

Dec. 28, 1954

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2,698,019

ATTACHMENT FOR A POST, CHAIN-STITCH SEWING MACHINE
MECHANISM FOR INJECTING CONTINUOUS HAIR INTO A
DOLL'S SCALP AND CUTTING THE INJECTED HAIR

Filed Sept. 15, 1953

3 Sheets-Sheet 1

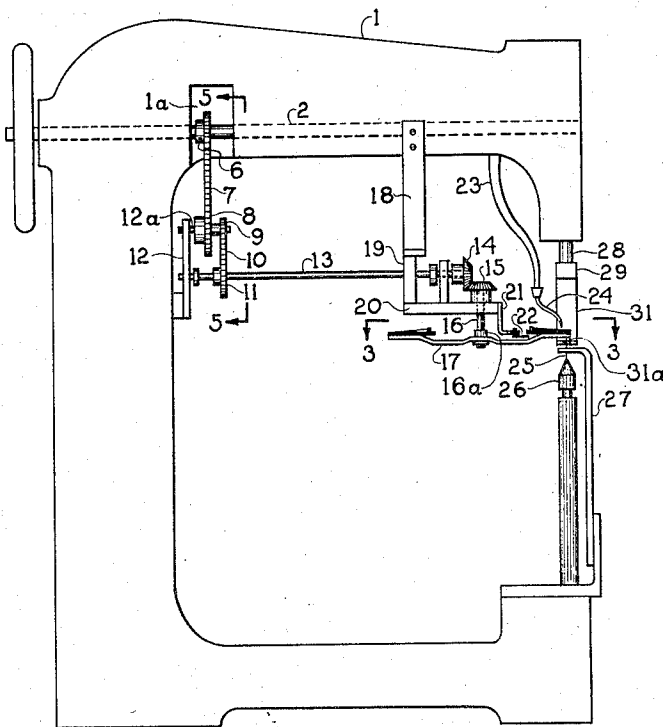


FIG. 1

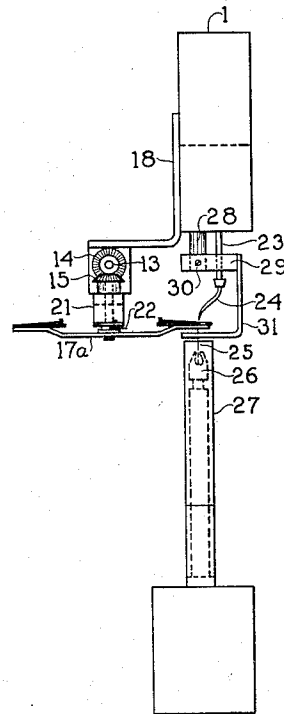


FIG. 2

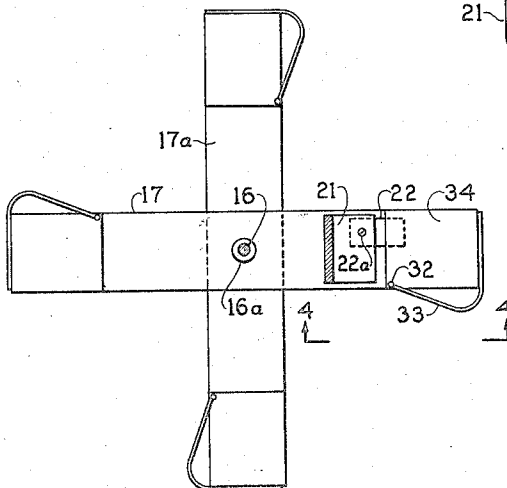


FIG. 3

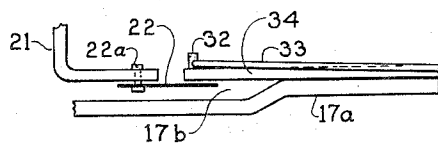


FIG. 4

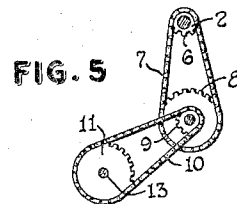


FIG. 5

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3 Sheets-Sheet 2

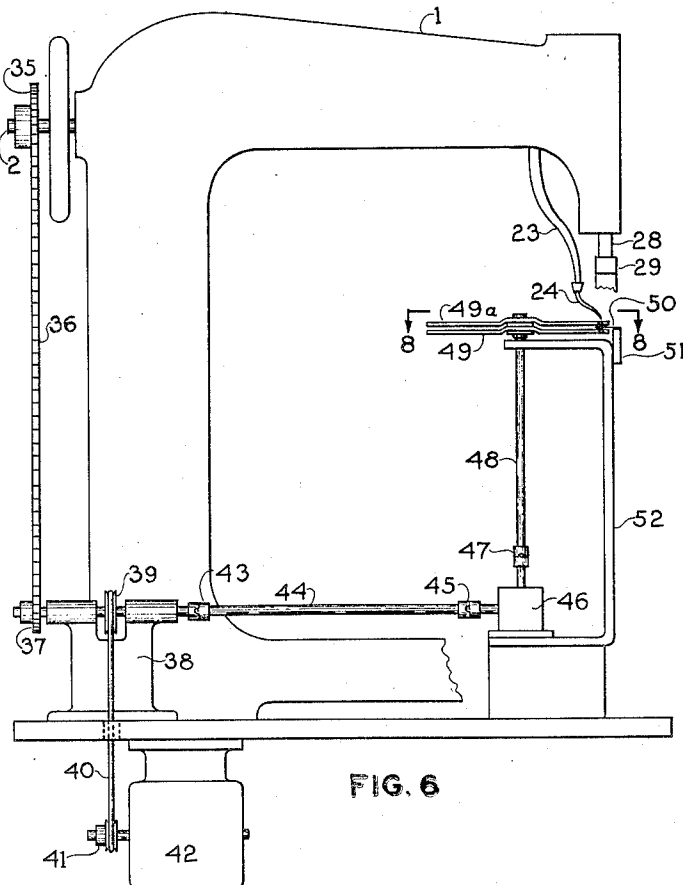


FIG. 6

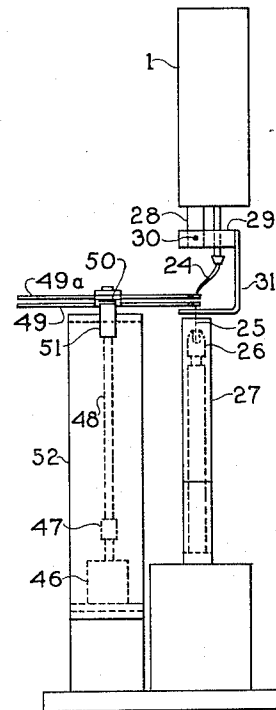


FIG. 7

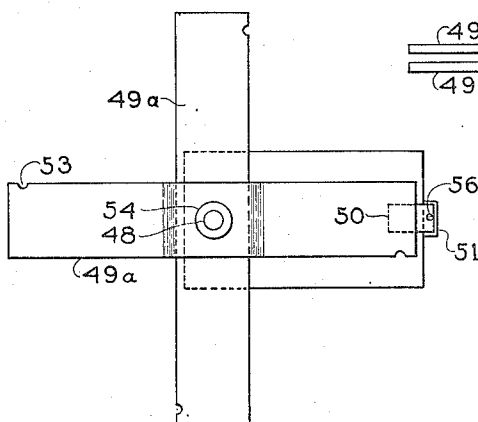


FIG. 8

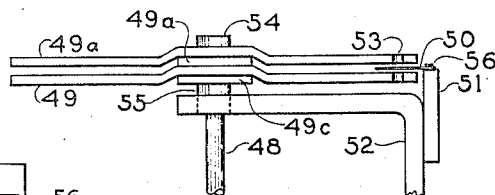


FIG. 9

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3 Sheets-Sheet 3

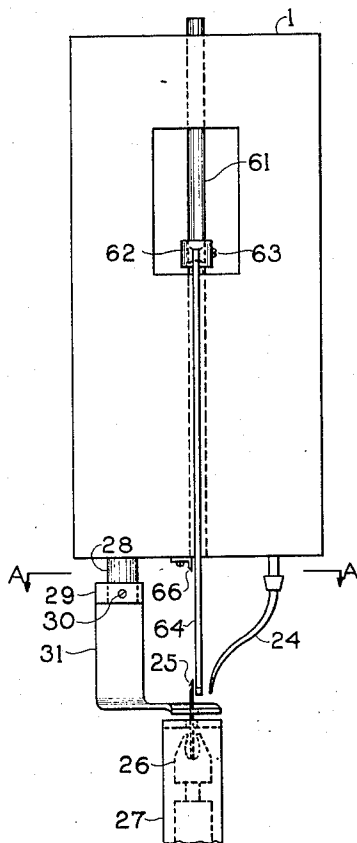


FIG. 10

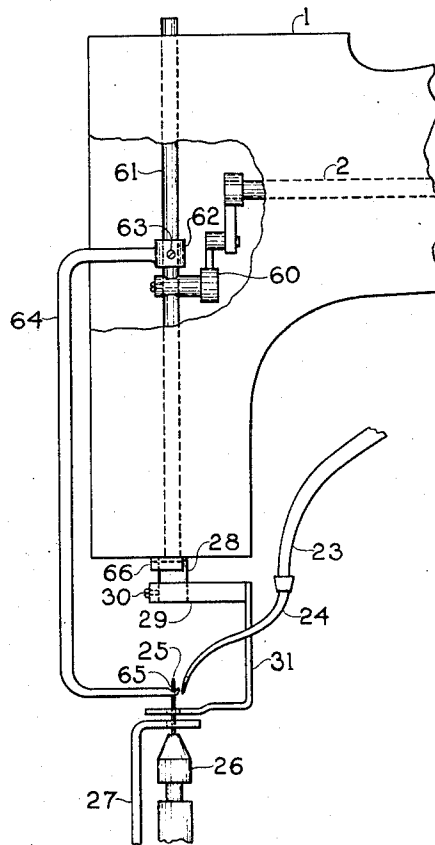


FIG. 11

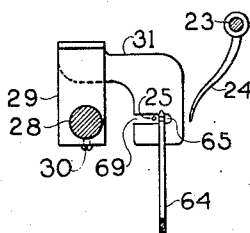


FIG. 12

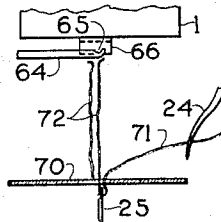


FIG. 13

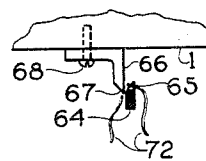


FIG. 14

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ATTACHMENT FOR A POST, CHAIN-STITCH SEWING MACHINE MECHANISM FOR INJECTING CONTINUOUS HAIR INTO A DOLL'S SCALP AND CUTTING THE INJECTED HAIR

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Application September 15, 1953, Serial No. 380,276

5 Claims. (Cl. 132—56)

This invention relates broadly to means for facilitating the injection of simulated hair into a doll's scalp, and it has more specific reference to the provision of an attachment for a conventional chain-stitch sewing machine mechanism whereby such hair may be injected into a doll's scalp and retained in the scalp firmly and securely after injection by stitching it to the interior of the scalp.

An attachment has heretofore been known which broadly comprises the combination with a conventional post, chain-stitch producing sewing machine mechanism having a vertically reciprocating hooked needle, of an attachment comprising broadly a container for a quantity of strands of pre-cut hair from which the hooked needle removes successive strands for injection into a doll's scalp, an open-faced presser foot through which the container enters in following the course of the needle, and a multi-armed rotating member the edge of which passes through the presser foot in its rotation, the rotating arms brushing the loose ends of injected hair out of the path of the needle.

However it has been found to be commercially more desirable to inject simulated hair from a spool or other receptacle containing a strand of simulated, continuous hair.

It is therefore the principal object of the present invention to provide an attachment for a conventional post, chain-stitch sewing machine mechanism, having a vertically reciprocating hooked needle, whereby simulated hair from a spool will be engaged by the hooked needle and drawn through a doll's scalp, looped and cut at predetermined intervals and the free ends of injected hair will be brushed aside and out of the path of the vertically reciprocating needle.

And it is a further aim of the present invention to provide an attachment for a sewing machine of the character described, including a rotating, multi-armed member, each of the arms having means to engage successive portions of hair and to carry them to a cutting member, where successive portions of hair engaged by successive arms will be cut into strands of predetermined equal length, and stitched substantially centrally of the length of each strand to the interior of the scalp.

And yet another aim of the present invention resides in the provision of an attachment for a sewing machine mechanism of the character referred to, including an open-faced, substantially channel-shaped presser foot, through the open face of which the outer ends of the arms of the rotating member pass.

And a still further feature of the present invention resides in the provision of an attachment for a sewing machine mechanism of the character referred to, including a multi-armed horizontally rotating member, the arms of which will brush aside the free ends of injected hair, so that they cannot be engaged by the hooked needle.

And a still further advantage of the present invention resides in the provision of an attachment for the purpose described, including a stationary blade, past which each of the arms of a rotating member advances successively, carrying a portion of injected hair for cutting upon contact with the blade.

And a still further purpose of the present invention resides in the provision of an attachment for a sewing machine mechanism of the character described, the attachment comprising means for looping a part of a strand of continuous hair about an arm and carrying the looped

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portion to a fixed blade for cutting at predetermined intervals.

These and other meritorious aims and advantages are attained by the novel construction, combination and arrangement of parts, hereinafter described, and illustrated in the accompanying drawings, forming a material component of the present disclosure, and in which:

Figure 1 is a rear elevational view of a conventional post, chain-stitch sewing machine provided with the attachment which constitutes the present invention.

Figure 2 is a left hand side view of the machine illustrated in Figure 1.

Figure 3 is a top plan view, partly in section, of the rotating member and blade taken on line 3—3 of Figure 1.

Figure 4 is a detail view, taken on line 4—4 of Figure 3, showing one of the arms of the rotating member and the intercepting blade.

Figure 5 is a detail view of the sprocket arrangement for turning the rotating member, taken on line 5—5 of Figure 1.

Figure 6 is a rear view of a conventional post, chain-stitch sewing machine showing a modified arrangement for activating the rotating member and a modified blade arrangement.

Figure 7 is a left hand side view of the machine illustrated in Figure 6.

Figure 8 is a top plan view of the modified rotating member and blade, taken on line 8—8 of Figure 6.

Figure 9 is a detail view of the modified rotating member and blade.

Figure 10 is a left hand side view of an attachment for a sewing machine mechanism, whereby hair is carried to the cutting member vertically instead of horizontally.

Figure 11 is a front elevational view of the mechanism and attachment illustrated in Figure 10.

Figure 12 is a view on line A—A of Figure 10 in a downward direction.

Figure 13 is a detail front view of the mechanism and attachment, showing the needle in its lowest position and the arm in its uppermost position where contact is made with the blade and the hair is cut.

Figure 14 is a detail view, partly in section, showing the shearing action.

Referring in greater detail to the drawing, the numeral 1 refers in general to the head of a conventional post, chain-stitch type sewing machine, having a shaft 2 extending transversely therethrough. An opening 1a is provided in the machine head, to gain access to shaft 2, as is shown in Figure 1, and at the opening, a sprocket 6 is mounted upon shaft 2. Sprocket 6 is joined with a sprocket 8 positioned therebelow and rotating in the same direction, by a chain 7 or in any other suitable and desirable manner, sprocket 8 being considerably larger than sprocket 6, the ratio here illustrated being 2 to 1. Superimposed upon sprocket 8 is a smaller sprocket 9, both sprockets rotating on bearing 12a, sprocket 9 being joined with a larger sprocket 11, here illustrated as having a 2 to 1 ratio, by means of a chain 10 or otherwise, mounted upon one end of a horizontal shaft 13, the shaft being rotatably retained by bearings in a bracket 12 secured to the inner face of the upright of a conventional sewing machine, as is illustrated in Figure 1 and in a gear box wall 19, which will presently be more fully explained.

At the other end of shaft 13 is a miter gear 14 rotating vertically, which is in mesh with a horizontally rotating miter gear 15 at one end of a vertical shaft 16, the other end of the shaft being adapted to receive the hub 16a of a multi-armed, horizontally rotating member 17, which is here illustrated as having four equally spaced-apart arms which number may vary if desired. The bottom portion of each of the arms is curved as at 17a for a purpose which will hereinafter be more fully explained.

Extending vertically from the machine head 1 is a mounting bracket 18 its lower end being connected to and in alignment with wall 19 of a gear box, the said gear box terminating in a rectangular bottom member 20 for the miter gears 14 and 15 respectively, which have hereabove been referred to. Secured to the horizontal end of bottom member 20 of the gear box is a

rectangularly curved blade holder 21, the end of its horizontal arm having a blade 22 secured thereto in any suitable and desirable manner, the blade 22 being illustrated as extending in a horizontal direction at a level where it will intercept rotating member 17.

The machine head is further provided with a conventional vertically reciprocating needle 25 having a hooked end, a pair of cast-offs 26 to aid in forming a chain stitch, a needle plate 27 and a foot bar 28.

Extending downwardly from machine head 1 near its needle end is a conventional looper holder 23, and a conventional looper 24 which feeds simulated hair to the needle. These elements are all conventional and will here not be described in more specific detail.

Attached to foot bar 28 is a presser foot 29, being substantially channel-shaped and thus having an open face, its lower arm being curved rectangularly as at 31 the horizontal portion of arm 31 having an opening 31a therein for the passage of needle 25 therethrough. Member 29 may be attached to foot bar 28 by means of a sew screw 30 or otherwise. The purpose of the open-face construction of presser foot 29 is to permit the ends of the rotating arms 17 to pass between the two horizontal members of the presser foot. The presser foot is here illustrated as facing the rotating member, but it may be positioned at any angle which will permit the ends of the arms to pass therethrough.

Each of the arms 17 is curved as illustrated in Figure 4. A segment 34 is attached by soldering or otherwise to the top of each of the arms 17a, member 34 extending from the outer edge of each arm 17a to a point beyond the bend, creating a space 17b through which the blade 22 may pass.

Each of the arms of rotating member 17 has secured at its outer edge by soldering or otherwise a guide member 33 extending from the outer edge of each arm in the direction of rotation to the inner or overlapping end of member 34. At the termination of each wire guide 33 there is provided a stop 32 for a purpose which will presently be explained. The wire guides are maintained at a level high enough to clear space 17b.

The modified form of machine construction illustrated in Figures 6 through 9 comprises a conventional machine head 1 hereabove referred to, having a horizontal shaft 2 extending therethrough. Shaft 2 is illustrated as extending outwardly beyond the balance wheel end of the machine head 1, and near its end a vertically rotating sprocket 35 is mounted thereon, joined by a chain 36 or otherwise to a sprocket 37 at one end of a horizontally extending shaft 44, rotatably maintained on a shaft support 38 which is mounted adjacent to the sewing machine. Shaft 44 is provided with a pulley 39 joined with a pulley 41 by a leather belt 40 or otherwise, the pulley 41 being activated by a conventional motor 42, illustrated as being mounted on the underside of the sewing machine table, but which may be mounted at any other suitable and desirable location.

Shaft 44 is further provided with a universal joint 43 near one end thereof and another universal joint 45 near its other end, universal joint 45 being connected to the shaft of a gear reduction box 46. Extending vertically from the vertical shaft of the gear reduction box 46 is a joint 47 engaging a vertical shaft 48.

There is further provided a multi-armed rotating member 49, here illustrated as having four arms, the upper portion of each of said arms being referred to by the numeral 49a. Each arm comprises two members, an upper member 49a and a lower member 49c, spaced from each other and mounted upon the upper end of a vertical shaft 48 by the hub 54 of the rotating member. Shaft 48 is retained in a bearing 55 vertically extending from a shaft support 52 which has a horizontal base upon which the gear reduction box 46 is positioned. Shaft support 52 further comprises an upright spaced from and extending parallel with shaft 48. The upright is then turned inwardly to form an upper horizontal arm wherein, near the end thereof, bearing 55 is retained. At the point where the upright member of shaft support 52 is turned inwardly, there is secured in any suitable and desirable manner an upwardly extending holder 51, and horizontally across the upper edge of holder 51 lies the horizontal blade member 50, the blade 50 being secured to blade holder 51 by a screw 56 or otherwise. Near the outer edge of each of the arms of rotating member 49 and in the direction of rotation, a notch 53 may be

provided, the purpose of which will presently become apparent.

The purpose of the modification illustrated in Figures 10 through 14 of the drawings differs from that of the other two forms hereabove described, in that the latter provides means for carrying hair vertically to the cutting member, whereas in the other forms of the invention, hair is carried to the blade horizontally.

The same chain-stitch type sewing machine mechanism is employed in connection with this modification. The conventional sewing machine mechanism includes a horizontal drive shaft 2, one end of which has mounted thereon an eccentric assembly 60 whereby vertically reciprocating motion is imparted to the vertical shaft 61.

The present invention comprises an arm 64, the main portion of which is upright and extends parallel with the machine head, the upper end of the arm 64 is bent inwardly and terminates in the hollow sleeve member 62 in which is entered the vertical shaft 61. Sleeve 62 is secured to shaft 61 by screw 63 or otherwise.

The lower end of arm 64 is also turned inwardly in the same direction as the upper end of the said arm, and the returned portion terminates in a notch 65. A rectangular blade member 66 is attached by screw 68 or otherwise to the bottom of the machine head, as is illustrated in Figure 14, the free end of member 66 terminating in a cutting edge 67. The presser foot 29 is provided with an opening 69 for the passage of the needle therethrough as will hereinafter be further explained. At 71 there is illustrated the continuous strand of hair used in connection with the present invention, and at 72 there is shown a portion of hair cut from the continuous strand, and stitched into scalp 70.

The several attachments are used in the following manner:

When it is desired to inject hair through the scalp of a doll's head, the scalp is positioned upon needle plate 27. Upon machine head 1 or at any other suitable and desirable location there may be placed in any conventional manner a spool or bobbin containing a continuous strand of simulated hair. The hair will be engaged by the needle 25 through the feeding by looper 24 in a conventional manner. The machine is conventionally activated and the hooked end of the needle 25 will pierce the scalp upon post 27. In its downward stroke, needle 25 will engage the strand of hair and carry it downwardly through the scalp. As the rotating member 17 revolves clockwise upon the shaft 16 it will intercept the filament between the looper and the scalp, forming a long loop by pulling additional filament from the looper 24. As the tapered wire 33 on each arm of rotating member 17 pulls on the filament, the loop thus formed will offer resistance and will slip along the taper until it reaches stop 32, where it will remain fixed.

The needle 25 in its next downward stroke engages filament at the end of the loop where it emanates from the looper. At the moment the needle carries a strand of hair into the scalp, the hair engaged by the rotating arm is intercepted by the blade 22. The tension of the hair will be such, that the blade will cut the hair at the point of interception. The simulated hair will be injected in such manner, that each strand is entered into the scalp substantially centrally of its length, leaving two free ends of each strand upon the exterior of the scalp. Continued rotation of member 17 will brush aside the free ends of cut hair, so that the needle, when it again begins its upward stroke, cannot engage the free ends of injected hair. Inasmuch as the gear ratio is 4 to 1, member 17 will complete one revolution for four reciprocating movements of needle 25. Whenever the needle completes its upward stroke and begins to move downwardly, it will engage one strand of hair which has been drawn into a loop by the adjacent rotating arm which passes over the needle and through the open faced presser foot 29 while the needle is down.

In the modification illustrated in Figures 6 through 9 of the drawings, the attachment is activated by means positioned outside the machine head. The machine is synchronized with the attachment by means of the sprocket arrangement illustrated, whereas in the principal form the attachment is activated by the main drive shaft. Instead of the wire guides 33, the modification employs notches to hold the loops until intercepted by the blade.

In the two forms hereabove discussed, hair is looped about an arm and carried horizontally to a stationary

blade, where it is cut into strands of equal lengths. The modification illustrated in Figures 10 through 14 differs from these embodiments in that hair is looped about an arm and carried to a stationary blade vertically. In this modification, the looper will cast a loop about the needle and about the lower intumed member of arm 64, where it will be retained by the notch 65. The relative motion of needle 25 and arm 61 is such, that the arm will go up when the needle goes down and vice versa. Thus, when the needle has completed its upward stroke during which it has pierced the scalp upon the post, it will carry the loop of hair which it has engaged downwardly through the scalp. At the same time, the arm terminating at notch 65 will move upwardly in close proximity to cutting edge 67 of blade member 68, members 64 and 66 jointly perform the shearing action by which the hair is cut at the notch. The arm will then move downwardly while the needle goes up and the same action is repeated. An air hose may be provided at the proper location to blow the loose ends of rooted hair out of the path of the needle.

Thus there has been shown and described an attachment for injecting hair into the scalp of a doll's head in the principal form of its embodiment and in several modifications. Other modifications can obviously be made. For instance, while I show and describe an attachment for use in connection with a machine having one needle, the several attachments may be modified for use in connection with multi-needle machines. The drawings and the description hereabove presented are to be regarded merely as illustrative and descriptive of the best known forms of the invention, and not as limitative or restrictive to the exact details shown. I reserve the right to make such changes in the construction of my invention as may come within the scope of the appended claims without thereby departing either from the spirit or the scope of the appended claims.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent, is:

1. In an attachment of the character described, the combination with a chain-stitch sewing machine mechanism including a vertically reciprocating hooked needle, a post having an opening through which the needle passes to pierce a work-piece positioned thereupon; of an open-faced substantially channel-shaped presser foot, said presser foot having an upper and a lower horizontal arm, said arms spaced apart and joined at their edges by a vertical member, said lower arm positioned over the needle, an opening therein for the passage of the hooked end of the needle therethrough, a multi-armed rotating member, said member rotating horizontally above the lower arm of said presser foot, means on each of said arms engaging a strand of simulated hair and carrying it along, a stationary blade in the path of said arms, said arms carrying hair to the blade for interception thereby.

2. In an attachment of the character described, the combination with a chain-stitch sewing machine mechanism including a head, a drive shaft extending horizontally therethrough, a vertically reciprocating hooked needle activated thereby, a post having an opening through which the hooked end of the needle may pass to pierce a work-piece positioned thereon; of a horizontally rotatable multi-armed member, a vertical shaft above and adjacent the needle, said rotating member mounted thereon, said shaft activated through the drive shaft of the mechanism, a foot

bar above the needle, an open faced presser foot secured thereto, the ends of the arms of said rotating member rotatable in the open face of said presser foot, means on each arm of said rotating member engaging and retaining hair, and a stationary blade, said arms carrying the hair engaged thereby to the blade for cutting at the point of interception.

3. In an attachment of the character described, the combination with a chain-stitch sewing machine mechanism including a head, a drive shaft extending transversely therethrough, a vertically reciprocating hooked needle activated thereby, a post adjacent and curved over the end of the needle, the post having an opening for the passage of the needle end therethrough and through a work-piece placed thereupon, a looper from which hair is fed to the needle; of a presser foot secured to the foot bar of the machine, said presser foot having two spaced apart horizontal arms, a vertical arm by which they are joined edgewise, a horizontally rotating multi-armed member adjacent and above the lower horizontal arm of said presser foot, the ends of the arms passing through the opening in said presser foot, means on each arm engaging looped hair, means on each arm limiting the movement of the hair engaged thereon, a stationary blade in the path of the rotating arms, said arms carrying hair engaged thereby to the blade for cutting at the point of interception.

4. In an attachment for the purpose described, the combination with a post, chain-stitch type sewing machine mechanism including a machine head, a drive shaft extending horizontally therethrough, a vertically reciprocating hooked needle activated thereby, a looper feeding the needle; of an attachment activated by the drive shaft of the mechanism, said attachment adapted to receive a loop formed from a strand of continuous simulated hair, which loop also is engaged by the needle, a stationary blade, said loop upon said attachment carried to said blade for interception and cutting thereby.

5. In an attachment for the purpose described, the combination with a post chain-stitch producing sewing machine mechanism including a machine head, a horizontal drive shaft therethrough, an eccentric assembly at one end thereof, a vertical shaft engaged thereby, a vertically reciprocating needle activated by the horizontal shaft, a looper looping hair from a continuous strand about the needle; of an attachment comprising an upright arm outside the machine head and extending parallel therewith, one end of said arm secured to the vertical shaft of the mechanism, the other end of said arm turned inwardly, a notch at the end of the intumed arm, said notch adapted to receive successive loops from the strand of continuous hair, a blade at the underside of the machine head, said looped hair carried to said blade to be cut thereby.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,844,902	Myers	Feb. 9, 1932
1,884,127	Myers	Oct. 25, 1932
2,626,619	Sieners	Jan. 27, 1953
2,667,879	Mann et al.	Feb. 2, 1954