

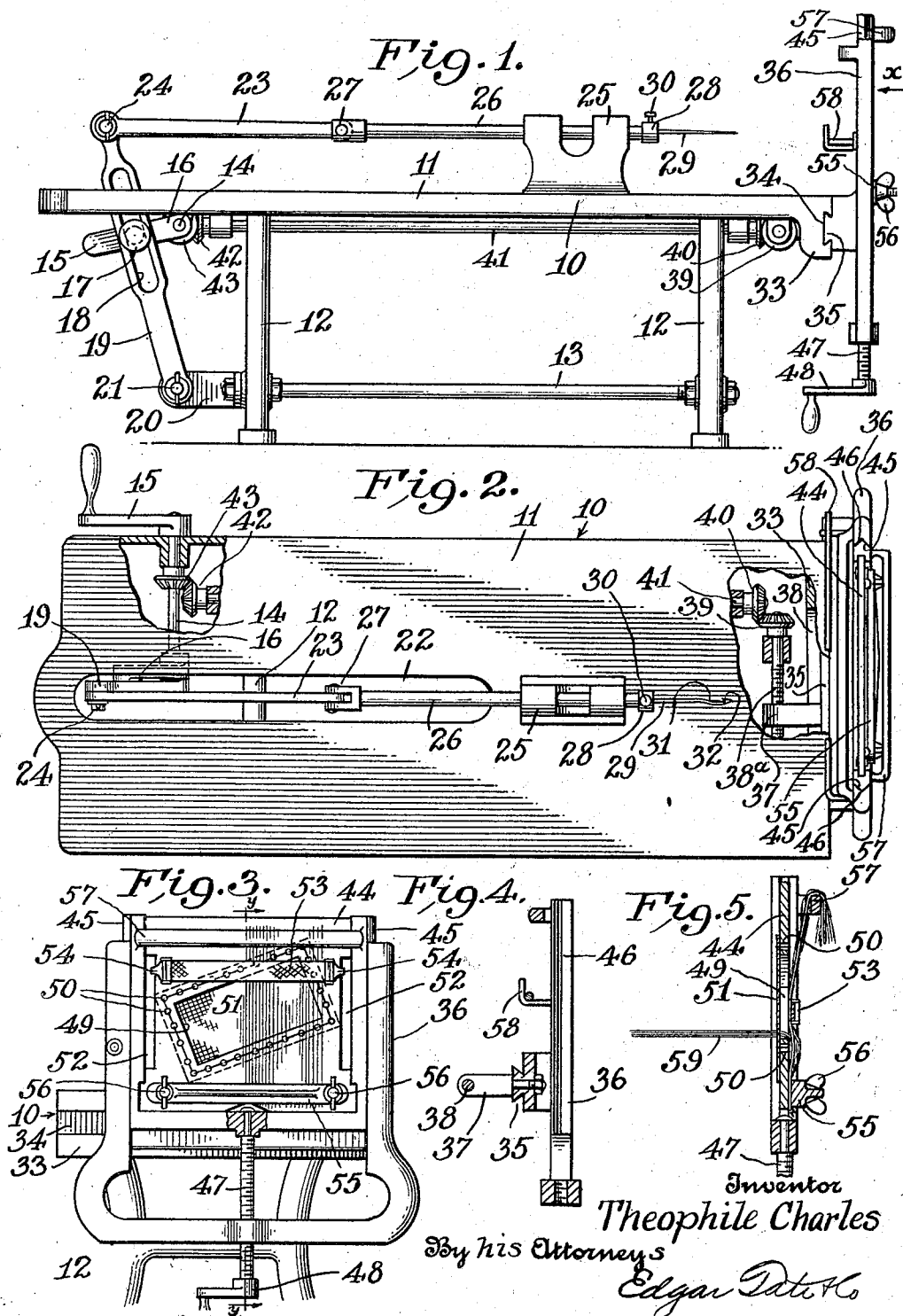
May 15, 1923.

1,454,956

T. CHARLES

APPARATUS FOR MANUFACTURING HAIR GOODS

Filed Jan. 5, 1922



Inventor
Theophile Charles
By his Attorneys
Edgar D. H.

UNITED STATES PATENT OFFICE.

THEOPHILE CHARLES, OF NEW YORK, N. Y.

APPARATUS FOR MANUFACTURING HAIR GOODS.

Application filed January 5, 1922. Serial No. 527,279.

To all whom it may concern:

Be it known that I, THEOPHILE CHARLES, a citizen of the United States, and residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Apparatus for Manufacturing Hair Goods, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to apparatus for use by manufacturers of hair goods of various kinds and classes, such for example, as wigs, and the object of the invention is to provide an apparatus or machine for the purpose specified which is designed to pass hairs through a suitable backing or mounting sheet in juxtaposition in the production of wigs and the like to produce as near as possible an imitation or reproduction of a natural growth of hair; a further object being to pass the said hairs through the goods on the bias to facilitate the production of partings in wigs and the like; and with these and other objects in view the invention consists in an apparatus or machine of the class and for the purpose specified which is simple in construction and operation and efficient in use, and which is constructed and operated as hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:

Fig. 1 is a side view of my improved machine;

Fig. 2 a plan view thereof with parts of the construction broken away and in section;

Fig. 3 an end view of the machine looking in the direction of the arrow *x* of Fig. 1 with part of the construction omitted;

Fig. 4 a partial section on the line *y-y* of Fig. 3 with part of the construction omitted; and,

Fig. 5 a view similar to Fig. 4 but showing that part of the construction which is omitted from Fig. 4.

In the drawing I have shown a main frame 10 comprising a table or platform 11 supported by leg members or standards 12 adjacent to the ends thereof, which leg members are braced by a rod 13 adjacent to their lower ends as shown in Fig. 1, and mounted transversely of and beneath the table member 11 adjacent to one end thereof is a shaft 14, the outer end of which is provided with a crank 15 by means of which said shaft may be rotated, and the inner end of said shaft is provided with a crank arm 16 carrying an anti-friction roller or the like 17 adapted to operate in an elongated aperture 18 and a lever 19 pivoted to a projection 20, on one of the leg members 12 as shown at 21 in Fig. 1 of the drawing, and the upper end of said lever 19 passes through an elongated aperture 22 centrally of one end portion of the table member 11, and a link 23 is pivoted to the end of the lever 19 as shown at 24.

Mounted upon the table member 11 is a bearing block 25 in which a shaft 26 is mounted to reciprocate longitudinally of the table member, one end of said shaft is loosely coupled with the link 23 as shown at 27, and the other end is provided with an apertured head 28 adapted to receive a needle 29, said needle being retained in the head 28 by a set screw 30 and the free end of the needle being curved slightly as shown at 31 in Fig. 2 of the drawing and being provided with a very fine hook end 32 which is adapted to engage and pick up a single thread as hereinafter set out.

The end portion 33 of the table member 11 is enlarged or is of greater vertical dimensions than the remainder of said table member and is provided with a transverse groove 34 in which a tongue 35 on a supplemental frame 36 is adapted to operate, this construction forming a slide-way between the main frame or table member and said supplemental frame 36.

The supplemental frame 36 is approximately rectangular in form as shown in Fig. 3 of the drawing, and carries an inwardly projecting member 37 which operates in an elongated aperture 38 in the main frame 10, or the table member thereof, as shown in Fig. 2, and also operates in con-

nection with a threaded shaft 38^a mounted transversely of the table member 11, said shaft is provided at one end with a beveled gear 39 which operates in connection with a similar gear 40 on one end of a shaft 41 mounted longitudinally of and beneath the table member 11 at one side of the center thereof, the other end of said shaft being provided with a similar gear 42 operating in connection with a beveled gear 43 on the shaft 14, whereby the rotation of the shaft 14 by the crank 15 will correspondingly rotate the shaft 38^a to feed the supplemental frame 36 transversely of the main frame, or the table member 11 thereof, as will be apparent. The pitch of the threads on the shaft 38 will govern the movement of said supplemental frame.

Mounted to move vertically in the supplemental frame 36 is a slide plate 44 shown in detail in Figs. 3 and 5 of the drawing, said plate being provided at its opposite sides with tongues 45 operating in corresponding grooves 46 in the supplemental frame 36, and said plate is moved vertically in the supplemental frame by a screw shaft 47 secured centrally to the lower edge of the plate 44, said shaft passing through the bottom of the supplemental frame and provided at its lower end with a crank lever 48.

The slide plate 44 is provided with an angularly arranged rectangular aperture 49 and about said aperture the plate is provided with a plurality of spaced apertures 50 by means of which a suitable piece of openwork fabric of any kind or class 51 may be secured to said plate to cover said aperture 49 by threads stretched through the small apertures 50 as indicated in Fig. 3 of the drawing. The opposite sides of the plate 44 are also provided with vertical apertures 52 which facilitate the attachment of an elastic band 53 to the opposite or outer side of the plate 44 and also to permit of the vertical adjustment of said band on said plate, the ends of said band being provided with hook members 54 adapted to engage the plate 44. The plate 44 is also provided at its lower end with a transverse clamp bar 55 held in position by winged nuts 56, and in the use of the machine a large quantity of hair or strands of hair, or one end thereof are first secured to the plate 44 by the clamp 55 and are then passed upwardly between the elastic band 53 and the plate 44 and over a transverse rod 57 at the top of the plate 44, as clearly shown in Fig. 5 of the drawing, and said hairs are spread transversely of the plate 44 to cover the entire aperture 49 in the plate 44, and the machine or apparatus is then ready for use. The supplemental frame 36 is also provided on its rear face with a transverse member 58 which serves to support the

strands of hair 59 pulled or threaded through the fabric 51 as hereinafter set out.

The operation of my improved machine or apparatus will be readily understood from the foregoing description when taken in connection with the accompanying drawing and the following statement. It will be understood that the rotation of the shaft 14 will operate to reciprocate the shaft 26 back and forth in the bearing block 25 to move the needle 29, or the pointed end thereof, inwardly and outwardly through the fabric 51 in each of which operations the hook 32 of said needle will draw a single strand of hair through the fabric 51, and in this operation the supplemental frame 36 is moved transversely of the table member 11 by reason of the gear connection of the threaded shaft 38^a with the shaft 14, and this operation will move the supplemental frame at each revolution of the crank 15 a predetermined fraction of an inch transversely of the table member, and when one complete transverse line of hairs have been drawn through the fabric 51, or that part of the fabric exposed in the aperture 49, the slide plate 40 is lowered by means of the crank 48 a fraction of an inch by a revolution or a partial revolution of the threaded shaft 47, and the crank 15 is rotated in the opposite direction to move the supplemental frame 36 transversely of the table member 11 in the opposite direction to that first named to form another line or row of the hairs pulled through the fabric 51 at a predetermined distance above the first named row.

It will be understood that in the beginning of the operation of the machine the hairs are pulled through the fabric 51 in the lower corner portion of the aperture 49, and it will be apparent that in the beginning there will be little or no transverse movement imparted to the supplemental frame 36 but as the rows of hairs are gradually formed in the fabric sheet 51 and the plate 44 lowered the length of these rows of hairs will gradually increase until midway of the aperture 49, after which they will again decrease and, as above stated, in drawing the hairs through the fabric and forming one row thereof the supplemental frame 36 moves transversely in one direction, and in forming the next adjacent row said frame is moved in the opposite direction, after the plate 44 has been lowered, and in using the fabric 51 with the strands of hair mounted therein, it will be understood that the short ends of these hairs will be secured to said strip in any desired manner, and the protruding ends will be clipped to the desired form in the production of a wig or the like and parts in the wig may be formed longitudinally thereof thus giving or producing as near as possible a correct representation of a part in natural hair

by reason of the bias arrangement of the rows of hairs in the fabric sheet 51.

It will also be understood that the distance between the separate hairs in the fabric sheet 51 may be regulated by the movement of the supplemental frame as well as the adjustment of the plate 44 therein, and in practice the flexible band 53 is preferably located just above that part of the hairs into which the needle 29 passes so as to hold the hairs in proper position as is illustrated in Fig. 5 of the drawing, and also to put the hairs under slight tension at this point. I am also not necessarily limited to the specific method of carrying my invention into effect herein shown and described, nor to the production of any kind or class or hair goods, or to ventilating hair as is the common term used in this art by manufacturers; and various changes in and modifications of the construction and operation of the apparatus herein shown and described may be made, within the scope of the appended claims, without departing from the spirit of my invention or sacrificing its advantages.

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

1. An apparatus for manufacturing hair goods comprising a suitable main frame, a supplemental frame movably mounted in connection with the main frame, means for supporting a workpiece in connection with the supplemental frame in an angular position, means for supporting strands of hair in connection with the supplemental frame, and a member movably mounted upon the main frame and adapted to pass through said workpiece to engage and pull one of the strands of hair through said workpiece.

2. An apparatus for manufacturing hair goods comprising a suitable main frame, a supplemental frame movably mounted in connection with the main frame, means for supporting a work-piece in connection with the supplemental frame in an angular position, means for supporting strands of hair in connection with the supplemental frame, a member movably mounted upon the main frame and adapted to pass through said workpiece to engage and pull one of the strands of hair through said workpiece, and means for operating said member.

3. An apparatus for manufacturing hair goods comprising a suitable main frame, a supplemental frame movably mounted in connection with the main frame, means for supporting a work-piece in connection with the supplemental frame in an angular position, means for supporting strands of hair in connection with the supplemental frame, a member movably mounted upon the main frame and adapted to pass through said workpiece to engage and pull one of the

strands of hair through said workpiece, means for operating said member, and means for operating said supplemental frame in the operation of said member.

4. An apparatus for manufacturing hair goods and the like comprising a main frame, a supplemental frame movably mounted in connection with the main frame and provided with an adjustable part, means for detachably supporting a workpiece in connection with said part, said workpiece being mounted in an angular position, means for supporting a plurality of strands on said part in juxtaposition to said workpiece, and a member movably mounted in the main frame and adapted to pass through said workpiece and to engage and pull one of said strands through said workpiece.

5. An apparatus for manufacturing hair goods and the like comprising a main frame, a supplemental frame movably mounted in connection with the main frame and provided with an adjustable part, means for detachably supporting a workpiece in connection with said part, said workpiece being mounted in an angular position, means for supporting a plurality of strands on said part in juxtaposition to said workpiece, a member movably mounted in the main frame and adapted to pass through said workpiece and to engage and pull one of said strands through said workpiece, and means for operating said member to move it toward and from said workpiece.

6. An apparatus for manufacturing hair goods and the like comprising a main frame, a supplemental frame movably mounted in connection with the main frame and provided with an adjustable part, means for detachably supporting a workpiece in connection with said part, said workpiece being mounted in an angular position, means for supporting a plurality of strands on said part in juxtaposition to said workpiece, a member movably mounted in the main frame and adapted to pass through said workpiece and to engage and pull one of said strands through said workpiece, means for operating said member to move it toward and from said workpiece, and means in operative connection with said last named means for moving said supplemental frame on the main frame.

7. An apparatus for manufacturing hair goods and the like comprising a main frame, a supplemental frame movably mounted in connection with the main frame and provided with an adjustable part, means for detachably supporting a workpiece in connection with said part, said workpiece being mounted in an angular position, means for supporting a plurality of strands on said part in juxtaposition to said workpiece, a member movably mounted in the main frame and adapted to pass through said

workpiece and to engage and pull one of said strands through said workpiece, means for operating said member to move it toward and from said workpiece, means in operative connection with said last named means for moving said supplemental frame on the main frame, and means for operating said part in the supplemental frame to regulate the position of the workpiece with respect to said member.

8. An apparatus of the class described comprising a main frame, a supplemental frame mounted to move transversely of one end of the main frame, a plate mounted to move vertically in said supplemental frame, said plate being provided with an angularly arranged aperture, means for detachably mounting a workpiece in connection with said plate and to close the aperture therein, means for clamping strands of hair to said plate, supplemental means for holding said strands in predetermined position under tension, and a needle member mounted on the main frame and movable toward and from the supplemental frame and adapted to pierce the workpiece on the plate of the supplemental frame and to engage and pull one of the strands of hair through said workpiece.

9. An apparatus of the class described comprising a main frame, a supplemental frame mounted to move transversely of one end of the main frame, a plate mounted to move vertically in said supplemental frame, said plate being provided with an angularly arranged aperture, means for detachably mounting a workpiece in connection with said plate and to close the aperture therein, means for clamping strands of hair to said plate, supplemental means for holding said strands in predetermined position under tension, a needle member mounted on the main frame and movable toward and from the supplemental frame and adapted to pierce the workpiece on the plate of the supplemental frame and to engage and pull one of the strands of hair through said workpiece, and means for giving said needle member a reciprocatory movement toward and from the workpiece.

10. An apparatus of the class described comprising a main frame, a supplemental frame mounted to move transversely of one end of the main frame, a plate mounted to move vertically in said supplemental frame, said plate being provided with an angularly arranged aperture, means for detachably mounting a workpiece in connection with said plate and to close the aperture therein, means for clamping strands of hair to said plate, supplemental means for holding said strands in predetermined position under tension, a needle member mounted on the main frame and movable toward and

from the supplemental frame and adapted to pierce the workpiece on the plate of the supplemental frame and to engage and pull one of the strands of hair through said workpiece, means for giving said needle member a reciprocatory movement toward and from the workpiece, and means in operative connection with said first named means for moving the supplemental frame transversely of the main frame in the operation of said needle member.

11. An apparatus of the class described comprising a main frame, a supplemental frame mounted to move transversely of one end of the main frame, a plate mounted to move vertically in said supplemental frame, said plate being provided with an angularly arranged aperture, means for detachably mounting a workpiece in connection with said plate and to close the aperture therein, means for clamping strands of hair to said plate, supplemental means for holding said strands in predetermined position under tension, a needle member mounted on the main frame and movable toward and from the supplemental frame and adapted to pierce the workpiece on the plate of the supplemental frame and to engage and pull one of the strands of hair through said workpiece, means for giving said needle member a reciprocatory movement toward and from the workpiece, means in operative connection with said first named means for moving the supplemental frame transversely of the main frame in the operation of said needle member, and means for raising and lowering the plate in the main frame to regulate the position of the workpiece thereon with reference to said needle member.

12. An apparatus for manufacturing hair goods, comprising means for movably supporting a piece of fabric on the bias, and means for intermittently drawing separate strands of hair through said fabric.

13. An apparatus for manufacturing hair goods comprising means for supporting a plurality of strands of hair, means involving a needle for engaging the separate strands of hair, and means movable horizontally and vertically of said last named means for supporting a piece of fabric, through which the strands of hair are adapted to be drawn by said needle, said fabric being supported on said last named means in an angular position, whereby the separate strands of hair are passed through the fabric on the bias of the fabric.

14. An apparatus for manufacturing hair goods comprising a suitable frame, a supplemental frame movable horizontally and vertically in relation to the main frame, means for supporting a plurality of strands of hair in connection with said supplemental frame, a needle supporting member movable toward

and from said supplemental frame and adapted to engage the separate strands of hair mounted in connection therewith, and means for angularly supporting a piece of
5 fabric in connection with said supplemental frame between the strands of hair, and the needle operating means whereby the sep-

arate strands of hair may be drawn through said fabric on the bias.

In testimony that I claim the foregoing as 10
my invention I have signed my name this 31st day of December, 1921.

THEOPHILE CHARLES.