

(No Model.)

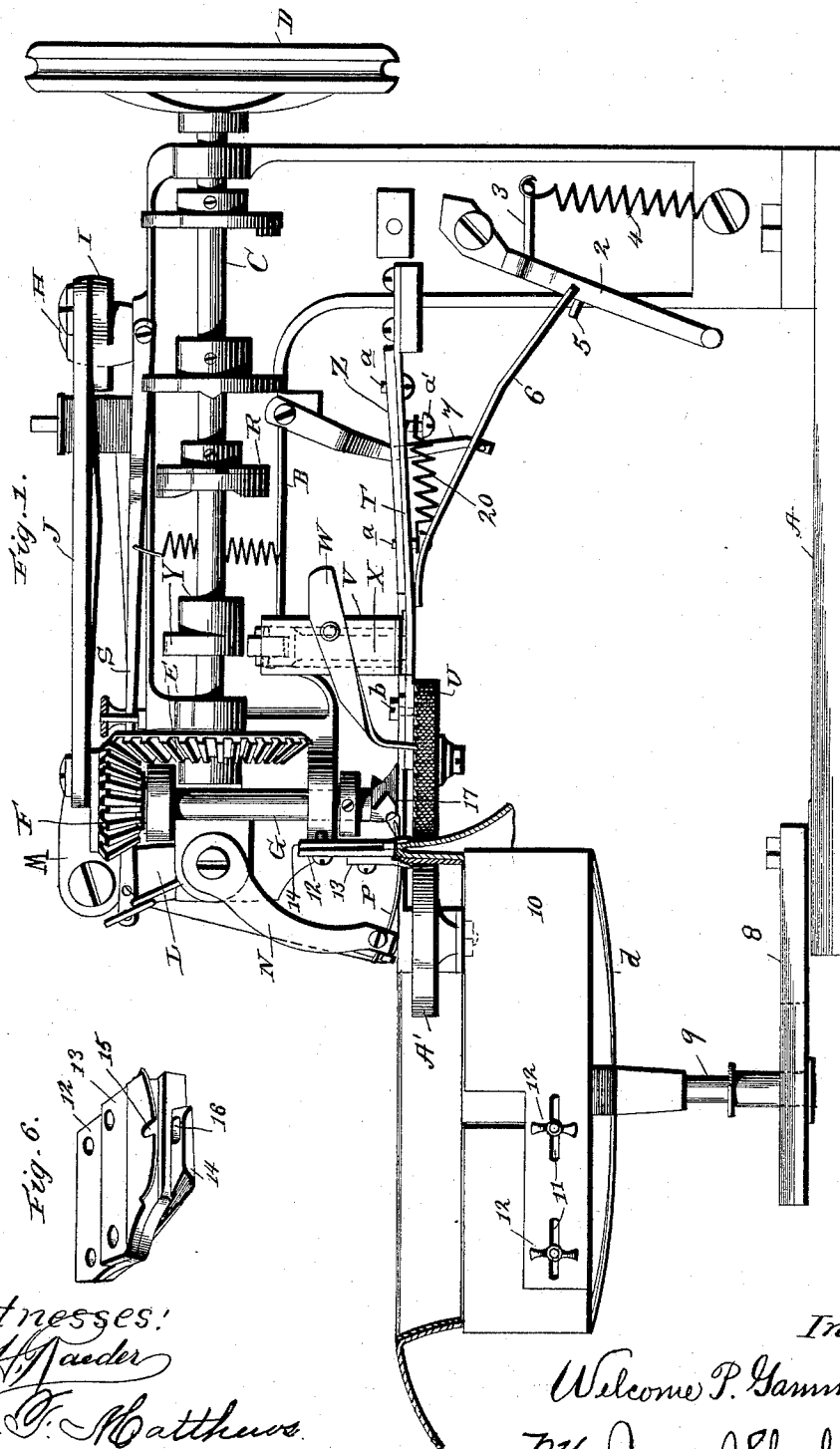
2 Sheets—Sheet 1.

W. P. GAMMONS, Jr.

MACHINE FOR SEWING SWEAT BANDS IN HATS.

No. 477,750.

Patented June 28, 1892.



Witnesses:
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H. T. Matthews

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(No Model.)

2 Sheets—Sheet 2.

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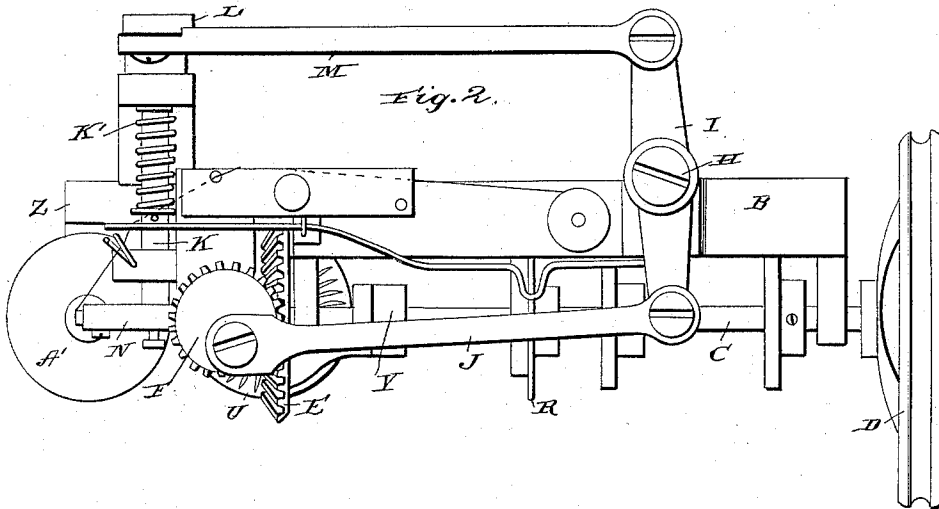


Fig. 3.

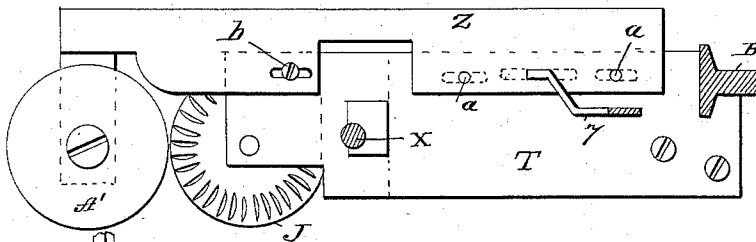


Fig. 4.

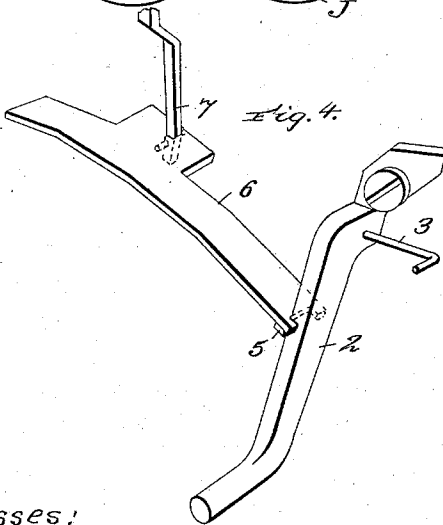
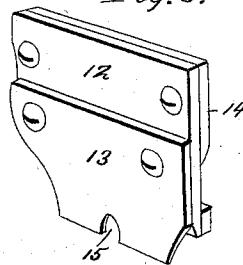


Fig. 5.



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UNITED STATES PATENT OFFICE.

WELCOME P. GAMMONS, JR., OF NEW YORK, N. Y.

MACHINE FOR SEWING SWEAT-BANDS IN HATS.

SPECIFICATION forming part of Letters Patent No. 477,750, dated June 28, 1892.

Application filed May 27, 1891. Serial No. 394,301. (No model.)

To all whom it may concern:

Be it known that I, WELCOME P. GAMMONS, Jr., a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Machines for Sewing Sweat-Bands in Hats; and I do 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.

My invention relates to improvements in that class of sewing-machines designed especially for sewing sweat-bands in hats and caps; and it has for its general object to provide a machine of a construction adapted to form the "whip-overstitch" or the "zigzag" or "overseam" stitch disclosed in my prior application filed February 26, 1891, Serial No. 382,972.

To the thorough attainment of the foregoing general object the invention consists in the peculiar construction, novel combination, and adaptation of certain parts hereinafter pointed out, among which are the friction-wheel and guide-wheel adapted to normally clamp and continuously feed the hat and band through the guide-plate, one of which wheels is capable of lateral movement with respect to the other, whereby the hat may be readily inserted between the same, the mechanism for laterally moving clamping guide-wheel, the flexible or resilient plate supporting the friction feed and guide wheels, and mechanism for vertically reciprocating the outer end of said plate, whereby the needle takes alternately through the band and hat and over the edges of the same, and the support for the hat adapted to be adjusted with respect to the friction and guide wheels and comprising an adjustable peripheral band adapted to receive and support different sizes of hats.

The improvements will be fully understood from the following description and claims when taken in conjunction with the accompanying drawings, in which—

Figure 1 is a front elevation of my improved machine complete, a hat and sweat-band being illustrated in a position to be sewed. Fig. 2 is a top plan view of the same. Fig. 3 is a detail top plan view of the resilient plate

carrying the feed-wheel and the slide-plate carrying the guide-wheel, together with a portion of the lever connected with the latter plate and adapted, in conjunction with other levers, to manipulate the same. Fig. 4 is a detail perspective view of the levers adapted to manipulate the slide-plate. Fig. 5 is a perspective view of the needle-plate removed; and Fig. 6 is a similar view of the same, looking at the lower edge thereof.

In the said drawings similar letters and numerals designate corresponding parts throughout the several views, referring to which—

A indicates the bed-plate, and B the overhanging arm upon which the horizontal power-shaft C is journaled. Fixed upon one end of the shaft C is the ordinary band-pulley D, and on the opposite end of said shaft is fixed a vertically-disposed beveled gear-wheel E, which meshes with a horizontally-beveled pinion F, fixed upon the upper end of a vertically-disposed rotatable shaft G, presently to be described. The wheel E is twice as large as the wheel F, so that the latter makes two revolutions while the former makes one, the purpose of which will become apparent presently.

Fulcrumed on a vertical post H, rising from the hanger-arm B, is a lever I, to the forward end of which is pivotally connected one end of a pitman J, the opposite end of which is connected to a crank-pin on the pinion F, through the medium of which the pitman and lever are actuated for a purpose presently set forth.

Journaled at the forward end of the hanger-arm B is a transversely-disposed rock-shaft K, which carries a crank L at its rear end, which is pivotally connected to one end of a pitman M, which in turn is pivotally connected at its opposite end to the rear end of the lever I, from which a reciprocatory motion is imparted to the said rocking shaft K, upon the forward end of which is fixed the needle-carrying arm N, in the lower end of which the curved and eyed needle P is suitably fixed. The needle-arm is adjustable longitudinally on the shaft K to permit the needle to be properly adjusted to the looper. The hub of the crank L serves as a stop against the rear bearing of the shaft to prevent a longitudinal forward movement of the latter, and

a coiled spring K' on the shaft between the rear bearing and a removable collar holds the shaft in proper position.

Through the medium of the construction thus far described it will be readily seen that the needle-carrying arm is vibrated by the oscillations of the shaft K, and the vertical shaft G, which carries the looper, is rotated from the power-shaft C. Fixed upon the power-shaft C at an intermediate point in the length thereof is a disk R, which is provided with cams at intervals upon its periphery, designed to engage the ordinary thread-controlling lever S for taking up the slack in the thread.

Attached at one of its ends by screws or the like to a platform extending from the upright branch of the hanger-arm B is the resilient or spring-metal plate T, which is reduced on its forward side adjacent its free end for a purpose presently set forth.

Journalled on a short shaft depending from the plate T, adjacent the free end thereof, is a horizontal friction feed-wheel U, which is milled upon its periphery for obvious reasons, and is provided upon its upper side with rack-teeth designed to be engaged by a pawl, whereby the wheel is turned and the work fed a slight distance at each depression of the said plate T.

Pivotaly connected to the front side of a branch V, depending from the hanger B, is the pawl W, which is provided at its forward end with a depending branch, which engages the ratchet-teeth on the upper side of the wheel U for the purpose described. The depending branch V is provided with a vertical bore, as illustrated by dotted lines in Fig. 1, and in this bore is seated a plunger X, which bears at its lower end upon the plate T, and is provided at its upper end with a friction-roller, which is designed to be engaged by a cam Y, fixed upon the shaft C, whereby at each revolution of said shaft the plate T will be depressed, whereby it will be seen that the reciprocating needle will alternately take through the sweat-band and hat and over the edges thereof. When the plate T is depressed by the cam Y and plunger X, it carries down with it the guide and feed wheels A' U. The pawl W follows the feed-wheel, the point moving in the arc of the circle of which the pivot of the pawl is the center, the said movement being sufficient to enable the pawl to engage the next ratchet-tooth of the wheel. Then when the plate T and its connected parts rise on the recession of the cam Y the pawl will be turned upward on its pivot, its point will swing forward, and the feed-wheel will be moved one step.

As illustrated by broken lines in Fig. 3, the plate T is provided with longitudinal slots for the reception of screws *a a*, which pass through the same and screw into the plate Z, and the latter is also provided toward its front end with a slot for the reception of the screw *b*, which screws into the plate T. These screws

serve the double purpose of holding the two plates together and guiding the plate Z in its reciprocating movements. Evidently the said slots might all be formed in one plate and the screws *a a* and *b* screwed into the other.

The plate Z is capable of being reciprocated longitudinally on the plate T, the limit of movement being determined by the length of the slots through which the screws *a a b* pass, and it is held normally in its retracted position by a spring 20, one end of which for convenience is attached to one of the screws *a* and the other end to a screw or pin *a'*, projecting from the under side of the plate T. At its forward end the plate Z is recessed, as shown, and is provided with an angular branch, upon which is mounted a guide-wheel A', which rests in alignment with the wheel U and is adapted to clamp the hat and sweat-band against the periphery thereof.

Engaged at one end to the upright branch of the hanger-arm is a hand-lever 2, which is provided with an angular branch 3, to which is connected one end of a coiled retracting-spring 4, which is connected at its opposite end to the upright branch of the hanger-arm adjacent to the bed-plate. At a suitable point upon the inside of the lever 2 is formed a lug 5, upon which rests one end of an arm 6, which is notched, as shown, and embraces the lever. The upper end of the arm 6 bears and slides against the lower side of the plate T and it is provided, as illustrated, with a lateral branch to receive one end of a lever 7, which takes up through a longitudinal slot in the plate T and a square opening in the plate Z, which latter plate it serves to move forward, as will be presently described. At its upper end the lever 7 is pivotaly connected to the hanger-arm B, and it will thus be seen that by throwing the lever 2 to the left, as viewed in Figs. 1 and 4, the plate Z and its guide-wheel A' will also be moved to the left, carrying the said guide-wheel away from the feed-wheel U to permit the hat and sweat-band to be conveniently put into or taken from the machine. When the lever 2 is released, the spring 20 will return all the parts to their normal positions.

Connected in a suitable manner to the bed-plate A at a proper point below the guide and feed wheels is a slotted horizontal bar 8, which is designed to receive the standard 9 of the hat-supporting frame. Connected to the upper end of the standard 9 are the radial branches *d* of the hat-supporting frame, upon the outer ends of which the vertically-disposed spring-band 10 is mounted and secured. One of the ends of the band 10 is preferably recessed, as shown, and in the reduced portion formed by said recess are longitudinal slots 11, through which studs or screws extend from the other end of the band, and these studs or screws may carry nuts 12, whereby said band may be increased and reduced in size to receive hats of various sizes,

and by placing or folding the hat over the edge of the crown-band the operator is enabled to sew an even line.

It is obvious that in practice the ends of the crown band or holder 10 might be adjustably connected in a manner other than by the lugs and slots, and I therefore do not care to confine myself to the construction set forth. By the provision of the construction described it will be perceived that the standard 9, carrying the crown-band, may be readily adjusted in the slotted bar 8 with respect to the guide and feed wheels to hold hats of different sizes in proper position to be sewed.

The needle-plate 12, which is suitably fixed by screws or the like upon the outer end of the hanger B, rests so that its lower edge occupies a plane slightly above the friction feed and guide wheels and the play-line of the laterally-movable needle.

Attached by screws to the front side of the plate 12 is a plate 13, which extends almost to the lower edge of the plate 12, and is provided with a depending flange which is flared slightly outward and extends below the edge of said plate 12 and affords a way for the sweat-band, whereby the depth of the stitching is regulated.

Attached to the rear side of the needle-plate 12 is a plate 14, the lower edge of which rests in a plane slightly below the edge of the needle-plate and serves as a keeper for the folded edge of the hat, which rests against the lower edge of the needle-plate, and is thereby retained in a slightly-lower plane than the sweat-band, as is desirable. The plate 13 is provided in the lower edge of its depending flange at a suitable point with a recess 15, and the plate 14 is provided adjacent its lower edge with a slot 16 for the passage of the needle.

Upon the lower end of the vertical shaft G is fixed the looper 17.

In operation the hat and sweat band are mounted, as has been described, and are clamped between the friction feed and guide wheels, so that the band will rest between the flange of the plate 13 and the needle-plate, while the folded edge of the hat will rest beneath the needle-plate and against the plate 14. The machine is then started, when the needle takes through the leather and the hat; but by reason of the needle being curved upwardly it passes upward in a slanting direction after passing through the sweat-band, its path being through the edge of the fold, so that the stitches will not show on the outside of the hat-body. When the needle reaches the end of its inward stroke, the looper 17 engages the thread and takes an inwardly-directed loop therefrom, and the needle on its return stroke carries the thread through the hat and band in an opposite direction to the first-named stitch. At the beginning of the next inward stroke of the needle the plate T will be depressed, when the needle will take over the hat and sweat-band and through the

inwardly-directed loop. The thread is then engaged by the looper 17 and another loop is formed. The needle then returning carries back one of the branches of the latter loop, after which it is carried back and over the said latter loop and then through the folded edge of the hat, so as to form a second loop, and so on until the band has been secured.

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

1. In a hat-sewing machine, the combination, with the main shaft and with the sewing mechanism, of spring-supported feed and guide wheels, a cam on the main shaft for depressing said wheels at intervals, and a pawl for engaging the feed-wheel and a support for said pawl, substantially as shown and described.

2. In a hat-sewing machine, the combination, with the main shaft and with the sewing mechanism, of rotatable guide and feed wheels to clamp and hold the hat to be sewed, a spring-support for said wheels, a cam on the main shaft for depressing said support and wheels at intervals, and a pawl pivoted on a branch depending from the overhanging arm B of the machine for rotating the feed-wheel, substantially as shown and described.

3. In a sewing-machine, the combination, with a rotatable friction feed-wheel and a guide-wheel arranged adjacent thereto and mounted on yielding supports, of a plunger interposed between a cam and the supports for said wheels, and the cam adapted to contact with the plunger and depress said wheels at intervals, substantially as specified.

4. In a sewing-machine, the combination, with the main frame and power-shaft, of the resilient plate connected at one end to the frame, devices intermediate of the power-shaft and plate adapted at intervals to depress the latter, a friction feed-wheel journaled on the plate and having ratchet-teeth on its upper side, a pivotally-mounted depending pawl adapted to engage and move the friction-wheel after each depression of the plate, the support for said pawl, and a guide-wheel arranged adjacent to the feed-wheel, substantially as and for the purpose described.

5. In a sewing-machine, the combination, with the main frame and a resilient or spring plate connected at one end thereto and carrying a friction feed-wheel and a guide-wheel adjacent thereto, of the power-shaft, a vertically-movable pin seated in a sleeve and bearing at its lower end upon the plate, a cam fixed on the shaft in alignment with the pin and adapted to engage the same to depress the plate, and a pawl pivoted to a stationary part of the frame and engaging ratchet-teeth on the feed-wheel, substantially as specified.

6. In a sewing-machine, the combination, with the main frame and a horizontal plate carrying a rotatable feed-wheel, of a second plate movably connected to the first plate and carrying a guide-wheel, a lever pivotally con-

5 nected at one end to the frame and also connected with the movable plate, a plate connected to the lower end of said lever, a lever pivotally connected at one end to the machine
10 and bearing against the lower end of said last-named plate, a coiled spring connected at one end to the last-named lever and at its opposite end to the frame, and a coiled spring connected at one end to the supporting-plate and at its
15 opposite end to the movable plate, substantially as specified.

7. In a sewing-machine, the combination, with the main frame and a slotted bar connected thereto, of a hat-support comprising a
15 standard adapted to be adjustably fixed in said slotted bar and an expansible band connected with said standard, substantially as and for the purpose described.

8. In a machine for sewing sweat-bands in
20 hats, the combination, with the sewing mechanism, of a feed-wheel arranged to rotate in a horizontal plane, a yielding support for said feed-wheel, whereby it is adapted to be moved

vertically, a guide-wheel carried by the same support and capable of being moved from and
25 toward the feed-wheel, and means for operating said feed and guide wheels, substantially as shown and described.

9. In a machine for sewing sweat-bands in hats, a feed-wheel and a guide-wheel, both
30 arranged to rotate in the same horizontal plane, a yielding support for said wheels, whereby they are adapted to be moved vertically, the guide-wheel being journaled on a plate attached to and movable on said yielding
35 support, whereby it is adapted to be moved from and toward the feed-wheel, and means for operating said wheel, substantially as shown and described.

In testimony whereof I affix my signature in
40 presence of two witnesses.

WELCOME P. GAMMONS, JR.

Witnesses:

THOMAS C. HARRIS,
WILLIAM W. LEE.