W. P. GAMMONS, Jr.

SEWING MACHINE.

APPLICATION FILED AUG. 24, 1911.

1,063,253.

Patented June 3, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

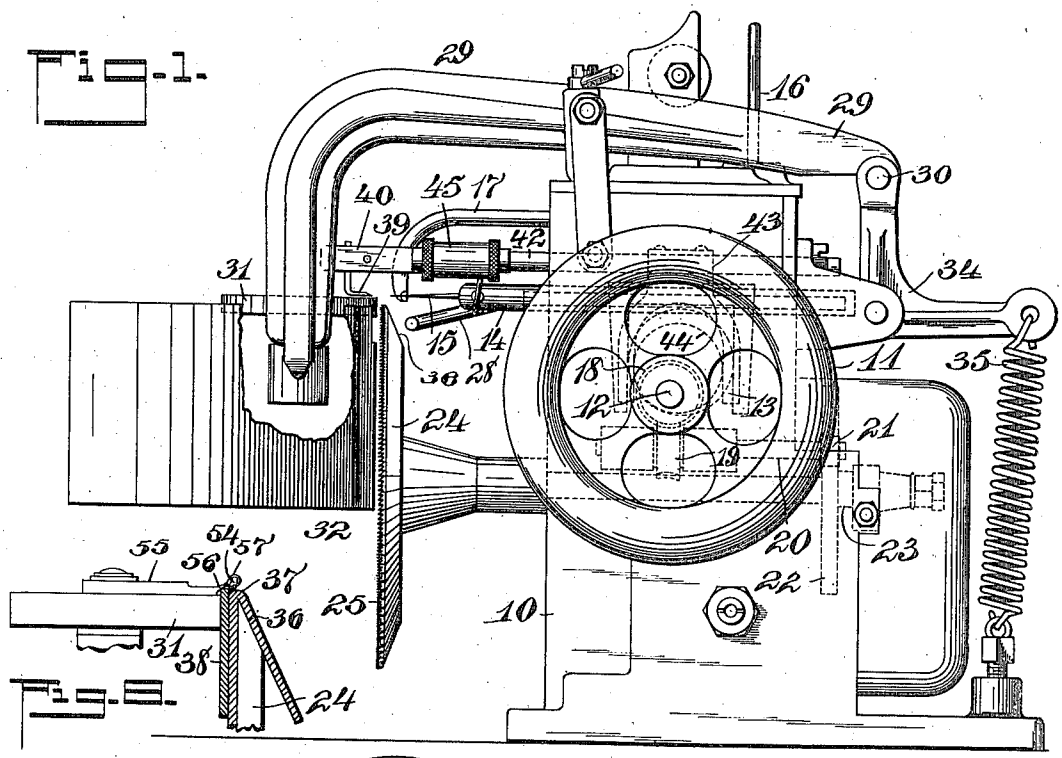
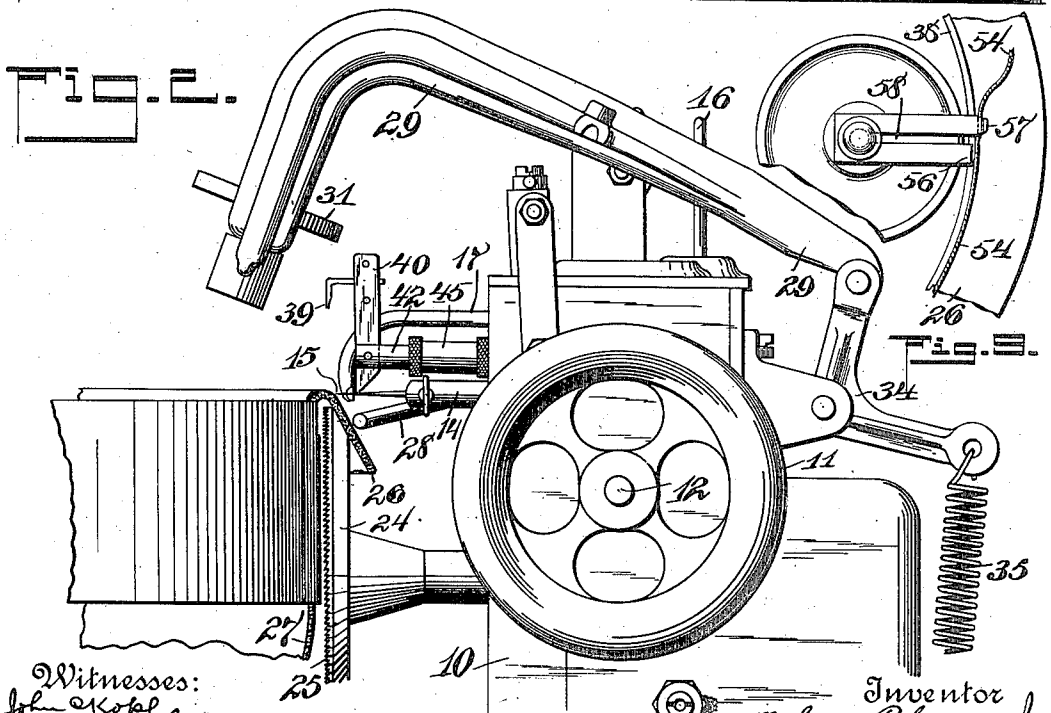


Fig. 3.

Fig. 2.



Witnesses:
John Kopf
M. A. Johnson

Inventor
Welcome P. Gammons Jr.
By his Attorney
Wm. H. Caulfield.

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2 SHEETS—SHEET 2.

Fig. 3.

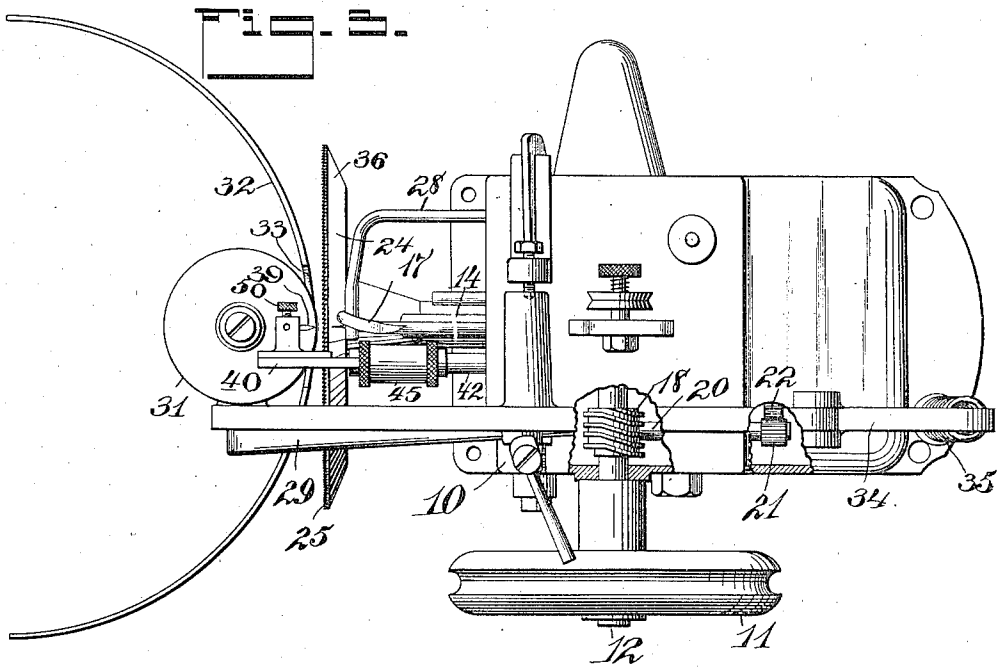


Fig. 4.

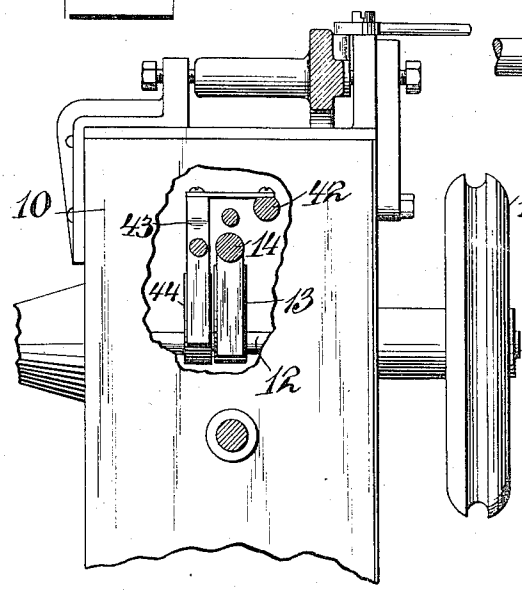


Fig. 5.

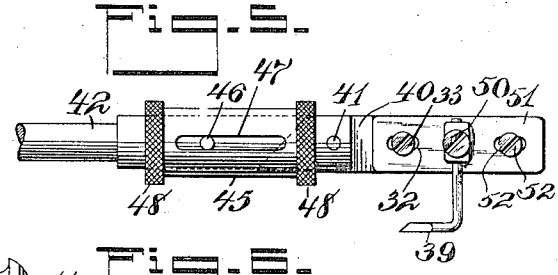


Fig. 6.

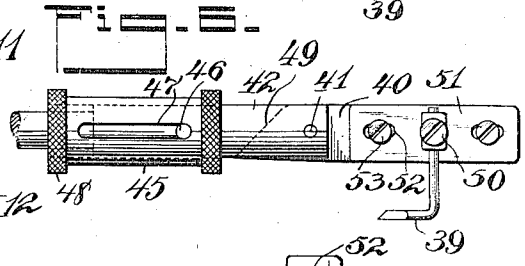
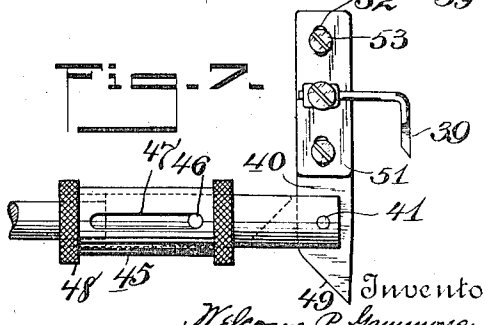


Fig. 7.



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John Kopf

M. A. Johnson

Inventor

Welcome P. Gammons, Jr.,

By his Attorney

Wm. H. Canfield.

UNITED STATES PATENT OFFICE.

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

SEWING-MACHINE.

1,063,253. Specification of Letters Patent. Patented June 3, 1913.

Application filed August 24, 1911. Serial No. 645,862.

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 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 figures of reference marked thereon, which form a part of this specification.

This invention relates to a sewing machine which is designed to provide a machine which punctures the material which is to be sewed at a place where the needle will enter the material and from the opposite side to the side from which the needle enters, the puncturing being done by an awl which does not interfere in any way with the sewing operation and is so adjusted that it punctures the material before the needle penetrates the material and directly after the material has been fed for the next stitch. The sewing machine is further designed to be used on material of a soft nature, and material of a somewhat less pliable nature, for instance as in sewing hats where it is used through the felt and through the leather sweat band. The awl is constructed to enter through the sweat band first whereby when the hat rests on the feeding means it provides a resilient backing, that is, a backing that yields slightly against the entrance of the awl, and any bur or ridge around the hole is caused to project on the side toward the material of the hat so that it is not evident when the hat is finished. The needle enters from the soft side, that is, through the hat-body or the material of the hat, and having a hole punched for it in the leather band of the hat, it does not push out the material of the leather, and the sewing has a good finished appearance on the inside and the sweat band is not marred by the row of minute raised particles around the holes of the stitches.

The invention is designed to provide a machine to perform this which is provided with an awl that can be swung out of line with the needle or quickly placed in line with the needle, as it is desired to be used or not. The machine further provides a presser-roller mounted on a swinging arm, said presser-roller being in turn provided with an improved guide for holding a cord when a cord is used in connection with the juncture of the leather band and the hat-body, and when such cord is not used, said guide acts to hold the material down on the feeding means to insure its being fed properly and steadily.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side view of the machine ready to sew, but being illustrated without material to be sewed therein. Fig. 2 is a similar view showing the presser-arm with its roller raised and material inserted in place for sewing. Fig. 3 is a top view of Fig. 1. Fig. 4 is a view taken from the front of the machine with the feeding-wheel removed and the front plate partly broken away to show the mechanism to better advantage. Figs. 5, 6 and 7 are side views of the detail for holding the awl. Fig. 8 is a view of the presser-roller with an improved form of cord guide secured thereto and also showing a portion of the feeding-wheel with the hat-body and the leather in place to be sewed. Fig. 9 is a top view of Fig. 8.

In the drawings I have illustrated a general type of machine, said machine being illustrated as a hat sewing machine in which the hat leather is stitched to the hat-body on the inside of the bottom of the crown. The machine casing 10 is provided with a driving pulley 11 which is adapted to receive a belt and is mounted on the shaft 12 which is provided with an eccentric 13 which, when the shaft is rotated, reciprocates the needle-bar 14, the needle-bar 14 carrying the needle 15 which is adapted to receive thread from a spool mounted on the spindle 16 on the top of the casing 10, the looper 17 acting to form the loop for the stitches as is usually done in this type of machine. The operating means for the looper 17 is not shown, since it is not a part of this invention.

The main shaft is provided with a worm 18 which is shown more particularly in Fig. 3, the worm 18 being provided with spaced teeth which are without pitch for a part of their circumference, and provided with a pitch the remainder of the circumference so that the partial rotation of the shaft causes the worm 18 to feed the worm-gear 19. The

remainder of the rotation of the worm 18 locks the worm-gear 19 against rotation. This provides a step-by-step movement for the worm-gear 19 and the shaft 20 on which it is mounted (see Fig. 1), thus transmitting a step-by-step movement to the small gear 21 which is in mesh with a larger gear 22 mounted on the feed-shaft 23 which has, on its outer end, a feed-wheel 24. The feed-wheel is preferably provided with a roughened or serrated end 25. This provides the feeding means which is adapted to receive the brim 26 of a hat-body 27, the brim being held down in approximately close contact by an arm 28. The arm 28 acts as a fender and keeps the hat-brim from springing up and interfering with the needle and the elements surrounding it.

The presser-arm 29 is pivoted at 30 and is provided with a presser-roller 31 rotatably arranged at its lower edge and adapted to be swung down in engagement with the inner side of the hat-body to force it against the feeding-wheel 24. This presser-roller or wheel thereby insures the engagement of the edge of the feed-wheel 24 with the hat. The hat is preferably supported by a shield 32 which is cut away as at 33 (Fig. 3) to permit the presser-wheel to press the hat close up against the feed-wheel. The presser-arm and its wheel are normally forced against the hat by means of the bell-crank 34 and the spring 35. The feed-wheel is provided with a back chamfered edge 36 which provides a pointed periphery over which the fold 37 of the hat is formed, and the sweat band or leather 38 of the hat is squeezed by the presser-roller 31 so that they are in position to have the needle pass through the fold 37 and through the leather near its top edge to sew the parts together. If the needle is run through without any previous perforation, the leather, at the point where the needle comes through, is forced toward the inside of the hat, that is, the surface is pushed up and provides a small projection which, due to the light color on the inside of the leather, is quickly noticeable, especially when there is a row of them, and they being close together, are well defined.

My invention provides a means for perforating the leather of the hat first, the less pliable leather being forced by an awl against the soft material of the hat whereby a cushion is provided and the awl is forced through the leather into the fold of the hat if necessary, forcing the leather toward the hat where it can not be seen, and when the needle is forced through the perforation after the awl is withdrawn, the hole in the leather is clean and unmarred to the observer. The awl 39 is mounted on a swinging lever 40, which lever swings on the pivot 41 on the rod 42, which rod is reciprocated by means of the yoke 43 and the eccentric 44 so that the awl-rod 42 is caused to reciprocate to force the awl into and out of the material between the presser-roller or wheel 31 and the feeding-wheel 24. A sleeve 45 slides on the rod 42 and also over the lever 40, and when slid forward to the position shown in Figs. 1 and 5, the lever 40 and the rod 42 are held in alinement and the awl is in position for operation. A pin 46 on the rod 42 and a slot 47 in the sleeve 45 act to limit the movement of the sleeve. The sleeve is preferably provided with knurled collars 48 to facilitate its movement.

When the sleeve is slid back to the position shown in Fig. 6, the end 49 of the lever 40, which is within a slot in the end of the rod 42, is released and the lever 40 can be swung to the position shown in Figs. 2 and 7, that is, out of the way to facilitate the insertion and removal of material to be sewed. The awl 39 is preferably made L-shaped or right-angled and is held by the screw 50 onto a plate 51 which is slotted as at 52, and working on the screw 53, provides an adjustment for the awl to regulate its penetration.

The mechanism is timed so that the feeding of the material takes place first, then the eccentric that operates the awl-bar moves the bar to cause the awl to penetrate the leather in line with and from the opposite side to the penetration of the needle, withdraws the awl by means of its awl-bar, then advances the needle and operates the looper to make a stitch and then the feed again takes place. In this way the awl and the needle are moved in line while the material is stopped and positively locked by the portion of the thread on the worm 18, which is without pitch, engaging the worm-gear 19.

It is sometimes desirable to feed a cord 54 and embrace it in the loop of the stitch, the cord being shown in Figs. 8 and 9 as resting in the juncture of the hat-brim and the sweat band or leather. To properly feed this cord, and also to act as a cord or pressing means for guiding the leather to insure the proper elevation of its top edge, I provide the foot 55 which is provided on one side with a lip 56 which extends over the leather and keeps it from riding up, and is provided on its other side with an eye 57 through which the cord 54 is fed, the eye 57 also having a provision on its under surface for preventing the riding up of the hat-band or the cord. The foot is provided with a slot 58 which provides a passageway for the needle 15.

Having thus described my invention, what I claim is:—

1. A sewing machine comprising a support for the material to be sewed, a reciprocating needle and its operating mechanism, an awl-rod, a lever swinging at the end of

the awl-rod, a pin in the awl-rod, a sleeve sliding on the awl-rod and having a slot to receive the pin, the sleeve being adapted to inclose both the rod and the lever to hold the lever in its operative position, and an awl secured to the lever.

2. A sewing machine comprising a support for the material to be sewed, a reciprocating needle and its operating mechanism, an awl-rod, a lever swinging at the end of the awl-rod, a pin in the awl-rod, a sleeve sliding on the awl-rod and having a slot to receive the pin, the sleeve being adapted to inclose both the rod and the lever to hold the lever in its operative position, a plate adjustably secured on the lever, and an L-shaped awl adjustably secured to the plate, the awl being vertically adjustable on the plate and the plate being horizontally adjustable on the lever.

In testimony that I claim the foregoing I have hereunto set my hand this 10th day of August, 1911.

WELCOME P. GAMMONS, JR.

Witnesses:
WM. H. CAMFIELD,
M. A. JOHNSON.