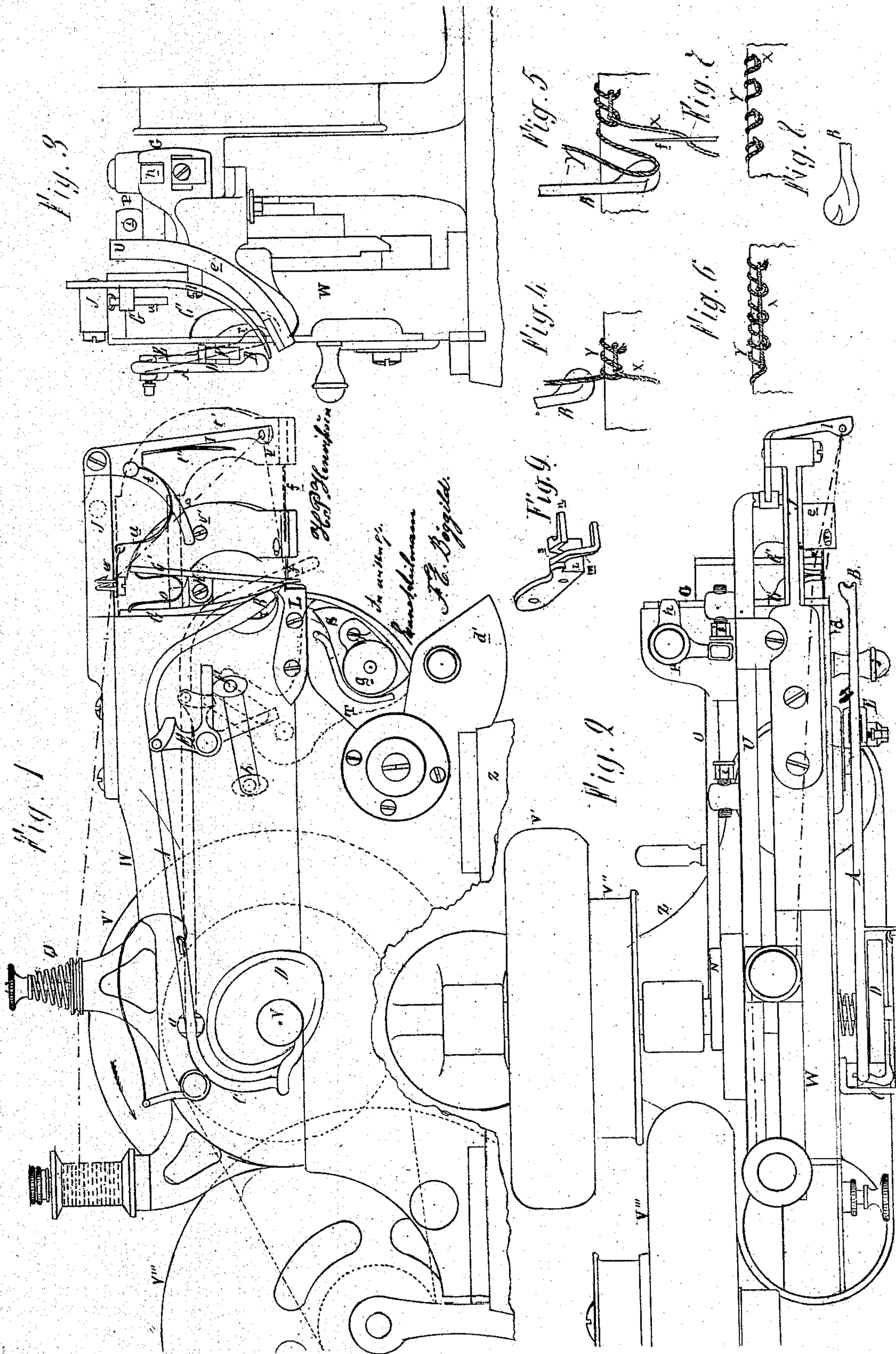


H. P. HENRIKSEN. SEWING MACHINE.

No. 104,590.

Patented June 21, 1870.



United States Patent Office.

HANS PETER HENRIKSEN, OF COPENHAGEN, DENMARK, ASSIGNOR TO
CHARLES EDWARD BROSSER, OF PARIS, FRANCE.

Letters Patent No. 104,590, dated June 21, 1870.

IMPROVEMENT IN SEWING-MACHINE.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern:

Be it known that I, HANS PETER HENRIKSEN, of Copenhagen, in the Kingdom of Denmark, have invented certain Improvements in Sewing-Machines, of which the following is a specification.

Nature and Object of the Invention.

My invention consists of certain devices, operating with a horizontal reciprocating needle, and with shuttle reciprocating in an arc on a vertical plane, to carry the shuttle-thread over the edge of the fabric and across the path of the needle, so as to produce a series of binding stitches over the edge of the pieces of fabric, or other material operated on.

Description of the Accompanying Drawing.

Figure 1 is a side elevation of the machine;
Figure 2, a plan view;
Figure 3, an end view looking from the front;
Figures 4, 5, 6, and 7, views illustrating the formation of the stitch; and
Figures 8 and 9, detached views of parts of the machine.

General Description.

The frame of the machine consists of a cast-iron base, *z*, to which is bolted a vertical shallow case, *W*, the front plate, *d*, of the latter being detachable.

In suitable bearings turns the driving-shaft *V*, which extends through the case *W*, and has, on its rear end, a crank-wheel, *V'*, and at the front end a cam-wheel, *D*, and at the side of the wheel *V'* is a band-pulley, *V''*, from which a band passes to a fly-wheel, *V'''*.

In guides, at the rear side of the case *W*, slides a plate, *U*, having, at the front end, an arm, *e*, to which is secured a horizontal needle, *f*, and, at the rear, a slot, through which extends the cranked portion of the driving-shaft *V*.

Within the case is hung a segmental shuttle-carrier, *T*, in a suitable receptacle in which rests a shuttle, *S*, carrying a bobbin, *g*, and bearing against the plate *d*, a portion, *d'*, of which can be detached or displaced, to permit the introduction and withdrawal of the shuttle.

In a projection, *a*, on the face-plate *d*, slides a rod, *A*, of the form shown in the drawing, the rear end of the rod embracing the edges of the cam *D*, which imparts to the rod the movements described hereafter, and the front end of the rod having a lug or projection at one side, in which are recesses or depressions *a' a'' a'''*, as shown in fig. 8.

The rod *A* is jointed, near its front end, to one arm of a lever, *B*, vibrating on a pin projecting from the face-plate *d*, and in a slot in the plate below this lever slides a pin, *b*, which is connected to an arm jointed to the cranked portion of the shaft *V*, the op-

posite end of the pin extending in a slot formed in an arm projecting from the shuttle-carrier *T*, so that, as the shaft *V* revolves and the pin *b* slides back and forth, a reciprocating motion in a vertical plane will thus be imparted to the shuttle-carrier.

In the edge of the plate *d* and of the case *W*, is an opening, *r*, for the passage of the needle, into which opening the end of the arm *A*, during part of the operation of the machine, is inserted, as described hereafter.

The fabric is held in a vertical position (so as to be perforated by the needle) between two clamps, *G G'*, connected to each other by a pin, *H*, and pressed together at the lower ends by a spring, *o*, the said clamps sliding laterally in suitable guides at the edge of the case *W*.

The required reciprocating sliding motion is imparted to the clamps by an L-shaped lever, *P*, one arm, *h*, of which enters a slot in the rear clamp *G*, while the other occupies a position adjacent to the plate *U*, through lugs on which extend set-screws, *i i*, the position of the latter regulating the extent of the movement of the lever and of the clamp.

The opening and closing of the jaws are effected by a cam, *N*, on the driving-shaft, which bears on an arm, *O*, connected to the outer clamp.

To the case *W* is connected a plate, *L*, from which, at right angles, project two arms, *m n*, occupying positions on opposite sides of a central opening, *s*, for the passage of the needle *f*, the arm *m* being bent downward and laterally, and the arm *n* being bent laterally, as shown in fig. 9.

To an arm, *J*, projecting from the case *W* is hung a thread-controlling lever, which is forked, one arm, *t*, having an opening, *v*, for the passage of thread, and the other arm, *t'*, being caused, by a spring, *u*, to bear against a pin, *v'*, on the plate *U*.

To a lever, *I*, is also secured a spring, *t''*.

The needle-thread *X* passes through a tension device, *Q*, and through an eye, *w*, to the eye *v* of the thread-controller, and thence to the needle.

Operation.

Although this machine can be employed for sewing various articles, it is especially adapted and designed for use in the manufacture of kid or leather gloves, in which it is essential that the stitch shall pass over the edge of the material and be uniform, regular, strong, and elastic.

The parts of the machine are brought to the position shown in the dotted lines, fig. 1, the pieces of material to be secured together are placed between the clamps, the edges of the material bearing against the under sides of the horizontal parts of the arms *m n*.

A motion, in the direction of its arrow, is imparted

to the driving-shaft, when the needle *f* will penetrate the material near its edge, and, after reaching the limit of its inward motion, will begin to recede, forming a loop through which the shuttle *S* passes, carrying with it the shuttle-thread *Y*, which, as the needle is withdrawn, is thus locked to the underside of the material by the needle-thread, as shown in fig. 7.

As the shuttle begins to descend the head *B* of the arm *A* enters the recess, laterally, and beneath the shuttle-thread, and then advances, both forward and downward, until it strikes the arm *m*, when it will hold the loop of thread *Y* in such a position that the needle *f* penetrates the same as it again passes into the fabric, the arm *A*, as soon as the thread is caught, resuming its original position. The shuttle again passes through the needle-thread, and the needle is then withdrawn, locking the thread *Y* to the outer side of the material, as shown in fig. 6.

The arms *m n* serve as loop-guards, to prevent the threads from twisting, knotting, or becoming entangled, a matter of considerable importance in the manufacture of such articles as gloves, where every stitch is exposed, and where a defective stitch will injure the article. The said arms also prevent the fingers and other parts of the glove, as the latter is operated on, from coming in the path of and being caught by the needle, while they also guide the material.

After the needle has passed into and been withdrawn from the material, the clamps *G G'* are moved, laterally, the length of one stitch, when the needle again penetrates the material, and holds it while the outer clamp is raised, and both slide back to their first position and grasp the material preparatory to another movement of a like character.

By adjusting the screws *i i* the length of the stitch may be regulated at pleasure. The thread-controlling lever *I* releases the thread, to permit the formation of

the loop, and takes it up, after the loop is made, drawing the stitch close to the fabric, and holding the thread so that it cannot be caught or entangled.

Claims.

1. The arm *A*, constructed as described, in combination with the lever *E*, cam *D*, sliding pin *b*, and guide *a*, as set forth.
2. The combination of the needle, shuttle, and arm, operating as above described, and clamps *G G'*, which clasp the fabric and carry it, laterally, while the needle is at the limit of its outward motion, and after the needle has penetrated the fabric, release the same and move back to their first position.
3. The arm *U*, its needle *f*, and pin *v*, in combination with the lever *I*, its arms *t t'*, and springs *u u'*, arranged as described.
4. The plate *L*, its arms *m n*, and recess *s*, arranged on the case *W*, and operating with the arm *A* and needle *f*, as described.
5. The combination of the clamps *G G'*, sliding plate *U*, set-screws *i i*, and lever *P*, as specified.
6. The combination of the subject matter of the fifth claim, with the arm *O*, and cam *N*, as set forth.
7. The arrangement and combination of the frame *W*, shuttle-carrier *T*, and its shuttle *S*, sliding arm *U*, needle *f*, sliding-clamps *G G'*, and arm *A*, all substantially as described.

In testimony whereof I have hereunto set my hand before two subscribing witnesses.

HANS PETER HENRIKSEN.

Witnesses:

F. E. BOGGILD,
Translateur.

C. N. SCHMIDT,
Bogbinder.