

UNITED STATES PATENT OFFICE.

ERNST BEK, OF SCHAFFHAUSEN, SWITZERLAND.

PROCESS FOR THE PREPARATION OF FLAX FIBERS.

1,004,136.

Specification of Letters Patent. Patented Sept. 26, 1911.

No Drawing.

Application filed February 21, 1911. Serial No. 610,057.

To all whom it may concern:

Be it known that I, ERNST BEK, a citizen of Switzerland, residing at Schaffhausen, Switzerland, have invented certain new and useful Improvements in Processes for the Preparation of Flax Fibers, of which the following is a specification.

My invention relates to processes of rendering flax fibers suitable for employment in carded-yarn mills for the manufacture of cloth, particularly dress materials.

A primary object of my invention is to purify and preliminarily prepare flax fibers intended to be employed as a substitute for other vegetable fibrous materials heretofore employed, particularly cotton, in such manner that they can either be mixed with other materials of animal or vegetable origin and spun together with these, or be employed unmixed for certain purposes after being cleaned. I may use either washed, scoured flax fibers or the refuse fibers from spun flax and linen, such as that obtained on the market in a raw, unwashed state and used heretofore in the manufacture of paper for making fine paper, such as cigarette paper, bank-note paper, and the like.

An essential feature of my new process is the chemical preparation of the fibers. Firstly, it is important that the fibers be treated with sulfid of sodium containing an admixture of a volatile oil which greatly promotes the subsequent process of fermentation. When suitably left alone for a time the gliadin contained in the material is dissolved and completely separated in a relatively short time. In consequence of this treatment the fibers obtain a structure quite similar to that of wool, become very curly and, in addition, obtain a soft, silk-like luster, and the yarn made from the fibers possesses not only a fineness not obtained heretofore from similar material, but also greater strength and extensibility. Secondly, the fibers must be thoroughly cleaned from all boon or shives because otherwise the durability of the manufactured material is greatly impaired by the same.

My process is substantially carried into practice as follows:—The flax-fibers are first scoured and then leaned on suitable scutching-machines and liberated from the boon or woody parts. If waste spun fibers are to be employed the same are loosened and cleaned on scutching-machines like those employed *e. g.* for ginning cotton, and then

torn in well-known willowing-machines. After the material has been sufficiently willowed it is put into a vat of known kind having a removable perforated basket, such as is employed for washing wool and in indigo-baths when fibrous material is chemically treated. Instead of the open vat I may, however, employ a tightly closed, partially evacuated vessel, such as is employed in dye works. The material is thoroughly scoured for about $1\frac{1}{2}$ hours in the open vat, whereas in the evacuated vessel the boiling lasts only about an hour, the lye being continuously pumped through. The lye must contain several per cent. of sulfid of sodium, about 1% of soap and, in addition, an admixture of a volatile oil, preferably rosulfon, a kind of volatile turkey-red oil known in Germany. After the material, as stated, has been treated in this lye, it is taken out, put in layers in a heap surrounded by boarding and kept warm by covering it over until it ferments. The gliadin is dissolved and is gradually completely separated. The fibrous material is then lightly rinsed twice with water, for example in well-known wool rinsing apparatus, then centrifuged and dried, whereupon it can be treated further in known manner as carded yarn is treated. The flax fibers can now be worked up unmixed, or mixed with wool or cotton or other fibrous material of animal or vegetable origin, on a carding-machine and then on slubbing-machines into roving, any boon still present being removed by a special cleaning device. This roving can then be spun on known machines into the finest numbers of yarn. Small cloth or cassimere and cloth fully equal to the cloth known heretofore made by employing cotton can be made from these yarns. With regard both to fulling and dressing and also to strength and appearance they are fully equal to materials of carded yarn, and they admit of the same color effects being obtained.

I claim:—

1. The hereindescribed process of preliminarily preparing flax fibers for the manufacture of cloth, which consists in separating the woody parts from the valuable fiber of the flax fibers, in scouring the fibers in a lye consisting substantially of sulfid of sodium and a volatile oil, in removing the fibers from the lye and leaving them to ferment, in subsequently rinsing the fibers with water and in drying the same.

2. The hereindescribed process of preliminarily preparing flax fibers for the manufacture of cloth, which consists in separating the woody parts from the valuable fiber
5 of the flax fibers, in scouring the fibers in a lye composed substantially of sulfid of sodium and a volatile oil, in removing the scoured fibers from the lye and storing the same under a cover until they are subjected
10 to a fermentation process and gliadin is separated from the fibers, in subsequently rinsing the fibers with water and in drying the same.

3. The hereindescribed process of preliminarily preparing flax fibers for the manufacture of cloth, which consists in separating the woody parts from the valuable fiber

of the flax fibers, in scouring the fibers in an open vat in a lye composed substantially of sulfid of sodium and a volatile oil for about 20 one hour and a half, in removing the scoured fibers from the lye and storing the same under a cover until they are subjected to a fermentation process and gliadin is separated from the fibers, in subsequently 25 rinsing the fibers with water and in drying the same.

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

ERNST BEK.

Witnesses:

CARL GUERIN,
AUGUST RISEGG.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."