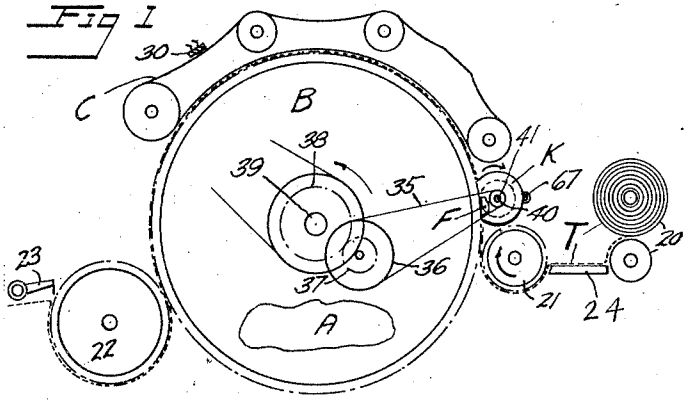
Oct. 22, 1929. E. H. ROONEY 1,732,860

CARD CLEANING DEVICE

Filed Sept. 27, 1927

Fig 1



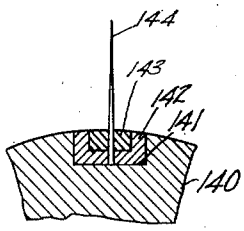
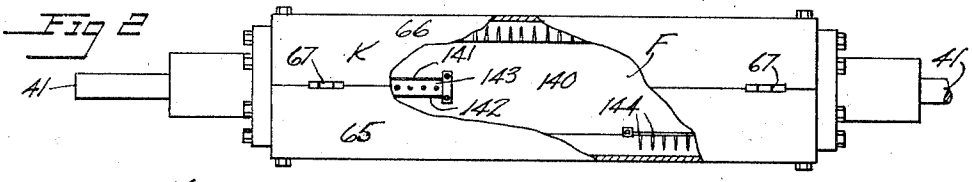


Fig 3

Fig 2



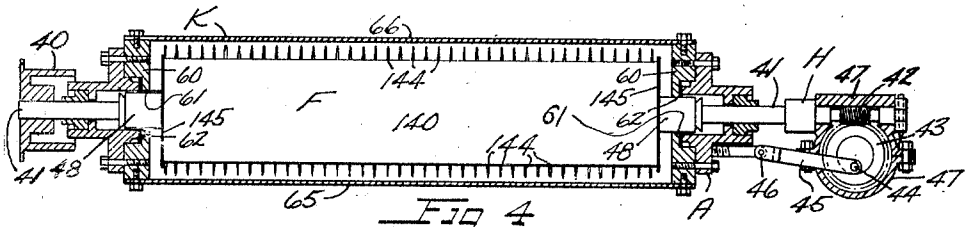


Fig 4

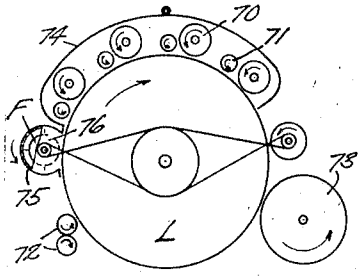


Fig 5

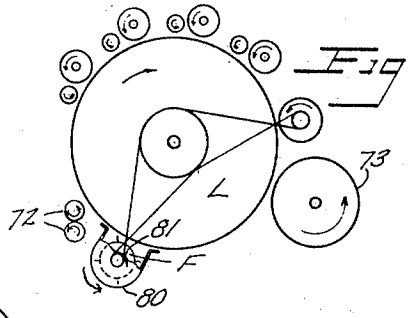


Fig 6

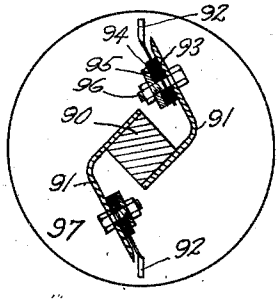


Fig 7

INVENTOR.
Elwin Holbrook Rooney
BY
Gardner W Pearson
ATTORNEYS.

Patented Oct. 22, 1929 1,732,860

UNITED STATES PATENT OFFICE

ELWIN HOLBROOK ROONEY, OF PROVIDENCE, RHODE ISLAND

CARD-CLEANING DEVICE

Application filed September 27, 1927. Serial No. 222,356.

This invention relates to carding machines such as are used in the textile industry for carding various textiles, and particularly for cotton.

Carding machines generally include what is known as a swift or main cylinder, and on a woolen or worsted card there are workers and strippers which, as well as the main cylinder, are covered with wire tooth card clothing. The stock is worked between the teeth of the workers and those of the main cylinder and some of it is returned from the workers to the main cylinder through the medium of the strippers.

In carding cotton however, instead of workers, what are known as flats are used. These flats are covered with card clothing and connected together travel over the top of a main cylinder in suitable guides, the stock being worked between their teeth and those of the main cylinder. The teeth of these flats are automatically stripped but with reference to the main cylinder, in working both cotton and wool, the teeth gradually fill up and the card must be stopped at intervals in order that the stock may be stripped from the teeth.

I am aware that in connection with the doffer there have been used for many years what is known as a fancy which is a cylindrical brush made of long wires, such brush revolving close to the teeth of the main cylinder at a position beyond the flats or the workers and strippers, the purpose of this fancy being to brush up the stock so that it will be doffed or received by the doffer.

The purpose of this device is to so loosen the stock or that part of the stock on the teeth of the main cylinder which is near their points, that it will not be pulled or forced in to such an extent that the card must be stopped and the stock stripped out.

I am aware that numerous attempts have been made to produce a practical operative loosening roll and my claim in this invention is that it is an improvement on those which have gone before.

I am aware that in patent to Bredbury, No. 1,598,800, issued Sept. 7, 1926 on loosening roll for carding machines, a roll is provided having a row or rows of elastic needles or teeth, the points of which travel somewhat faster than those on the main cylinder and which roll is given an axial reciprocating motion.

I am also aware that similar revolving devices which are not of cylindrical form and which have different kinds of teeth have been located in different positions around the main cylinder of a card.

I have found however that by providing a cover which is air tight and is air tight at the ends, the operation of such a loosening device or member is greatly improved and the wear is greatly reduced.

Preferably I use a roll or a rotor, having discs at each end corresponding with the ends of the roll and having one or more rows of needles, pins or teeth held in an elastic foundation so set that their points just clear the points of the teeth in the main cylinder.

As certain parts of the stock on the main cylinder has a tendency to be thrown beyond the teeth by centrifugal force or electrical action, and as the loosening roll creates certain air currents, and also perhaps creates some electrical action, I find that when it is properly enclosed, its action loosens up the stock near the ends of the teeth on the main cylinder so that they are kept relatively clear and the necessity for stopping the card and stripping the main cylinder is greatly reduced.

In the drawings, Fig. 1 is a diagrammatic sectional side elevation showing a common type of cotton flat card.

Fig. 2 is a front elevation of my improved roll with its cover part being broken away to expose the inside.

Fig. 3 is a side sectional elevation showing one construction of yielding needles.

Fig. 4 is a vertical section viewed from the front showing a roll similar to that shown in Fig. 2 but having only two rows of needles, and also showing the traversing mechanism.

Fig. 5 is a diagrammatic sectional slide elevation of a woolen card with my device in place.

Fig. 6 is another diagrammatic side sectional elevation of a woolen card with my device in a different position.

Fig. 7 is a vertical cross section from a modified type of construction for my cleaning roll.

In the drawings, A represents the frame of a card, the one shown being of the flat card type. It includes a main cylinder B having feed roll 20, a licker-in 21, doffer 22 and comb 23. 24 is a feed table and T is a lap.

It also includes the system of flats indicated by C, the flats themselves being shown at 30. In place of the first flat roll I substitute my loosening roll F which is shown as being driven by means of a pulley 40 which is driven by belt 35 on another pulley 36 which is geared at 37 to another gear 38 attached to the main drive shaft 39 of main cylinder B. The whole train of gears and belts together with pulleys is so arranged that the surface speed of loosening roll F will be slightly greater than the surface speed of the main cylinder and in the same direction. In other words, the loosening roll travels in the opposite direction from the main cylinder.

I also provide means indicated generally by H to give this loosening roll an axial traverse motion. This motion is given to shaft 41 which carries pulley 40 by means of a worm 42 carried by shaft 41 as shown in Fig. 4, the worm engaging a gear 43 to which is pivoted at 44 a connecting rod 45, the other end at 46 being pivoted to the frame A of the card. Gear 43 is pivoted in a case 47 which also carries or is carried by shaft 41.

This device is well known and operates in this manner. As shaft 41 and worm 42 revolve, they turn gear 43 and through the action of the connecting rod 45 cause the shaft 41, worm 42, pulley 40, case 47 and loosening roll F to have an axial traverse motion.

In Figs. 2 and 3 I show a loosening roll which is substantially the same as that shown in patent to Bredbury Sept 7, 1926, No. 1,598,800, loosening roll for carding machines, such roll including a foundation 140 in which are a plurality of longitudinal grooves such as 141 in which are set strips 142 of rubber or similar material and in this is set a metal strip 143 whereby the needles 144 of tapering form are held in staggered rows yieldingly.

As each roll 140 is shown as solid, it has at each end what amounts to a disc such as shown in Fig. 4 at 145 and 145.

Around and over the ends of each loosening roll I provide the most important feature of my device which is a cover K.

This is shown as having at each end the air tight discs 60, 60, in which are the bearings 61, 61 in which fit very tightly, the bushings 48, 48, so that as the roll F reciprocates no air can come in or get out therethrough. Preferably I make every end 60 in two parts with a tight rubber gasket such as 62 between.

The roll is also covered on its curved surface by means of the curved cylindrical segments 65 and 66 which may be hinged together as at 67 to form an inspecting door, which can be opened to see if the roll is keeping clean and if any bunches or foreign matter have stuck to its teeth.

I show in Fig. 5 the main cylinder L of a woolen card having the workers 70 and strippers 71 together with the feed rolls 72 and doffer 73 of the usual type. The strippers and workers have a cover 74 and between the feed rolls and the first stripper and worker I locate one of my loosening rolls such as F with a suitable cover 75 over the curved surface and at the ends 76.

In Fig. 6 I show the main cylinder L similar to that shown in Fig. 5 together with the strippers, workers, feed rolls and doffer, but I locate my loosening roll F between the feed rolls 72 and doffer 73. In this case I show this loosening roll with a cover over the curved part 80 and of 81 over the ends.

In Fig. 7 I show another type of loosening roll which comprises a squared central shaft 90 to which are attached the bent metal strips 91 to which are held the needles 92, by strips of rubber 93 and 94, which in turn are held in place by metal strips such as 95 and bolts 96.

In this case I find it desirable to use at each end a disc 97 to check the transverse air currents.

My device will operate if I set the points of the needles on the loosening roll so as to penetrate slightly into the teeth of the main cylinder but I rely to a very great extent upon the substantially confined currents of air which travel in a circular direction around with my loosening roll and probably in a spiral direction as these, together with the points of the needles which engage parts of the projecting stock pull it outward and keep it loose.

I claim:

1. In a carding machine having a frame, a main cylinder covered with card clothing provided with wire teeth, feed rolls, and revolving flats in engagement with the main cylinder; the combination of a loosening roll having a row of tapering needles yieldingly carried by said roll; means to revolve said loosening roll at a speed greater than the surface speed of the main cylinder; means to give said loosening roll an axial traverse motion; and a cover for the ends and the revolving surface of the loosening roll, which cover is substantially air tight except where it is proximate the revolving surface of the main cylinder.

2. In a carding machine having a frame, a main cylinder covered with card clothing provided with wire teeth, feed rolls and re-

volving flats in engagement with the main cylinder; the combination of a loosening roll positioned between the feed rolls and the first flat having a row of needles yieldingly carried by said roll; means to revolve said loosening roll at a surface speed greater than the surface speed of the main cylinder; means to give said loosening roll an axial traverse motion; and a cover for the ends and the revolving surface of the loosening roll, which cover is substantially air tight except where it is proximate the revolving surface of the main cylinder.

3. In a carding machine having a frame, a main cylinder covered with card clothing provided with wire teeth, feed rolls and revolving flats in engagement with the main cylinder; the combination of a loosening member having a row of needles and a protecting disc at each end; means to revolve said loosening member at a surface speed greater than the surface speed of the main cylinder; means to give said loosening roll an axial traverse motion; and a cover for the end discs and the revolving surface of the loosening member, which cover is substantially air tight except where it is proximate the revolving surface of the main cylinder.

4. In a carding machine having a frame, a main cylinder covered with card clothing provided with wire teeth, feed rolls and wire tooth covered stock working members in engagement with the main cylinder; the combination of a loosening member positioned between the feed rolls and the first of said stock working members having a row of needles yieldingly carried by said loosening member and a protecting disc at each end; means to revolve said loosening member in the opposite direction to and at a surface speed greater than the surface speed of the main cylinder; means to give said loosening roll an axial traverse motion; and a cover for the end discs and the revolving surface of the loosening member, which cover is substantially air tight except where it is proximate the revolving surface of the main cylinder.

5. In a carding machine having a frame, a main cylinder covered with card clothing provided with wire teeth, feed rolls and wire tooth covered stock working members in engagement with the main cylinder; the combination of a loosening member having a row of needles yieldingly carried by said loosening member and a protecting disc at each end; means to revolve said loosening member in the opposite direction to and at a surface speed greater than the surface speed of the main cylinder; means to give said loosening roll an axial traverse motion; and a cover for the end discs and the revolving surface of the loosening member, which cover is substantially air tight except where it is proximate the revolving surface of the main cylinder.

6. In a carding machine having a frame, a main cylinder covered with card clothing provided with wire teeth, feed rolls and wire tooth covered stock working members in engagement with the main cylinder; the combination of a loosening member positioned between the feed rolls and the first of said stock working members having a row of needles yieldingly carried by said loosening member; means to revolve said loosening member in the opposite direction to the main cylinder; means to give said loosening roll an axial traverse motion; and a substantially air tight cover for said loosening member said cover being open proximate the main cylinder.

7. In a carding machine having a frame, a main cylinder covered with card clothing provided with wire teeth, feed rolls and wire tooth covered stock working members in engagement with the main cylinder; the combination of a loosening member having a row of needles; means to revolve said loosening member; means to give said loosening roll an axial traverse motion; and a substantially air tight cover for said loosening member said cover being open proximate the main cylinder.

8. In a carding machine having a frame, a main cylinder covered with card clothing provided with wire teeth, feed rolls and revolving flats in engagement with the main cylinder; the combination of a loosening roll positioned between the feed rolls and the first flat having a row of needles yieldingly carried by said roll; means to revolve said loosening roll at a surface speed greater than the surface speed of the main cylinder; means to give said loosening roll an axial traverse motion; and a fixed cover for the ends and the revolving surface of the loosening roll, which cover is substantially air tight except where it is proximate the revolving surface of the main cylinder, said cover being in two parts hinged together to provide an inspecting and cleaning door accessible from the outside of the machine.

ELWIN HOLBROOK ROONEY.