No. 684,176. Patented Oct. 8, 1901.

# H. A. BLANCHARD.

## HAT SEWING MACHINE.

(Application filed Mar. 8, 1900. Renewed Feb. 28, 1901.)

(No Model.) 3 Sheets—Sheet 1.

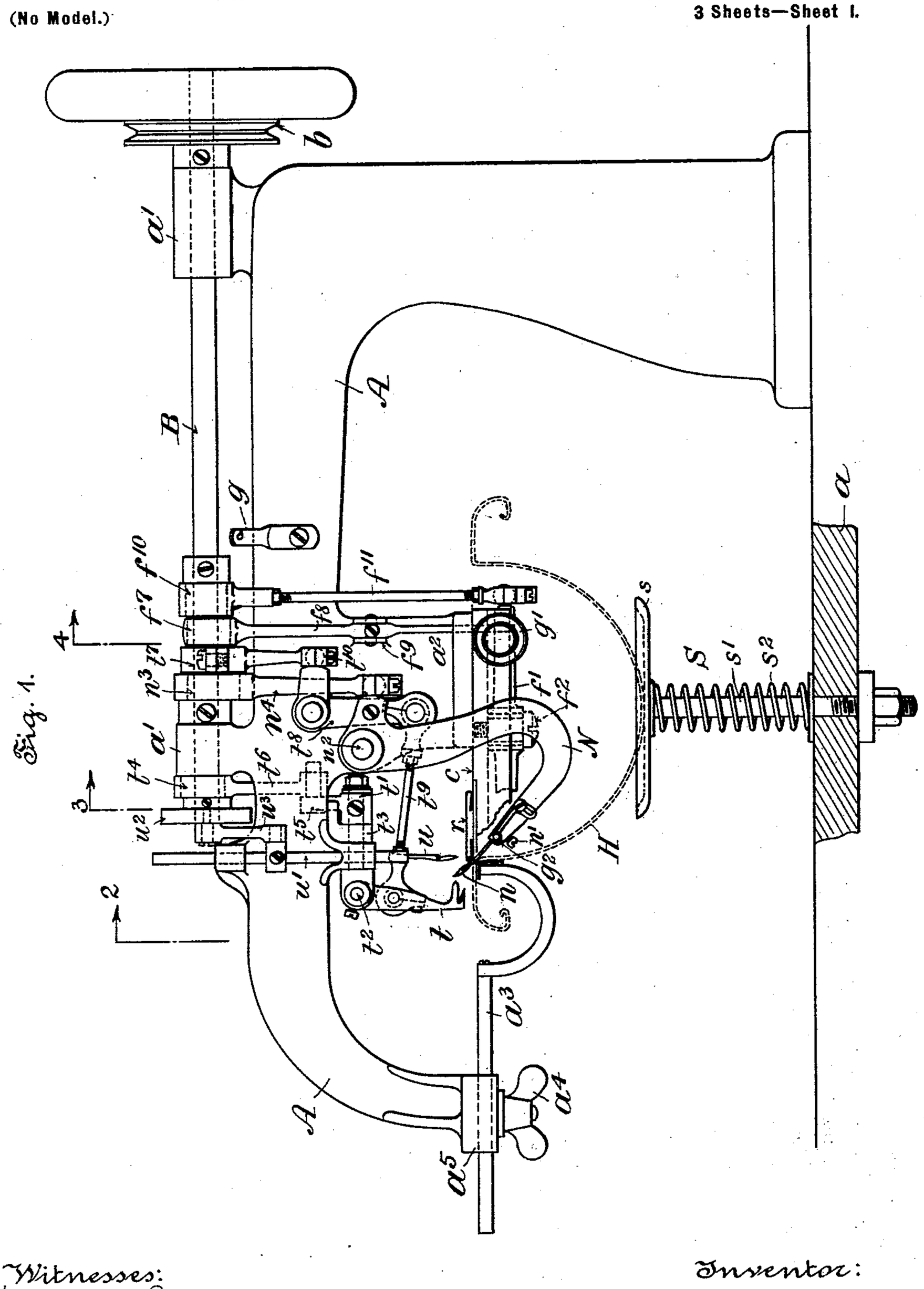


Fig. 1.

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(No Model.) 3 Sheets—Sheet 2.

Fig. 4.

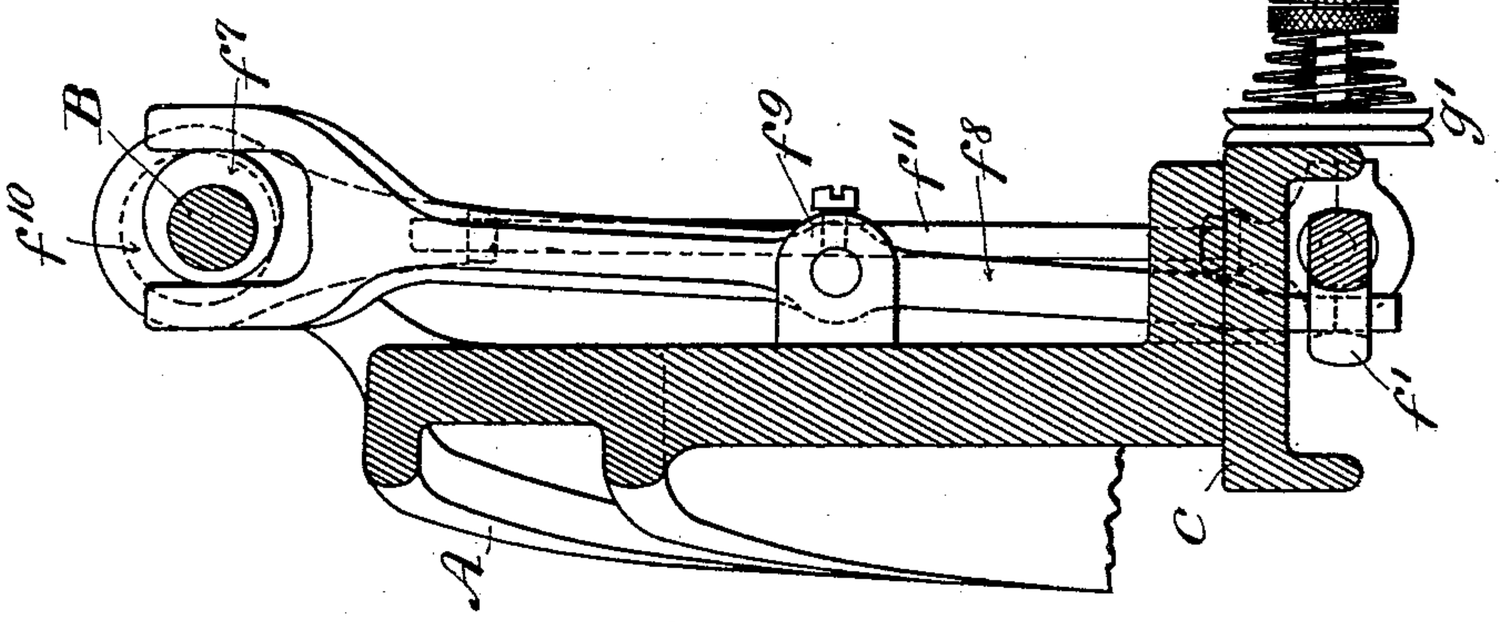


Fig. 3.

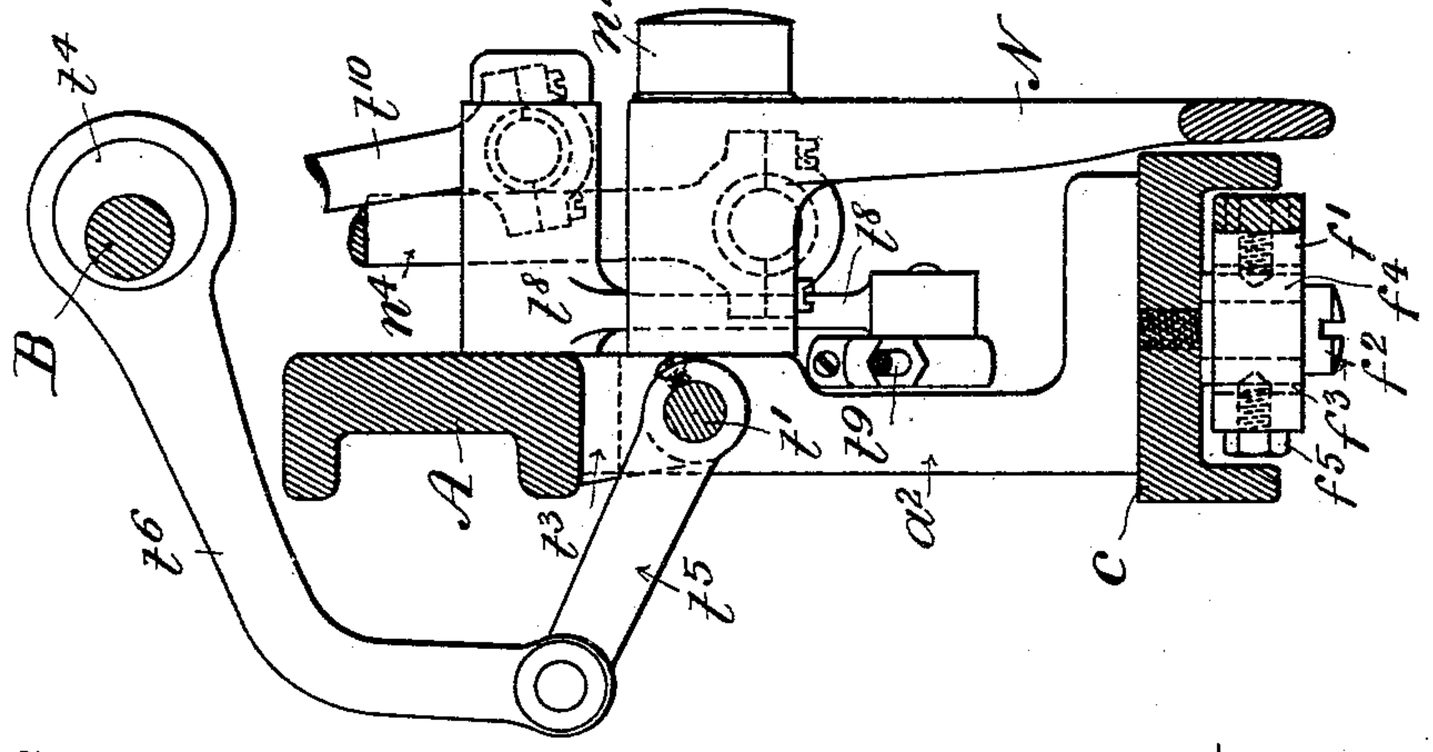


Fig. 2.

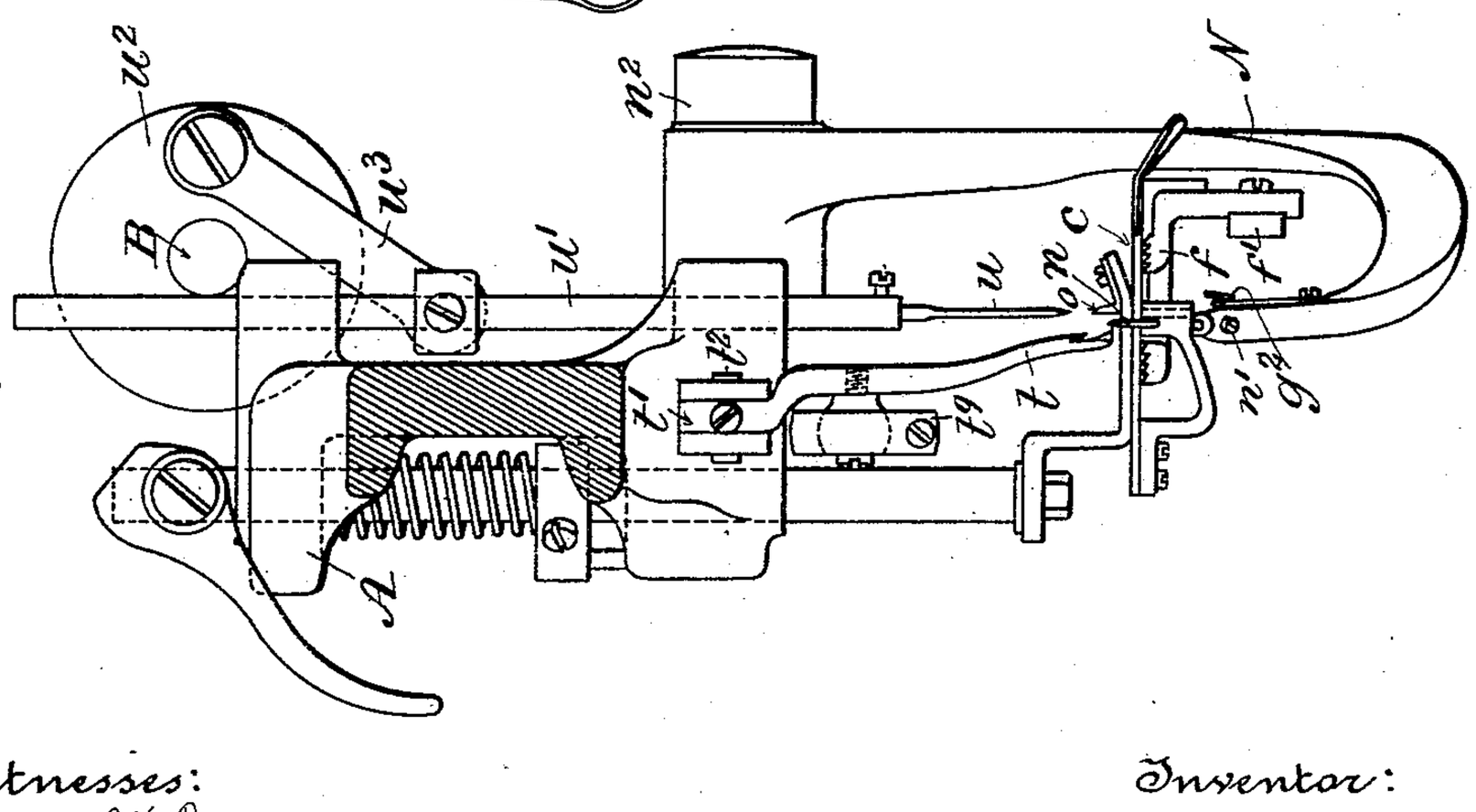


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Fig. 5.

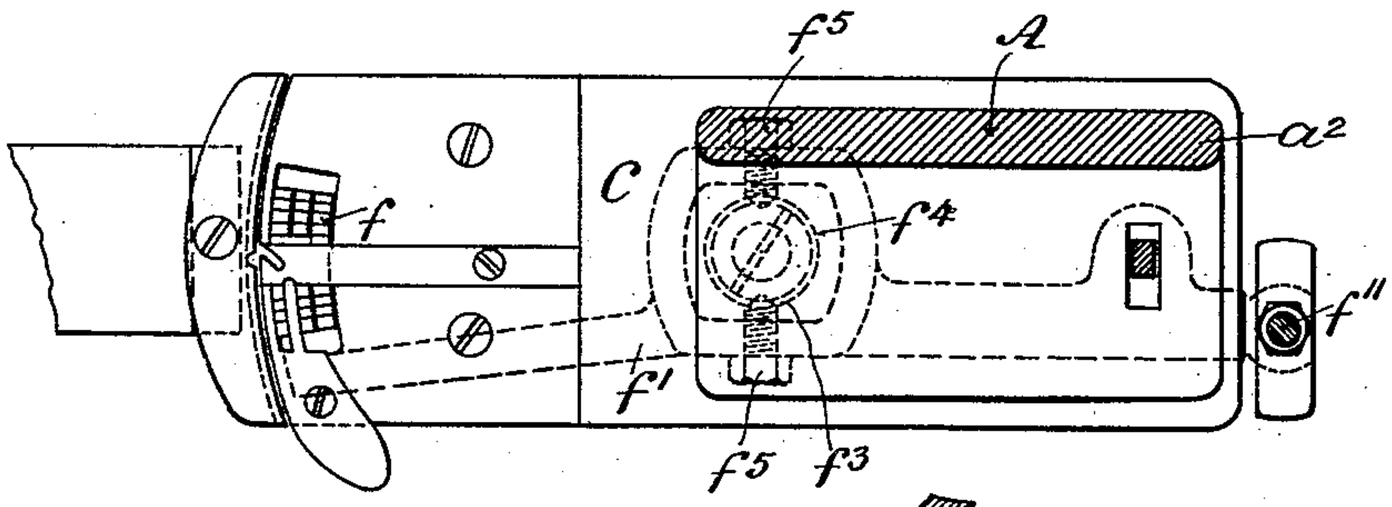



Fig. 7.

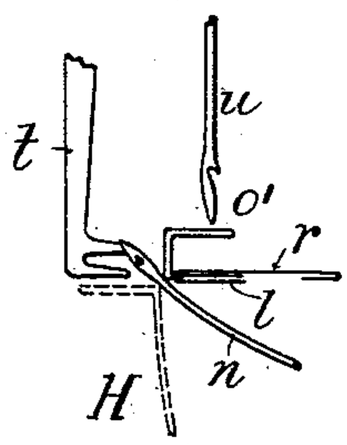



Fig. 6.

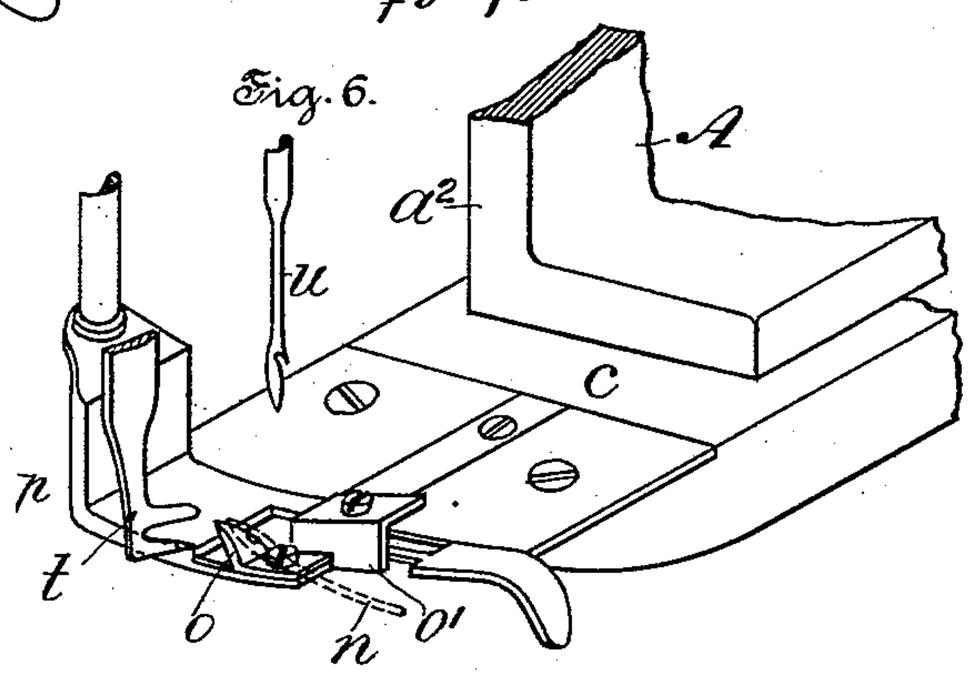



Fig. 8.

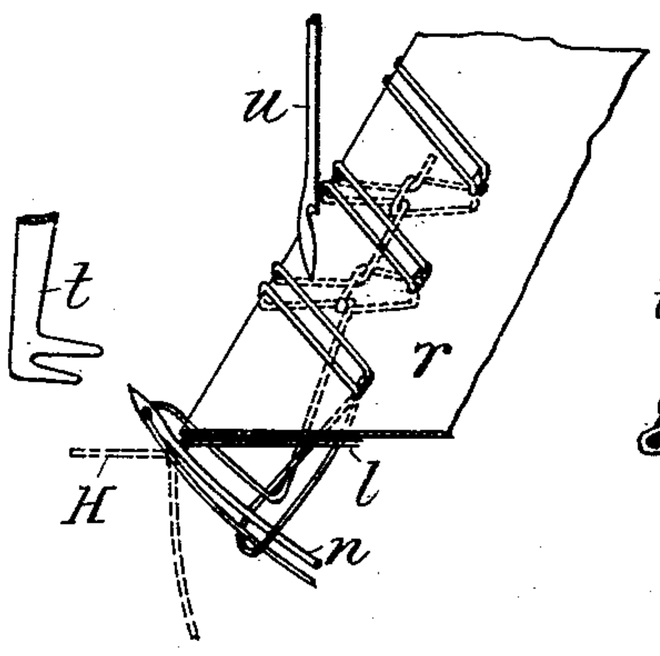



Fig. 9.

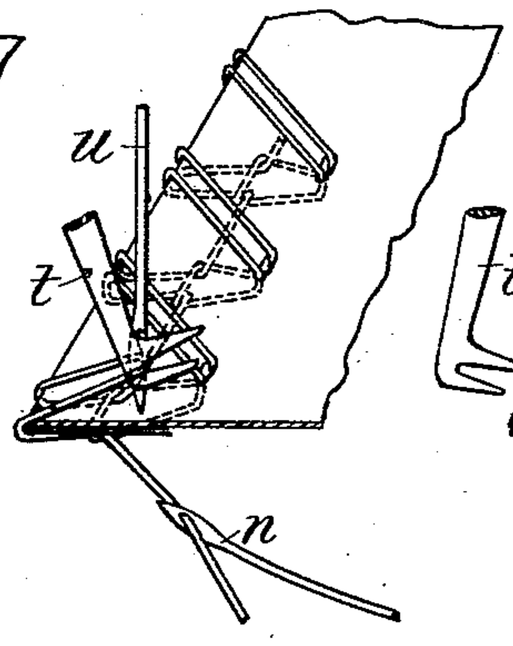
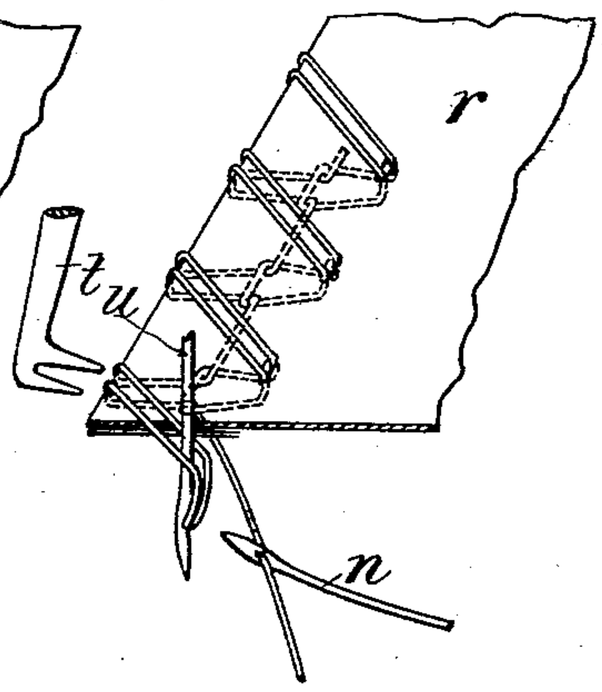



Fig. 10.

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# UNITED STATES PATENT OFFICE.

HELEN A. BLANCHARD, OF PHILADELPHIA, PENNSYLVANIA.

## HAT-SEWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 684,176, dated October 8, 1901.

Application filed March 8, 1900. Renewed February 28, 1901. Serial No. 49,300. (No model.)

*To all whom it may concern:*

Be it known that I, HELEN A. BLANCHARD, a citizen of the United States of America, residing in the city and county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification.

My invention relates to sewing-machines making a common chain-stitch with one thread; and it is adapted to sew the sweat-band into hats and onto a strip of linen or other material which has been basted on the inner edge of the hat.

Heretofore the sweat-bands in hats were sewed onto the basted strip by hand; and the object of my invention is to do this by machine, thereby reducing the cost of hats and producing a uniform and better fastening of the sweat-band to the basted strip of the hat. In providing a machine for such work special care must be taken that the felt edge of the hat is not injured by the stitching mechanism of the machine, and the sweat-band must be properly guided with respect to the basted strip, which generally contains a wire, and both the hat and sweat-band must be properly fed and supported. It is of great importance to produce a stitch which in appearance is like the hand-made stitch used in sewing the sweat-band to the basting-strip, because no loop or interlacing of the single-thread stitch is visible on the exposed face or edge of the sweat-band, a single thread only lying on the face of the strip and appearing like a double thread wound spirally around the edge of the said strip. The single-thread overseam-stitch commonly known is different from the stitch produced by my machine in that the former has the loops on top of the fabric, while in the stitch produced by my machine the loops are on the under side of the fabric. For this purpose the thread-carrying stitching-needle is secured to an arm hinged above the cloth-plate, the needle operating from below and at the outer edge of the sweat-band, and a thread-looper located above the cloth-plate and adapted to take a loop from the thread-carrying needle and present the same to a vertical stitching-needle, which penetrates the material and only pushes the loop through the goods into reach of the thread-carrying needle.

Figure 1 is a front elevation of my sewing-machine, showing the stitching mechanism, comprising a lower sewing-needle carrying the thread, a thread arm or looper, and a notched sewing-needle, a hat-support, and the means for operating the various mechanisms. Fig. 2 is a section on the line 2 2 of Fig. 1, showing the lower sewing-thread-carrying needle, the thread-looper, the upper sewing-needle, the feed, and presser-foot. Fig. 3 is a section on the line 3 3 of Fig. 1, showing the means for operating the stitching mechanism and feed from a main shaft. Fig. 4 is a section on the line 4 4 of Fig. 1, showing the means for operating the feed. Fig. 5 is a plan view of the cloth-plate, showing the needle-plate and feed. Fig. 6 is a perspective view of the presser-foot, stitching mechanism, and guides for the needles and sweat-band to be sewed. Fig. 7 is a section showing the respective positions of the felt hat, linen strip basted thereon and containing a wire, the sweat-band, and the guide for the latter. Figs. 8, 9, and 10 show the stitch and various relative positions of the stitching mechanism.

Referring now to the drawings for a further description of my invention, A is the machine-arm, supported on a table *a*. This arm is provided with two bearings *a'*, in which a shaft B, driven by a belt-pulley *b*, is journaled. On a depending bracket $a^2$ is fixed the cloth-plate *c*, and in line therewith, toward the left end, is a movable support $a^3$ for the hat-rim, which is held in place by a hand-screw $a^4$ to the guide-block $a^5$ on the arm A.

The stitching mechanism comprises a lower thread-carrying stitching-needle *n*, held in an oscillating needle-arm N, an upper needle *u*, having a thread-engaging notch adapted to engage and force a thread through the goods and secured to a vertical needle-bar *u'*, and a thread-looper *t*, hinged to a rock-shaft *t'* and adapted to take a loop from the lower needle *n* and present the same to the vertical needle *u*. The lower needle *n* is curved and fastened in the free end of the oscillating arm N by the screw *n'*. The arm N is pivoted, by

means of a stud $n^2$, to the machine-arm A and receives oscillatory motion about the stud $n^2$ from an eccentric $n^3$ on the shaft B and eccentric-strap $n^4$. The vertical needle $u$ is held in the vertical needle-bar $u'$ and receives a reciprocating motion from the main shaft B by means of the eccentric-pin disk $u^2$ and connecting-rod $u^3$, and the thread-looper $t$, receiving an oscillatory as well as backward-and-forward motion, is hinged at $t^2$ to a rock-shaft $t'$, journaled in a bracket $t^3$ of the machine-arm A. The rock-shaft $t'$ is vibrated by an eccentric $t^4$, an arm $t^5$, secured to the rock-shaft $t'$, and eccentric-strap $t^6$. The oscillatory motion of the thread-looper $t'$ is obtained from the main shaft B by means of an eccentric $t^7$, a right-angular lever $t^8$, pivoted to the machine-arm A, and a connecting-rod $t^9$ between the thread-looper $t'$ and one arm of the lever $t^8$, and an eccentric-strap $t^{10}$ between the eccentric $t^7$ and the other arm of the lever $t^8$.

The cloth-plate $c$ is suspended from the machine-arm A, and beneath the same is arranged a feed adapted to move the hat and sweat-band around a common support—*i. e.*, the band with the inner edge of the hat is fed in a circular path. To this end the feed $f$, Figs. 2 and 5, is attached to an oscillating bar $f'$, which also receives an up-and-down movement. This bar $f'$ is secured to the cloth-plate $c$ by a universal joint $f^3$, comprising the collar $f^4$ around the stud $f^2$ and the pointed set-screws $f^5$, securing the bar $f'$ to the collar $f^4$. Oscillating motion is imparted to the feed $f$ by the eccentric $f^7$ on the main shaft B and lever $f^8$, pivoted at $f^9$ to the machine-arm A, the lower free extremity entering a recess in the bar $f'$. The up-and-down motion of the feed $f$ is obtained from the main shaft B by an eccentric $f^{10}$ and eccentric-strap $f^{11}$, connecting with the free end of the bar $f'$.

To properly support a hat onto which a sweat-band is to be sewed, a support S, comprising a dish-shaped disk $s$, attached to a stem $s'$, is secured to the table supporting the machine, and a spring $s^2$ is employed to allow the disk $s$ to be depressed in order to readily put a hat into position and remove the same when finished.

The operation of my machine is as follows: A single thread is led from a spool through the thread-guide $g$, tension device $g'$, thread-guide $g^2$ on the needle-arm N, and through the eye of the needle $n$. A hat H is then placed on the support S by sliding the support $a^3$ toward the left and after putting the hat in proper position moving the said support $a^3$ toward the right and clamping it to the block $a^5$ by the screw $a^4$. The linen strip $l$, basted to the inner edge of the hat and having a wire, is then placed under the presser-foot $p$ and also the sweat-band $r$, as shown in Figs. 1 and 7. The machine is then started, and the lower thread-carrying needle $n$, Figs. 8 to 10, presents on its upward movement the thread to the thread-looper $t$, which engages the thread at the rear of the needle $n$ and puts it in position, so that the needle $u$ on its down movement engages it with its notch and brings the same in the shape of a loop below the cloth-plate $c$. The needle $n$ in its upward movement then enters between the rear of the needle $u$ and thread-loop formed thereby and again rises above the cloth-plate $c$, when the thread-looper $t$ again takes a loop from the needle $n$ and presents it to the needle $u$, as clearly shown in Figs. 8 to 10.

The guard $o$ is secured to the presser-foot $p$ for the purpose of maintaining the needle $n$ in its proper course of travel and to prevent bending of the needle $n$, and the guide $o'$ is provided to place the sweat-band $r$ in proper relative position with the basted linen strip.

It will be understood by those skilled in the art to which my invention pertains that modifications may be made without departing from the spirit of my invention. For instance, the machine may be used for sewing any kind of goods or articles by modifying some of its parts.

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

1. In a sewing-machine of the kind described, a lower thread-carrying needle oscillating about a center above the cloth-plate of the machine, a reciprocating vertical needle having a thread-engaging notch, a thread-looper adapted to take a loop from the lower thread-carrying needle and present it to the notch of the vertical needle, and means for actuating the said needles and looper, substantially as and for the purpose set forth.

2. In a sewing-machine of the kind described, a lower thread-carrying needle oscillating about a center above the cloth-plate of the machine, a reciprocating vertical needle having a notch and moving in front of the lower needle, a thread-looper adapted to take a loop from the lower needle on its rear side and present the said loop above the cloth-plate to the said vertical needle so that its notch may engage the same and carry it through the material to be sewed and means for actuating the said needle and looper substantially as and for the purpose set forth.

3. The combination in an overedging single-thread sewing-machine of a thread-carrying needle normally located under the cloth-plate, a coacting thread-carrier located above the cloth-plate and the goods to be operated upon, a thread-taking fabric-penetrating needle adapted to receive a loop from the thread-carrier above the cloth-plate and push the said loop through the goods to be sewed and into the path of the said thread-carrying needle and means for actuating the said needles and thread-carrier, substantially as and for the purpose set forth.

4. In a sewing-machine of the character described, stitch-forming mechanism including the combination of companion needles on op-

posite sides of the cloth-plate one of said needles being notched and movable in a path inclined to the other, a loop-taker adapted to take the loop from one of said needles and carry it into the path of the notched needle whereby said loop is engaged by the latter and carried below the work, said last-named needle automatically shedding the loop after needle penetration, means for operating the needles and means for operating the loop-taker.

5. In a sewing-machine of the character described, the combination of a thread-carrying needle disposed below the cloth-plate, and a companion notched needle adapted to traverse the path of movement of the first-named needle whereby a loop carried by the second-named needle is entered by the first-named needle at a point below the cloth-plate, a loop-taker above the cloth-plate and adapted to take the loop from the first-named needle and over the edge of the fabric and carry said loop into the path of the notched needle, means for operating the needles and means for operating the loop-taker.

6. In a machine of the character described, the combination of two needles one of which is notched, one of said needles being normally above and the other normally below the cloth-plate and both needles engaging the same thread, and one of said needles being inclined to the other and adapted to carry a loop, a loop-taker for taking said loop and carrying it into the path of the notched needle whereby the latter engages the loop and carries it to a point below the fabric and into the path of the succeeding movement of the other needle, feeding mechanism for the fabric, means for operating the needles, and means for operating the loop-taker.

7. In a machine of the character described, the combination of a work-plate, a needle, a needle-carrying arm disposed with relation to said work-plate whereby the needle is adapted to carry the thread outside of the edge of the fabric and from a point below to a point approximately above the fabric, a loop-taker, a second needle having a thread-engaging notch, means whereby said needle is adapted to traverse the path of movement of the loop-taker and take the loop therefrom and carry it through the fabric to a point below and into the path of the first-named needle whereby the edge of the fabric is overseamed, and means for operating the loop-taker.

8. In a machine of the character described, a lower thread-carrying needle oscillating about a center above the cloth-plate of the machine, a reciprocating vertical needle having a thread-engaging notch, and a loop-taker operating above the fabric and adapted to take a loop from the oscillating needle and carry it into the path of descent of the vertical needle, said latter needle taking the loop from the loop-taker and carrying it through and below the fabric and into the path of movement of the oscillating needle, means for operating the needles and means for operating the loop-taker.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

HELEN A. BLANCHARD.

Witnesses:

JOS. R. EMBERY,

JOHN B. MEGONIGAL.