

UNITED STATES PATENT OFFICE.

PETER WOLL, JR., OF PHILADELPHIA, PENNSYLVANIA.

METHOD OF MANUFACTURING CURLED HAIR.

SPECIFICATION forming part of Letters Patent No. 458,721, dated September 1, 1891.

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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 of 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 pure horse or cattle hair, or a mixture of either or both, with a certain proportion of hog-hair, according to the grade of curled hair to be made; and in order that the composition be thoroughly uniform or mixed it is sometimes necessary to repeat the picking operation perhaps three or more times. 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." 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 wrapping to prevent the loss of curl and stop untwisting.

The next step is to steam or boil the thus-far finished product for a certain length of time to "set" the curl, after which it is thoroughly dried, and is then ready to be opened

by a reversed motion, and the hair curled as described is then teased or picked apart by hand ready for use. The picker-cylinder throws the material out in masses, but forms no slivers. It is therefore obvious that the operation set forth is a slow, laborious, and comparatively expensive one, and results in more or less breaking of the staple, and it is the object of my improvement to obviate and overcome these objections and also to produce a more uniform or even product than was possible heretofore, and particularly to preserve the staple unbroken.

Following my method, the hair instead of being run through the old cylinder-picker, as above described, is passed through a set of preparers or combers, such, substantially, as are used in the first stage of worsted-yarn manufacture. The mixing of the hair may be effected at this stage by feeding to the first machine the proportions of the different qualities or kinds which it is desired to mix. The object of passing the hair through the "preparers" is to comb it and form a sliver adapted to be twisted and curled, which sliver is formed by the last of the preparers, as in the manufacture of worsted yarns. A sliver thus produced is passed to a curler, which may be an adaptation of the twisting devices used in the manufacture of twines, ropes, and yarns—such, for instance, as the J. C. Todd rope and cord machine—this twister and, if considered necessary, a second one being so speeded as to produce the extra twist and curl, or the sliver may be simply twisted on one machine and the twisted sliver then attached by one end to the ordinary revolving spindle and the curl imparted to it by means of the curling rod or horn in the manner well known to those well skilled in the art; or the sliver formed by the preparers may be attached to the ordinary spindles and twisted and curled in the usual manner. These I consider mere modifications of my method and as not departing from the spirit of my invention.

With the ends secured against untwisting, the next step is to set the curl of the hairs in a "setting-bath," by which term I include the usual steaming or boiling and drying process, as also any other means for accomplish-

ing the same purpose. The curled hair is then ready for opening and teasing in the usual manner.

5 The peculiar advantages of this method are that the production is greatly increased and cost reduced, the product more uniform, and, above all, the staple preserved unbroken to a much greater degree than heretofore.

10 By the term "set of preparers" is to be understood such machines as may be employed to comb and put the hair in sliver form preparatory to twisting it into gasket form and then curling the gasket upon itself. The sliver is formed upon one machine and is
15 twisted and curled upon another machine.

20 In treating fibers "curling" is distinct from "twisting," in that the latter implies turning a set of fibers or cords one upon another or others, while curling is a spiraling of an already twisted fibrous material upon itself. Thus my process consists of combing the

fibers, forming them into a sliver, twisting the sliver into a gasket, curling the latter, then setting the curl.

What I claim as new is—

25 1. The method of manufacturing curled hair, which consists of combing the hair and forming it into a sliver, twisting the sliver to form a gasket, curling the gasket or spiraling it upon itself, and then setting the curled
30 product, substantially as described.

2. The method of manufacturing curled hair, which consists of combing the hair and forming it into a sliver, twisting the sliver to form a gasket, curling the gasket or spiraling
35 it upon itself, then setting the curled product, and then teasing the hair, substantially as described.

PETER WOLL, JR.

Witnesses:

CHARLES APPLETON,
JAS. MCGINTY.