(No Model.)

P. WOLL, Jr.

METHOD OF MANUFACTURING CURLED HAIR.

No. 486,593. Patented Nov. 22, 1892.

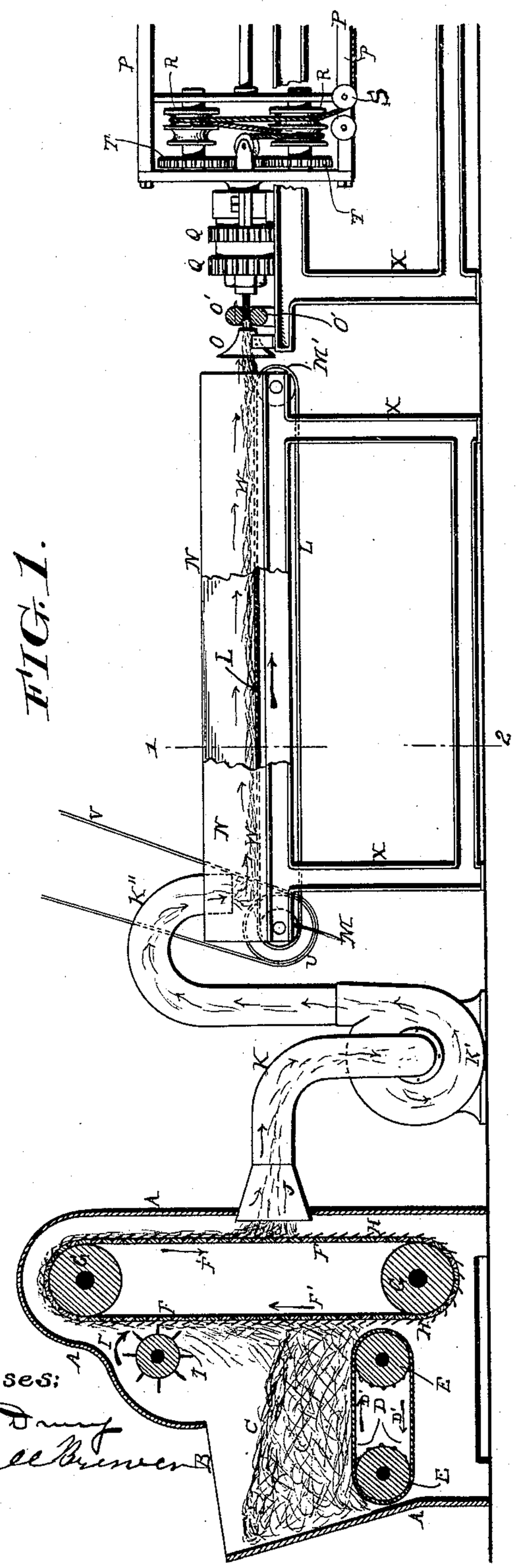

FIG. 1.

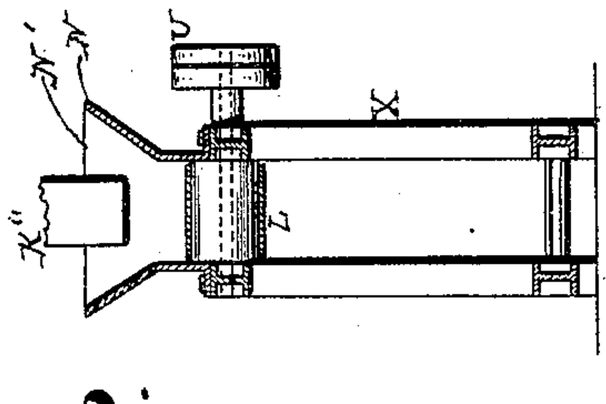

FIG. 2.

Witnesses:
Henry Orwig
Russell Brewer

Inventor:
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per George E. Buckley
his Atty.

UNITED STATES PATENT OFFICE.

PETER WOLL, JR., OF PHILADELPHIA, PENNSYLVANIA.

METHOD OF MANUFACTURING CURLED HAIR.

SPECIFICATION forming part of Letters Patent No. 486,593, dated November 22, 1892.

Application filed October 28, 1891. Serial No. 410,115. (No specimens.)

To all whom it may concern:

Be it known that I, PETER WOLL, Jr., a citizen of the United States, and a resident of the city and county of Philadelphia, State of Pennsylvania, have invented a new and Improved Method of Manufacturing Curled Hair, of which the following is a full, clear, and exact description.

Curled hair, as is well known, is used for mattresses and stuffing purposes generally, and is made of horse-hair, hog or cattle hair, or a mixture thereof. The raw hair is usually washed and sorted, according to the colors and different degrees of hardness, in the manner known to those well skilled in the art and then passed through the ordinary cylinder-picker for the purpose of thoroughly separating the fiber or hairs and giving a uniformity to the composition, which may be long hair (pure horse or cattle hair or a mixture of either, or both) with a certain proportion of short hair, (hog-hair,) according to the grade of curled hair to be made, and in order that the composition may be thoroughly uniform or mixed it is sometimes necessary to repeat the picking operation perhaps three or more times. The picker, it may be mentioned, simply ejects the material in heaps or masses and does not form it into a lap or sliver, which latter is an essential feature of my invention. The hair is then ready for the spinner, which operator, filling his basket from the heap or mass ejected by the cylinder-picker, attaches a handful to a hook adapted to be revolved and thereupon set in motion and begins the formation of a twisted gasket, the spinner feeding the hair from his basket to the said gasket as he paces backward to the end of his walk. It may be mentioned here that one of the great defects of this method is that the operative as he traverses with his basket in feeding the hair by hand shakes the short hair to the bottom of the basket and feeds first the long hair, and when he reaches the lower part of his basket there is a large preponderance of short hair, whereby the curled product is composed at long intervals of long hair and in other long sections of short hair. When the hair has been twisted, as described, the end thereof is held by an assistant. Returning to the starting-point the spinner passes the gasket by one turn or loop over the curling rod or horn and the hook is again revolved. The operative drawing his short rod along the whole length of the gasket an excess or double twist is given thereto and a curl imparted to the component hairs or fibers. After this stage one end is taken off the hook and joined to the other by means of pins or staples or wire wrappings to prevent the loss of curl and to stop untwisting.

It is obvious that the operation set forth is a slow, laborious, and comparatively-expensive one and results in imperfect and unsatisfactory work; and it is the object of my improvement to obviate and overcome these objections; also, to insure a more uniform and even curl than was possible heretofore.

I have heretofore obtained Letters Patent dated September 1, 1891, numbered 458,721, for an improved method of manufacturing curled hair, the essential feature of which was the combing of the hair. This I have found by experience to be more applicable to long hair.

My present invention is designed to manipulate mixed, long, and short hair, (dispensing with the combing;) and it consists in forming the hair, after being run through a cylinder-picker, into a lap or layer, the mixed long and short hairs of which—as, for instance, horse-hair and hog-hair, or long and short fibers generally—are evenly distributed therein, passing the lap or layer to a twisting-machine, then curling or spiralizing the twisted gasket, and then treating the thus-far-finished product to set the curl. This curl is then teazed to disintegrate the mass and separate the hair or fibers.

In carrying out my method I employ a traveling apron upon which the material which has been properly mixed by the cylinder-picker may be deposited from a feed by means of a blower, by hand, or by the employment of any other device, and is thus formed into a lap or layer, which is delivered through a funnel to a twisting-machine, which may be an adaptation of the twisting-machine containing the spindle and flier described in the patent to John Good, of September 28, 1886, numbered 349,709. I then pass the twisted gasket to a curling-machine, whereby it is spiralized by a curler, after which the spiralized or curled product is treated to a hot bath or

other means to set the curl By this process I am enabled to control the formation of the lap upon the apron, so as to make it of any desired uniform thickness, and the twisted gasket and curl is uniform throughout, and, also, by regulating the speed of the apron I am enabled to regulate the size of the twisted gasket. By slowing the movements of the apron a thicker lap is formed and by speeding it the lap is correspondingly thinned. I am also enabled to largely increase my production at a greatly-reduced cost.

I have shown one means of accomplishing or carrying out my method in the machine represented by the accompanying drawings, in which—

Figure 1 is a side elevation, partly in section and partially broken; Fig. 2, a vertical transverse sectional view on the line 1 2 of Fig. 1.

A is the shell of the hopper-box, into which through opening B the mass of long and short fiber C is deposited.

D is a horizontal endless apron arranged longitudinally of the machine and mounted on carrying-drums E E, upon which apron the the mixed mass falls, the apron traversing in the direction of the arrows D′ D′.

F is a vertical traveling apron mounted on revolving drums G G and provided with lifting inclined teeth or prongs H H, against which teeth the mass C impinges. This apron, with its teeth, travels in the direction of the arrows F′ F′.

I is a stripper composed of a horizontal cylinder and horizontal lines of teeth or brushes, and it revolves in a direction indicated by its arrow I′. Its teeth or brushes merely escape the ends of teeth or prongs H H to relieve the latter of the surplusage of its "lift" of the mixed mass C.

J is a funnel, the enlarged mouth of which takes in the width of apron F.

K is a tube from the funnel J to the blower K′. The latter is an ordinary air-blower well known in the arts, and, drawing from the funnel J, takes the mixed fibers from apron F, throwing them in an air-current through delivery-tube F″ upon longitudinally-traversing carrying apron L. The rapidity or violence of the delivery can of course be governed by the speed of the fan of the blower. These fibers should be delivered gently. This can be regulated in two ways: first, by the speed of the blower; second, by the height of the curved tube K″. The apron L, carried by its cylinders M M′, bears upon its upper surface the loose sliver formed of mixed long and short fibers or hair in the trough N. This trough is closed at its forward or receiving port by the end piece N′.

O is a funnel to receive the sliver and to deliver it to carrying-rolls O′ O′, which serve to twist the sliver.

P P is a flier to curl the twisted sliver, and Q Q are cog-wheels to regulate the degree of twist imparted to said sliver. The rolls O′ O′ also prevent by their bite upon the sliver the twist therein from extending forward from them, (regarding the hopper as the forward end of the machine.)

R R are two capstans about which the curled gasket is passed previously to being carried over the loose pulley S to the point of deposit.

T T are cog-wheels to actuate the capstans.

U is a pulley (double, one fast and one loose) provided with belt V to actuate the cylinder M. The speed imparted to cylinder M by belt V will regulate the speed of traverse of apron L to form a light or heavy sliver. The amount of fiber falling upon the the moving apron will decrease as the rapidity of the traverse of the apron is increased.

W is the sliver. X X are frames to support the working mechanism.

The machine thus described will be well understood by any skilled mechanic, particularly those skilled in the art of manufacturing twisted or curved slivers or gaskets.

What I claim as new is—

1. The process of manufacturing a curl of various lengths of fiber, which consists in forming the long and short fibers into a lap, twisting the same into a gasket, and curling or spiralizing the gasket, substantially as described.

2. The process of manufacturing a curl of various lengths of fiber, which consists in forming the long and short fibers into a lap, twisting the same into a gasket, curling or spiralizing the gasket, and "fixing" or "setting" the curl, substantially as described.

In witness that the above is my invention I have hereunto set my hand.

PETER WOLL, JR.

Witnesses:
CHARLES APPLETON,
ALBERT E. ZACHERLY.