April 15, 1941. W. HOLLERUNG ET AL 2,238,055

CARDING DEVICE

Filed Nov. 9, 1937

Fig. 1

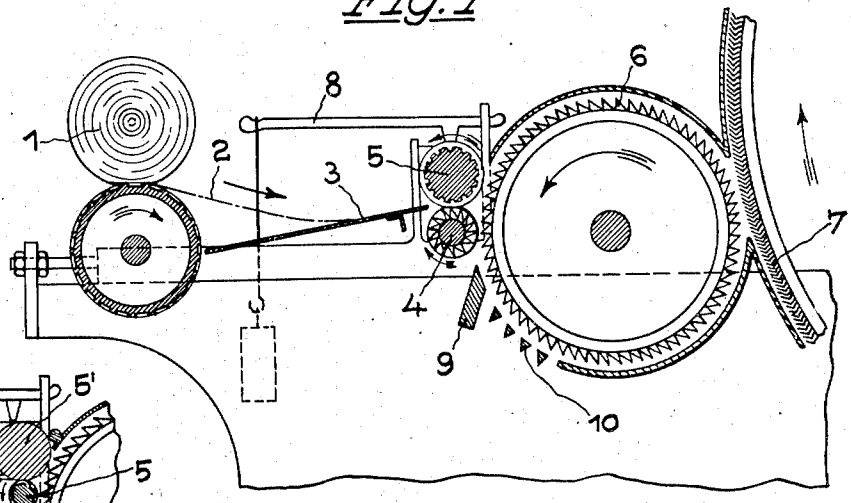


Fig. 3

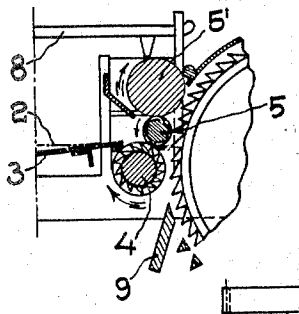


Fig. 2

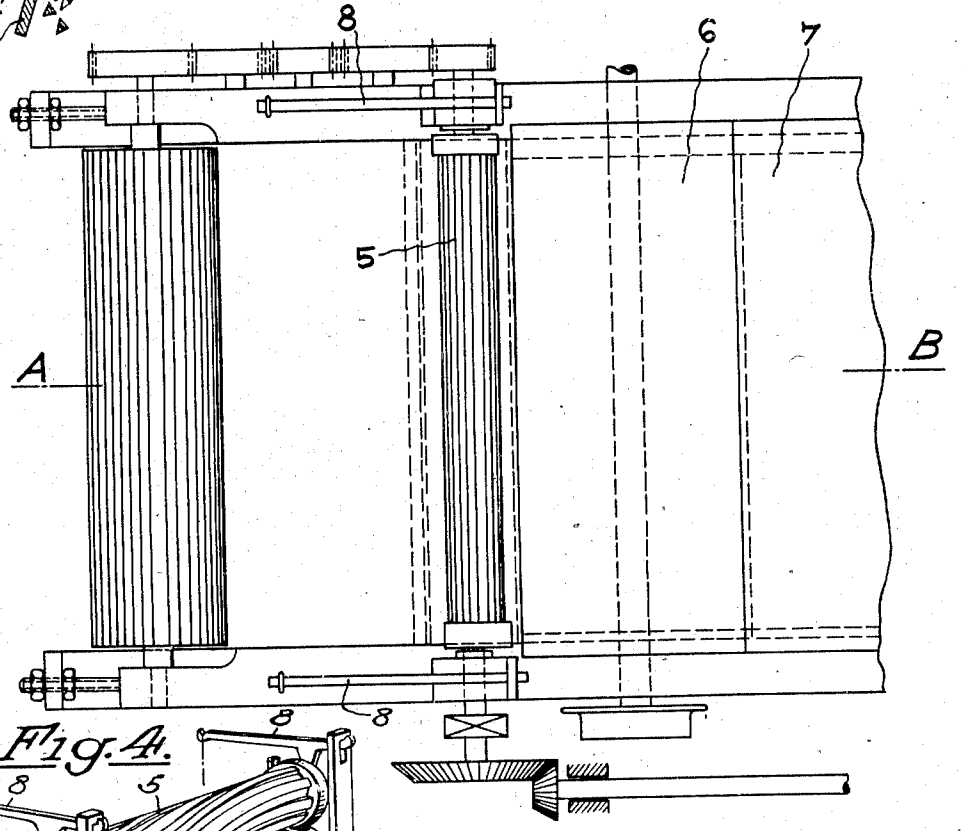
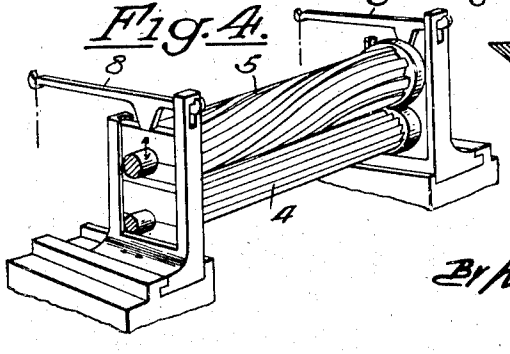


Fig. 4.



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CARDING DEVICE

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In Germany November 10, 1936

6 Claims. (Cl. 19—105)

This invention relates to a carding device, and more particularly to feeders for devices of this character.

Various types of feeders have already been proposed, either in the form of a shell feeder having a roller, or in which the shell is replaced by a smooth or fluted bottom roller. These arrangements have the object of firmly holding the fibrous material being fed, in order that the same can be engaged and picked off by the clothing moving past as a certain distance in front of the clamping point. Owing to the clamping action on the fibrous material lumps, unripe portions of cotton, bunches of fibres and the like, the removal of which is desirable prior to the further treatment, are broken up. They accordingly enter into the roving being produced and result in defective points or irregularities therein.

It has been found that it is possible to remove this undesirable scutcher waste comprising lumps of unripe and short fibres, and also all other contaminating substances, before they are disintegrated, if the cotton is fed between rollers, of which only the lower one, which is driven in the opposite direction to the licker-in, is furnished with a sawtooth clothing, whilst the upper roller is fluted axially or in helical fashion. As already stated, the lower roller is driven in the opposite direction to the licker-in, and the teeth on the roller are inclined away from the direction of rotation while the teeth on the clothing of the licker-in are inclined toward the direction of rotation.

The upper and lower rollers are both adjustable horizontally, whilst the upper roller is also adjustable in the vertical direction, so that it is possible to regulate the spacing between the feeder and the licker-in.

If desired, there may also be employed two upper rollers, of which the lower one of the two constituting the upper feed roller and having, for example, helical grooves, possesses a diameter which is smaller than that of the lower feed roller. It is pressed against the lower roller by the third roller. In this way it is possible to move the upper feed roller in closer proximity to the licker-in.

Two embodiments of the feeder according to the invention are illustrated by way of example in the accompanying drawing.

Fig. 1 is a vertical section taken through the feeder in Fig. 2 along the line I—I.

Fig. 2 is a plan view of the feeder according to Fig. 1.

Fig. 3 shows an embodiment of feeder having three rollers.

Figure 4 shows a feeder having a spiral arrangement of grooves in the upper roller, inclined teeth on the lower roller, and means for both horizontal adjustment of both rollers and vertical adjustment of the upper roller.

The cotton 2 proceeding from the roller 1 is conducted over an adjustable guide 3 to the clamping point between the lower roller 4 and the upper roller 5.

The wire teeth on the roller 4 are provided, for example, in helically disposed grooves. These teeth are directed oppositely to those on the licker-in 6, which passes the cotton to the cylinder 7. All rollers are driven separately, the lower roller 4 rotating in the opposite direction to the licker-in 6. The upper roller 5 is adjustably loaded in conventional fashion by a weight 8. The lower roller and the upper roller are adjustable in common in the horizontal direction, whilst the upper roller is adjustable alone in the vertical direction.

In the embodiment according to Fig. 3 there is provided an auxiliary roller 5'. This presses the upper roller 5, which is smaller in diameter than the lower roller 4, against the latter. In this way the lower roller 4 can be moved into closer proximity to the licker-in than in the case of merely two rollers 4 and 5.

The operation of this feeder is such that the cotton proceeding from the roller 1 is pressed evenly by the upper roller 5 into the teeth of the lower roller 4. Immediately after leaving the clamping point between these two rollers it is caught up by the licker in.

In accordance with the invention there is obtained the advantage that lumps of unripe fibres and other contaminations are not torn open by the licker-in, but are immediately caught up and thrown out by reason of the increased centrifugal force, or are removed by the adjustable knife 9 or are passed through the grid 10. The material is not pressed so deeply and firmly between the teeth and is also not gripped so tightly as in the arrangements hitherto in use. The cotton is nevertheless sufficiently loosened and moreover the fibres are subjected to less strain. Material carded in this manner provides a much smoother and more durable roving than the same material when fed by a shell feeder.

What we claim as new and desire to secure by Letters Patent is:

1. In a carding device, a feeder comprising upper and lower feed rollers, the lower feed roller

having saw-tooth clothing and the upper feed roller having helically disposed grooves or flutes.

2. In a carding device, a feeder comprising upper and lower feed rollers, the diameter of the upper roller being smaller than that of the lower roller, and an auxiliary roller pressing the upper roller against the lower roller.

3. In a carding device, a feeder comprising upper and lower feed rollers, the lower feed roller having saw-tooth clothing, and the upper roller being fluted, and the said upper and lower rollers being adjustable in common in the horizontal direction and the upper roller being adjustable alone in the vertical direction.

4. In a carding device, in combination, a feeder comprising upper and lower rollers, a licker-in for conveying the fibers to the cylinder from the feeder, the lower feed roller having saw-tooth clothing and being driven in a direction opposite to that of the licker-in, and the upper feed roller having axially disposed flutes or grooves.

5. In a carding device, in combination, a feeder comprising upper and lower feed rollers, a licker-in rotated to convey fibers to the carding cylinder and having saw-tooth clothing the teeth of which are directed in the direction of rotation, the lower feed roller being rotated in a direction opposite to that of the licker-in and having saw-tooth clothing the teeth of which are directed opposite to the direction of rotation, the upper feed roller having shallow longitudinal fluting.

6. In a carding device, a feeder comprising upper and lower feed rollers, the lower feed roller having saw-tooth clothing and being of larger diameter than the upper feed roller, said upper roller being fluted, and a third roller having a smooth surface bearing on the fluted roller and pressing the same toward the lower roller.

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