

(Model.)

2 Sheets—Sheet 1.

H. CHARMBURY.
SEWING MACHINE.

No. 316,745.

Patented Apr. 28, 1885.

Fig. 1.

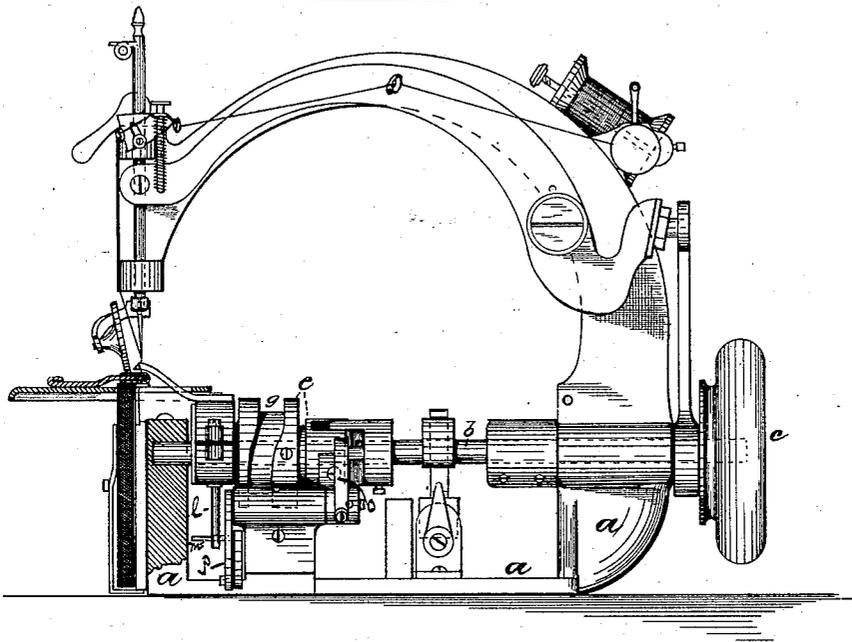


Fig. 2.



Fig. 3.

Attest:
V. H. Campbell
Edward H. Kempf

Henry Charmbury, Inventor,
by Drake & Co, Atty.

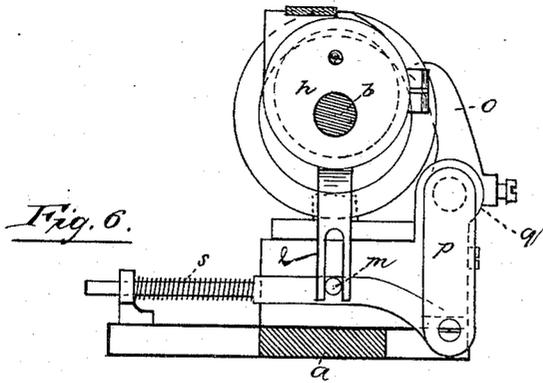
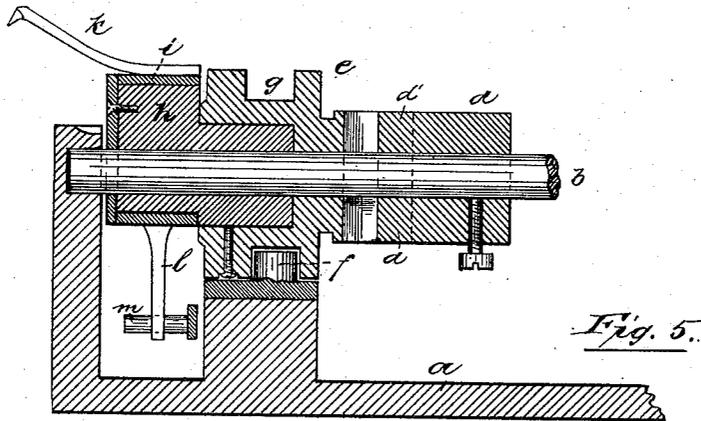
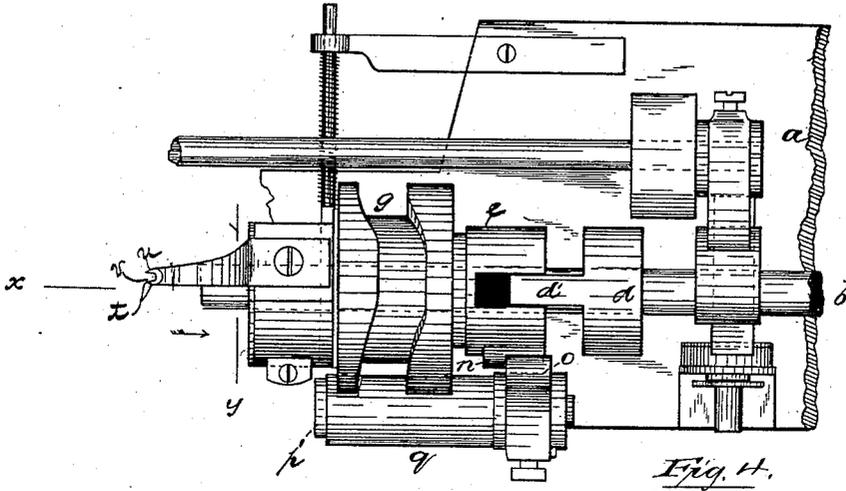
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

HENRY CHARMBURY, OF NEWARK, NEW JERSEY.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 316,745, dated April 28, 1885.

Application filed April 17, 1884. (Model.)

To all whom it may concern:

Be it known that I, HENRY CHARMBURY, a citizen of England, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the 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 specification.

The object of this invention is to make an "overstitch" machine that will be more reliable in its action, of increased simplicity of construction, less liable to get out of order, and one more rapid in its movements.

It consists in the arrangements and combinations of parts, substantially as will be hereinafter set forth, and finally be embodied in the claims.

Referring to the accompanying drawings, comprised in two sheets, in which similar letters of reference indicate like parts in each of the several figures, Figure 1 is a front elevation of the device; Figs. 2 and 3, detail views of a hook of peculiar construction adapted to take the thread from the under side of the material worked upon and draw it over the edge of the said material. Fig. 4 is a plan of the mechanism for operating the said hook. Fig. 5 is a sectional view taken through line *x*, Fig. 4; and Fig. 6 is an end view of the said hook-operating mechanism, taken in the direction indicated by the arrow from line *y*.

In carrying out the invention I arrange in suitable bearings upon the frame or bed-plate *a* a driving-shaft, *b*, which is operated by the pulley *c* in any ordinary or appropriate manner. Upon said shaft is arranged a series of cams and other mechanism for giving proper motion to the hook.

Of said hook-operating mechanism, *a* is a collar, which is rigidly secured to the shaft, and has a lateral projection or projections, *d'*, upon which a compound cam, *e*, slides laterally, influenced by the stationary pin, projection, or roller, *f*, Fig. 5, working in the curved or irregular peripheral cam-groove *g*. This

lateral movement of the cam on the shaft is imparted to the hook, and is useful in that it causes said hook to pass under the edge of the material to catch the needle-thread, to bring it back again, to clear the edge of the material, and to project it toward the needle over the upper side, when other subsequently-mentioned mechanism causes the hook to move upward and in a lateral direction toward the operator.

Rigidly secured to the cam and sliding with the same is arranged an eccentric, *h*, provided with a strap, *i*, to which the hook *k* is secured, and from which a depending slotted arm, *l*, projects. Said eccentric-arm *l* has a bearing on a pin, *m*, and gives to the eccentric-strap and hook secured thereon a vertical and vibratory motion; or, in other words, the hook would be caused to describe an ellipse if not acted on by the laterally-moving cam, which causes it to deflect from a regular course both above and below the edge of the material.

To cause the hook to remain stationary for a moment when presenting the loop to the needle on the upper side of the material preparatory to releasing or withdrawing from said loop and passing downward and under said material to take up another loop, I form a cam projection, *n*, on the compound cam, which engages with a lever, *o p*, fulcrumed on the stud *q*. The opposite end of the lever from that engaging the cam projection is connected with a bar which carries the stud *m*, before mentioned. When the hook in its movement with the thread-loop is in position to receive the needle, as before mentioned, the cam projection *n* acts on the lever *o p*, and causes the pin to move laterally, and with it the arm of the eccentric-strap. This movement counteracts the action of the eccentric, so that the hook remains stationary while the needle descends through the loop. The cam projection having passed the lever, the spring *r* throws said lever forward into its normal position, while the cam-groove *g* and roller *f* coact to cause the hook to withdraw and descend beneath the material.

The hook extremity is of peculiar construction, being provided with a hook projection, *t*, which catches the thread on the under side

of the material, and, forming a loop, brings it up over the edge of the material.

To hold the thread out from the face of the hook when presenting it to the needle, so that the said needle can freely enter between the thread and said face, I form a second projection, *u*, with a needle-notch, *v*, between it and the said hook. Said projection *u* enters the loop and holds the thread apart, so that the needle will not hug the hook so closely as to endanger the same. A slight shoulder in the cam-groove causes the hook to move backward from the needle, freeing said needle from the notch before moving in its regular course.

By the construction and arrangement of mechanism above described I am enabled to use a hook with a short shank, as compared with those heretofore used. Vibration of said shank, occasioned by the draft of the thread thereon and from other causes, is thus materially reduced or entirely overcome, and interference of parts is thereby prevented.

The action of the hook under the influence of the above-mentioned mechanisms is substantially as follows: The hook beneath the material engages with or catches the needle-thread, and draws it from beneath the material upward and toward the operator. It then passes over the edge of the said material backward (or from the operator) toward the needle. When the notch in the hook arrives at the path of the needle, it stops for a moment, and the needle descends through the open loop, held open by the projection *u*. The hook then moves from the needle, freeing the same from the notch, and finally moves from the operator downward and again under the material to take up another loop.

Having thus described the invention, what I claim as new is—

1. In a sewing-machine, the combination, with the needle and a driving-shaft, of a hook, an eccentric, a strap carrying said hook, and a cam actuating said strap and hook, and revolving with and sliding on said shaft, substantially as set forth.

2. In a sewing-machine, the combination, with the needle and shaft *b*, of a sliding eccentric carried by said shaft, an eccentric-strap and a hook secured on said strap, and mechanism, substantially as described, to cause said eccentric to move longitudinally on said shaft, as set forth.

3. In combination with a driving-shaft, *b*, a cam sliding laterally upon and revolving with the shaft, an eccentric and a strap having the hook secured thereon, and the needle, all said parts being arranged and operating substantially as and for the purposes set forth.

4. In combination, in a sewing-machine, with the driving-shaft and needle, the cam sliding on and revolving with said shaft, the eccentric, the strap having the slotted arm and hook, the cam projection, the lever and bar having the pin acting as a bearing for said arm, all said parts being arranged and operating substantially as set forth and shown.

In testimony that I claim the foregoing I have hereunto set my hand this 12th day of March, 1884.

HENRY CHARMBURY.

Witnesses:

CHARLES H. PELL,
F. F. CAMPBELL.