

# UNITED STATES PATENT OFFICE.

JIM B. FULLER AND JAMES P. UPHAM, OF CLAREMONT, NEW HAMPSHIRE.

## IMPROVEMENT IN PREPARING HEMP, FLAX, &c., FOR SPINNING.

Specification forming part of Letters Patent No. 47,538, dated May 2, 1865.

### *To all whom it may concern:*

Be it known that we, JIM B. FULLER and JAMES P. UPHAM, of Claremont, in the county of Sullivan and State of New Hampshire, have invented, made, and applied to use a certain new and useful Improvement in the Preparation of Vegetable Fiber, such as Flax and Hemp; and we do hereby declare the following to be a full, clear, and exact description of our said invention, and of the features that distinguish the same from the inventions that have preceded it.

Rovings and yarns of flax have heretofore been drawn out while in a wet or moist state, so that the fibers may separate more easily and be extended previous to the spinning operation. Our invention, therefore, does not apply, broadly, to drawing the fibers of flax, &c., apart or extending a yarn or sliver while in a moist or wet condition.

The nature of our said invention consists in subjecting vegetable fibers—such as flax and hemp—to a parting or drawing operation while moist or wet, and previous to a carding, picking, or beating operation.

We have discovered that the fibers of flax, &c., when subjected while wet to the action of drawing-rollers previous to carding, will work much more uniformly in the subsequent operations, because the said drawing-rollers pull the fibers apart and reduce them to nearly a uniform length. This also loosens the fibers longitudinally, so that they are more easily separated nearly to their ultimate fineness than would be the case if the carding operation were performed without the previous drawing operation, and this insures great uniformity in the sliver, bat, or yarn subsequently produced.

The operation of our invention is as follows: The fibrous mass, while in any convenient form and while in a wet or moist condition, is passed between two or more sets of rollers, either fluted or smooth, and so speeded as to produce a drawing or parting operation on the fibers, similar to the action of the rollers of the ordinary drawing-frames used in cotton-mills. The rollers should be set at suitable distances from each other, so as to regulate the length of the fibers.

The operation may be conducted on an ordinary drawing-frame or railway-head used

in cotton-mills, or any machine or machines of similar nature, the object being to pull apart the fibers and reduce them to a uniform length, after which the fibers are picked, beaten, or carded, each or all, for the purpose of separating the mass which has been pressed together by the action of the rollers. The mass of fiber is to be carded while in a moist condition, as the fibers will separate longitudinally much more easy and perfectly than would be the case if the said fibers remained matted together until they became dry. We prefer that the carding operation be performed immediately after the fibers have been pulled apart by the drawing-rollers; but it may sometimes be necessary to moisten the fiber again before carding.

By carding the fibers of flax and similar materials in a wet or moist condition the said fibers are by one operation reduced to a more uniform and fine condition than would result from several dry carding operations, and when carded wet the fibers are not so liable to be broken and reduced to short pieces as they are when carded dry.

It will be evident that in all cases the fiber must be carded after being pulled apart by the action of the drawing-rollers, in order that the fibers may be rendered more even.

In cases where the fibers are intended for coarse fabrics, or to be mixed with wool, or for batting, or for many other purposes where the ultimate longitudinal fineness is not desirable or required, after being pulled apart by the action of the rollers, as before described, they may be carded while dry.

What we claim, and desire to secure by Letters Patent, is—

1. Drawing or separating the vegetable fiber in the manner specified previous to a carding, picking, or beating operation, for the purposes, and as set forth.

2. Carding the fibers of flax, hemp, &c., in a moist condition, for the purposes specified.

Dated October 24, 1864.

JIM B. FULLER.  
JAMES P. UPHAM.

Witnesses:

LEMUEL W. SERRELL,  
CHAS. H. SMITH.