

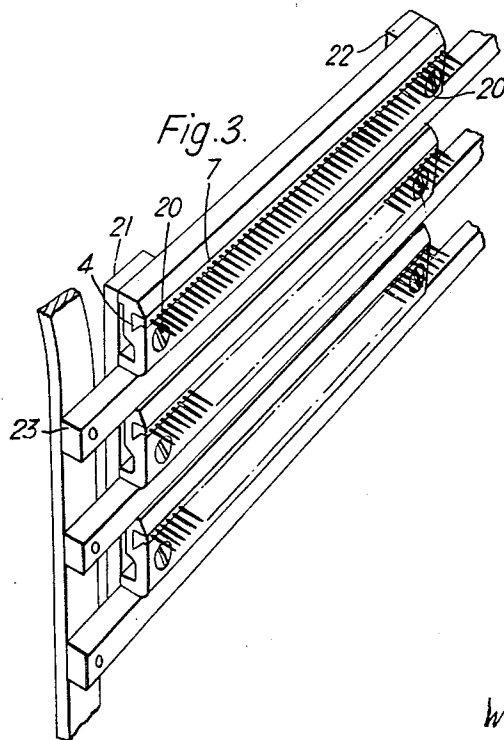
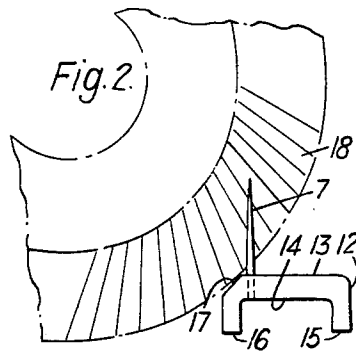
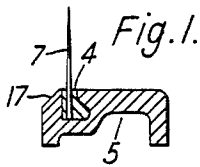
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HACKLING MACHINES

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HACKLING MACHINES

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This invention relates to hackling machines for flax and similar fibres. In the construction of a machine, the hackle pins are inserted at a very fine pitch in the hackle stocks so as to constitute a fine comb for processing the fibres. The hackle stocks are normally made from cross-grained beech wood, which is extremely carefully seasoned and selected and then cut to a size of the order of eleven inches by one inch by half an inch. The surface of the wood is then covered with thin brass sheet of the order of .010 inch thick, which is nailed in position and the stock is then drilled for the insertion of the pins.

As previously mentioned, these are inserted at a very fine pitch, for example, up to forty pins to the inch. The pins are then pushed point first through the holes, but they cannot be pressed fully home since the butt ends would then pass beneath the brass sheet. Thus a small length of the butt end must be left protruding, which prevents the stock from seating closely on to the frame. This leaves a space where fibres tend to collect. Apart from this disadvantage, the stock as a whole is costly to produce and only has a relatively short life. As soon as the thin brass sheet is worn away, the whole hackle is rendered useless.

According to the present invention the body of the hackle stock is made of aluminium or other light metal or alloy, and the pins are mounted in such a way as to extend into the stock by a distance which is less than the thickness of the stock as a whole. Such a construction has a number of advantages over the normal construction previously described.

In the first place the pins can be pressed fully home thus ensuring uniform effective length of pin. Also any inequality which may be caused in the region of the rear ends of the pins does not interfere with the close seating of the stock on the frame since this portion of the stock is not in direct contact with the frame itself. Moreover such a construction may be made more cheaply and considerably greater wear can be tolerated. The whole article is considerably more robust and the body of the hackle is practically unbreakable under normal conditions of usage.

In the case of the finer pitches, the pins may be mounted in an insert held in a channel in the main body of the stock. This insert can be produced very simply by means of an extrusion process and can be made so small that when the pins are worn out the complete section can be discarded. Alternatively, instead of drilling the insert for reception of the pins, the body of the insert may be cast around the pins, being made from a low melting point metal or synthetic plastic material. In either case the insert may be arranged to slide in a channel formed in the main body of the stock or alternatively the body of the stock may be made in two parts which are secured together so as to hold the insert between them.

As an alternative to the use of an insert, however, the

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stock may be made of a single piece of aluminium or light metal having a channel-shaped section with the pins mounted in the bottom of the channel. Consequently, when the stock is mounted on the frame, the bottom of the channel together with the rear ends of the pins is spaced away from the frame thus avoiding the difficulties previously mentioned. This construction is more useful for the coarser pitches of pins.

Examples of construction in accordance with the invention will now be described in more detail by way of example with reference to the accompanying drawings, in which:

Figures 1 and 2 show different sections of hackle stock, and Figure 3 is a perspective view showing a number of stocks mounted in position on the frame.

In the constructions of Figures 1 and 3, the pins are mounted in an insert 4 which may either be an extruded section having holes drilled for the reception of the rear ends of the pins or which may be cast around the rear ends. In the latter case the insert may be made, for example, of solder, white metal, or synthetic plastic material. In order to economise in metal and also to save weight the body of each stock has a cut away portion. Thus in Figure 1 the underside of the stock is cut away at 5 so as to leave a space between the stock and the frame, the remaining portion of the body being sufficiently rigid to support the insert 4 with the pins 7.

In the constructions of Figures 1 and 3 the inserts are merely slid into correspondingly shaped channels in the body of the stock and in Figure 3 the body of the stock is sufficiently resilient to be distorted by the screws 20 which retain it in place so as to grip the insert.

In the construction of Figure 2 no insert is used but the stock is of channel section 12. The pins are mounted in the body of the channel at 13 and, although the rear face at 14 may present irregularities for the reasons previously mentioned, this surface is spaced away from the frame and the stock is able to seat firmly on the surfaces 15 and 16. In each of the constructions shown the upper corner is chamfered at 17 in order to give access to a rotary brush 18 seen in dotted lines in Figure 2 which serves to clean the pins 7 at a point in their travel.

Figure 3 shows a number of stocks having the configuration of Figure 1 secured to the frame. Each stock is held in position by means of a pair of screws 20 which secure it to longitudinal members 21 and 22 which in their turn are held to cross-members 23 constituting part of the frame proper. As will be seen, each of the stocks seats firmly against the members 21 and 22 and, when it is necessary to loosen the screws 20 in order to renew the pins 7, it is only necessary to knock out the insert 4 and to replace it with a fresh insert bearing a new set of pins.

In the construction of Figure 2 and also in the constructions of Figures 1 and 3, when the pins are held in position by drilling rather than by moulding the insert around them, considerable manufacturing advantages are achieved. It is found in practice that it is almost impossible to drill through half inch thick aluminium alloy with a drill of diameter less than .050 inch, whereas the pins may sometimes be as fine as .018 inch. By ensuring that the part in which the pins are mounted is of less thickness than the stock as a whole, the small diameter holes can be drilled through the reduced thickness without difficulty and with a consequent saving in drilling time.

Another advantage of the channel shape stock is that when assembled on the machine frame, as illustrated in Figure 3, the securing screws distort the thinner walls adjacent to the groove in which the inserts are held so as to clamp these inserts and the pins held thereby securely in place.

I claim:

1. A stock for a hackling machine comprising an elongated body made of light resilient metal and having a front and a rear, said body comprising two longitudinally extending, rearwardly projecting, laterally spaced edge portions and a central portion disposed between said edge portions and pierced by screw holes extending from the front to the rear thereof, the said edge portions having at the rear of said body respective longitudinally extending, laterally spaced seating surfaces for mounting said body on a support, the rear surface of said central portion being disposed forwardly of said seating surfaces, and pins carried in said central portion of said body and protruding from said front.

2. A stock according to claim 1 having a groove in said central portion extending along the whole length of said body, said stock also comprising an insert slidable in said groove and fitted with said pins.

3. A stock for a hackling machine, comprising an elongated body made of light resilient metal which is of channel shape in cross-section having rearwardly directed, longitudinally extending edge portions and a central portion connecting said edge portions and pierced by screw holes extending from the front to the rear thereof, and pins carried in said central portion of said body and protruding forwardly from said body.

4. In combination, a stock according to claim 1, a support carrying said stock, and screws passing through said holes and into said support to press said stock against said support, thereby causing the resilient deformation of said stock.

5. A stock for attachment by means of fastening members to a support on a hackling machine, said stock comprising an elongated body made of light resilient metal having front and rear surfaces, the rear surface of said body being channeled and bounded by two laterally spaced rearwardly projecting edge portions the rear surfaces of which constitute seating surfaces for mounting said body on said support, the front surface of said body being grooved and slidably receiving an insert which carries a plurality of forwardly projecting pins, and the central portion of said body between said edge portions being pierced by a plurality of holes extending from front to rear thereof for reception of said fastening members, said central portion being flexibly deformable toward its rear surface when pressure is exerted against its front surface, at least portions of the walls of said groove and said holes being biased inwardly to affirmatively grip the contents thereof when said body is so deformed.

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