I. ETRICH.

HECKLING MACHINE.

APPLICATION FILED NOV. 18, 1919.

1,331,333.

Patented Feb. 17, 1920.

2 SHEETS—SHEET 1.

Fig. 1.

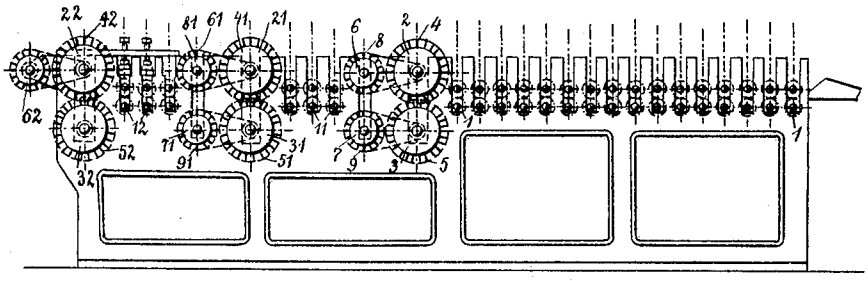
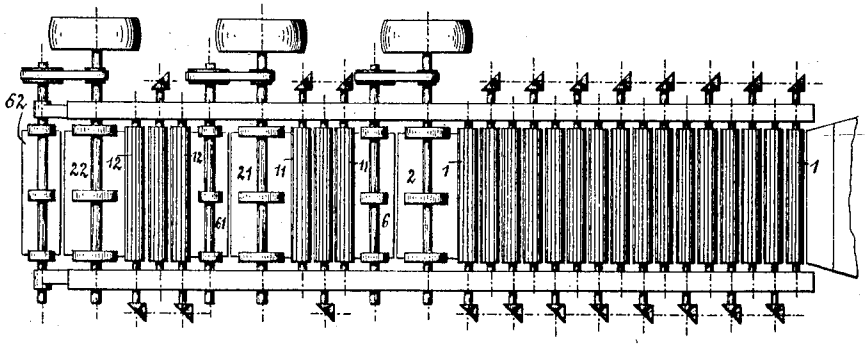


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

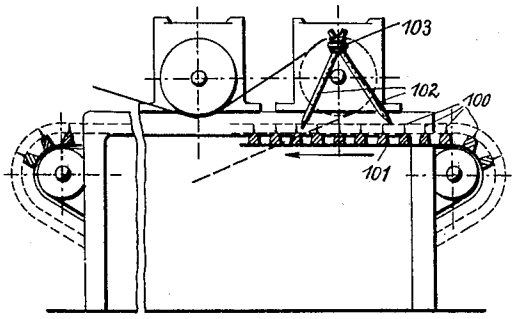
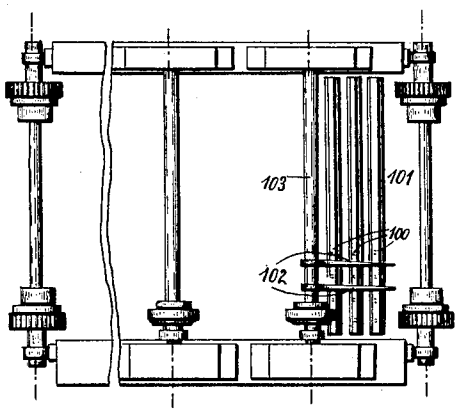


Fig. 4.



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UNITED STATES PATENT OFFICE.

IGNAZ ETRICH, OF OBERALTSTADT, NEAR TRAUTENAU, BOHEMIA.

HECKLING-MACHINE.

1,331,333. Specification of Letters Patent. Patented Feb. 17, 1920.

Application filed November 18, 1919. Serial No. 338,932.

To all whom it may concern:

Be it known that I, IGNAZ ETRICH, a subject of the Czecho-Slovak Republic, residing at Oberaltstadt, near Trautenau, Bohemia, have invented certain new and useful Improvements in Heckling-Machines; and I do hereby 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 a heckling apparatus for dividing and thoroughly cleaning of flax, hemp or similar fibers from the bast of plants for making them ready for further treatment on carding machines.

The essence of my invention consists in that the fibrous material to be treated is fed forward by means of an apron provided with short pins and that above the apron heckle needles are arranged which extend between the pins on the apron and rapidly oscillate in planes at right angles to the plane of the apron and in the direction of the movement thereof; the heckle needles are adjustable in a direction normal to the apron and the inclination of the center line of the oscillations of the needles to the plane of the apron is likewise adjustable.

The present heckling apparatus is suitable for any swingled or scutched bast fibers and is preferably directly attached to the swingling or scutching apparatus so that the material is delivered from the latter immediately into the present heckling apparatus.

In the annexed drawings Figure 1 is a side elevation of a scutching and cleaning apparatus;

Fig. 2 is a plan view of the same;

Fig. 3 is a side elevation, partly in section, of the improvement; and

Fig. 4 is a plan view of the same, with parts omitted.

The apparatus shown in Figs. 1 and 2 for scutching and cleaning forms the subject matter of an application Serial No. 338,931, bearing even date with the present one and I shall describe here only so much of it as is necessary for the understanding of the present invention.

The raw material (such as flax, straw, short flax or the like) is supplied to a series of fluted breaking rollers 1 which delivers the broken raw material in the form of a compressed coherent layer to a scutching apparatus consisting of two drums 2, 3 having parallel axes and carrying radial scutching blades 4, 5, the circumferential velocity of which is considerably greater than that of the breaking rollers 1; 6, 7 are stripping rollers revolving in the same direction as the scutching drums and having a circumferential velocity smaller than that of the scutching blades, but greater than that of the following series of breaking rollers 11; to the latter the material coming from the scutching drums 2, 3 is delivered being loosened or so to speak jumped up. In the series of breaking rolls 11 the material is again compressed and is then delivered to another scutching apparatus 21, 31, 41, 51 provided with stripping drums 61, 71 and further passes through a third series of breaking rollers 12 and a third scutching apparatus 22, 32, 42, 52 of which only the upper scutching drum 22 is provided with a stripping drum 62. From the last named scutching apparatus the material is delivered in the form of a coherent somewhat loosened fleece like layer to the present heckling apparatus. This consists of an apron 101 composed of rods and provided with pins 100; above this apron strong heckling needles 102 are mounted on transverse shafts 103. These needles extend between the pins on the apron and rapidly oscillate in vertical planes in the direction of the movement of the apron, the points of the heckling needles entering into the fleecy material between the pins 100. The heckling needles are adjustable in a direction at right angles to the plane of the apron for adjusting the depth to which they enter into the material. Further the center line of the oscillations (and if desired also their amplitude) of the heckling needles may be adjusted in any suitable manner. The material delivered to the apron 101 in the form of a loosened fleece as already stated is held and fed forward by the pins 100 while the strong heckling needles owing to their rapid oscillations divide or heckle the material, all the shive still adhering to the fibers being stripped off and shaken out falling down between the rods of the apron.

Of course the heckling needles are arranged in rows parallel to the direction of movement of the apron, a number of such needles corresponding to the width of the fleece being mounted on a common transverse shaft 103, to which a rapid rocking movement is imparted by means of cams

running in oil or in any suitable manner. Preferably the heckling needles of neighboring transverse shafts are staggered.

I am aware that it has been proposed to treat tow and similar materials by the cooperation of a reciprocating grid provided with pins projecting therefrom and needles oscillating above the grid but not extending between the pins. This known arrangement is not included in my invention.

The material delivered from the apron is of a purity not obtainable in any other manner, it is free from knots and felted parts, it shows a smooth well divided fiber which can be immediately brought into a carding machine and spun. The material thus cleaned is suitable for spinning tow yarns up to the finest numbers.

The apparatus requires only little attendance by unskilled laborers, is of high efficiency and shows a great output in good fiber.

Claims:

1. A heckling apparatus comprising in combination with an open means for moving the same continuously in one direction, pins on such apron, adapted to engage with a layer of fibrous material to be heckled, heckling needles mounted above the said apron, the downwardly directed points of the heckling needles extending between the pins of the apron and being adapted to engage with the material to be heckled, and means for oscillating the heckling needle points in planes at right angles to and in the direction of the movement of the layer of fibrous material to be heckled.

2. A heckling apparatus comprising in combination with an open means for moving the same continuously in one direction, pins on such apron, adapted to engage with a layer of fibrous material to be heckled, heckling needles mounted above the said apron the downwardly directed points of the heckling needles extending between the pins of the apron and being adapted to engage with the material to be heckled, and means for oscillating the heckling needle points in planes at right angles to, and in the direction of the movement of the layer of fibrous material to be heckled and means for adjusting the heckling needles in a direction at right angles to the plane of the layer of material to be heckled whereby the depth to which the points of the heckling needles enter such material may be adjusted.

3. A heckling apparatus comprising in combination with an apron means for moving the same continuously in one direction, pins on such apron, adapted to engage with a layer of fibrous material to be heckled, heckling needles mounted above the said apron, the downwardly directed points of the heckling needles extending between the pins of the apron and being adapted to engage with the material to be heckled and means for oscillating the heckling needle points in planes at right angles to, and in the direction of the movement of the layer of fibrous material to be heckled and means for adjusting the heckling needles in a direction at right angles to the plane of the layer of material to be heckled whereby the depth to which the points of the heckling needles enter such material may be adjusted and means for adjusting the inclination of the center line of the oscillations of the heckling needles relatively to the plane of the material to be heckled.

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

IGNAZ ETRICH.

Witnesses:
OTTO HEMPFINZ,
RICHARD CRIEBEL.