

UNITED STATES PATENT OFFICE.

ERNST O'GROSKY, OF OWATONNA, MINNESOTA.

PROCESS OF DISINTEGRATING PINE-NEEDLES.

SPECIFICATION forming part of Letters Patent No. 436,007, dated September 9, 1890.

Application filed May 24, 1889. Serial No. 312,001. (No specimens.)

To all whom it may concern:

Be it known that I, ERNST O'GROSKY, a citizen of the United States, residing at Owatonna, in the county of Steele and State of Minnesota, have invented certain new and useful Improvements in the Process of Disintegrating Pine-Needles; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to certain new and useful improvements in the treatment of pine-needles, whereby the same are reduced to fibers suitable for use in filling mattresses, pillows, and for other like purposes.

I am aware that heretofore pine-needles have been subjected to the action of steam and subsequent steps with the same end in view, and I therefore do not seek to cover, broadly, a process of treating pine-needles wherein submitting them to the action of steam constitutes an essential step, but restrict myself to my particular process.

In carrying my process into execution the pine-needles are first placed within a barrel which has been provided with a double or false bottom, said bottom being placed, preferably, about four inches above the real bottom and is perforated or provided with numerous small holes, through which holes the soluble extracts from the needles are allowed to pass into the space between the bottoms, as will presently appear.

Perforated steam-pipes are placed within the space between the bottoms of the barrel, and these pipes are suitably connected with a source of steam-supply. The barrel is provided with a closely-fitting cover, through which a pipe is passed which communicates with a cooling-worm within an adjacent barrel.

The barrel having been filled with needles and the cover of the barrel secured in place,

steam is admitted at suitable temperature and under suitable pressure into the pipes between the bottoms of the barrel, and this supply of steam is maintained for four hours' time. At the expiration of this period of steaming or cooking the soluble extracts from the needles are drawn off from the space between the bottoms of the barrel through suitable faucets provided for the purpose, while the volatile oils and steam are condensed by the cooling-worm within the adjacent barrel, when the water and oils may be separated.

The extracts are placed within suitable copper kettles, and are boiled until all of the water has been evaporated.

The needles, having been removed from the barrel, are crushed by any of the forms of crushing machinery adapted to the purpose, the amount of crushing to which they are subjected depending upon the degree of fineness to which it is desired to reduce the fiber. After having thus crushed the needles the fiber produced is thoroughly washed, preferably, in warm water, in order to remove all impurities, and the fiber is then spread upon tables or platforms, where it is allowed to dry.

Having thus described my invention, what I claim as new is—

The herein-described improvement in the treatment of pine-needles to reduce them to fiber, which consists in first subjecting the needles to the action of steam in a closed receptacle for about four hours, next drawing off the soluble extracts, next crushing the needles, next washing the fiber produced by the crushing, and finally spreading and drying the fiber, substantially as specified.

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

ERNST O'GROSKY.

Witnesses:

W. N. SPERRY,
J. E. TRUESDELL.