevent injury to any part of the machine from this cause I make a change in the construction of and utilize the devices for adjusting the cam T. In my aforesaid application the cam is made in two parts, and is described as being expanded by a radial taper screw against the action of a spring, which tends to bring the two portions of the cam together. In my present improvements, as shown in Figs. 3 and 4, the two segments T' T'', which carry the two parts of the cam T, are expanded by the action of one or more springs, *t' t'*, as the withdrawal of a wedge or taper screw, *t*, will permit, while the inward adjustment of the taper screw or wedge *t* will bring the two parts of the cam T toward each other against the action of the springs *t' t'*. Thus, should the forward edge of the cam T strike one of the projections S S', these springs *t' t'* will allow that portion of the cam to turn on the shaft O to an extent limited by the relative position of the other part of the cam, as indicated in Fig. 2, until the return movement of the slide withdraws the projection and allows the forward half of the cam to resume its normal position on the shaft.

I claim as my invention—

The combination of a rotating shaft and a slide having projections with a stop-cam carried by said shaft and made in two adjustable sections, a spring or springs interposed to permit the said sections to yield toward each other, and a wedge or taper screw to bring the sections together against the action of the springs, substantially as specified.

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

DANL. MILLS.

Witnesses:

HARRY L. ASHENFELTER,  
HARRY SMITH.