Jan. 12, 1926. 1,569,480

L. J. GRUBMAN

DEVICE FOR APPLYING EYELASHES TO DOLL EYES

Filed May 6, 1925 3 Sheets-Sheet 1

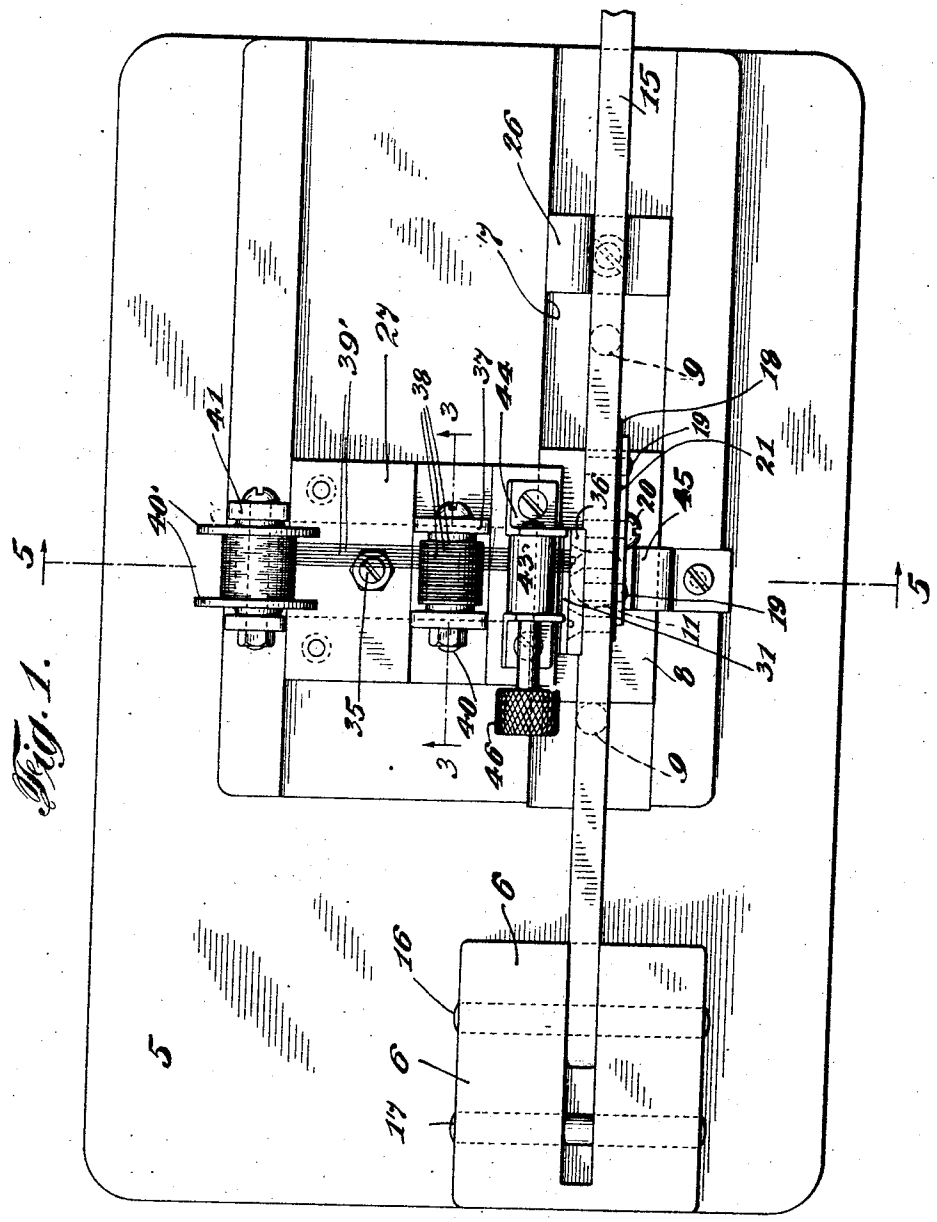


Fig. 1.

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Filed May 6, 1925 3 Sheets-Sheet 2

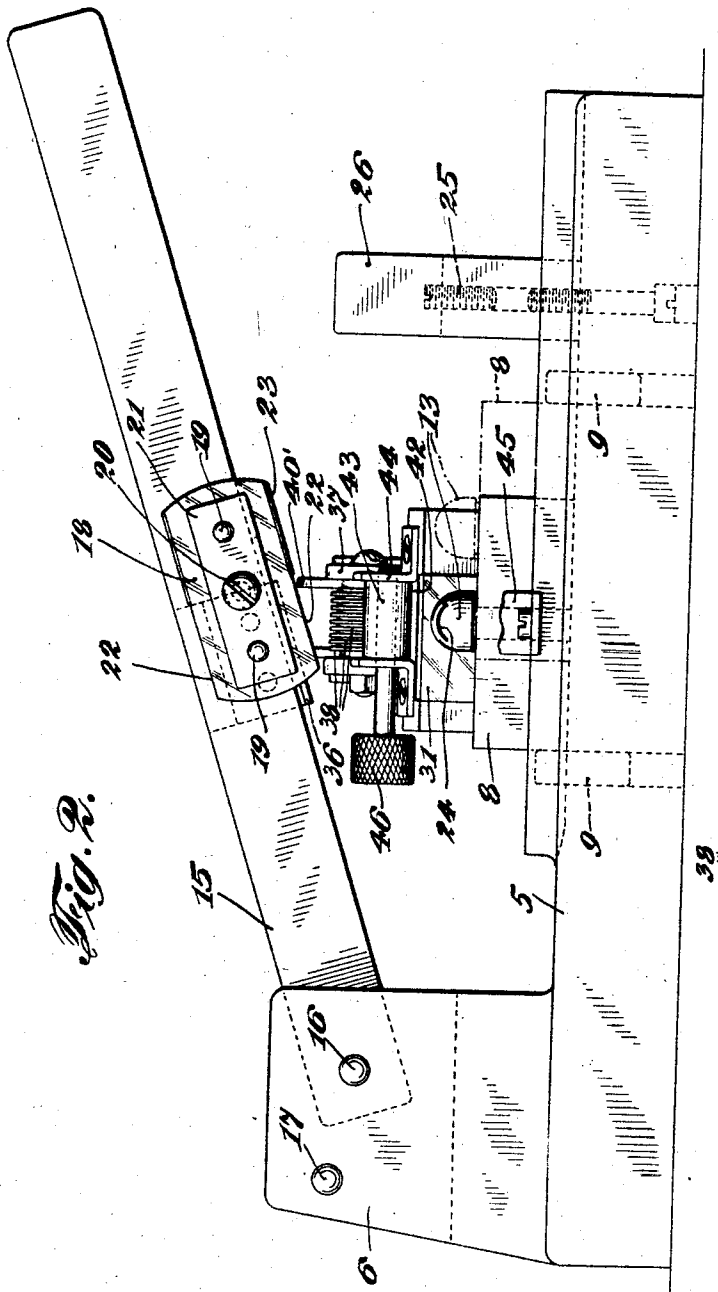


Fig. 2.

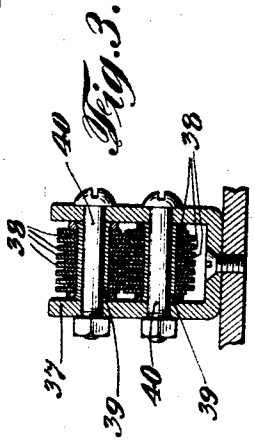


Fig. 3.

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Fig. 4.

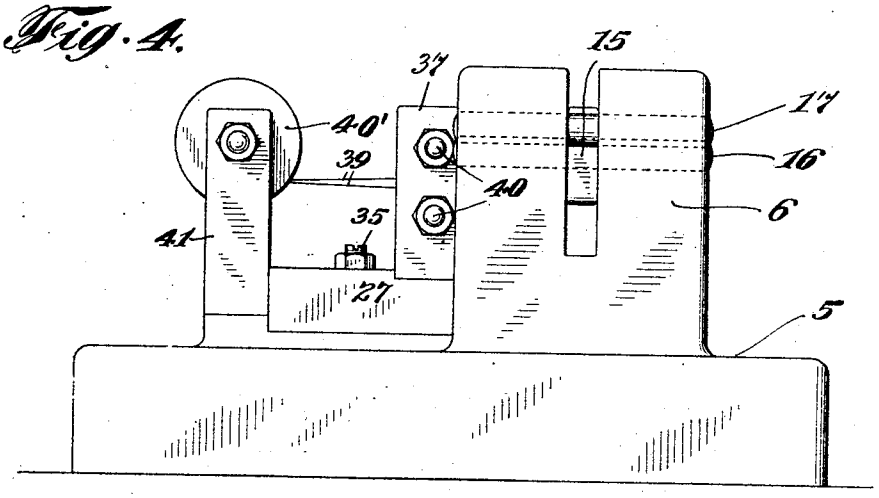


Fig. 5.

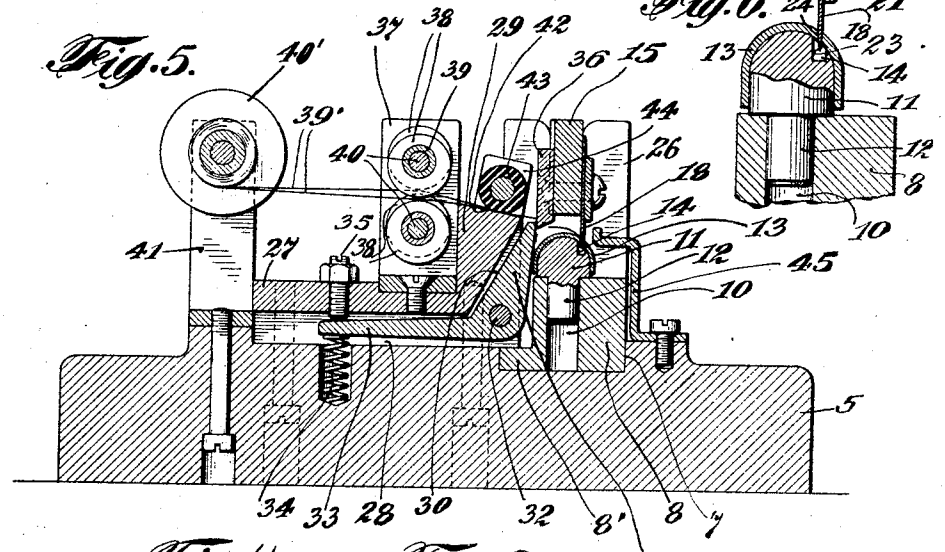


Fig. 6.

Fig. 7.

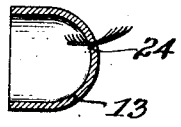
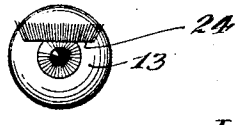


Fig. 8.



INVENTOR

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Patented Jan. 12, 1926. 1,569,480

UNITED STATES PATENT OFFICE.

LEO J. GRUBMAN, OF BELLE HARBOR, LONG ISLAND, NEW YORK, ASSIGNOR TO GRUBMAN ENGINEERING & MANUFACTURING CO. INC., OF LONG ISLAND CITY, NEW YORK, A CORPORATION OF NEW YORK.

DEVICE FOR APPLYING EYELASHES TO DOLL EYES.

Application filed May 6, 1925. Serial No. 28,324.

To all whom it may concern:

Be it known that I, LEO J. GRUBMAN, a citizen of the United States, and resident of Belle Harbor, county of Queens, Long Island, and State of New York, have invented certain new and useful Improvements in Devices for Applying Eyelashes to Doll Eyes, of which the following is a specification.

This invention relates to a device for applying eyelashes to doll eyes, and has for its primary object to provide simple and reliable means for expediting this operation and accurately positioning the eyelashes relative to the iris of the eye member.

More particularly, my present improvements relate to the application of eyelashes to hollow celluloid eye members, and in one embodiment thereof the device broadly comprehends means for shiftably supporting the eye member, means for cutting a slit through the wall of said eye member in one position thereof, means for feeding a multiplicity of spaced strands in another position of said eye member to locate one end of the eyelash strands over the slit and means for then forcing said strand ends through the slit to be subsequently fixed or secured against the inner surface of the wall of the eye member. I propose to provide a device in which the mechanical parts for performing these operations are so constructed and relatively arranged that the several operations may be successively performed with great rapidity to the end that manufacturing cost in the production of dolls and similar figure toys may be appreciably reduced.

One of the important features of my present improvements resides in the provision of a combing device whereby the eyelash forming strands may be fed to position for application to the eye member in proper uniformly spaced relation to each other.

With the above and other objects in view, the invention consists in the improved eyelash applying device and in the form, construction and relative arrangement of its several parts as will be hereinafter more fully described, illustrated in the accompanying drawings and subsequently incorporated in the subjoined claims.

In the drawings, wherein I have illustrated one simple and practical embodiment of my present improvements and in which similar reference characters designate corresponding parts throughout the several views,—

Figure 1 is a top plan view showing a preferred embodiment of my invention;

Fig. 2 is a front elevation thereof;

Fig. 3 is a detail sectional view through the combing device taken on the line 3—3 of Fig. 1;

Fig. 4 is an end elevation;

Fig. 5 is a transverse sectional view taken on the line 5—5 of Fig. 1;

Fig. 6 is a detail sectional view illustrating the manner of cutting the eyelash receiving slit from the wall of the eye member, and

Figs. 7 and 8 are a section and front elevation respectively, of the eye member with the eyelashes applied.

For purposes of illustration, I have shown the operative parts of the device mounted or arranged upon a suitable base 5 provided at one of its ends with a bifurcated standard 6. In line with this standard, the upper surface of the base is formed with a longitudinally extending guideway 7 in which the block or anvil 8 is slidingly engaged for movement between the spaced top pins 9. This slide block 8 is provided with a vertical opening 10 therein to receive the stud or shank 12 of a substantially hemispherical supporting member 11. Upon this supporting member the hemispherical hollow shell or eye ball member 13 is adapted to be engaged. At one side of its center a horizontal groove or channel 14 is formed in the surface of said supporting member for a purpose which will be hereinafter explained.

In the bifurcated standard 6 a lever 15 is pivotally mounted at one of its ends upon the transverse pin 16, a second transverse pin 17 being fixed in said standard in spaced relation to the pivot pin 16 to support the lever 15 in an inoperative position. This lever carries a blade 18 on one side thereof which is similar to the ordinary safety razor blade, said blade having an opening adjacent each end thereof to receive a stud 19 fixed in the lever and also provided with a central opening to receive a clamping screw 20 threaded in said lever. Preferably a reinforcing and clamping plate 21 is used and positioned against the outer side of the

blade 18, said plate of course, having the necessary openings to receive the studs 19 and screw 20.

One half of the longitudinal length of each cutting edge of the blade 18 is dulled as indicated at 22 while the remaining portion of said edge is sharp as at 23. As clearly seen in Fig. 2 of the drawings, when the razor blade is secured upon the side of the lever 15, one edge portion thereof projects below the lower edge of the lever, and when the slide block 8 and the eye shell 13 on support 11 are in the position shown in dotted lines in Fig. 2, upon forcing the lever 15 downwardly, the lower cutting edge 23 of the blade is caused to cut a narrow slit through the wall of the eye shell 13 as indicated at 24, said cutting edge of the blade entering the channel or groove 13 in the shell supporting member. This downward movement of the cutter carried by said lever is limited by an adjustable gauge screw 25 projecting above the base of a slotted guide 26 fixed upon the base 5 and which receives the operating lever.

Upon the base 5 at one side of the guideway 7 a transversely positioned plate 27 is secured, one end of said plate projecting over one edge of the guideway 7 and over a flange 8′ formed on the slide block 8 whereby said block is retained in the guideway 7. The under side of this plate 27 is provided with a recess or a channel 28 and the end of said plate adjacent the guideway 7 is formed with an upstanding flange 29, the outer side face of which is provided with a recess 30 communicating at its lower end with the channel or recess 28. A shear blade 31 is pivotally mounted in the lower end of the recess 30 upon a pin 32, said lower end of the blade being provided with an arm 33 extending longitudinally into the recess 28. A coil spring 34 mounted in the base 5 engages the end of this arm and urges the same upwardly against an adjustable stop screw 35 threaded in the plate 27. The upper cutting edge of the shear blade 31 is adapted to cooperate with the lower cutting edge of a blade 36 which is fixed upon the opposite side of the lever 15 with respect to the blade 18, the cutting edge of said shear blade 36 being opposite the dull edge 22 of the blade 18.

At the inner side of the flange 29, a vertically disposed U-shaped support 37 is secured to the plate 27. In this support, a comb is mounted. As herein shown, this comb consists of upper and lower series of discs 38, each disc having an eccentric opening receiving a bushing 39 on a bolt 40 fixed in the spaced arms of the support 37. As clearly shown in Figs. 3 and 5 of the drawings, the adjacent discs in each series are arranged with their eccentric portions projecting in diametrically opposite directions from the bushing 39 and with the eccentric portions of the discs in one series disposed between the eccentric portions of the discs in the other series. In this manner, it will be understood that a great number of these combing discs may be arranged in a relatively small space. In Fig. 3 of the drawings, the discs are illustrated on a somewhat exaggerated scale as regards their thickness, and in practice the discs are very thin and a greater number than is shown in the drawings are used.

The spaces between the combing discs receive the individual strands indicated at 39′ which are drawn from a reel 40′ mounted in a suitable supporting standard 41 fixed on the base 5. These strands may consist of silk or other suitable material.

The upper surface of the flange 29 is obliquely inclined in a downward direction from the combing device towards the shear blade 31 as indicated at 42 and a feed roller 43, preferably of rubber is mounted upon this flange between spaced brackets 44 and cooperates with the inclined surface 43 to positively feed the strands 39 over said inclined surface until the ends of said strands engage a suitable stop 45 fixed at its lower end upon the base 5 at the outer side of the guideway 7. One end of the shaft of the roller 43 is extended and provided with a suitable hand grip 46 whereby said roller may be conveniently operated.

Having now described the several structural parts of the device, its operation may be explained as follows: The slide block 8 is first moved to the position shown in dotted lines in Fig. 2 and in engagement with one of the stop pins 9. The operator, after positioning the hemispherical eye shell on the support 11 lowers the lever 15 and forces the same downwardly with sufficient pressure to cause the lower cutting edge 23 of blade 18 to cut through the wall of said eye shell until the lower edge of the lever engages the stop screw 25. After thus cutting the narrow slit 24 in the wall of the eye shell, said lever 15 is lifted and the slide block 8 shifted to the position shown in full lines in Fig. 2 into engagement with the other of the stop pins 9. The eye shell will now be positioned opposite to the feed roller 43. This roller is then rotated to feed the individual strands which are maintained in proper spaced relation with each other by the combing device, over said eye shell until the ends of the strands engage the stop 45, when said strand ends will be positioned over the slit 24. The lever 15 is now again lowered to engage the dull edge 22 of the blade 18 with the strand ends and force the same inwardly through said slit 24. At approximately the same time as this engagement of the blade with the strand ends, the cutting edge of the shear blade 36 on said

lever cooperates with the upper cutting edge of the pivoted blade 31 and cuts or severs the several strands. In this operation, the ends of the several strands forming the eyelashes may be doubled upon themselves, or they may be forced completely through the slit in the shell wall. The lever 15 is now again lifted and supported by the pin 17 in an inoperative position. The eye shell with the lashes applied in the manner explained, is then removed from the supporting member 11 and by means of a suitable cement, the ends of the eyelash strands are permanently fixed against the inner surface of the shell wall. Thereafter, the outer ends of the eyelash strands may be trimmed to the proper shape.

In the manner above described, it is possible to accurately apply or attach the eyelashes to the eye ball members in proper relation to the eye pupil which is painted or otherwise delineated upon the convex surface of each eye member. While for purposes of illustration, I have herein shown and described a hand operated machine, it is possible to provide automatic means for actuating the slide block 8, the lever 15 and the feed roll 43 in properly timed relation to each other. Such automatic actuating means however, constitutes no essential part of my present disclosure which is to be understood as broadly comprehending various mechanically equivalent devices for first slitting the eye ball member, then feeding the eyelash forming strands to proper position with relation to the slit, and finally forcing the ends of the strands inwardly through said slits. Heretofore it has been the practice in the art to attach the eyelashes by hand, an operation more or less difficult and time-consuming and in which it is practically impossible to obtain the desired uniform accuracy in the relation between the eyelashes and the eye pupil. Therefore, it will be appreciated that by means of my present invention not only am I enabled to produce a superior commercial article, but owing to the rapidity with which the operations may be performed, production costs are appreciably reduced.

From the above, it is to be understood that while I have herein particularly described an embodiment of my present improvements which is entirely practical, the mechanical parts of the device in their form and relative arrangement might be variously modified and the essential features of my improvements exemplified in various other alternative constructions. Accordingly, I reserve the privilege of adopting all such legitimate changes as may be fairly considered within the spirit and scope of the appended claims.

I claim:

1. In combination, an eye shell support, means for cutting a slit in the wall of the eye shell, means for feeding a plurality of eyelash forming strands to position one of their ends over said slit, and means for forcing said strand ends through said slit.

2. In combination, a shiftable eye shell support, a movable blade having an edge provided with a sharpened section and a dull section and operable in one position of said support to engage the sharpened edge section with said shell and cut a slit therein, means for feeding a plurality of eyelash forming strands to position one of their ends over said slot when the support is moved to another position, and said blade being operable in the latter position of the support to engage the dull edge portion thereof with said strands and force the same inwardly through said slit.

3. In combination, an eye shell support and a blade mounted for movement one relative to the other, said blade having an edge provided with a sharpened section and a dull section and said sharpened section of the blade adapted to cut a slit in the wall of the eye shell in one relative movement of the blade and said support, means for feeding a plurality of eyelash forming strands to position the ends thereof over said slit, and said dull edge of said blade adapted to engage said strands and force the same inwardly through said slit in a second relative movement between said blade and the support.

4. In combination, an eye shell support, a blade having an edge provided with a sharpened section and a dull section, means for mounting said blade and support for shifting movement one relative to the other whereby the sharpened edge section of said blade may first be engaged with the shell to cut a slit therein and the dull edge section of the blade subsequently engaged with a plurality of eyelash forming strands positioned over said slit to force the same inwardly therethrough.

5. In combination, an eye shell support, a blade having a sharpened edge section and a dull edge section mounted for movement towards and from an eye shell positioned on said support, means for mounting one of said parts for rectilinear adjustment relative to the other whereby the sharpened edge of the blade may first be engaged with the eye shell to cut a slit therein, and the dull edge of the blade thereafter engaged with a plurality of eyelash forming strands positioned over said slit to force the strands inwardly through the slit.

6. In combination, an eye shell support, a blade having a sharpened edge section and a dull edge section mounted for movement towards and from an eye shell positioned on said support, means for mounting one of said parts for rectilinear adjustment relative

to the other whereby the sharpened edge of the blade may first be engaged with the eye shell to cut a slit therein, and the dull edge of the blade thereafter engaged with a plurality of eyelash forming strands positioned over said slit to force the strands inwardly through the slit, and means for feeding the strands in uniformly spaced relation to each other into position for engagement by the latter edge of said blade.

7. In combination, an eye shell support, a blade having a sharpened edge section and a dull edge section mounted for movement towards and from an eye shell positioned on said support, means for mounting one of said parts for rectilinear adjustment relative to the other whereby the sharpened edge of the blade may first be engaged with the eye shell to cut a slit therein, and the dull edge of the blade thereafter engaged with a plurality of eyelash forming strands positioned over said slit to force the strands inwardly through the slit, a combing device, a feed roll for drawing the strands through said combing device and feeding the same in uniformly spaced relation into position for engagement by the latter edge of said blade, and means for cutting said strands at the outer side of the feed roll.

8. In combination, an eye shell support, a blade having a sharpened edge section and a dull edge section mounted for movement towards and from an eye shell positioned on said support, means for mounting one of said parts for rectilinear adjustment relative to the other whereby the sharpened edge of the blade may first be engaged with the eye shell to cut a slit therein, and the dull edge of the blade thereafter engaged with a plurality of eyelash forming strands positioned over said slit to force the strands inwardly through the slit, a combing device, a feed roll for drawing the strands through said combing device and feeding the same in uniformly spaced relation into position for engagement by the latter edge of said blade, and means operating simultaneously with the engagement of the edge of said blade with the strands to sever said strands at the outer side of the feed roll.

9. In combination, a horizontally shiftable eye shell support, a vertically movable blade having a sharpened edge and a dull edge, said sharpened edge adapted to cut a slit through the eye shell in one position of said support, means for feeding a plurality of eyelash forming strands to position their ends over said slit in another position of said support whereby said strand ends may be engaged by the dull edge of said blade and forced inwardly through said slit, and a strand severing device for cutting the eyelash forming sections of the strands to a predetermined length including a shear blade movable with said first named blade.

10. In combination, a horizontally shiftable eye shell support, a vertically movable blade having a sharpened edge and a dull edge, said sharpened edge adapted to cut a slit through the eye shell in one position of said support, means for feeding a plurality of eyelash forming strands to position their ends over said slit in another position of said support whereby said strand ends may be engaged by the dull edge of said blade and forced inwardly through said slit, a strand supply reel, a comb, a feeding roller for drawing the strands through said comb in uniformly spaced relation to each other, and a strand severing device for cutting the eyelash forming sections of the strands to a predetermined length including a shear blade movable with said first named blade.

11. In a device of the character described, means for cutting a slit in the wall of an eye shell, and means for feeding eyelash forming strands to position the same over said slit for insertion therethrough.

12. In a device of the character described, means for feeding a plurality of eyelash forming strands to position the ends thereof over a slit in the wall of an eye shell, and means for forcing the strand ends inwardly through said slit.

13. In a device of the character described, an eye shell support, and means for cutting a slit in the wall of the eye shell, said means and the support mounted and arranged for movement one relative to the other, means for feeding a plurality of eye lash forming strands to position the ends thereof over the slit in the wall of the eye shell, and means operable to force said ends of the eyelash forming strands inwardly through said slit.

14. In a device of the character described, means for slitting the wall of an eye shell, and means for feeding a plurality of eyelash forming strands to position the ends thereof over the slit in the eye shell wall, means for positioning the eye shell relative to the slitting means and the strand feeding means, and means for forcing the strand ends inwardly through the slit in the eye shell wall.

15. In a device of the character described, supporting means for an artificial eye member, said member having a slit therein, and means for applying pressure simultaneously upon a plurality of eyelash forming strands at one of their ends to force said strand ends into the slit in said eye member.

16. In a device of the character described, supporting means for an artificial eye member, said member having a slit therein, means for applying pressure simultaneously upon a plurality of eyelash forming strands at one of their ends to force said strand ends into the slit in said eye member, and means for cutting said strands in spaced relation to the eye member to a definite length.

17. In a device of the character described,

means for cutting a slit in an artificial eye member, and means for simultaneously inserting a plurality of eyelash forming strands at one of their ends through said slit.

18. In a device of the character described, means for cutting a slit in an artificial eye member, means for simultaneously inserting a plurality of eyelash forming strands at one of their ends through said slit, and means for cutting said strands in spaced relation to the eye member to a definite length.

19. In a device of the character described, means for feeding a plurality of equi-distantly spaced eyelash forming strands to position the ends thereof over a slit in an artificial eye member, and means for simultaneously forcing the strand ends inwardly through said slit.

20. In a device of the character described, means for feeding a plurality of equi-distantly spaced eyelash forming strands to position the ends thereof over a slit in an artificial eye member, means for simultaneously forcing the strand ends inwardly through said slit, and means for cutting the strands in spaced relation to the eye member to a definite length.

21. In a device of the character described, a support for an artificial eye member, means to cut a slit in the eye member, a second means adapted to engage and force a plurality of eyelash forming strands under pressure through said slit, said first and second means and the support being mounted for movement with respect to each other to successively position the two means and the support in relation to each other whereby the eye member is first operated upon by the slitting means and thereafter said second named means is operable to insert the eyelash forming strands through the slit.

22. In a device of the character described, a support for an artificial eye member, means to cut a slit in the eye member, a second means adapted to engage and force a plurality of eyelash forming strands under pressure through said slit, said first and second means and the support being mounted for movement with respect to each other to successively position the two means and the support in relation to each other whereby the eye member is first operated upon by the slitting means and thereafter said second named means is operable to insert the eyelash forming strands through the slit, and means for feeding the eyelash forming strands into position over said slit between the operation of said first and second means.

23. In a device of the character described, a support for an artificial eye member, means to cut a slit in the eye member, a second means adapted to engage and force a plurality of eyelash forming strands under pressure through said slit, said first and second means and the support being mounted for movement with respect to each other to successively position the two means and the support in relation to each other whereby the eye member is first operated upon by the slitting means and thereafter said second named means is operable to insert the eyelash forming strands through the slit, and means for cutting the inserted strands in spaced relation to the eye member to a definite length.

24. In a machine for applying eyelash forming strands to artificial eye members, a movable blade having an edge sharpened for a portion of its length for the purpose of cutting a slit in the eye member and the remaining portion of said edge of the blade being blunt or dull for the purpose of exerting pressure upon a plurality of eyelash forming strands to force the same into the slit in the eye member.

In testimony that I claim the foregoing as my invention, I have signed my name hereto.

LEO J. GRUBMAN.