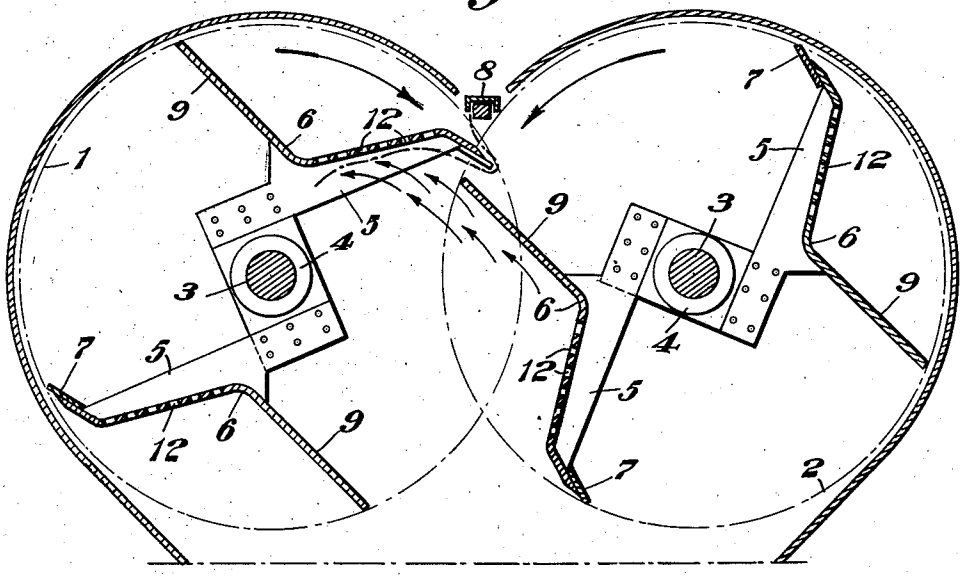
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MACHINE FOR SCUTCHING FLAX OR LIKE PLANT STALKS

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*Fig. 1.*



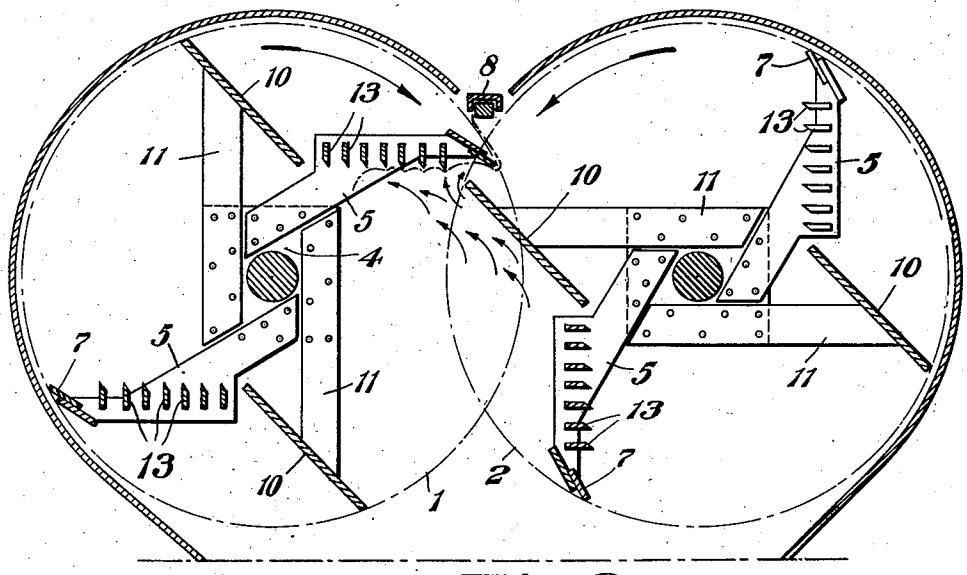




*Fig. 2.*

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MACHINE FOR SCUTCHING FLAX OR LIKE PLANT STALKS

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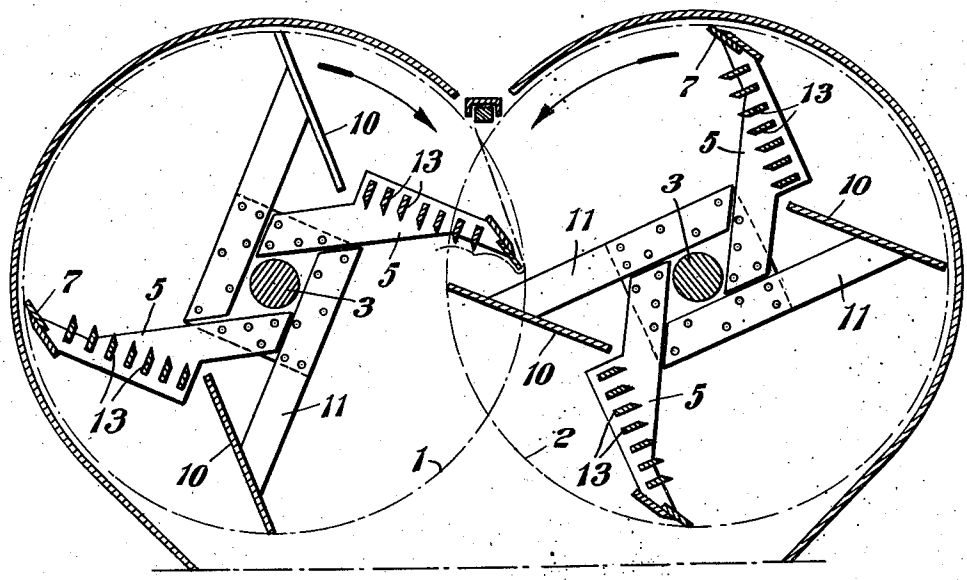



Fig. 3.

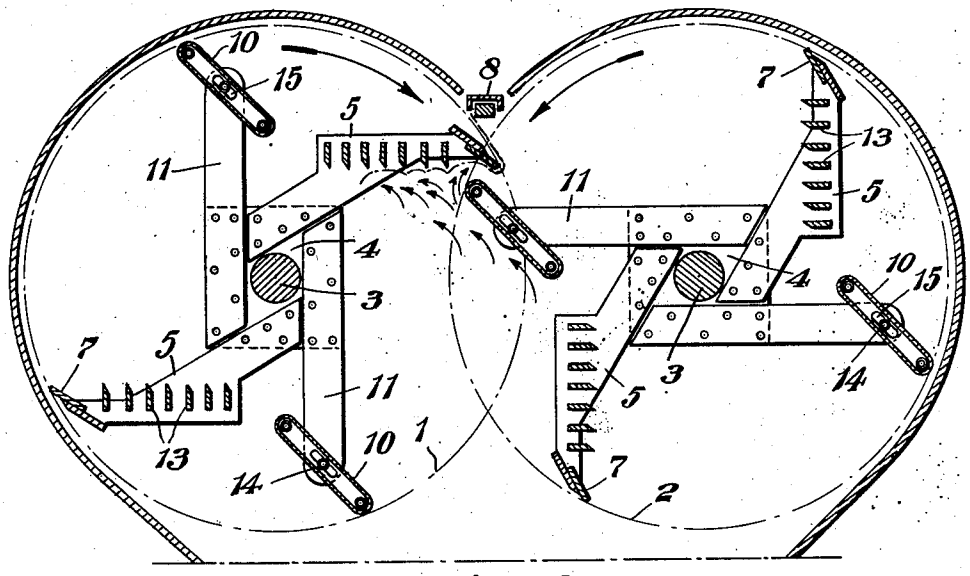



Fig. 4.

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Patented July 16, 1940 2,207,900

# UNITED STATES PATENT OFFICE

2,207,900

## MACHINE FOR SCUTCHING FLAX OR LIKE PLANT STALKS

Maurice Alois Soenens, Harelbeke, Belgium, assignor to The Automatic Flax Production Units, Courtral, Belgium, a Belgian company

Application December 15, 1938, Serial No. 245,889
In Belgium January 4, 1938

4 Claims. (Cl. 19—33)

My present invention relates to a machine for scutching flax, hemp, ramie or other textile plants, of the kind in which use is made of one or two pairs of elongated scutching mills rotating one in the other in opposite directions and of which the blades or other scutching members follow each other in rapid sequence and work the stalks introduced in the direction of their length in such manner as to clean them.

These machines have the following disadvantages:

When a descending blade passes the point where the two drums penetrate most one into the other whilst remaining in engagement with the lap of stalks which it treats, this blade carries the lap with it and removes it more and more from the field of action of the opposite mill. When a little time afterwards the blade, which has effected its work, releases this lap and the following blade making part of the other drum begins to work, the latter blade has before it a lap which is free but which is badly placed owing to the fact that it is more or less carried externally of the orbit of the blade which commences its work. The result is that the scutching member commences by sliding over a length of stalk of about 10 to 15 cm. before it is able to effect its operation of notching. Afterwards, this notch, upon which actually depends the useful effect of the scutching, is at first slightly and then more pronounced, and finally very pronounced at the extremities which have had time to sharply fold round as a consequence of bending or whipping. There results a very unequal stripping which from zero at the commencement continues to increase and becomes excessive at the end, so that the extremities of the stalks, already less resistant by their nature, are easily removed, whilst the centre is only slightly scutched, if at all, and must be rescutched a second time.

The present invention overcomes this disadvantage and comprises the arrangement behind each blade or other scutching member of a heel, beater or other similar member, preferably in metal, which has for its purpose to carry as far as possible into the orbit of the opposite mill, the lap of flax or other material released by the descending blade under the unfavourable conditions described above. This heel, beater or other member, describes the same circumference or approximately the same circumference as the blade which it follows and the distance which separates it from this blade is obviously dependent upon the diameters of the drums as also upon the number and arrangement of the blades.

The heel may be formed, for example, by a metal plate carrying the blade being bent backward to form a heel, or it may be carried by a separate arm and in this case actually becomes a blade or paddle.

In practice the extremity of the heel or of the paddle should be as close as possible to the scutching member of the opposite mill when operating.

In the case of utilising a paddle, the latter may be movable and may for example oscillate about a pivot or about the arm which carries it so as to vary the distance which separates it from the scutching member.

This member (heel or paddle) is furthermore of a width sufficient to produce in front of it a current of air. It consequently acts both by direct contact and by the action of this current of air.

In order that the invention may be clearly understood, reference may be had to the following description and accompanying drawings, which show by way of example, how the invention may be carried out in practice.

Fig. 1 is a cross-section view of two cooperating mills in which the individual scutching members and heels are formed in one piece;

Fig. 2 is a similar view in which the scutching members and the heels are carried on separate arms;

Fig. 3 is a view similar to Fig. 2 but which shows the scutching members and heels advanced to another position in their rotation; and

Fig. 4 is a similar view showing an adjustable heel.

In Figure 1 of the drawings 1 and 2 indicate two extended mills rotating one within the other in opposite directions and each comprising a shaft 3 surrounded by hubs 4 on which are fixed arms 5 which carry metal plates 6, on which are fixed blades 7 constituting the scutching members. The latter are intended to act alternately on the flax which is freely suspended and which is supported by a conveyor 8 of any known type.

According to the invention, the metal plates 6 carrying the blades 7 are bent backward so as to form a heel 9 which is intended to bring back in a reliable manner the lap of fibres under the upper blade of the opposite mill, as the lower blade exerts its action.

As shown by Figures 2 and 3, illustrating the scutching members in two successive positions, the heel may be constituted by a separate paddle 10 which is arranged behind each blade 7 and

which is carried by a separate arm 11 also fixed on the hub 4.

The blades 7 are carried, as in Figure 1, by arms 5.

In each of the embodiments, the heel 9 or the paddle 10 describes the same circumference or approximately the same circumference as the blade which it follows and the distance which separates it from this blade depends upon the diameters of the drums as also upon the number and the arrangement of the blades.

It will be advantageous in practice to be able to regulate the distance which separates the heel or the paddle from the blade which precedes it and to this end the paddle 10 is made movable as shown by Figure 4, by providing a pivot 14 about which it can oscillate. This pivot 14 is generally carried by the arm 11. Seeing that this oscillation is interfered with by the casing 16, it is advisable to provide a slot 15 in the paddle in such manner as to cause it to slide slightly before and after the oscillation.

The heel or the paddle is of sufficient width to create in front of it a current of air which is directed as shown by the arrows, and the heel or paddle thus acts both by contact and by the action of this current of air.

As shown by Figure 1 the metal plate 6 may be bored with apertures 12 and as shown by Figures 2, 3 and 4, the space between a blade 7 and a paddle 10 may be filled up by strips 13 so as to create passages for the air and consequently to intensify the current of air.

The industrial advantages derived from the use of this machine are as follows:

1. There is obtained an immediate stripping effect on contact with the scutching members. There is no longer any sliding without useful effect, owing to the suitable manner in which the material is presented.

2. The scutching is uniform over the whole length, owing to an accentuated scutching angle of constant value, obtained mechanically in this way and no longer by a whipping of the material which now becomes useless.

3. As scutching or stripping elements blades of any shape and arrangement may be used, for example, scrapers arranged radially or non-bevelled, non-planing, non-elastic and not very wide blades having consequently little in common with what is known as the "Flemish scutcher."

4. Owing to the fact that the favourable angle is obtained immediately and remains constant, the speed of the machine may be reduced. Obviously the invention is applicable to a scutcher comprising any number of arms.

What I claim is:

1. In a machine for scutching flax or like plant stalks formed of two mills, each comprising one set of scutching members, each set being on separate rotary shafts and adapted to rotate in overlapping orbits, means intermediate the individual scutching members and rotating therewith adapted by their angular positions to clear as they enter their overlapping orbits the scutching members in the other mill by a distance substantially equal to the thickness of the scutched material and to extend to the maximum distance into the orbit of the other mill, the said intermediate means being formed integral with the next preceding scutching member in its own set.

2. In a machine for scutching flax or like plant stalks formed of two mills, each comprising one set of scutching members, each set being on separate rotary shafts and adapted to rotate in overlapping orbits, means intermediate the individual scutching members and rotating therewith adapted by their angular positions to clear as they enter their overlapping orbits the scutching members in the other mill by a distance substantially equal to the thickness of the scutched material and to extend to the maximum distance into the orbit of the other mill, the said intermediate means being continuations of the scutching members and formed by their being bent backward to form a heel.

3. In a machine for scutching flax or like plant stalks formed of two mills, each comprising one set of scutching members, each set being on separate rotary shafts and adapted to rotate in overlapping orbits, means intermediate the individual scutching members in each set adapted to keep the material being scutched in intimate contact with a scutching member of the other set throughout substantially all of the arc of the overlapping orbits, the said intermediate means comprising paddles slidably mounted on separate arms secured to said shafts.

4. In a machine for scutching flax or like plant stalks formed of two mills, each comprising one set of scutching members provided with holes therethrough, each set being on separate rotary shafts and adapted to rotate in overlapping orbits, means intermediate the individual scutching members in each set adapted to keep the material being scutched in intimate contact with a scutching member of the other set throughout substantially all of the arc of the overlapping orbits, the said intermediate members being adapted to cooperate with the scutching members whereby the air passing through the holes in said scutching members is directed in a concentrated form against the scutched material.

MAURICE ALOIS SOENENS.