

No. 627,748.

Patented June 27, 1899.

J. GUTMANN.  
HEMSTITCH EMBROIDERING MACHINE.

(Application filed Nov. 19, 1898.)

(No Model.)

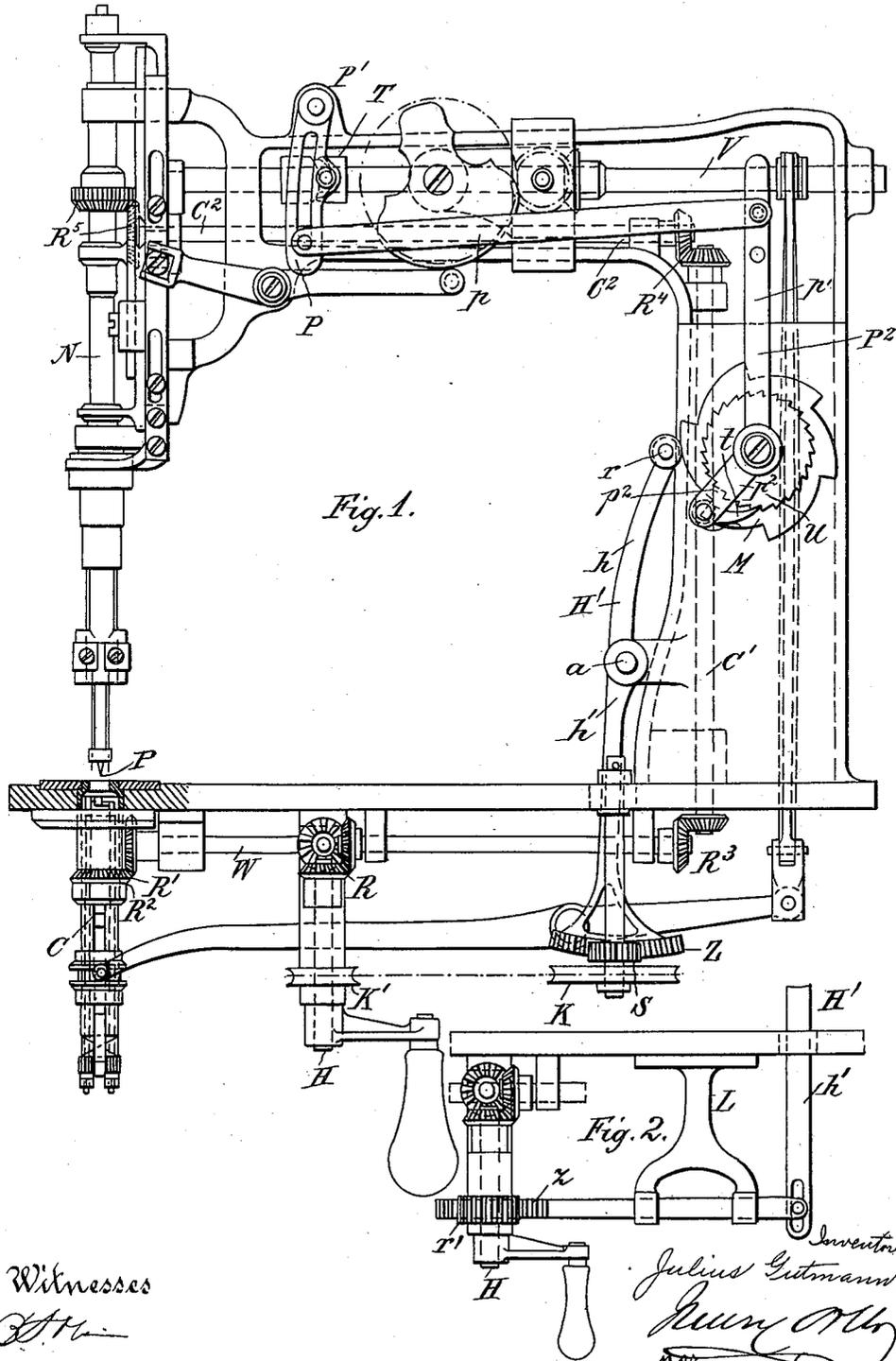


Fig. 1.

Fig. 2.

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# UNITED STATES PATENT OFFICE.

JULIUS GUTMANN, OF BERLIN, GERMANY, ASSIGNOR TO FABRIK FÜR SPEZIALNAHMASCHINEN ACTIEN-GESELLSCHAFT, (PATENTE JULIUS GUTMANN,) OF ZURICH, SWITZERLAND.

## HEMSTITCH EMBROIDERING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 627,748, dated June 27, 1899.

Application filed November 19, 1898. Serial No. 696,898. (No model.)

*To all whom it may concern:*

Be it known that I, JULIUS GUTMANN, a subject of the King of Prussia, German Emperor, residing at the city of Berlin, Germany, have invented certain new and useful Improvements in Curved or Winding Seam Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of my said invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this application.

This invention has relation to sewing-machines organized to produce the point d'échelle or Jacob's-ladder stitch of the type shown and described in Letters Patent of the United States granted to me February 28, 1899, No. 620,304, and organized to produce curved or winding seams. In these machines, as well as in others organized to produce irregular and particularly curved or winding seams, it is necessary to impart to the needle-bar, to the work-holder, and to the looper or shuttle synchronous rotary movements in conformity with the curvatures of the seam to be produced, and this has heretofore been done by hand. As is well known, the transmission of these rotary movements to the parts referred to cannot be effected by hand with the precision required for the exact duplication or successive reproduction of a given pattern.

This invention has for its object the provision of means whereby this necessary rotation is mechanically imparted to the needle-bar and needle-plate and to the looper or shuttle through the medium of a pattern-wheel and mechanism operated thereby.

In the accompanying drawings I have illustrated in Figure 1 a sewing-machine organized as shown and described in my patent above referred to and embodying my improvements, and in Fig. 2 I have shown a fragmentary elevation illustrating a modification in the mechanism whereby the needle-bar and the looper or shuttle housing to which the needle-plate is attached are simultaneously turned.

Inasmuch as the general construction of the

machine is fully described in my said patent a description of the mechanism for mechanically imparting synchronous rotary movements to the needle-bar and to the looper or shuttle housing or casing with which the work-plate is connected will suffice.

On the main driving-shaft V of the machine is secured a cam-grooved sleeve T, into the groove of which projects a stud (which preferably carries a roller) secured to a link P, pivoted at P' to the machine-arm and provided with a longitudinal segmental slot connected with one end of a connecting-rod p, whose other end is connected with the longer arm p' of a two-armed lever P<sup>2</sup>, fulcrumed upon a stud or pin, on which is loosely mounted a pattern cam or wheel M, that has secured thereto or formed integrally therewith a ratchet-wheel U, engaged by a spring-controlled pawl t, pivoted to the shorter arm p<sup>2</sup> of said lever P<sup>2</sup>. The cam-groove in sleeve T on driving-shaft V is of such a configuration as that during the rotation of said shaft the link P is oscillated, whereby the lever P<sup>2</sup> is rocked on its pivot and a progressive rotary movement imparted to the pattern cam or wheel M by the pawl t. A two-armed lever H' is pivoted to a stud a on the machine-arm, the upper arm of which lever carries a roller r, held in contact with the pattern-wheel by any well-known means, (not shown)—as, for instance, by a spring connected with the arm h and with the machine-arm or by a spring coiled upon the lever-pivot a, the free end of which spring acts upon the arm h' of said lever H' to maintain the roller r on its arm h in contact with said pattern-wheel. The arm h' of lever H' has at its lower end a toothed rack Z in gear with a pinion S, revolvable on a spindle depending from the bed-plate of the machine, and said spindle also carries a belt or cord pulley or a sprocket-wheel K, belted or corded to a like pulley or connected with a like sprocket-wheel K' on the shaft H, to which is secured the crank-handle, whereby the needle-bar and the looper or shuttle housing are turned automatically or can be turned by hand. It will thus be seen that at each oscillation of the

lever H' rotary movements are imparted to the crank-shaft H and therethrough to the looper or shuttle housing or casing and to the needle-bar by means of mechanism substantially such as shown and described in my patent hereinbefore referred to. These rotary movements of the pulley or sprocket K' are transmitted to the looper or shuttle housing through the bevel-gearing R, spindle W, and bevel-gearing R' R<sup>2</sup> and to the needle-bar through the bevel-gearing R<sup>3</sup> R<sup>4</sup> R<sup>5</sup> and spindles C' and C<sup>2</sup>.

In the modification shown in Fig. 2 the lower end of the arm h' of lever H' is pivotally connected with a rack-bar z in gear with a pinion r' on the crank-shaft H, said rack-bar being guided in a suitable bracket on the under side of the bed-plate of the machine.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. In a sewing-machine such as described, the combination with the stitch-forming appliances, consisting essentially of a reciprocating needle-bar free to revolve in its bearings, an oscillating looper or shuttle and its housing the latter carrying the needle-plate, the described mechanism for synchronously revolving said needle-bar and looper-housing, and the driving-shaft H of said mechanism carrying a hand-crank; of the pattern-wheel

M on the vertical machine-arm, the main driving-shaft V, mechanism operated by said shaft and imparting to the pattern-wheel a progressive rotation, the rock-lever H' trailing on the pattern-face of said wheel, and mechanism operated by said rock-lever to revolve the aforesaid shaft H, substantially as and for the purpose set forth.

2. In a sewing-machine such as described, the combination with the stitch-forming appliances, the mechanism for synchronously revolving the needle-bar and looper or shuttle housing, the driving-shaft H for said mechanism and the main shaft V, of the pattern-wheel M on the vertical machine-arm, the ratchet-wheel U revoluble with said wheel, the rock-lever P<sup>2</sup> and its pawl in engagement with said ratchet, the slotted link P connected with lever P<sup>2</sup> and oscillated by the main shaft, the rock-lever H' trailing on the pattern-face of the pattern-wheel, and gearing operated by said lever and geared to the aforesaid shaft H, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JULIUS GUTMANN.

Witnesses:

HENRY HASPER,  
C. H. DAY.