June 16, 1936. W. B. BARTRAM ET AL 2,044,460

MACHINE FOR SCUTCHING SHORT FIBERS OF FLAX, JUTE, HEMP, ASBESTOS AND OTHER SHORT FIBERS

Filed Sept. 20, 1934 2 Sheets-Sheet 1

Fig. 1.

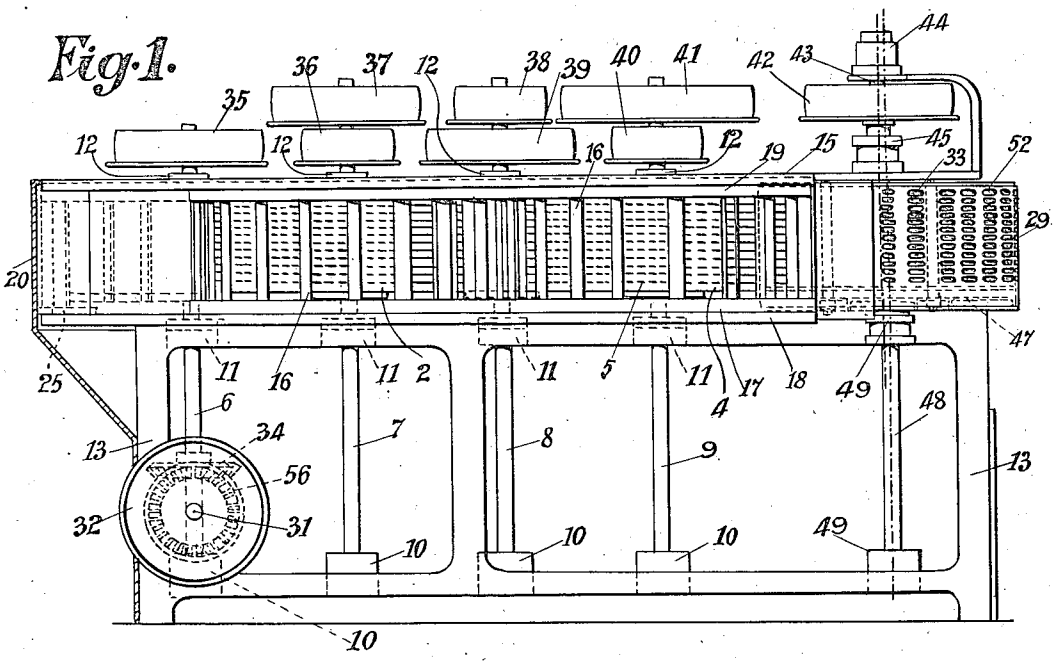
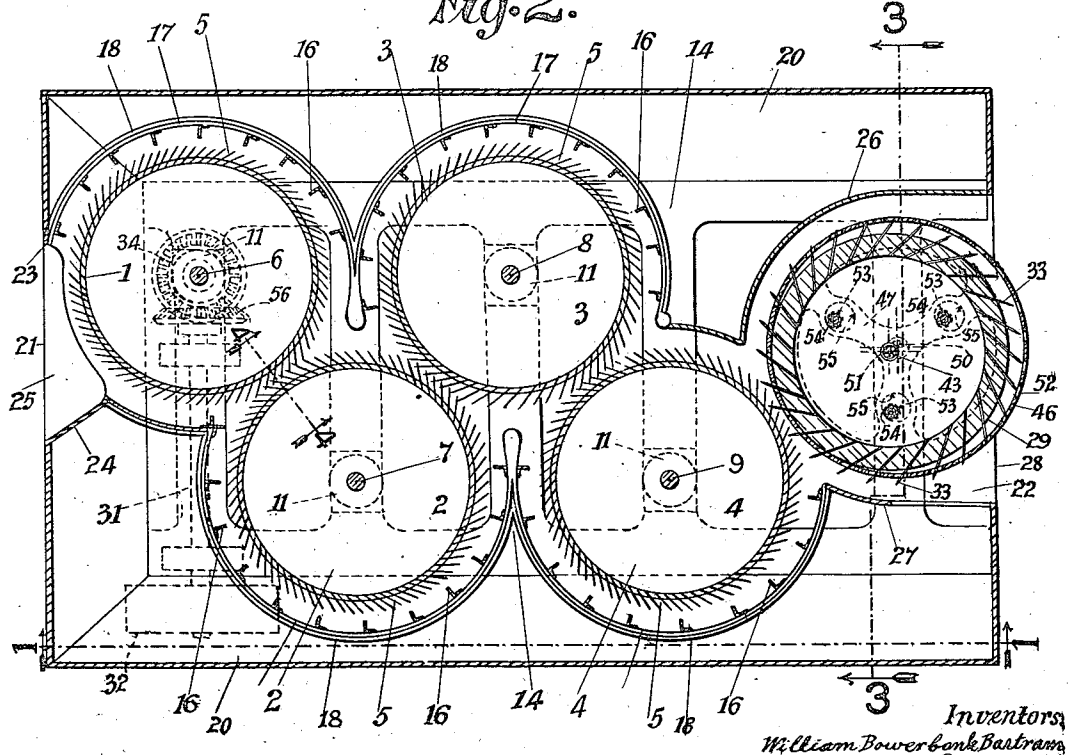


Fig. 2.



Inventors:
William Bowerbank Bartram,
John Hamilton Larmuth.
per Ferdinand Broster Bosshardt
Attorney.

Published by AsbestosClaims.Law
asbestosclaims.law/library/22898/1

June 16, 1936. W. B. BARTRAM ET AL 2,044,460

MACHINE FOR SCUTCHING SHORT FIBERS OF FLAX, JUTE, HEMP, ASBESTOS AND OTHER SHORT FIBERS

Filed Sept. 20, 1934 2 Sheets-Sheet 2

Fig. 3.

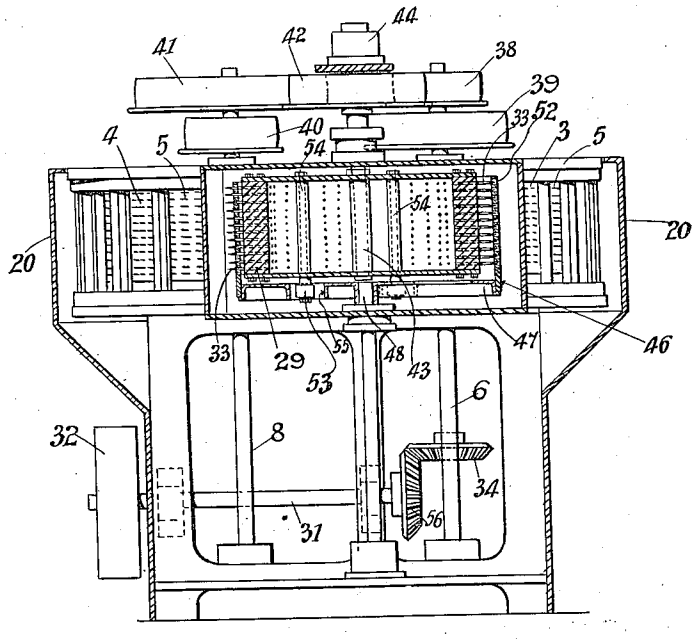
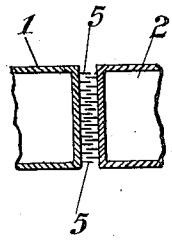


Fig. 4.



Inventors.
William Bowerbank Bartram
John Hamilton Larmuth.
per Ferdinand Broster Bonhardt
Attorney.

Published by AsbestosClaims.Law
asbestosclaims.law/library/22898/2

Patented June 16, 1936

2,044,460

UNITED STATES PATENT OFFICE

2,044,460

MACHINE FOR SCUTCHING SHORT FIBERS OF FLAX, JUTE, HEMP, ASBESTOS, AND OTHER SHORT FIBERS

William Bowerbank Bartram, Ottawa, Ontario, Canada, and John Hamilton Larmuth, Hill Crest, Upper Colwyn Bay, North Wales

Application September 20, 1934, Serial No. 744,784
In Great Britain October 11, 1933

2 Claims. (Cl. 19—99)

This invention relates to machines for scutching short vegetable or mineral fiber, such as the short fibers of flax, jute, hemp, asbestos and so forth.

The main object of our invention is to enable a better quality of short fiber to be obtained by scutching and to increase the rate of scutching short fibers, whilst reducing the cost of the machine necessary for performance of the scutching operation.

A machine for scutching short fibers in accordance with our invention comprises a plurality of vertical rotary cylinders provided with displaced rows of points arranged for the passage of the rows of one cylinder between the rows of another cylinder, the successive cylinder or cylinders being adapted for rotation at higher speed than the preceding cylinder or cylinders, whereby the fibers are automatically carried from one cylinder to another.

The said points project preferably in the direction of rotation of the cylinder on which they are provided.

The cylinders are adapted for rotation in reverse directions, whereby the surfaces of the cylinders travel in the same direction at the place where the points of one cylinder act on the fiber carried by the adjacent cylinder.

The periphery of each cylinder is partly surrounded by scutching bars arranged in grid like manner to enable foreign matter to escape between them.

The cylinders and bars are arranged in a casing adapted to permit foreign matter falling from the cylinders and bars to escape below the cylinders and bars and permit foreign matter thrown through the apertures between the said bars to also escape below the bars.

We attain the said object by the mechanism illustrated in the accompanying drawings, wherein—

Figure 1 is a side view in section, taken on a line corresponding with the line 1—1 of Figure 2, of a scutching machine.

Figure 2 is a plan view in section of the said machine.

Figure 3 is a rear view in section, taken on a line corresponding with the line 3—3 of Figure 2.

Figure 4 is a detached, fragmentary view in section taken in the direction of the arrow on a line corresponding with the line 4—4 of Figure 2.

Referring to the drawings, in the construction shown therein there are four cylinders 1, 2, 3 and 4. Each of the cylinders 1, 2, 3 and 4 is provided with annular rows of points 5 arranged in a horizontal slanting manner and pointing in the direction of rotation of the respective cylinder. The rows of points 5 of each cylinder are displaced vertically relative to the rows of points of the adjacent cylinder or cylinders and the points 5 of each cylinder project so far therefrom as to pass along the annular spaces between the rows of points 5 of the adjacent cylinder or cylinders when the cylinders are rotated, as can be more particularly seen in Figures 2 and 4.

The cylinders 1, 2, 3 and 4 are secured to vertical shafts 6, 7, 8 and 9 respectively. Each shaft is mounted in a foot-step bearing 10, a journal bearing 11 and a journal bearing 12. The bearings 10 and 11 are provided on a frame 13 which has an open or skeleton top 14 carrying the bearings 11. The bearings 12 are provided in a closed cover 15 which is connected to the frame top 14 by means of vertical bars 16 of angle or any other suitable section. The bars 16 are attached to the frame top at spaced distances apart by means of a rail 17 and a rail 18 secured to the frame top 14. The bars 16 are secured together at their upper ends by means of a depending flange 19 provided on the closed cover 15. The bars 16 form vertical grids around large portions of the peripheries of all the cylinders 1, 2, 3 and 4.

The frame 13, cylinders and grids are enclosed in a casing 20 which joins the closed cover 15 and is spaced away from the grids and frame top 14.

The casing 20 is provided with an inlet 21 and an outlet 22. Guide walls 23 and 24 and a platform 25 are provided inside the inlet 21. Guide walls 26 and 27 and a platform 28 are provided inside the outlet 22.

The cylinder 1 is rotated in a clock-wise direction, for example by means of a countershaft 31 provided with a driving pulley 32 and transmitting motion to the vertical shaft 6 by means of a bevel wheel 56 meshing with a bevel wheel 34 on the shaft 6. The cylinder 2 is driven in anti-clockwise direction at higher speed than the cylinder 1, for example by means of a crossed belt running on a pulley 35 mounted on the shaft 6 and a pulley 36 mounted on the shaft 7. The cylinder 3 is driven in clockwise direction at a higher speed than the cylinder 2, for example by means of a crossed belt running on a pulley 37 mounted on the shaft 7 and a pulley 38 mounted on the shaft 8. The cylinder 4 is driven in anti-clockwise direction at a higher

Published by AsbestosClaims.Law
asbestosclaims.law/library/22898/3

speed than the cylinder 3 for example by means of a crossed belt running on a pulley 39 mounted on the shaft 8 and a pulley 40 mounted on the shaft 9.

Any other suitable driving means may be employed for driving the said cylinders.

A stripping drum 29 is mounted on a vertical shaft 43 which is suspended by means of a suspension bearing 44 and supported laterally by means of a journal bearing 45, the bearings 44 and 45 being situated above the drum 29.

The drum 29 is provided with points 33 arranged in a similar manner to the points 5 of the cylinder 4 but displaced vertically relative thereto so as to pass between the points 5 of the cylinder 4 and comb the fibers therefrom.

The drum 29 is surrounded by a ring 46 carried by a spider 47 which is provided on a vertical shaft 48 mounted in bearings 49 situated below the ring 46. The axis 50 of the shaft 48 is set out of alignment with the axis 51 of the shaft 43 and the ring 46 is provided with slots 52 to accommodate the points 33. Consequently when the drum 29 and ring 46 rotate, the ring 46 rotates eccentrically to the drum 29 and there is a relative lateral movement of the ring 46 which allows the points 33 to project outside the ring 46 where they pass between the points 5 of the cylinder 4, but causes the ring 46 to move outwards until the points 33 lie completely inside the ring at the place of discharge. The fibers removed by the points 33 from the points 5 of the cylinder 4 are therefore completely cleared from the points 33 by the wiping stripping action of the said ring before the points 33 again pass between the said points 5 and a complete removal and discharge of both the shorter and longer of the fibers is positively ensured and the points 33 and 5 therefore cannot become clogged.

The drum 29 is rotated by means of a crossed belt mounted on a pulley 41 provided on the vertical shaft 9 and a pulley 42 provided on the vertical shaft 48. The ring 46 is rotated by means of three rollers 53 mounted on the projecting ends of the rods 54 secured to the end of the drum 29, the rollers 53 each engaging a circular aperture 55 provided in the spider 47.

In operation, the short fibers are fed to the cylinder 1 through the inlet 21, for example by means of a feed lattice (not shown) and are carried along by the points on the cylinder 1 until the fibers are lifted off by and transferred to the points on the cylinder 2 and carried along by the last named points. The fibers are lifted off the cylinder 2 by and transferred to the points on the cylinder 3 and are carried along until the points of the cylinder 4 lift them off and transfer them to the take-off cylinder 29 from which they are stripped by the comb or combs, whereby they leave the scutching machine through the outlet 22.

During the transport of the short fibers by the points on the cylinders, the fibers are threshed or beaten against the bars 16 to disengage the foreign matter which is intercepted and falls by gravity through the frame top 14 and is flung by centrifugal action away from the fibers and passes between the bars 16 and then falls by gravity below the said frame top. Therefore foreign matter separated from the fibers immediately departs from the vicinity of the fibers and arrives at a place where it cannot be again picked up by and mixed with the fibers. Furthermore, as the fibers pass from one cylinder to another, their positions are transposed, that is to say those fibers which previously were nearer the cylinder periphery than the others come to lie further from the cylinder periphery than others and consequently the foreign matter prevented by the fibers from escaping whist the said fibers are on the points of one cylinder become free to escape when the fibers are taken by the points of the succeeding cylinder. Thus all the foreign matter is given full opportunity to escape during the passage of the fibers through the machine.

Because the speed of each successive cylinder is higher than that of the preceding one, the centrifugal action on the foreign matter becomes intensified as the fibers pass through the machine. This progressive increase in centrifugal effects ensures a gradual but thorough separation of the foreign matter from the fibers. The period during which the fibers are subjected to the beating and separating action is an extended one.

The fibers carried by the points 5 of the cylinder 4 are gathered from the points 5 by the points 33 of the more quickly rotating stripping drum 29 where the points 33 project outside the ring 46. The gathered fibers are then cleared from the points by the ring 46 in the hereinbefore described manner and therefore the stripping of the fibers from the cylinder 4 takes place in a thorough, continuous manner which remains efficient at all times.

The result of these various actions is to produce a scutched short fiber of high cleanliness and therefore high quality with a low production of waste and by a mechanism which is efficient but comparatively uncostly to produce. The quantity of short fibers which can be scutched in a given time is also increased.

We claim—

1. A machine for scutching short vegetable and mineral fibers, such as short fibers of flax, jute, hemp, asbestos and so forth, comprising a frame, a frame top, an open frame bottom, vertical bars extending from the frame top to the frame bottom, vertical drums of similar diameter provided between the frame top and frame bottom in echelon arrangement, means for rotating each drum at a higher speed of rotation than the preceding drum, spaced points projecting from the exterior of each drum and engaging the spaces between the points of adjacent drums, means for permitting the passage of foreign matter under its own weight along paths which are external to but parallel with the drum axes, means for allowing the foreign matter to escape vertically from the frame and means for discharging loose, scutched fibers horizontally from the frame.

2. A machine according to claim 1, wherein a stripping drum and an annular clearing member surrounding the stripping drum are provided and stripping drum bearings are situated above the stripping drum and clearing member bearings are situated below the stripping drum, the stripping drum rotating within the clearing member and rollers being provided on the stripping drum to transmit rotary movement to the clearing member.

WILLIAM BOWERBANK BARTRAM.
JOHN HAMILTON LARMUTH.