

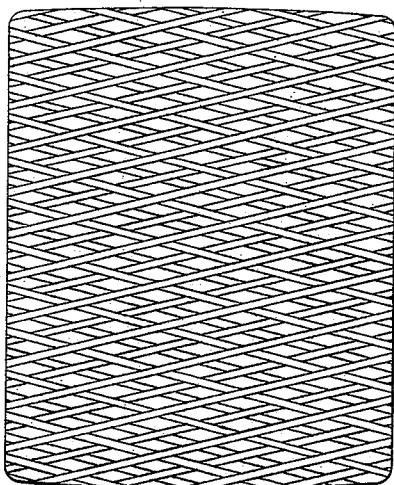
(No Model.)

J. V. EVES.

ART OF MANUFACTURING YARN FROM SCUTCHED FLAX.

No. 487,875.

Patented Dec. 13, 1892.



WITNESSES

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UNITED STATES PATENT OFFICE.

JOSHUA VALENTINE EVES, OF BELFAST, IRELAND.

ART OF MANUFACTURING YARN FROM SCUTCHED FLAX.

SPECIFICATION forming part of Letters Patent No. 487,875, dated December 13, 1892.

Application filed August 11, 1891. Serial No. 402,367. (No specimens.)

To all whom it may concern:

Be it known that I, JOSHUA VALENTINE EVES, a subject of the Queen of England, residing at Belfast, in the county of Antrim, Ireland, have invented certain new and useful Improvements in the Art of Manufacturing Yarn from Scutched Flax, of which the following is a specification.

In the spinning of flax or linen yarns it has hitherto been customary to pass the rovings direct from the preparing machinery to the spinning-frames, any process for bleaching or boiling being applied either after the yarn was spun or after it was woven into cloth. I find that much better results are obtained and a finer yarn can be produced by bleaching or boiling the material after the rove has been prepared and before the final operation of spinning, care being taken that in the process the material is not disarranged or damaged.

The drawing illustrates a cross-wound roll of the rove or sliver.

The manufacture of flax into yarn comprises a number of operations or steps to produce first the "rove" and then the "yarn." After the woody stalk has been removed from the fiber and the fiber is clean it passes through the following stages: (a) the raw material is hacked and combed to straighten and split up the fibers; (b) the straightened fibers are fed into a spread-board to make a continuous band or "sliver" without twist; (c) the continuous sliver is passed into a drawing-frame in which a number of these slivers are superimposed and drawn out to a greater length to render the slivers uniform throughout in thickness, the resulting sliver being thinner or containing less fiber in a given length than each entering sliver; (d) the process of doubling and drawing out the slivers is repeated again and again in other drawing-frames as often as required, each time reducing the thickness of the resulting sliver; (e) the final drawing-frame is termed a "roving-frame," in which the resulting sliver in its most attenuated form is lapped upon a bobbin by means of a flier and receives a slight twist to hold the fibers together. In this form the fiber is termed a "rove" or "roving." A rove or attenuated sliver with a slight amount of twist is thus produced in the usual way.

The roving or sliver, (which I will herein-after term "rove,") which is very delicate and has very little twist, will not bear to be handled. Otherwise it is liable to become unevenly stretched or the surface to become ruffled and the fibers disturbed, either of which will result in unevenness in the yarn and waste. A liquid would not penetrate the rove as wound upon its bobbin, as the layers lie very close together. To allow or provide for the penetration through the fiber of a washing or scouring liquor, I wind the rove specially into a loose form, in which the fiber will not be liable to sustain damage from stretching or rubbing.

The rove loosely wound into a roll or ball, so that the liquid can penetrate the fibers, I place in any suitable boiler or vat, in which it can be boiled or treated with boiling liquor to scour and bleach it. It is boiled in an alkaline lye or other liquor which will cleanse and bleach the fiber by removing the adhering glutinous or resinous matters. The length of time will depend upon the strength of the liquor, the quality of the material, and the result desired to be obtained. There are three objects in thus boiling or treating the rove: first, to free the fiber from all glutinous, resinous, or extraneous matter by any of the ordinary chemical processes of reduction for boiling or bleaching yarn in order to aid the spinning and produce a finer and even yarn; second, to bleach the rove, so that bleached and whitened yarn may be produced on the pirn as spun ready for the shuttle; third, to produce a partially whitened or reduced yarn ready for the looms that make partially-white goods. When removed from the bleaching liquor, the material is dried in an oven or drying-shed, or the moisture may be exhausted therefrom by suction or in a centrifugal machine or by like means.

The form in which I at present prefer to prepare the rove for boiling is that of a cross-wound roll, as shown in the drawing, wound on what is well known as a "cross-winding machine."

The rove or attenuated sliver is first prepared by the processes hereinbefore described and wound loosely into a roll or ball. It is then boiled in an alkaline or other solution to

remove the glutinous, resinous, or extraneous matter to reduce the weight of the sliver and bleach the fiber, and is subsequently spun into yarn on a spinning-frame of any ordinary construction adapted for spinning flax or linen yarns.

It will be evident that, although I prefer to take the sliver in the form known as "rove" and cross-wind and boil it immediately preparatory to entering the spinning-frame, the sliver from the last drawing-frame or one of the preparing-frames, if made strong enough or with sufficient twist to hold together, may be cross-wound into a roll or ball and boiled or bleached and the boiled and bleached sliver then be passed through a drawing or roving frame and subsequently to the spinning-frame, where the finished yarn is produced.

Having removed the greater quantity of the gummy matter from the fiber of the rove by the boiling or bleaching process to which I have subjected it, I am enabled to produce a much evenner, finer, and better yarn than I have heretofore been able to do from the same quality of flax and which when spun into a pirn or cop can be placed direct into the shuttle for weaving without the fibers or "make" of the yarn being disturbed and from which can be produced a stronger, clearer, and whiter cloth and one more nearly approach-

ing ideally-perfect linen than from any yarn hitherto spun.

What I claim, and desire to protect by Letters Patent, is—

1. In the manufacture of linen yarn from scutched flax, the process which consists in cross-winding a prepared rove or sliver into an open roll or ball in which the fibers cross one another frequently and at a great angle, then boiling the cross-wound ball of rove before being spun to remove adhering glutinous, resinous, or extraneous matter, and subsequently spinning the boiled rove into yarn.

2. The improvement in the art of manufacturing linen yarn from scutched flax, which consists in cross-winding an untwisted rove or sliver into an open roll or ball in which the fibers cross one another frequently and at a great angle, then subjecting the cross-wound rove to the action of a heated liquor before being spun to remove adhering glutinous, resinous, or extraneous matter and subsequently twisting and spinning the same into yarn, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSHUA VALENTINE EVES.

Witnesses:

JOHN MCKEIGHTON,
GEO. KNOX.