

May 7, 1929.

J. A. VANSTEENKISTE

1,711,508

SCUTCHING MACHINE

Filed Nov. 5, 1928

Fig. 1.

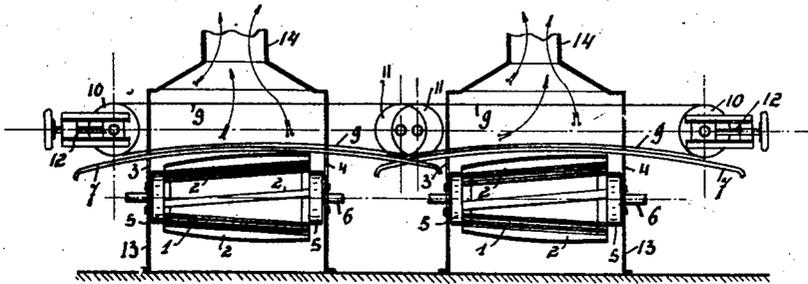
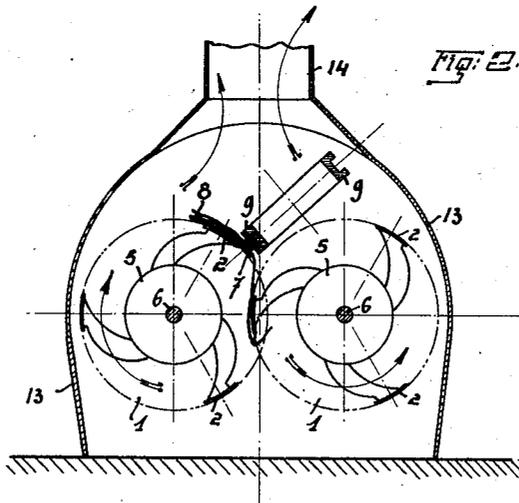


Fig. 2.



Joseph Arthur Vansteenkiste
INVENTOR;
By *Atkinson*
his Attorney

UNITED STATES PATENT OFFICE.

JOSEPH ARTHUR VANSTEENKISTE, OF HOOGWEG, BELGIUM.

SCUTCHING MACHINE.

Application filed November 5, 1928, Serial No. 317,342, and in Belgium November 10, 1927.

This invention relates to scutching machines of the kind in which it is made use of pairs of revolving drums fitted with blades or knives suitable for scutching flax or other similar textile materials. As it is well known, in machines of this kind which usually comprise two scutching mechanisms (i. e. two pairs of drums) arranged in alignment conveying devices are used for the flax to be scutched, which convey the flax straw longitudinally of the scutching mechanisms. The devices of this kind as used up till the present consist usually of two belt conveyors or of one belt and one guide track. These devices require the use of pressure rollers, springs, indiarubber bands or even of pneumatic or other devices, to ensure the straw being maintained either between the belt conveyors or between the single belt and the guide track.

One object of the invention is to do away with all these auxiliary devices. A further object is to secure improved means to prevent the twisting of the fibres round the drum shafts during the scutching operation and a still further object is to provide special means whereby the dust resulting from the operation is removed automatically.

With these objects in view, the invention essentially consists in the special arrangement and combinations of parts as hereinafter fully described and pointed out in the appended claims.

The annexed drawings show as an example one embodiment of the invention:

Fig. 1 is a diagrammatic elevation and vertical section of a complete machine, composed of two pairs of scutching drums, which each treat successively rather more than half the length of the straw, this straw being reversed by any suitable device after having been treated in the first mechanism.

Fig. 2 gives a cross section, showing especially the cooperation of a band conveyor with a curved guide against which it is kept pressed by its tension.

In these drawings 1 indicates the drums proper of which there are two, whose blades or scutching members 2 fit one between the other when the drums revolve and strike successively the straw suspended between the two drums 1. The blades 2 have a curved form, as shown especially in Fig. 1, so that the diameter of the drums increases from the inlet 3 towards the outlet 4 of the machine. Each drum is closed at its ends by

discs 5 of large diameter mounted on the driving shaft 6. With each pair of drums there cooperates a curved guide 7, formed for instance of a rail and carried by a curved plate 8. Against the rail 7 shaped in a circular arc, an endless belt 9 is kept pressed and passes over the pulleys 10 and 11, of which the pulleys 10 for instance act as driving pulleys and are supported by tension devices 12, so as to be able to regulate the tension of the belts 9 and to press the latter automatically against the guide-rails 7. Each pair of drums is enclosed in a protecting casing 13, fitted on top with an exhaust chimney 14.

The pulleys 10 and 11 over which pass the belts 9, as well as the curved rail 7, are placed as shown in Fig. 2 in an oblique plane so as to diminish the distance between said rail 7 or guide track and the blades, and thus to ensure energetic treatment at the middle part of the straw.

The machine thus constructed works as follows:

The straw to be scutched is conveyed between the pair of drums and maintained as shown in Fig. 2, on the curved guide 7 by the pressure exerted by the belt owing to its tension.

During its passage between the pairs of drums, the straw is struck by the blades 2, but owing to the curved form of these blades, the point of contact of the blades with the straw varies constantly so that the numerous blows given by the blades do not strike the curtain of straw always at the same point which contributes to spare the flax. During the revolution of the drums these act as fans, sucking the air into the casing 13 and this air escapes by the exhaust chimneys 14 carrying with it the dust and other matters with which it is impregnated.

It will be observed that in a machine constructed as above described the straw to be scutched is conveyed only by aid of the belt conveyor, rope or other similar member 9 cooperating with the guide track or rail 7 bent in the form of a circular arc, so that the necessary pressure, to maintain the straw to be scutched, between the belt conveyor and the guide track, is obtained automatically by the pressure exerted by the belt, rope or other member on the guide track as a consequence of the tension which tends to straighten it.

Further as a consequence of the curvature of the guide-track, the blades or knives acting on the straw must be provided with a curved working surface so that the diameter of the drums increases gradually from the inlet opening for the straw to be scutched till the exit opening.

Besides the advantage presented by the arrangement described of eliminating the use of pressure rollers, springs and other similar members, to grip the straw to be scutched, this arrangement also presents the important advantage of eliminating the danger of the blades being deformed in the middle by the action of centrifugal force, the drums made as shown having themselves a curved convex shape, adapted to the concave shape of the curved guide rail 7. As a result the drums may revolve without danger at a higher speed than previously without fear of their deformation by the action of centrifugal force or because of the blades meeting the guide track. On the other hand, owing to the curved shape of the blades or scutching members and to the curved shape of the guide track, combined with the placing of the pulleys 10 and 11 in an oblique plane, the guide track 7 can be placed so as to allow of the action of the blades nearer to the point where the fibre is held, which allows shorter fibres to be scutched than heretofore and an energetic action to be obtained in the central portion.

What I claim is:

1. In a scutching machine for flax and other similar textile materials, pairs of drums revolving towards each other, scutching members mounted on the said drums, a flexible member formed by a belt or rope extending longitudinally above the drums and a curved guide track, arranged below the said flexible member and cooperating with the same, whereby the necessary pressure to maintain the material to be scutched between the flexible member and the guide track is produced automatically by the pressure of the flexible member on the said guide track.

2. In a scutching machine, pairs of drums, scutching members mounted on the said drums, a belt conveyor arranged longitudinally above the drum, a guide track cooperating with the said belt conveyor, the said guide track being bent in the shape of a circular arc and means for tensioning the belt conveyor whereby it is pressed on the curved guide track which tends to straighten it.

3. In a scutching machine pairs of drums, scutching blades carried by the said drums,

the said blades being curved longitudinally, whereby the drums have a diameter increasing from one end to the other, a guide track arranged longitudinally above and between the said drums, the said guide track being bent in the shape of a circular arc corresponding to the curved shape of the scutching blades, means for carrying the said guide track and a conveying belt, the said belt cooperating with the curved guide-track whereby it is pressed on the said guide track with a given pressure to maintain the material to be scutched between the said belt and the said guide-track.

4. In a scutching machine, pairs of drums, discs closing the said drums at their ends, scutching blades carried by the said drums, the said blades being curved longitudinally, whereby the drums have a diameter increasing from one end to the other, a guide track arranged longitudinally above and between the said drums, the said guide track being bent in the shape of a circular arc corresponding to the curved shape of the scutching blades, means for carrying the said guide track, a belt acting as a conveyor and cooperating with the said guide track, pulleys on which the said belt is guided, the said pulleys being inclined relatively to the vertical plane and means for tensioning the said belt on the said guide track.

5. In a scutching machine, pairs of drums, discs closing the said drums at their ends, scutching blades carried by the said drums, the said blades being curved longitudinally, whereby the drums have a diameter increasing from one end to the other, a guide track arranged longitudinally above and between the said drums, the said guide track being bent longitudinally in the shape of a circular arc corresponding to the curved shape of the scutching blades, a casing enclosing the drums, an exhaust pipe cooperating with the said casing whereby the dust is expelled from the casing under the suction of the drums, guiding pulleys arranged outside the casing, the said pulleys being inclined relatively to the vertical plane a belt acting as a conveyor and passing around the said pulleys and in contact with the curved guide track and means for tensioning the said belt, whereby it is pressed on the guide track with the necessary pressure to maintain the material to be scutched between the belt and the guide track and to convey the said material between the pairs of drums.

In testimony whereof I have affixed my signature.

JOSEPH ARTHUR VANSTEENKISTE.