2 Sheets—Sheet 1.

P. E. GULLRANDSEN & J. C. RETTINGER.

GLOVE SEWING-MACHINE.

No. 180,225. Patented July 25, 1876.

Fig: 1.

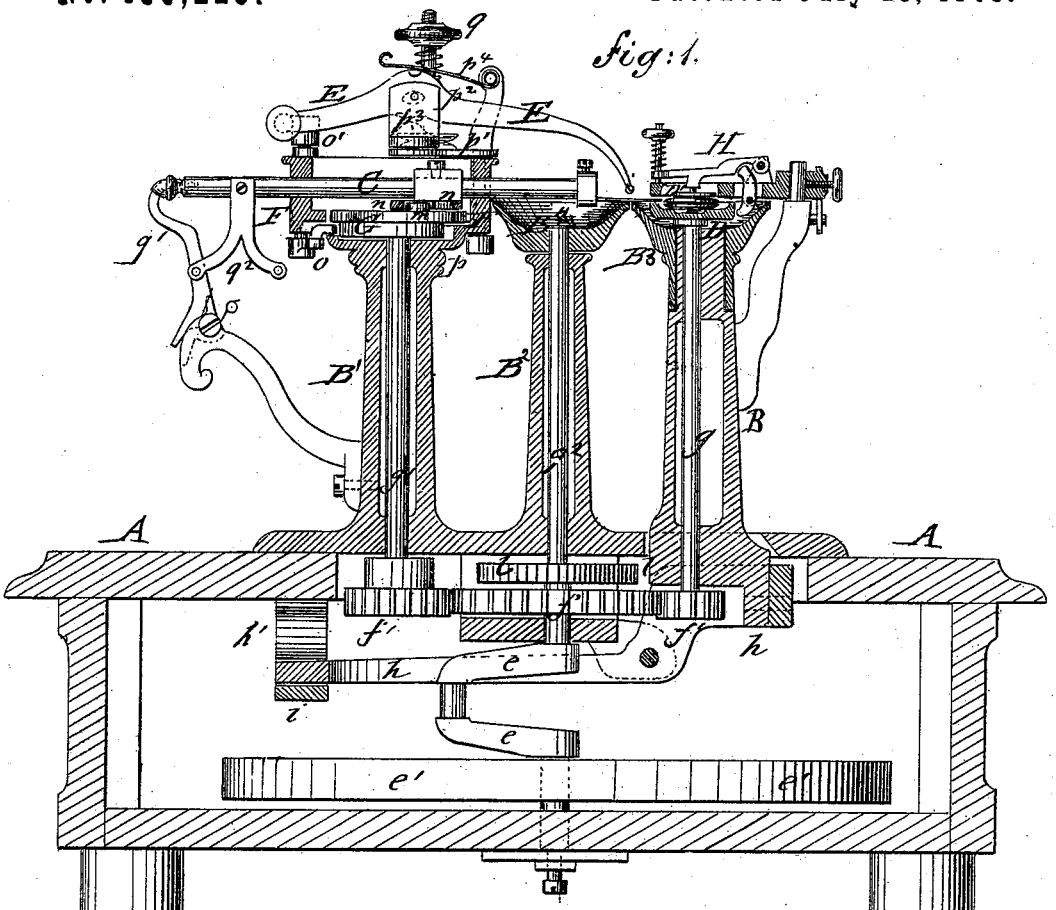
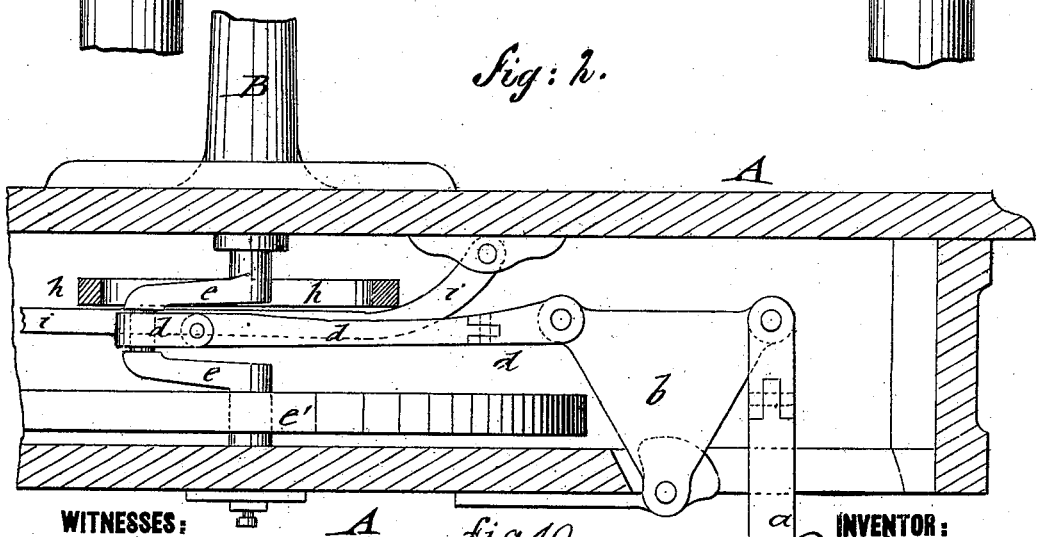


Fig: 2.



WITNESSES:

Chas. Nida
John Goetzals

Fig 10.

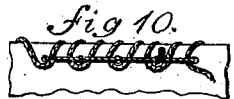


Fig 11.

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BY Munn & Co

ATTORNEYS.

2 Sheets—Sheet 2.

P. E. GULLRANDSEN & J. C. RETTINGER.

GLOVE SEWING-MACHINE.

No. 180,225. Patented July 25, 1876.

Fig: 3

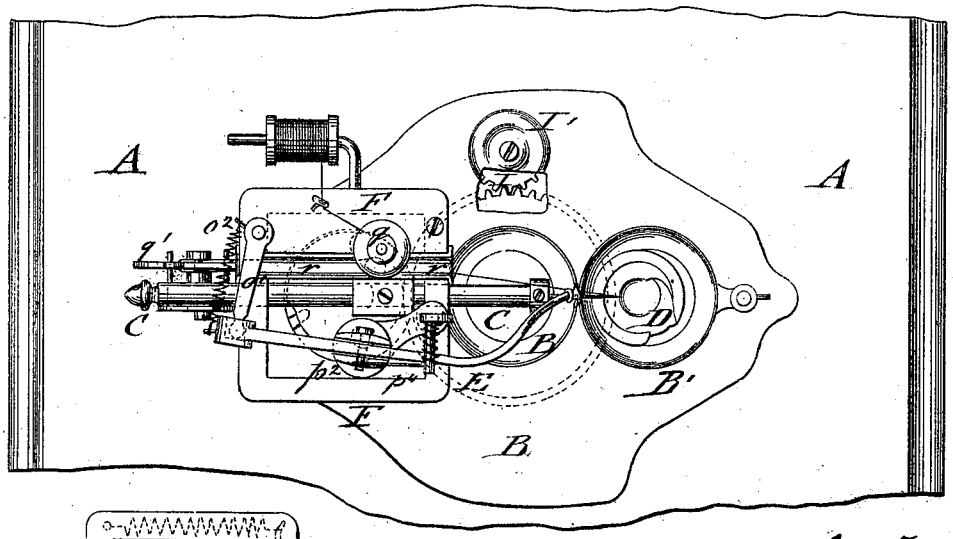


Fig: 5.

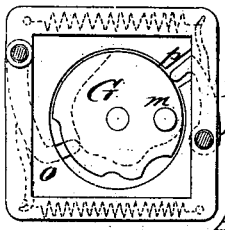


Fig: 4

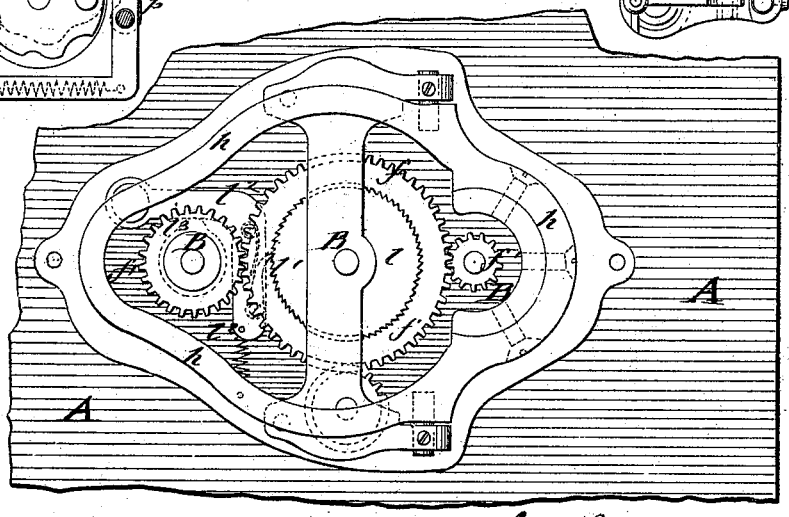


Fig: 7.

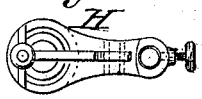


Fig: 6

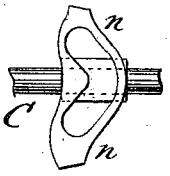


Fig: 8

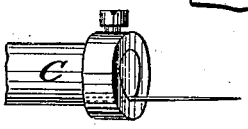
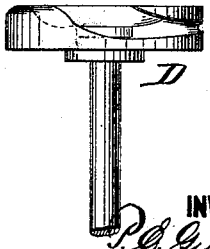


Fig: 9.



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INVENTOR:
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BY J. C. Rettinger
Munn & Co
ATTORNEYS.

UNITED STATES PATENT OFFICE.

PETER E. GULLRANDSEN AND JOHAN C. RETTINGER, OF COPENHAGEN, DENMARK.

IMPROVEMENT IN GLOVE-SEWING MACHINES.

Specification forming part of Letters Patent No. **180,225**, dated July 25, 1876; application filed January 24, 1876.

To all whom it may concern:

Be it known that we, PETER E. GULLRANDSEN and JOHAN C. RETTINGER, of Copenhagen, Denmark, have invented a new and Improved Machine for Sewing Gloves, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a vertical longitudinal section of our improved glove-sewing machine; Fig. 2, a detail side view of the actuating mechanism; Fig. 3, a top view of the machine; Fig. 4, a bottom view of the gearing transmitting motion from the main shaft to the side shafts; Fig. 5, a detail top view of the actuating mechanism of the cross-stitching device. Fig. 6 is a detail bottom view of the needle-bar-actuating cam; Fig. 7, a detail top view of the bobbin-tension device; Fig. 8, a side view of the needle-bar, showing attachment of needle; and Fig. 9 is a side view of the rotating hook. Figs. 10 and 11 are face and back views of the stitch made by our machine.

Similar letters of reference indicate corresponding parts.

The object of our invention is to construct a glove-sewing machine on the revolving-hook system, which produces with two threads a stepping and cross stitch, that resembles and equals the best sewing done by hand, and makes the seams strong and durable.

The invention consists of glove-feeding cups, reciprocating needle-bar with tension devices, a rotating hook with bobbin and tension, and a compound mechanism for operating the cross-stitching device. The horizontal actuating mechanism of the parts is inclosed below the table, and operated by a treadle, the glove-feeding cups being run close to each other, or at some distance from each other, to take hold or relinquish the work by means of a pressure-spring and releasing treadle-connection.

In the drawing, A represents the supporting-table of our improved glove-sewing machine, which is placed on a frame similar to that of common sewing-machines, and provided with two treadles—one to set the machine in motion, the other to control the glove-feeding cups. The actuating mechanism is arranged in a horizontal manner below the table, the main treadle being connected to the same by the pivoted treadle-rod *a*, which is pivoted to a swinging triangular piece, *b*, that is again applied, by pivot-links *d*, to the main crank *e*, imparting by the motion of the treadle rotary motion to the same. The crank *e* turns in bearings of the table A, and has at the lower end a horizontal fly-wheel, at the upper end a cog-wheel, *f*, that gears with two cog-wheels, *f'*, of which the front wheel turns the shaft *g* of the rotating hook D, while the rear cog-wheel turns the actuating-shaft g^1 of the cross-stitching device. The upright revolving shafts *g* and g^1 are placed inside of pillars B and B^1, of which three are supported on the table, the central pillar B^2 serving to carry the feed-shaft g^2 and cup. The central and rear pillars B^2 B^1 are fixed in stationary manner to the table A. The front pillar B, however, is secured, by strong fastening-screws or otherwise, to a swinging lever-frame, *h*, a recess in the table admitting the adjustment of front pillar B. The lever-frame *h* is of oval shape, as shown in Fig. 4, and hinged to bearings at the bottom of frame A, a strong spring, *h'*, acting on the part of frame *h* opposite to the front pillar B, and forces thereby that end of the lever-frame down, raising thereby the front pillar B, and carrying the rim of a loose cup, B^3, at the upper end of the same against the rim of the revolving cup B^4, applied rigidly to the central feed-shaft g^2. A second treadle connects by its rod to a pivoted arm, *i*, that passes across the swinging lever-frame *h*, and raises the same when the front part of the treadle is depressed, so that its rear part and rod are forced in upward direction. The spring *h'*, acting on the lever-frame, causes the approach and tight binding of the cups, so as to feed forward the leather or other fabric placed between the same, the depression of the treadle separating the cups, and admitting the inserting and detaching of the work. The feed-cup B^2 of the central shaft is revolved by a ratchet-wheel, *l*, at the lower end of the shaft, which is engaged by a pawl, l^1, of an angular spring-acted arm, l^2, that is acted upon by an eccentric or cam, l^3, of the rear shaft, (shown in Fig. 4,) so that each revolution of the shaft moves the ratchet-wheel one tooth, and feeds thereby the cups and leather for-

ward for a stitch. The upper circumference or rim of the cups is made parallel, or nearly so, and slightly roughened or milled, for the purpose of firmly holding the fabric to be sewed, and feeding the same to the stitching-needle.

The shaft of the rear pillar serves the two-fold purpose of actuating the horizontal needle-bar C, which is guided in a square frame, F, at the top of the pillar, and reciprocated by the eccentric pin *m* of a cam-wheel, G, keyed to the rear shaft, and engaging a curved slotted piece, *n*, of the needle-bar. (Shown in Fig. 6.)

The cam-wheel G is shown in Figs. 1 and 5, and is made of an upper and lower section, of which each is peculiarly formed—the lower one to engage an angular arm, *o*, pivoted to frame F, the upper to engage a similar arm, *p*, pivoted at the front end of frame F.

A fixed arm, o^1, is keyed to the upper end of the pivot of arm *o*, and connected by a loose ball-and-socket joint to the rear end of the cross-stitching lever E, which is further applied to the fixed arm o^1 by a spiral spring, o^2. An arm, p^1, is attached to the upper end of the pivot of the angular piece *p*, and is provided at its end with a forked bearing, p^2, to which the lever E is loosely fulcrumed to slide readily by a projection below the fulcrum to one side or the other of a raised part or cam, p^3, of the bearing p^2.

A spring, p^4, bears on the upper part of lever E, and retains the same in contact with the forked bearing. The double cam-wheel G imparts, by the joint operation of arms o^1 and p^1, a compound motion to the cross-stitching lever E, which is thereby enabled to take up, by its peculiarly-spurred front end, (shown in Figs. 1 and 3,) the thread from the bobbin in the front cup, carrying the same across the edge of the material down in the feed-cup B^2, and forming there a loop, through which the needle passes. The cross-stitching apparatus returns then to its original position, ready for the next stitching.

The needle is attached by a fastening-ring and set-screw to the front end of the sliding needle-bar, the thread being taken from a common spool placed on a side arm of the square frame F.

The thread is guided over a suitable tension, *q*, back to a take-up device, q^1, that is applied to an arm at the rear pillar, and operated by a connecting-link, q^2, of the needle-bar. The thread is then passed forward in a channel, *r*, of the frame F to the needle, the said take-up serving to close the stitch after the loop has been formed by the rotating hook D of the front shaft.

The central dishing part of the rotating hook, which is made in the nature of the hook used in the Wheeler & Wilson machine, carries a bobbin, D′, that provides the second thread for cross-stitching the material. The bobbin D is also provided with an adjustable tension device, H, which is shown in Figs. 1 and 7, and secured by a set-screw to a support or arm of the front pillar. A central disk of the bobbin-tension bears on the same, and is set thereto by a lever-arm with spiral spring and regulating-nut.

An additional cog-wheel, I, with spring-acted sliding shaft and nut I′, may be used for starting the machine.

The rotating hook and bobbin revolve twice with each stroke of the needle, for the purpose of assisting in forming the step-stitch, that sews the edges of the fabric together, and the cross-stitch, that binds across the edges of the same. When the needle is passed through the fabric the thread is taken up by the rotating hook, forming a loop. When the hook slips the loop, the needle goes backward, and the step-stitch is made. The cross-stitching lever comes then into operation, taking the thread from the bobbin, and carrying it across the edge, a loop being made, through which the needle passes in its forward stroke, finishing the cross-stitch by the return of the lever, and producing an elegant and durable stitching of the fabric.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The machine for sewing gloves herein described, consisting, essentially, of a horizontally-reciprocating needle-bar, C, a rotating hook, D, with bobbin-tension, a cross-stitching lever, E, and the glove or fabric feeding cups B^3 B^4, all constructed and relatively arranged substantially as herein shown, to operate in the manner set forth.

2. The combination of the vibrating arm *o* o^1, movable angular piece *p*, and forked bearing p^2 with the double cam G and cross-stitching lever E, as and for the purpose set forth.

3. The combination of the horizontally-rotating hook D, bobbin D′, and tension device H with the feeding-cup B^3, front pillar B^4, horizontally-reciprocating needle-bar C, cross-stitching lever E, and revolving feeding-cup B^4, as and for the purpose set forth.

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