F. MAUSSNER.

MACHINE FOR INTERLACING CURLED HAIR.

APPLICATION FILED OCT. 23, 1916.

1,225,671.

Patented May 8, 1917.

2 SHEETS—SHEET 1.

FIG. 1.

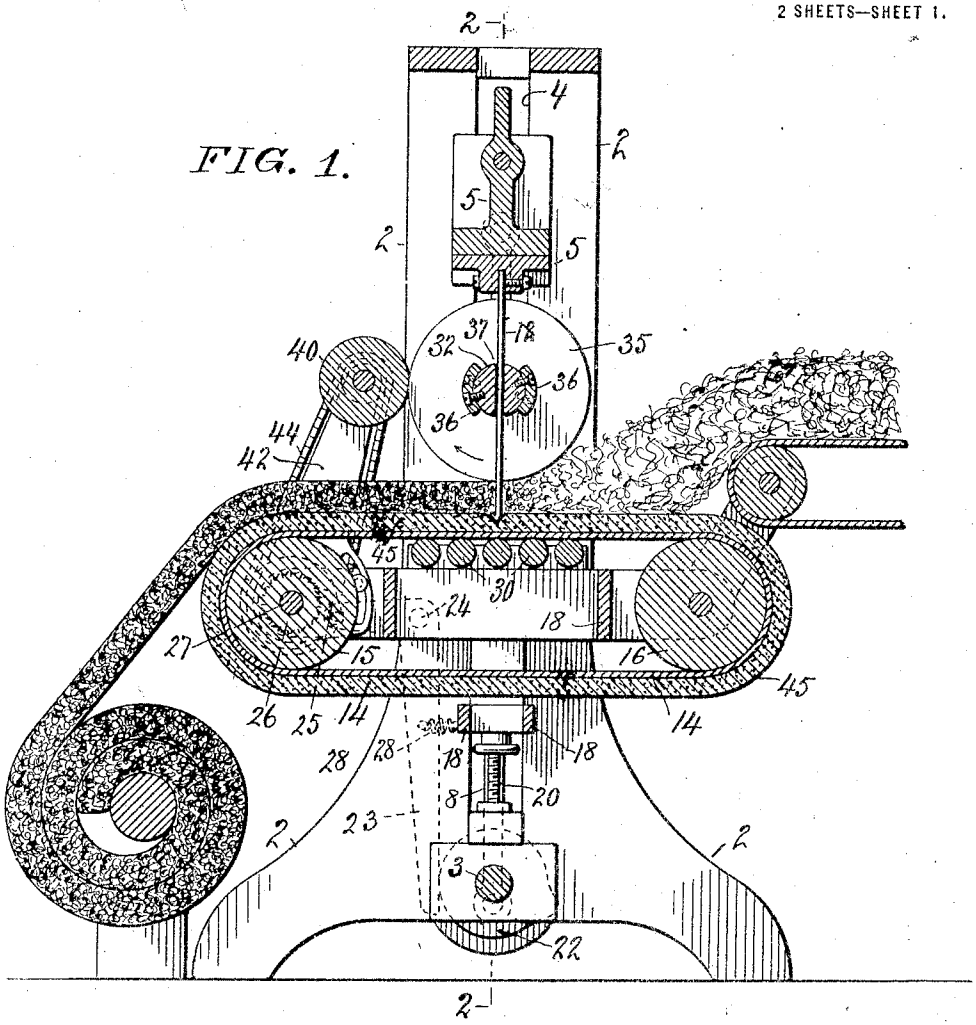
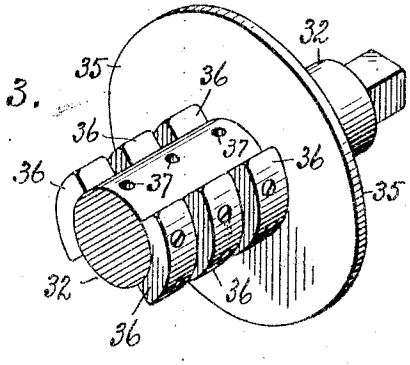


FIG. 3.



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2 SHEETS—SHEET 2.

FIG. 2.

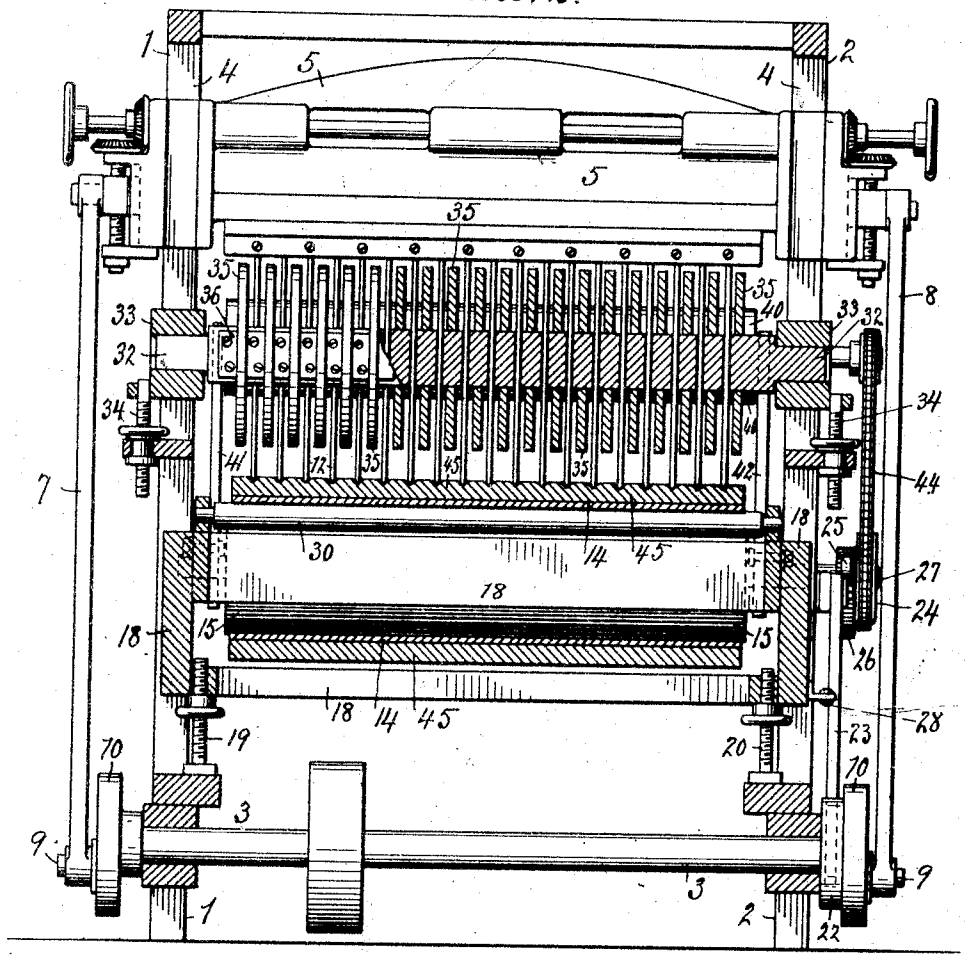


FIG. 4.

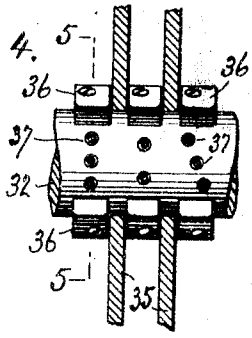
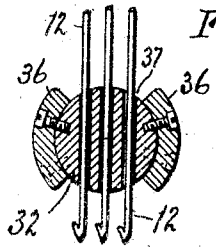


FIG. 5.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR INTERLACING CURLED HAIR.

1,225,671. Specification of Letters Patent. Patented May 8, 1917.

Application filed October 23, 1916. Serial No. 127,088.

To all whom it may concern:

Be it known that I, FREDERICK MAUSSNER, a subject of Germany, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Interlacing Curled Hair, of which the following is a specification.

My invention relates to improvements in a machine for interlacing curled hair and particularly relates to that type of machine in which the hair is fed through the machine in a continuous form. The object of my invention is to construct a machine having a novel arrangement of the needles and the pressure disks, in which the needles extend through apertures formed in the stationary shaft carrying the pressure disks; a further object of my invention is to provide means for equally spacing the disks upon the shaft; and a still further object of my invention is to provide a conveyer apron having a resilient surface which will permit the points of the needles to extend below the normal surface of the apron and thus pass entirely through the mass of hair upon the apron, so that the barbs upon the needles will pick up the hair from the lower surface of the mass of hair and thereby form perfect interlacing of the hair when the needles are raised up through the mass of hair.

In the accompanying drawings; Figure 1. is a central vertical section through the machine; Fig. 2. is a transverse vertical section on line 2—2 Fig. 1; Fig. 3. is a perspective view of the shaft through which the needles are guided, showing a pressure disk mounted on the shaft and spacing blocks secured to the shaft; Fig. 4. is a plan view of a portion of the shaft carrying the pressure disks and showing a modified form of the arrangement of the needles; and Fig. 5. is a transverse section on line 5—5 Fig. 4.

Referring to the drawings in which like reference characters refer to like parts, 1 and 2 represent the upright frame members. A driving shaft 3 is rotatably mounted in said frame members. The frame members 1 and 2 are provided with central vertical slots 4 in which is mounted the reciprocating needle bar 5, which is connected at either end by the connecting rods 7 and 8 with the driving shaft 3, by means of the crank pins 9 upon the disks 10 secured to the driving shaft 3. Upon the rotation of the driving shaft 3 a reciprocating motion is imparted to the needle bar 5.

Upon the needle bar 5 are secured the needles 12, having barbs formed thereon for drawing the strands of hair through the mass of material and interlacing the same.

A conveyer apron 14 is mounted upon the rollers 15 and 16 which are rotatably mounted in the end pieces of a table 18, which latter is supported by the adjustable screws 19 and 20 upon the frame members 1 and 2. The roller 15 carrying the apron is rotated by an intermittent motion from a cam 22 secured upon the driving shaft 3. Said cam 22 acts upon a bell crank lever 23 pivoted upon the pin 24 secured to the end piece of the table 18. A pawl 25 upon the bell-crank-lever 23 engages a ratchet wheel 26 which is secured upon the shaft 27 carrying the roller 15. The return movement of the bell crank lever 23 is effected by a spring 28. Small rollers 30 are rotatably mounted upon the table 18 for supporting the apron directly below the needles.

A shaft 32 is secured in bearing blocks 33 which latter are adjustably mounted in the frame members 1 and 2, by the screws 34. Upon the shaft 32 are loosely mounted the pressure disks 35 for compressing the hair upon the apron 14. The pressure disks 35 are separated by guide blocks 36, secured upon opposite sides of the shaft 32 by set screws or any other suitable means.

The needles 12 carried by the reciprocating needle bar are so spaced upon the needle bar that they will pass through apertures 37 formed through the shaft 32, at points between the pressure disks 35. The needles 12 are guided by the shaft 32, which prevents

them from bending and also permits the needles to be inserted into the material at the points where the greatest pressure is exerted upon the material by the pressure disks and also permits the needles to reciprocate in a vertical plane.

One or more needles may be arranged between the pressure disks, as shown in Figs. 4 and 5, and when two or more needles are used in one set between the pressure disks 35, the needles may be arranged in a line extending at an oblique angle or in a line parallel with the surface of the disks, as shown in Fig. 4.

The spacing blocks 36 are made in the form of segments, so that they will not interfere with the needles and the necessity of forming apertures through the spacing blocks for the needles is avoided.

The disks 35 are rotated upon the shaft 32 by means of a friction roller 40 rotatably mounted in adjustable arms 41 and 42 pivotally mounted upon the shaft 27 carrying the apron. The friction roller 40 is rotated by a sprocket chain 44, from the shaft 27, on which the apron roller is mounted, and the pressure disks 35 are rotated in unison with the apron for the purpose of feeding the material under the needles. The driving mechanism is so timed that the apron 14 and the disks 35 will be advanced when the needles 12 are withdrawn from the material.

The conveyer apron 14 is provided with a covering of resilient material 45, such as rubber, to allow the points of the needles to enter the said covering sufficiently to bring the barb of the needle down evenly with the surface of the apron upon which rests the material to be treated; thus permitting the barb of the needle to pick up the strands of hair forming the under surface of the mass of material.

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

1. In a machine of the character described the combination of, a frame, reciprocating needles mounted in the frame, a shaft secured in the frame, said shaft having apertures formed therein through which the needles operate and means for supporting the material to be treated.

2. In a machine of the character described the combination of, a frame, reciprocating needles mounted in the frame, a shaft located in the path of said needles, said shaft having apertures formed therein through which said needles are guided, and means for supporting the material to be treated.

3. In a machine of the character described the combination of, a frame, reciprocating needles mounted in said frame, a shaft secured in said frame, pressure disks rotatably mounted upon said shaft, said shaft having apertures formed through the same for the passage of the needles and means for supporting the material to be treated.

4. In a machine of the character described the combination of, a frame, reciprocating needles mounted in the frame, a shaft secured in the frame, apertures formed through the shaft for the passage of the needles, pressure disks rotatably mounted upon said shaft, spacing members secured upon the shaft between the disks and means for supporting the material to be treated.

5. In a machine of the character described the combination of, a frame, reciprocating needles mounted in the frame, a shaft secured in the frame, apertures formed through the shaft for the passage of the needles, pressure disks rotatably mounted upon said shaft, segmental spacing blocks secured upon said shaft at either side of the apertures formed therein for separating the pressure disks, and means for supporting the material to be treated.

6. In a machine of the character described the combination of, a frame, reciprocating needles mounted in the frame, a shaft secured in the frame, said shaft having apertures formed therein through which the needles pass, pressure disks loosely mounted upon the shaft, means for rotating the pressure disks and means for supporting the material to be treated.

7. In a machine of the character described the combination of, a frame, reciprocating needles mounted in the frame, a shaft secured in the frame, said shaft having apertures formed therein through which the needles pass, pressure disks loosely mounted upon the shaft, a roller for rotating the disks, an apron for supporting the material to be treated and means for advancing said apron and said disks in unison.

8. In a machine of the character described the combination of, a frame, reciprocating needles mounted in the frame, a shaft secured in the frame, pressure disks loosely mounted upon the shaft, an apron for supporting the material to be treated, a table adjustably mounted in the frame for supporting the apron, arms pivoted upon said table, a roller carried by said arms for rotating the pressure disks, and means for rotating the apron and said roller simultaneously.

9. In a machine of the character described the combination of a frame, reciprocating needles mounted in the frame, barbs formed upon said needles, means located adjacent to the needles for supporting the material to be treated by the needles, and a resilient material forming the surface of the said supporting means to permit the needles to enter the said resilient material sufficiently to bring the barbs of the needles down evenly with the normal surface of the resilient material.

10. In a machine of the character described the combination of a frame, reciprocating needles mounted in the frame, barbs formed upon said needles, an apron located adjacent to the needles and a covering of resilient material forming the surface of the apron upon which the material to be treated by the needles is supported, said resilient material being adapted to permit the points of the needles to enter the same.

In testimony whereof I affix my signature in the presence of two witnesses.

FREDERICK MAUSSNER.

Witnesses:

ROBERT M. WALLACE,

EARL D. SHAFFER.