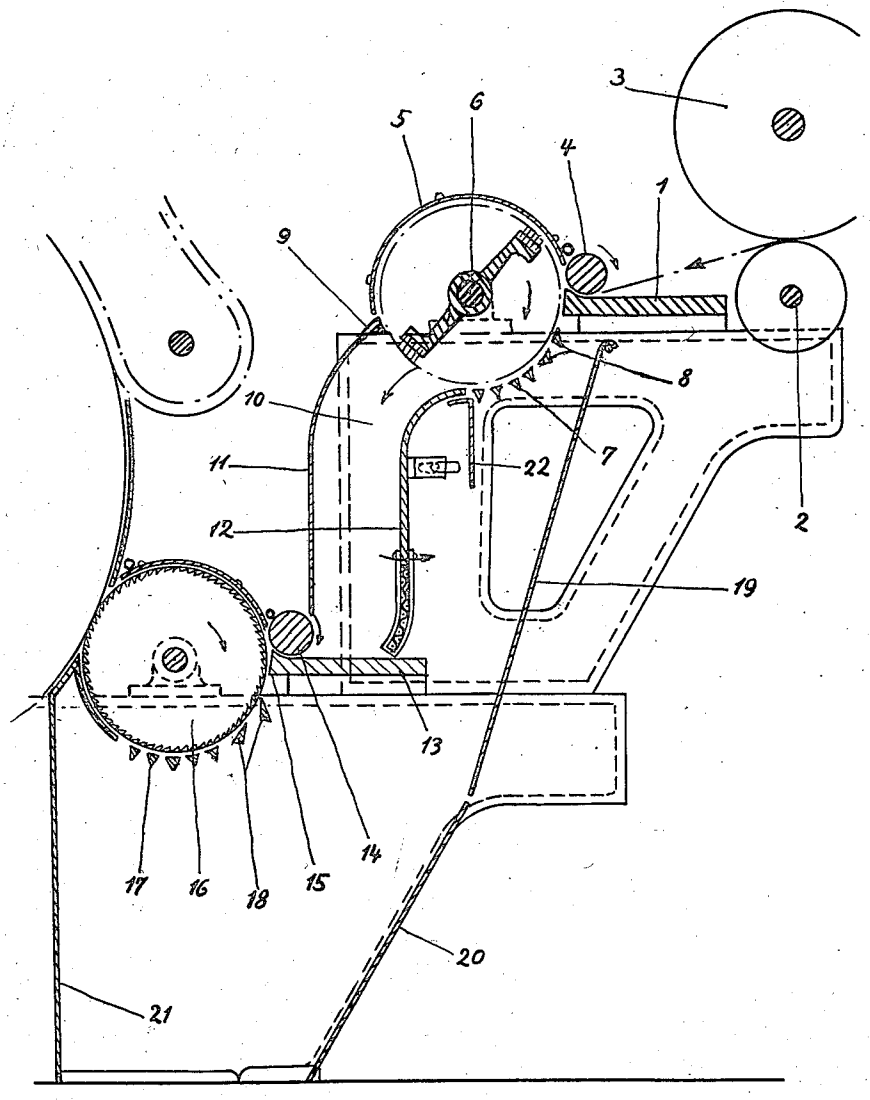
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CARD FEEDING DEVICE

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CARD FEEDING DEVICE

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This invention relates to card feeding devices provided with two superposed takers-in which form a double clearing and combing device in front of the carding drum.

In the known feeding devices of this type the material, after passing the first taker-in, is drawn off by a perforated cage and passed to the second taker-in in the form of a fleece or web. Although the cotton to be treated by such devices reaches the carding drum in thoroughly loosened condition and the action of the cards is fully utilized, owing to the good work done by the two takers-in, the machine is nevertheless open to the objection that the interposition of the perforated cage with ventilator renders it quite expensive. Furthermore, it is not possible to produce in this manner a uniform card sliver, i. e., to eliminate the differences in weight in different sections of the sliver. These differences in weight are due to the tuftlike structure of the lap, in which the cotton, even after most careful preparation, is not absolutely uniformly distributed in cross section, as short-length measurements will show. Fluctuations in feed are transmitted in all cards by the main cylinder to the sliver, and the compensating action of the card is very slight. The interposed perforated cage also fails to bring about compensation, as it discloses in its charge the same irregularities as the lap, though to a smaller extent.

The invention proposes to completely eliminate the defects mentioned by connecting the two clearing and combing devices arranged in front of the main cylinder by means of a shaft, in which the material loosened up by the first clearing and combing device accumulates and forms over the entire working width of the machine a uniform layer with the shaft acting as compensating reservoir. In case of irregularities in the lap, only the filling height varies, whereas always the same number of fibers is fed to the second clearing and combing device for each unit of length in cross section. As the material is very light, the influence of weight at variable charging height in the shaft is eliminated. By means of an adjustable wall the shaft can be adapted as to its clear width to the requirements of production so as to constantly insure a minimum charging height. The first clearing device is preferably formed as a fan to drive the loosened material down to the grid and to further distribute it by the action of the air current which also exercises a slight pressure upon the feed and thus assists in producing uniformity. To provide for extensive and careful loosening of the material the first clearing and combing device is preferably constructed as a pin beater.

By way of example, the invention is illustrated in the accompanying drawing which shows a sectional view of the feeding device.

Referring to the drawing, 1 is the lap table with the cradle, on which the lap 3 fed by the roller 2 is drawn in by the roller 4. 5 is the cover for the clearing device 6 which in the embodiment shown is constructed as a pin beater. Over the entire working width, from the axis to its circular path, the beater 6 is formed as a continuous wall. Instead of the pin beater 6, a drum provided with saw teeth and a corresponding air delivery device may be used. Below the table 1 the grid or grid bars 7 with two angle bars 8 and the guard plate 22 are disposed. The grid 7 terminates adjacent the upper end of the shaft 10 which is limited on top by an adjustable stripping device 9. The rear wall 12 of the shaft 10 can be adjusted relative to the front wall 11, and the lower portion of the rear wall 12 is constructed as a sieve. The shaft 10 terminates below on a second feed table 13 provided with the feed roller 14 and the cradle 15, which cooperate with the second clearing and combing device 16 constructed as a taker-in. Below the taker-in 16 another grid 17 with two angle bar devices 18 is provided. The rear of the card is shut off by the walls 19 and 20 which, together with the partition 21, form a waste space under the taker-in 16.

The lap 3 is placed by the feed roller 4 on the feed table 1 and then passed to the beater 6 and opened out. Impurities are stripped off by the angle bars 8 and drop through the interstices of the latter and of the grid 7 into the waste chamber. As its construction covers the entire working width, the beater 6 moves the air under the cover 5 and thus drives the cotton towards the shaft 10. Tufts adhering to the beater 6 are retained by the stripper bar 9. Owing to its own weight and the action of the air current, the loosened material drops to the bottom of the shaft 10 and fills the latter up to a certain height, whereas the air can escape through the rear wall 12 and is drawn up again through the grid 7, the plate 22 preventing the formation of vortices and, by guiding the waste in a downward direction, premature contact thereof with the rising air current and entrainment towards the grid 7. The rear wall 12 of the shaft 10 is adjusted relative to the front wall 11 so as to constantly insure a certain amount of filling during operation.

Later on the feed roller 14 passes the material to the table 13 and the taker-in 16 which, together with the grid 17 and the angle bars 18, takes care of further opening out and clearing, whereupon the material travels to the carding drum.

The motion of the beater 6 permits further a variation in the relative position of the two clearing and combing devices 6 and 16 which may be arranged, for instance, horizontally side by side. The filling of the shaft 10 is therefore not exclusively dependent upon the weight of the cotton.

I claim:—

1. In a machine of the character described, a first feed table, means to deliver the stock thereto, a first taker-in cooperating with the outlet end of the first feed table and comprising in combination means for blowing a portion of the stock and rotatable toothed means for tearing the stock entering the taker-in from the table, first and second chutes cooperating with the taker-in, grid bars forming a partition between the second chute and said rotatable member, means placing said chutes in communication, whereby air forced by the blowing means can pass from the first chute into the second chute at the side of said grid bars opposite to that facing the rotatable member, a second feed table arranged to receive stock from the first chute, a second taker-in comprising a rotatable toothed member arranged to receive material from the second feed table, and other grid bars cooperating with the rotatable member of the second taker-in.

2. In a machine of the character described, a first feed table, means to deliver the stock thereto, a first taker-in cooperating with the outlet end of the first feed table and comprising in combination means for blowing a portion of the stock and rotatable toothed means for tearing the stock entering the taker-in from the table, first and second chutes cooperating with the taker-in, grid bars forming a partition between the second chute and said rotatable member, means placing said chutes in communication, whereby air forced by the blowing means can pass from the first chute into the second chute at the side of said grid bars opposite to that facing the rotatable member, a second feed table arranged to receive stock from the first chute, a second taker-in comprising a rotatable toothed member arranged to receive material from the second feed table, other grid bars cooperating with the rotatable member of the second taker-in, and a hopper communicating with the delivery end of the second chute and arranged to receive material passing between the last mentioned grid bars.

3. In a machine of the character described, a first feed table, means to deliver the stock thereto, a first taker-in cooperating with the outlet end of the first feed table and comprising in combination means for blowing a portion of the stock and a rotatable pin beater for tearing the stock entering the taker-in from the table, first and second chutes cooperating with the taker-in, a stripper bar arranged adjacent one end of said first chute and adapted to engage the outer end of said rotatable pin beater for removing material from the latter and depositing the same in said first chute, grid bars forming a partition between the second chute and said pin beater, means placing said chutes in communication, whereby air forced by the blowing means can pass from the first chute into the second chute at the side of grid bars opposite to that facing the rotatable pin beater, a second feed table arranged to receive stock from the first chute, a second taker-in comprising a rotatable toothed member arranged to receive material from the second feed table, and other grid bars cooperating with the rotatable member of the second taker-in.

4. In a machine of the character described, a first feed table, means to deliver the stock thereto, a first taker-in cooperating with the outlet end of the first feed table and comprising in combination means for blowing a portion of the stock and rotatable toothed means for tearing the stock entering the taker-in from the table, first and second chutes cooperating with the taker-in, grid bars forming a partition between the second chute and said rotatable member, means placing said chutes in communication, whereby air forced by the blowing means can pass from the first chute into the second chute at the side of said grid bars opposite to that facing the rotatable member, a baffle plate arranged within said second chute for deflecting material passing between said last mentioned grid bars away from said last mentioned means, a second feed table arranged to receive stock from the first chute, a second taker-in comprising a rotatable toothed member arranged to receive material from the second feed table, and other grid bars cooperating with the rotatable member of the second taker-in.

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