

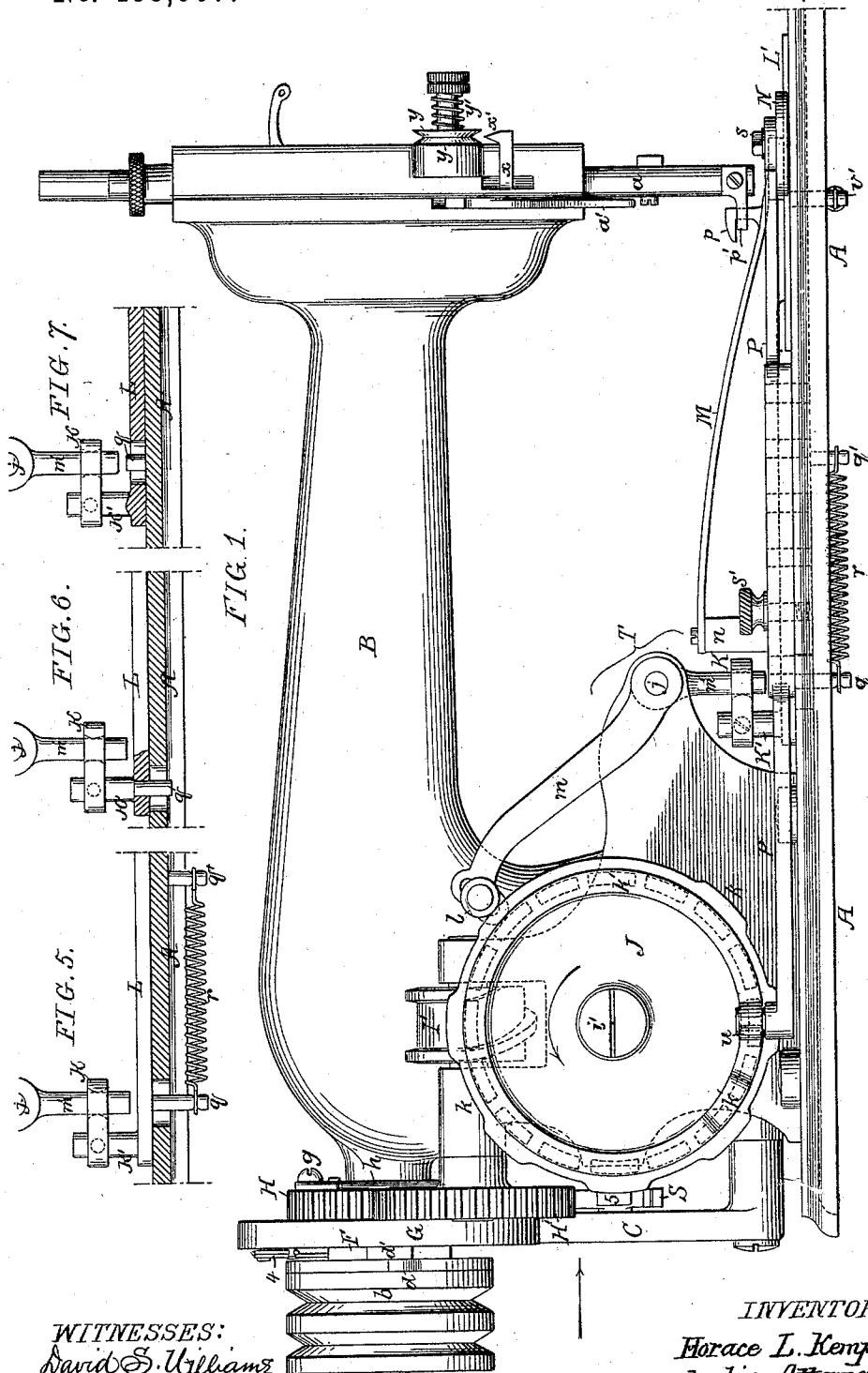
(No Model.)

3 Sheets—Sheet 1.

H. L. KEMP.
SEWING MACHINE.

No. 466,607.

Patented Jan. 5, 1892.



WITNESSES:
David S. Williams
Hamilton W. Turner.

INVENTOR:
Horace L. Kemp
 by his Attorneys
Hewson & Hewson

(No Model.)

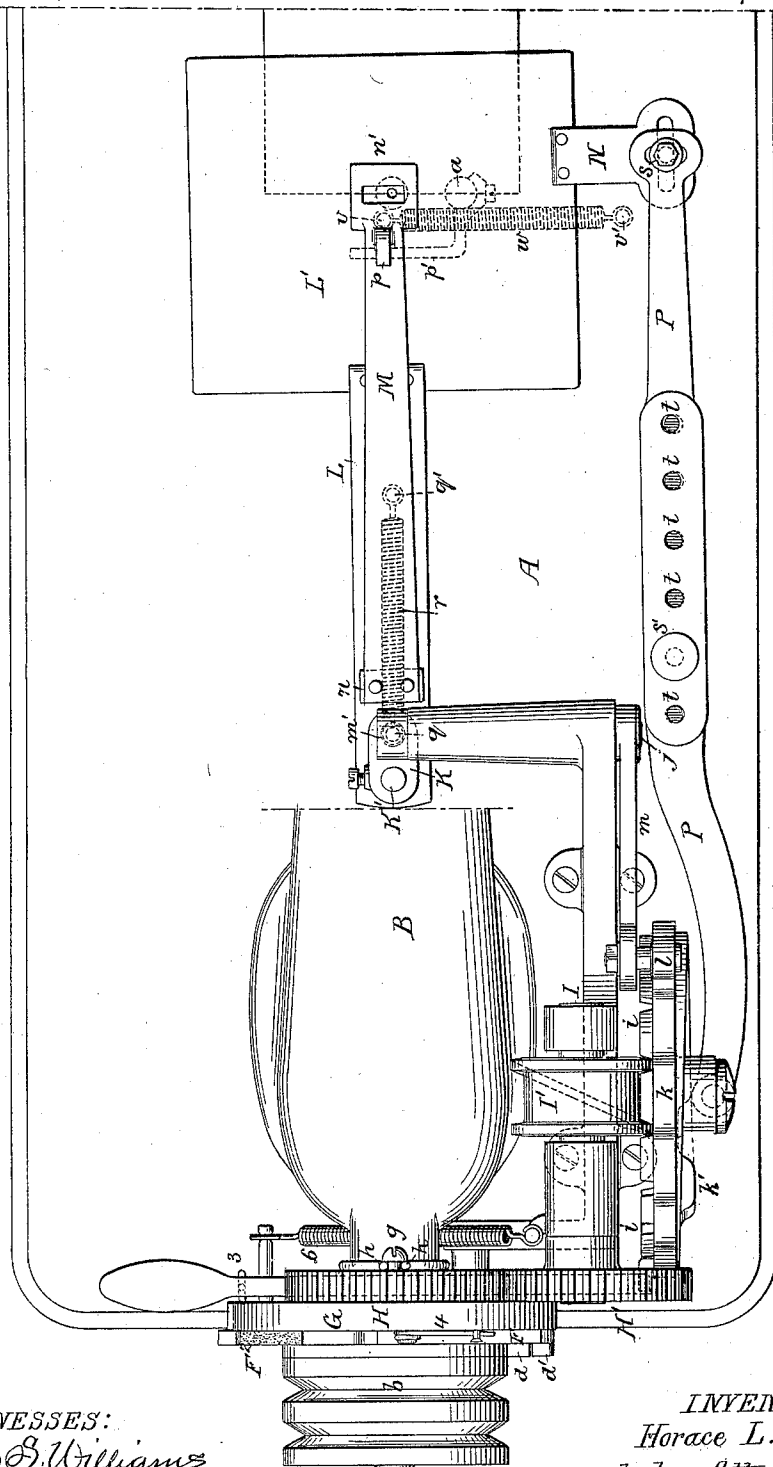
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FIG. 2.



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(No Model.)

3 Sheets—Sheet 3.

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FIG. 3.

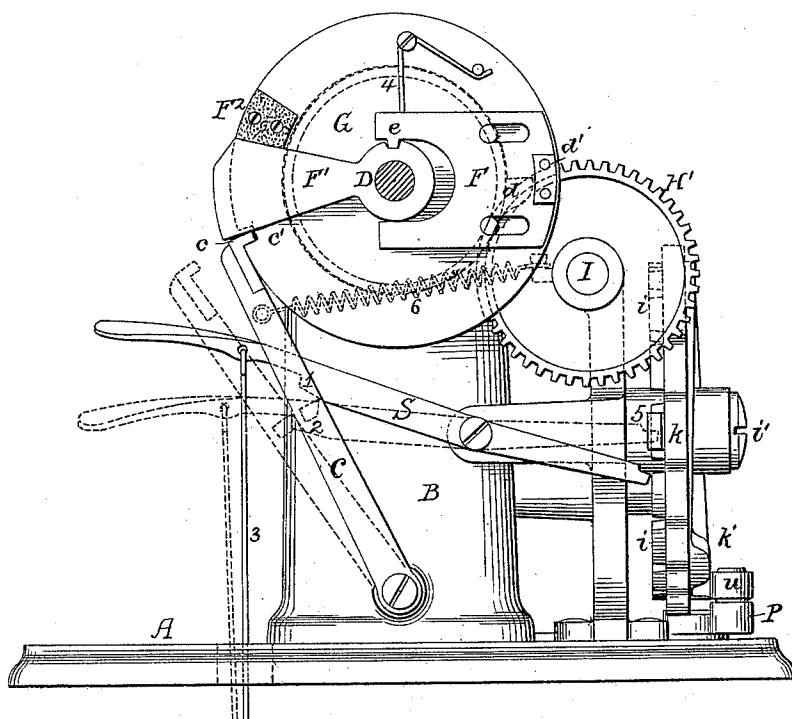
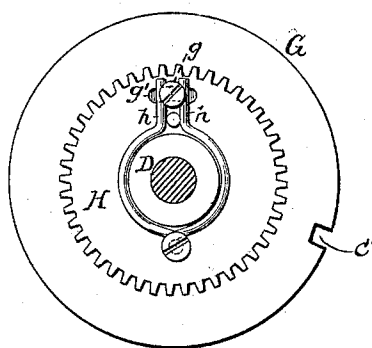


FIG. 4.



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UNITED STATES PATENT OFFICE.

HORACE LEROY KEMP, OF GLOUCESTER, ASSIGNOR, BY MESNE ASSIGNMENTS,
TO THE PHILADELPHIA BARRING MACHINE COMPANY, OF CAMDEN, NEW
JERSEY.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 466,607, dated January 5, 1892.

Application filed July 19, 1888. Serial No. 280,423. (No model.)

To all whom it may concern:

Be it known that I, HORACE LEROY KEMP, a citizen of the United States, and a resident of Gloucester, Camden county, New Jersey, have invented certain Improvements in Button-Hole-Barring and Like Machines, of which the following is a specification.

My invention consists of certain improvements in or modifications of the button-hole-barring machine forming the subject of my Letters Patent No. 372,226, dated October 25, 1887, the main objects of my improvements being to simplify the construction of parts of the machine and to improve the operation of other parts of the same.

These improvements and the manner in which they effect the desired objects are fully set forth hereinafter, reference being had to the accompanying drawings, in which—

Figure 1 is a side view of a button-hole-barring machine constructed in accordance with my invention. Fig. 2 is a plan view of the same with the outer portion of the projecting arm of the machine and the parts carried thereby removed in order to show the character of the clamp for the fabric. Fig. 3 is an end view of the machine looking in the direction of the arrow, Fig. 1. Fig. 4 is a view showing part of the driving device. Fig. 5 is a sectional view of part of the device, and Figs. 6 and 7 are views illustrating modifications of part of the invention.

The machine is similar in its general character to that forming the subject of my former Letters Patent, A being the bed-plate of the machine, and B the projecting arm of the same, which has at the outer end the usual guides for the needle-bar and for a presser-bar *a*, which can be raised by means of a cam-lever *a'* at one side of the head, as usual.

On the main shaft D of the machine is a loose pulley *b*, which receives a belt from any adjacent counter-shaft and has a finger *d*, which is adapted to engage with a lug *d'* on a slide F, carried by a disk G, the slide having a tooth *e* engaging with a notch in the hub of a swinging arm F', which is acted upon by a stop-arm C, having a toe *c* to enter a notch or recess *c'* in the periphery of the disk

G and thus effect the stoppage of the same, as fully set forth in my former patent.

Secured to the shaft D is a spur-wheel H, which is connected to the loose disk G by means of a pin *g*, projecting through a segmental slot *g'* in the spur-wheel and confined between opposite spring-arms *h*, carried by said spur-wheel, so that said wheel is free to move laterally in either direction to a limited extent when the disk G is suddenly stopped by the toe *c* entering the nick in the disk. Hence a like sudden stoppage of the spur-wheel does not necessarily follow, and there is not that strain upon the teeth of the spur-wheel that there otherwise would be and less likelihood of the breaking of these teeth on the stopping of the machine.

The spur-wheel H meshes into a pinion H' on a shaft I, which is adapted to suitable bearings on the frame of the machine, and is provided with a worm I', which engages with worm-teeth *i*, formed on the back of a combined peripheral and scroll cam J, free to turn on a stud *i'*, projecting from the frame, this construction being similar to that shown in my former patent, with the exception that in the present case the combined peripheral and scroll cam and the worm-wheel form one structure, whereas in the former machine the cam was carried by a shaft or sleeve having a worm-wheel at the other end. The present construction materially simplifies and cheapens these parts of the machine. As in the former case the elevations and depressions of the peripheral cam *k* serve to effect the short longitudinal movements of the clamp for the fabric, while the face or scroll cam *k'* effects the comparatively long transverse movements of said clamp, the character of the clamp, however, and of the devices through the medium of which the combined peripheral and scroll cam is caused to act upon the same being essentially different from those of the former patent.

The peripheral cam *k* acts upon a roller *l*, carried by what may be termed a "lever" T, comprising the arms *m m'* and the intermediate rock-shaft *j*, the latter being adapted to a suitable bearing on the frame of the ma-

chine. The arm *m* of the lever carries the roller *l*, and the arm *m'* is adapted to an opening in an arm *K*, carried by a pin *K'*, which is secured to the inner end of the arm *L* of the clamp for the fabric, the outer end of the arm being secured to the plate *L'*, which forms the lower plate of said clamp. The upper plate of the clamp consists of a spring-arm *M*, secured to a post or stud *n* on the arm *L*, and having at the outer end a slotted plate *n'* for bearing upon the work and holding it firmly down upon the bottom plate *L'* of the clamp, which is likewise slotted for the passage of the needle.

The character of the spring-arm *M* is such that it has an inherent tendency to press the upper clamp-plate *n'* down upon the lower plate *L'*; but the forward end of said spring-arm *M* has a hook *p*, with which engages an arm *p'* on the presser-bar *a*, so that when the latter is lifted the free end of the arm *M* is likewise raised and the material released from the control of the same.

The arm *L* of the clamp-plate has a downwardly-projecting pivot-pin *q*, adapted to a longitudinal slot in the bed-plate *A*, as shown in Fig. 5, and between this pin and a pin *q'* on the under side of the bed-plate *A* is interposed a coiled spring *r*, the tendency of which is to draw the pin *q* and arm *L* forward, thus imparting a like movement to the pin *K'* and to the arm *m'* of the lever *T*, so as to cause the roller *l* of the latter to bear firmly upon the face of the peripheral cam *k*. Hence by the combined action of this spring and of the peripheral cam short and intermittent longitudinal movements may be imparted to the clamp-plate.

If desired, the weight of the arm *m* of the lever *T* may be such as to have substantially the same effect as the spring *r*, in which case the latter may be dispensed with.

The clamp-plate *L'* has at one side an arm *N*, slotted for the reception of a pin *s* at the outer end of one arm of a lever *P*, the latter being fulcrumed upon a pin *s'*, adapted to one of a series of openings *t* in the lever and to a corresponding one of a like series of openings in the bed-plate *A*, as shown by dotted lines in Fig. 1, so that the relative length of the two arms of the lever may be varied as the desired throw of the same may require. The longitudinal movement of the clamp-plate may be varied by adjusting the block or plate *K* vertically on the pin *K'* and on the arm *m'* of the lever *T*, the throw of said arm *m'* being thereby practically lengthened or shortened. The rear end of the lever *P* has an anti-friction roller *u*, which is acted upon by the scroll-cam *k'*, so as to impart the long transverse movements to the clamp-plate *L'*, the latter swinging upon the pivot-pin *q* in making these movements, and a pin *v*, projecting from the under side of the plate, being connected to a pin *v'* on the under side of the bed-plate *A* by means of a spring *w*, the tendency of which is to maintain the roller *u*

of the lever *P* constantly in contact with the face of the scroll-cam *k'*. All guides for the clamp-plate on the bed of the machine are thus rendered unnecessary, the construction of the machine being hence simplified and the friction materially reduced.

The end of the lever *P* is slotted for the reception of the pin *s*, and the arm *m* of the lever *T* is likewise slotted for the reception of the pin of the roller *l*, so that accurate adjustments of the clamp-plate *L'* are possible.

If desired, the pin *K'* may form the pivot for the clamp-plate, as shown, for instance, in Fig. 6, or the pivot-pin may be stationary and the arm *L* slotted longitudinally for the reception of the same, as shown in Fig. 7.

In barring the ends of button-holes on a machine of this class it is the usual practice to shift from one button-hole to another without breaking the thread. Hence it is advisable to relieve the thread from tension during the time that the work is being shifted. I therefore provide the presser-bar *a* of the machine with a projecting arm *x*, terminating in a wedge *x'*, which, as the presser-bar is lifted, enters between the friction-disks *y y* of the tension device and separates the same to such an extent as to relieve the thread from tension, the disks being normally pressed together by means of a spring *y'*, acted upon by a suitable adjusting-nut.

The means for operating the stop-arm *C* in the present machine are somewhat different from those employed in the patented machine and comprise a trip-lever *S*, hung to a suitable pin on the fixed frame of the machine, this lever having a shoulder 1 for engaging with a lug 2 on the inner side of the stop-arm.

In starting the machine the long arm of the lever *S* is depressed by means of a cord or rod 3, connected to a suitable treadle, the under side of the arm acting upon the lug 2 and serving to move the stop-arm outward, so as to withdraw its toe *c* from the notch *c'* in the disk *G*, the stop-arm being held in this retracted position by the engagement of the lug 2 of the same with the shoulder 1 of the tripping-lever. When the toe *c* of the stop-arm is out of the path of the swinging arm *F'*, the slide *F* of the disk *G* is moved into operative position by a spring 4, as in the patented machine, and when the machine has made the proper number of revolutions a lug 5 on the back of the cam *J* strikes the short arm of the trip-lever *S* and operates the same, so as to withdraw the shoulder 1 from engagement with the lug 2 of the stop-arm *C*, which is thereupon actuated by a spring 6, so as to draw its toe into engagement with the swinging arm *F'* and with the notch in the periphery of the disk *G*. The spring-arm *F'* abuts against a block *F²*, of rubber or other elastic or semi-elastic material, on the disk *G*, so that said disk *G* is subjected to a retarding influence before the toe *c* of the stop-lever enters the notch *c'* in the disk, shock or jar being thereby materially reduced.

It will be evident that my improved machine is adapted for other purposes than the barring of button-holes. For instance, it may be used for barring or staying the ends of pockets or other parts of garments, and it may even be used for sewing on buttons, the character of the cams k and k' being in this case modified to accord with the modified movement of the clamp required.

10 Having thus described my invention, I claim and desire to secure by Letters Patent—

1. The combination of the presser-bar of the machine having a projecting arm with a work-holding clamp consisting of a lower plate and an elastic upper arm secured to and movable with the lower plate and normally in contact with the latter at its free end, said elastic upper plate having adjacent to said free end a hook for engaging with the arm on the presser-bar, substantially as specified.

2. The combination of the lower clamp-plate, a pivot-pin at the rear end of the same, a projecting post on the plate, two levers, one hung so as to impart longitudinal movement to the plate and the other hung so as to impart transverse swinging movement thereto, cams for actuating said levers, and a link connecting the post on the plate to the lever-arm adjacent thereto, said link being adjustable both on said arm and on said post, so as to readily vary the throw of the lever, substantially as as specified.

3. The combination of the clamp, levers connected thereto, a worm, and means for rotating the latter with the within-described

compound cam, said cam having a scroll-cam on the face for acting on one lever, elevations and depressions forming a peripheral cam for acting on the other lever, and projecting teeth forming an annular worm-wheel on the back for engagement with the worm, all substantially as specified.

4. The combination of the clamp, the cam-disk and lever mechanism for operating said clamp, the driving-disk, transmitting-gearing between the same and the cam, a stud projecting from the disk and through a segmental slot in the spur-wheel of said gearing, and spring-arms carried by said spur-wheel and bearing against the opposite sides of the stud, substantially as specified.

5. The combination of the clamp, the cam-disk and lever mechanism for operating said clamp, gearing for driving the cam-disk, a driving-disk having clutch-slide, swinging arm, and peripheral notch, the stop-arm having a toe for actuating the clutch-slide and entering the notch of the disk, a lug on said stop-arm, the trip-lever having a shoulder engaging with said lug, and a lug on the cam-disk for actuating said trip-lever, all substantially as specified.

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

HORACE LEROY KEMP.

Witnesses:

EDWARD M. RILEY,
HARRY SMITH.