Nov. 8, 1932. P. LITTY 1,886,702

CONTROLLING DEVICE FOR LONG LENGTHS OF SPINNING MATERIAL HAVING AN APPRECIABLE WIDTH

Filed March 25, 1931

Fig. 1

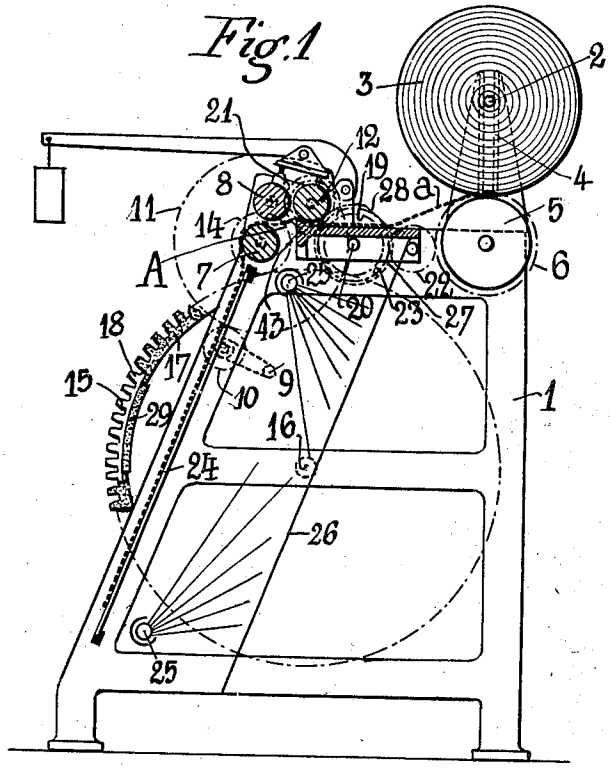


Fig. 2

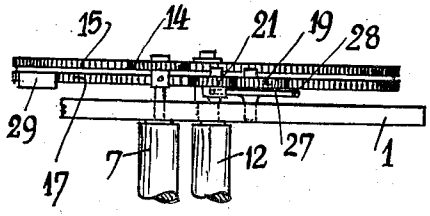
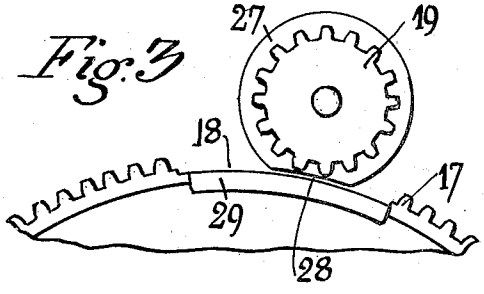


Fig. 3



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UNITED STATES PATENT OFFICE

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CONTROLLING DEVICE FOR LONG LENGTHS OF SPINNING MATERIAL HAVING AN APPRECIABLE WIDTH

Application filed March 25, 1931, Serial No. 525,228, and in Germany May 16, 1930.

The invention relates to a device for separating portions of equal lengths from a fleece roll, for the purpose of examining their uniformity.

A broad band of fibrous material, for instance such as the fleece delivered by a beating machine, has been controlled or examined up to now by continuously pulling down from the roll, by hand, equal lengths, by using a measure pattern, in order to proceed subsequently to weighing the material. In this way, the uniformity of the roll will be controlled over the complete length of material. This art of controlling is complicated and time-wasting and furthermore, does not always secure perfect results, owing to the manually operated pulling down. It has, however, also been proposed to perform the separation of determined lengths of fleece in a mechanical manner, and namely by means of a foot-operated comb, which operates a breaking of the fleece held between a second comb. Independently of the fact that such device is used for separating and folding determined lengths of fleece in the manufacture of wadding, it is not possible to obtain by means of said device a clean separation by the dropping comb, and furthermore, the pulling off of determined lengths of the fleece roll has to be effected by hand.

These drawbacks are eliminated by the device in conformity with the invention, by the fact that the fleece is passed through a rolling device, comprising an apparatus for drawing in the fleece working intermittently, and a continuously rotating pair of detaching rollers arranged behind the above-mentioned drawing in apparatus. In the new device, the fleece will be separated in determined lengths, without the separate fibres being torn while working, whereby said fibres would become useless for subsequent working.

The device has been illustrated, by way of example, in the accompanying drawing, in which:

Fig. 1 shows a vertical section through the apparatus;

Fig. 2 is a plan view of some details; and

Fig. 3 is an elevation of said details.

With reference to this drawing, 1 designates a frame, 2 a supporting shaft for a roll or batch 3, 4 guide-ways for the supporting shaft 2, 5 a driving roller upon which the roll 3 is lying, and 6 a toothed wheel connected to the roller 5.

In conformity with the invention, separating rollers 7, 8, are journalled in the frame 1, and said rollers are so driven that they continuously rotate when the transmission is clutched in. In the embodiment illustrated, the driving is performed by means of a crank 9 with pinion 10. The pinion 10 meshes with a toothed wheel 11, which is mounted on the shaft of the lower separating roller 7.

Furthermore, a pulling device has been provided, formed for instance by means of a further pair of rollers. In the form of embodiment illustrated, such device is formed with a pulling roller 12 and a table 13. Upon the shaft of the separating roller 7 is mounted a pinion 14, meshing with a toothed wheel 15, so that this latter, which is mounted on a shaft 16, will continuously rotate when the driving means 9, 10 are clutched in. Adjacent to the toothed wheel 15 is arranged, on the shaft 16, an interrupted toothed wheel 17, the interruption in the teeth being referred to in the drawing by 18. This interrupted toothed wheel 17 is meshing with a pinion 19, which constitutes a driving wheel both for the pulling roller 12 and for the drawing roller 5. For this purpose, the movement of the shaft 20 of this pinion 19 is transmitted in any convenient manner to the pulling roller 12, for instance by means of the pinion 19 meshing with the corresponding pinion 21 of the pulling roller 12.

The drawing in roller 5, through its pinion 6, is driven by means of an intermediate pinion 22 meshing with a pinion 23 mounted on the shaft 20.

It is obvious that instead of the crank 9 with pinion 10, any other mechanical driving means can be used.

Moreover, under certain conditions, a clamp or tongs can be inserted between the pairs of separating rollers and the pulling roller cooperating with the table, said tongs

being provided for holding the fleece at the moment when the pulling device is stopped.

It can easily be seen that, when the driving of the machine is started, the fleece *a* will immediately be delivered from the roll by the drawing roller 5, and that it will progress under the action of the pulling roller 12, between the latter and the table 13, and afterwards engage and progress between the separating rollers 7 and 8.

This progression is continued until the interruption 18 of the interrupted toothed wheel 17 will reach the pinion 19, the drawing roller 5 as well as the pulling roller 12 being stopped at this moment, whereas the pair of separating rollers 7, 8 will rotate further on. For this reason, the fleece will be detached along a sharp separating line at the spot A and the separated part will fall down.

For the purpose of appreciating the disentangling capacity of the fibre flocks worked in the beating machine, and the purity of the fleece within the separate pieces, while controlling the uniformity of same by weighing, a slope 24 of translucent material has been provided, for instance in an unpolished glass plate which is illuminated by diffused light from the rear. 25 designates corresponding lamps and 26 the reflecting screen provided in the machine.

In a particular form of embodiment, a locking disc 27 with kerf 28 has been mounted on the shaft of the pinion 19 which is driving the pulling roller 12 (Fig. 3), and a peripheral band 29 has been provided on one of the toothed wheels 15 or 17; in the embodiment illustrated, said band is provided on the toothed wheel 17. The kerf 28 is arranged in such a position that the peripheral band will directly engage said kerf, when the teeth of the interrupted toothed wheel 17 will release the teeth of the pinion 19. In this manner, the pulling roller 12 is held in its position until the teeth of the interrupted toothed wheel 17 will again mesh with the pinion 19.

Instead of one kerf, it is possible to provide a plurality of kerfs, according to the transmission ratio of the wheel 17 and the pinion 19.

I claim:

1. A controlling apparatus for separating equal lengths from fleece rolls, comprising in combination a frame, means for rotatably supporting the fleece roll, a drawing in roller engaging the fleece roll, a pulling roller engaging the fleece, means for intermittently rotating the pulling roller, supporting means cooperating with said pulling roller and engaging the fleece on the opposite side, a pair of continuously rotating separating rollers arranged beyond the pulling roller and engaging the fleece on both sides, and means for rotating the drawing in roller and the separating rollers in the suitable direction.

2. A controlling apparatus for separating equal lengths from fleece rolls, comprising a frame, a shaft for the fleece roll, vertical guide-ways engaging the shaft ends of the fleece roll, a drawing in roller engaging the fleece roll, an intermittently rotating pulling roller engaging the fleece, a table supporting the fleece arranged to press the fleece against the pulling roller, a pair of continuously rotating separating rollers arranged beyond the pulling roller and parallel thereto, and transmission gears driving the drawing in roller, the pulling roller and the separating rollers.

3. A controlling apparatus for separating equal lengths from fleece rolls, comprising a frame, a shaft for the fleece roll, vertical guide-ways engaging the shaft ends of the fleece roll, a drawing in roller engaging the fleece roll, a pulling roller engaging the fleece, a coaxial pinion on the shaft of said pulling roller, a second pinion meshing with the aforesaid pinion, a toothed wheel having an interruption in its toothed crown and meshing with said second pinion, a table supporting the fleece arranged to press it against the pulling roller, a pair of continuously rotating separating rollers arranged beyond the pulling roller and parallel thereto, and transmission gears driving the drawing in roller, the toothed wheel and the separating rollers.

4. A controlling apparatus for separating equal lengths from fleece rolls, comprising a frame, a shaft for the fleece roll, vertical guide-ways engaging the shaft ends of the fleece roll, a drawing in roller engaging the fleece roll, a pulling roller engaging the fleece, a coaxial pinion on the shaft of said pulling roller, a second pinion meshing with the aforesaid pinion, a toothed wheel having an interruption in its toothed crown and meshing with said second pinion, a guide plate adjacent to said interrupted portion of the toothed wheel, a disc having a kerf adjacent and coaxial to the aforesaid second pinion and arranged to engage the guide plate, a gear transmission meshing with said second pinion and driving the drawing in roller, a table supporting the fleece arranged to press it against the pulling roller, a pair of rotating separating rollers arranged beyond the pulling roller and parallel thereto, and transmission means for driving said separating rollers and the toothed wheel respectively.

5. A controlling apparatus for separating equal lengths from fleece rolls, comprising a frame, a shaft for the fleece roll, vertical guide-ways engaging the shaft ends of the fleece roll, a drawing in roller engaging the fleece roll, an intermittently rotating pulling roller engaging the fleece, a table supporting the fleece arranged to press the fleece against the pulling roller, a pair of continuously rotating separating rollers arranged beyond the pulling roller and parallel thereto, trans-

mission gears driving the drawing in roller, the pulling roller and the separating rollers, a slope of translucent material for the separated fleece portions arranged beyond the separating rollers, said illuminating means at the back of said slope.

In testimony whereof I signed hereunto my name.

PAUL LITTY.