G. ALDWORTH.

APPARATUS FOR MANUFACTURING WIGS AND THE LIKE.

APPLICATION FILED MAR. 18, 1915.

1,186,534.

Patented June 13, 1916.

3 SHEETS—SHEET 1.

FIG. I.

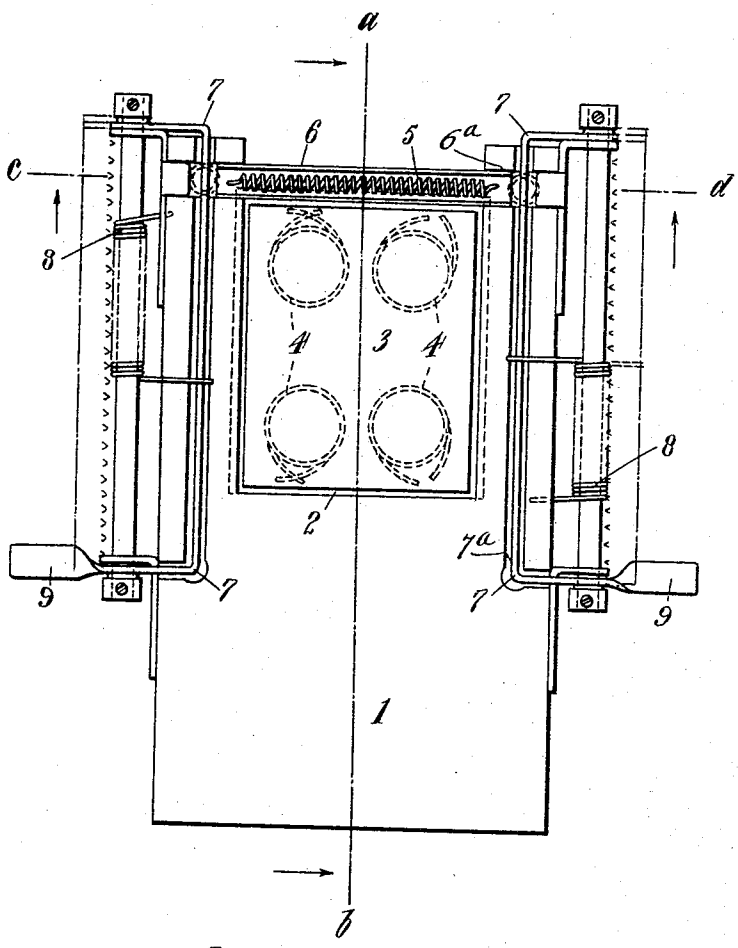
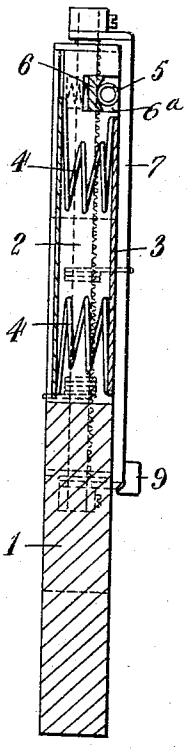


FIG. II.



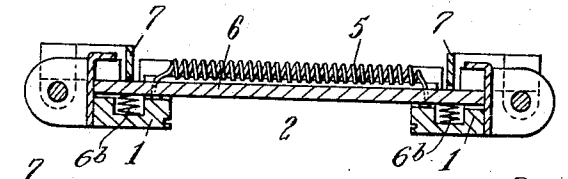


FIG. III.

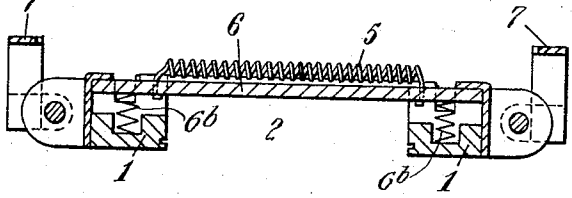


FIG. IV.

Witnesses.
M. Loftus.
F. Ludwig.

Inventor.
George Aldworth.
By Willis Foote
His attorney.

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

G. ALDWORTH.

APPARATUS FOR MANUFACTURING WIGS AND THE LIKE.

APPLICATION FILED MAR. 18, 1915.

1,186,534.

Patented June 13, 1916.

3 SHEETS—SHEET 2.

FIG. VI.

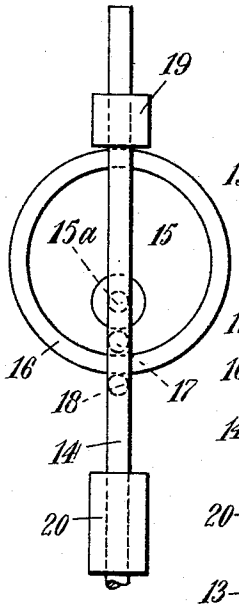


FIG. V.

Witnesses.
B. Lotus
F. Ehlers

Inventor.
George Aldworth
By Willis Fowler.
His Attorney.

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

G. ALDWORTH.

APPARATUS FOR MANUFACTURING WIGS AND THE LIKE.

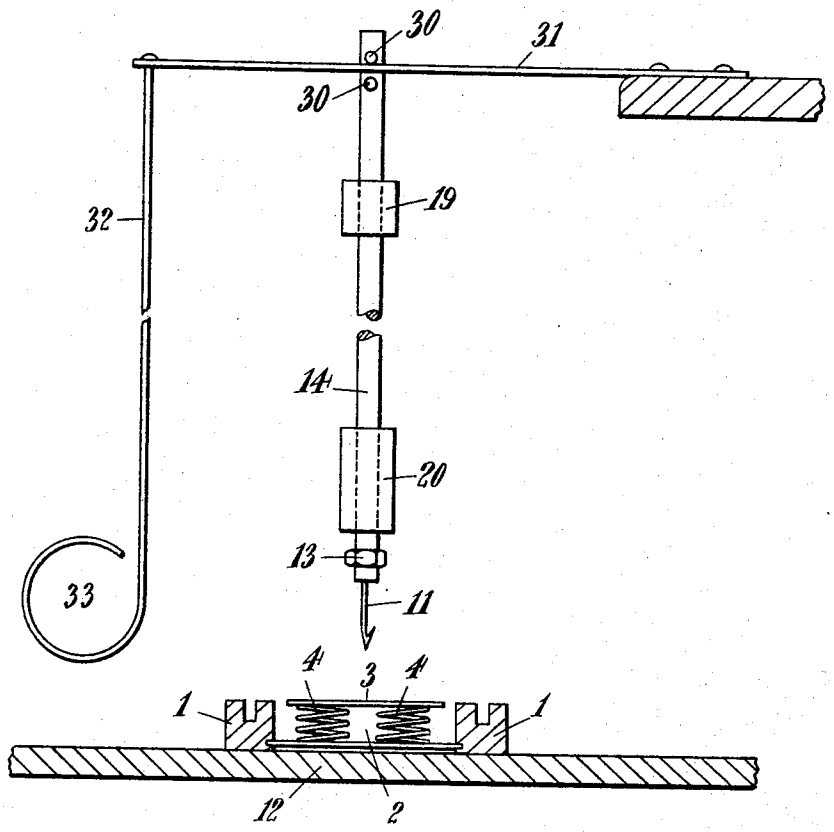
APPLICATION FILED MAR. 18, 1915.

1,186,534.

Patented June 13, 1916.

3 SHEETS—SHEET 3.

FIG. VII.



Witnesses.
M. Loftus.
F. Ludwig

Inventor.
George Aldworth.
By Willis Bowker.
His Attorney.

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE ALDWORTH, OF LONDON, ENGLAND, ASSIGNOR TO CHARLES NESSLER, OF LONDON, ENGLAND.

APPARATUS FOR MANUFACTURING WIGS AND THE LIKE.

1,186,534. Specification of Letters Patent. Patented June 13, 1916.

Application filed March 18, 1915. Serial No. 15,263.

To all whom it may concern:

Be it known that I, GEORGE ALDWORTH, subject of the King of Great Britain and Ireland, residing at London, W., England, have invented a new or Improved Apparatus for Manufacturing Wigs and the like, of which the following is a specification.

My invention relates to apparatus for manufacturing wigs and the like such for example as what are known as "postiches," "transformations," and "partings." I shall hereinafter refer to such articles by the term "wigs." Articles of this kind as at present manufactured are not only very expensive but are inferior as imitations. The usual practice is to attach the roots of the hairs to the meshes of a fine gauze but where a wig so constructed is parted the meshes of the gauze are visible and the desired deceptive effect is therefore not obtained. By means of my invention these drawbacks are overcome.

In so far as my method is concerned I employ what I term a "pellicle" which when not of sufficiently strong material may be reinforced by what I term a "foundation" and it is to the said pellicle or foundation that the hairs are attached. The pellicle in the completed wig is positioned above the roots or attached extremities of the hairs and is visible when the hairs are parted. This pellicle may consist of any skin-like homogeneous (more or less) material in the form of thin sheet that is sufficiently pliable and perforable for my purpose. I find that gold-beaters' skin gives excellent results as a pellicle and when seen in a parting it closely resembles the human skin. Gold-beaters' skin however is not sufficiently strong for use by itself and therefore when I employ it I strengthen it by means of a foundation such for example as thin silk gauze, the said silk gauze bearing any strain, or a large part thereof, transmitted through the hair.

In my method the hairs pass through both the foundation and the pellicle, the roots of the hair being fixed below the under surface of the foundation. By the "under surface" I mean that surface which would come next the scalp when the wig is in position, the upper surface being the one which is outward from the scalp, and I shall hereinafter use the terms "upper" and "under" in the same connection when speaking of the finished wig or of other parts.

Having now described my method I shall proceed to describe my apparatus and for that purpose I shall refer to the accompanying drawings.

Figure I is a plan of what I term my "clamping plate". Fig. II is a longitudinal section thereof on the line *a*—*b* as viewed in the direction of the arrow. Figs. III and IV are transverse sections on the line *c*—*d* as viewed in the direction of the arrows, Fig. III showing the clamps in their closed position and Fig. IV the said clamps in their open position. Fig. V is a side elevation of means for reciprocating the hook, and with the clamping-plate and its support shown in vertical section. Fig. VI is a front view of a portion of the means for reciprocating the hook. Fig. VII is a side elevation of the modified form of the means for reciprocating the hook, and with the clamping-plate and its support shown in vertical section.

In these figures, 1 is a frame of wood perforated by a rectangular orifice 2. Fitting loosely in this orifice is a thin aluminium or steel plate 3 (hereinafter termed the spring plate) delicately supported on four helical springs 4. It is upon this plate 3 that the hair and the foundation and the pellicle are laid, and it is upon this plate that the point of the hook impinges at the end of its downward stroke. These springs are for the purpose of causing the spring plate 3 to follow up the hook (and with it the pellicle, the foundation and the tress of hair) in whatever position the hook may take up. By this means the parts are always kept pressed together. The springs 4 moreover are sufficiently delicate to prevent such a resistance being presented to the point of the hook as will break it or blunt it seriously.

5 is a wire helix at the farther end (farther with respect to the operator and upper with respect to the drawing) of the orifice 2 and stretching across the whole of its width. The object of this wire helix is to distribute the hairs of the tress being operated upon in an equable manner, the hairs being distributed so as to lie in about equal quantities between contiguous convolutions of the helix. This helix rests in a shallow trough 6 so as not to be easily deflected between its ends

and the trough lies in a transverse depression 6^a, in which are arranged the springs 6^b acting to keep the trough pressed upwardly. At each side of the frame 1 is fixed a clamp having a blade 7 slightly serrated at its lower or gripping edge. Each clamp when closed lies in a groove 7^a, which crosses the depression 6^a, so that the clamps engage the respective ends of the trough. These clamps are maintained in their closed position by helical springs 8 in a well known manner. The clamps are shown in Fig. I in their closed position in full lines and in their open position in dotted lines.

9, 9 are finger pieces by means of which the clamps can be opened against the action of the springs 8.

It will be seen from Fig. III that when the clamps are in their closed position the trough 6 is pressed downward by the blades 7 of the clamps to its lowest position against the action of the springs 6^b, these springs being compressed. When the clamps are in their open position (Fig. IV) the trough is no longer pressed downward against the springs 6^b. These therefore assert themselves and the trough is raised. The springs 8 are of course stronger than the springs 6^b; and the effect of these two sets of springs is to keep the tress of hair firmly grasped where it passes over the distributing spring 5, and so that the tress once equably spread at this part will remain so as long as may be desired. It will be seen that when the hair, the foundation and the pellicle are arranged over the plate 3 and between these clamps they are retained firmly in position and conveniently disposed for the operation of the reciprocating hook. In thus placing the work in position, I usually place a thick tress or bunch of hair across the distributer with the root-ends lying outwardly and the other ends extending over the spring plate. I then clamp the foundation and the pellicle at one side by one of the clamps 7 and draw the material somewhat tightly over the tress and secure the opposite side of the material by the other clamp, the action of which in its groove tends to draw the material firmly across the underlying hair. The depression of the distributer by the closing of the clamps serves to draw the tress of hair slightly in a longitudinal direction and thereby acts to straighten out the hairs. Under this condition the hook is caused to move through a comparatively large bunch of hair in which there is a sufficient surplus to insure the hook picking up a hair on its up-stroke and drawing it through the material as stated. This bunching of the hair also prevents the hook from colliding with the spring plate, at the same time the latter maintains the bunch of hair under upward pressure against the overlying foundation and pellicle.

The clamping plate illustrated is very convenient for my purpose but I do not bind myself to its form or construction. Its important part is the spring plate 3 as it is mainly upon the successful action of the said spring plate, as influenced by the helical springs 4, that the success of my invention depends; but the means for holding the parts, designed to constitute the wig, in a conveniently arranged manner are also important.

I have now to describe means for causing the pointed hook to reciprocate. A convenient arrangement for this purpose is shown in its simplest form in Figs. V and VI, Fig. V being a side elevation of the reciprocating and transmission parts and Fig. VI an end view of the reciprocating parts. In Fig. V, I show the clamping plate in a somewhat diagrammatic manner placed in position under the reciprocating hook 11. It will be seen from this figure that the clamping plate rests upon a plate or surface 12 of any convenient kind. All that is necessary is a smooth surface over which the clamping plate can be slid easily in any direction. The hook 11 may be fixed in a holder 13 in a manner similar to that in which the needle of a sewing machine is attached and indeed the whole arrangement shown in Fig. V is very similar to what is employed in an ordinary sewing machine. The holder 13 is attached to the reciprocating rod 14 which is moved upward and downward by the cam 15, centered at 15^a. This cam is shown as of the ordinary dished-disk form, the flange 16 passing between the two pins (on which rollers may be mounted) 17, 18 projecting from the reciprocating rod 14. This rod reciprocates within the guides 19, 20.

21 is a winch handle mounted on the wheel 22, the said wheel being mounted upon the shaft 23 so as to impart rotary motion thereto. The rotary motion so imparted causes the cam 15 to rotate and the rotation of the said cam to reciprocate the rod 14 in the well known manner of this mechanical device. It will be seen that the wheel 22 bears a circumferential groove 24 so as to take power by means of a belt or cord from a treadle or a motor if desired. I do not limit myself to the apparatus for converting the rotary motion of the wheel 22 into the reciprocating motion of the reciprocating rod 14 as any other convenient means for converting rotary into reciprocating motion will answer my purpose.

In Fig. VII, I illustrate a very simple form of apparatus in which, instead of converting rotary into reciprocating motion, I transmit reciprocating motion direct from the operator to the hook. In this case the reciprocating rod 14 has two pins 30 mounted upon it between which pins passes the

leaf spring 31. To any convenient part of the leaf spring is attached the hand wire 32 ending below in the thumb-ring 33. When the thumb or a finger is inserted within this ring and moved vertically upward or downward it imparts a vertical reciprocating motion to the hook in the obvious manner, the pressure of the finger or thumb being used to move the hook in one direction while the resiliency of the leaf spring 31 moves it in the other direction. It is obvious that any convenient motor which will give reciprocating motion may be substituted for the hand device.

In the figures I have for convenience of drawing exaggerated the dimensions of the hook 11. It will be understood that a hook to pick up hairs must be of very fine dimensions.

I have hereinbefore spoken of the clamping plate as being moved by hand but I desire it to be understood that I may cause it to be moved sidewise over the plate or surface 12 by means of any well-known feeding mechanism.

In the drawings the barb of the hook is shown as turned to the right and it is to be understood that the travel of the work to be operated upon or of the clamping plate holding it should be from left to right so as to prevent any tearing of the material through which the point of the hook passes.

To make a wig by means of my apparatus, after properly arranging the materials including the hair from which the wig is made, I place the same across the spring-plate 3, and clamp the opposite sides of the material by means of the spring-clamping devices and then distribute the hairs of the tress in an equable manner by means of the wire helix 5. I then place a fine sharp pointed hook 11, in the holder 13, which is vertically reciprocated so as to move the hook down and up. On the downward movement the hook penetrates the material so that on the return upward movement its barb will draw one or more hairs upward through the material for a short distance in loop form. By repeating this operation a sufficient number of times, I soon obtain a large number of loops projecting upward, both limbs of each loop passing through the same hole or orifice made by the hook. By moving the clamped parts sidewise I obtain a line of loops and after getting a line of loops by moving the clamped parts a minute distance forward and then sidewise, I obtain a second line of loops parallel with the first, and by repeating this operation, I obtain a certain number of lines of loops, whereupon the article is removed from the apparatus and manipulated by hand so as to secure the roots of the hair and have the free ends projecting therefrom. In this way I form a wig of any desired size.

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

1. In apparatus for manufacturing wigs and the like, the combination of a movable hook for drawing hair through material, and an easily yielding work-support in relation to which the hook moves and cooperates therewith and adapted to follow the hook in its movements.

2. In apparatus for manufacturing wigs and the like, the combination of a movable hook for drawing hair through material, and a spring work-plate in relation to which the hook moves and coöperates therewith and adapted to follow the hook in its movements.

3. In apparatus for manufacturing wigs and the like, the combination of a movable hook for drawing hair through material, an easily yielding work-support in relation to which the hook moves and coöperates therewith and adapted to follow the hook in its movements, and releasable means for holding the material on said support.

4. In apparatus for manufacturing wigs and the like, the combination of a movable hook for drawing hair through material, an easily yielding work-support in relation to which the hook moves and coöperates therewith and adapted to follow the hook in its movements, the said work-support being adapted to be moved in any direction to which the movement of said hook is normal or practically normal.

5. In apparatus for manufacturing wigs and the like, the combination of a movable hook for drawing hair through material, an easily yielding work-support in relation to which the hook moves and coöperates therewith and adapted to follow the hook in its movements, and a movable main-plate for sustaining the work-support.

6. In apparatus for manufacturing wigs and the like, the combination of a movable hook for drawing hair through material, an easily yielding work-support in relation to which the hook moves and coöperates therewith and adapted to follow the hook in its movements, and a hair-distributing device for a tress of hair used in the work.

7. In apparatus for manufacturing wigs and the like, the combination of a movable hook for drawing hair through material, an easily yielding work-support in relation to which the hook moves and coöperates therewith and adapted to follow the hook in its movements, and a hair-distributing device near one end of the work-support and comprising a horizontally disposed helical spring.

8. In apparatus for manufacturing wigs and the like, the combination of a movable hook for drawing hair through material, an easily yielding work-support in relation to

which the hook moves and coöperates therewith and adapted to follow the hook in its movements, a movable main-plate for sustaining the work-support, a spring mounted hair-distributing device, spring actuated clamps for holding the work in position on its support, and means for depressing the hair distributing device by the closing movement of the clamps.

9. In apparatus for manufacturing wigs and the like, the combination of a movable hook for drawing hair through material, an easily yielding work-support in relation to which the hook moves and coöperates therewith and adapted to follow the hook in its movements, a hair-distributing device comprising a horizontally disposed helical spring, and a support arranged beneath said spring to prevent its deflection between the ends.

10. In apparatus for manufacturing wigs and the like, the combination of a movable hook for drawing hair through material, an easily yielding work-support adapted to follow the hook in its movements, a movable main-plate for sustaining the work-support, a spring mounted hair-distributing device, spring actuated clamps for holding the work in position on its support, said clamps being adapted to engage said hair-distributing device and to depress it in the closing movement of the clamps.

11. In apparatus for manufacturing wigs and the like, the combination of a movable hook for drawing hair through material, an easily yielding work-support adapted to follow the hook in its movements, a movable main-plate for sustaining the work-support, spring actuated clamps for holding the work, and grooves formed in the main-plate for receiving the jaws of the clamps.

12. In apparatus for manufacturing wigs and the like, the combination of a reciprocating hook for drawing hair through material, and means for reciprocating the hook, and an easily yielding work-support in relation to which the hook moves and cooperates therewith and adapted to follow the hook in its movements.

13. In apparatus for manufacturing wigs and the like, the combination of a reciprocating device and means for actuating it, a hook connected with and reciprocated by said device, and a spring-mounted work-support in relation to which the hook moves and coöperates therewith and adapted to follow the hook in its movements.

14. In apparatus for manufacturing wigs and the like, the combination of a rotating device and means for actuating the same, reciprocating means operatively connected with said device, a reciprocating hook connected with and reciprocated by said means, and a spring-mounted work support in relation to which the hook moves and coöperates therewith and adapted to follow the hook in its movements.

In witness whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE ALDWORTH.

Witnesses:

ARTHUR CHARLES SEIDEL,

OTTO SCHNEIDER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington. D. C."