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GRID USED IN MACHINES FOR OPENING, CLEANING, CARDING, AND LIKE TREATMENT OF TEXTILE FIBERS

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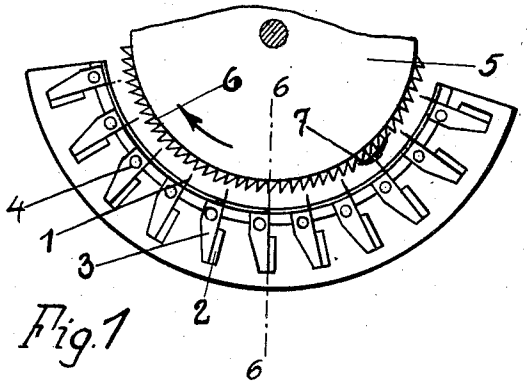


Fig. 1

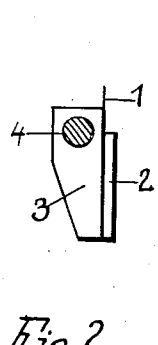


Fig 2

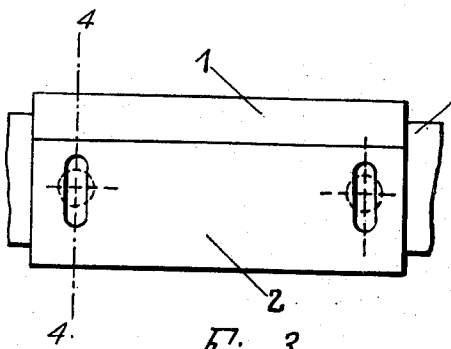


Fig. 3

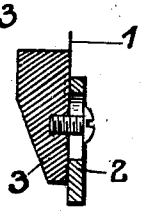


Fig. 4

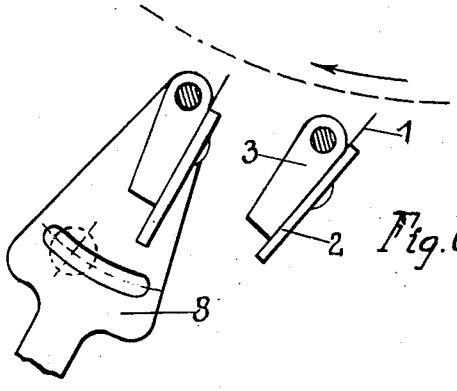


Fig. 5

Fig. 6

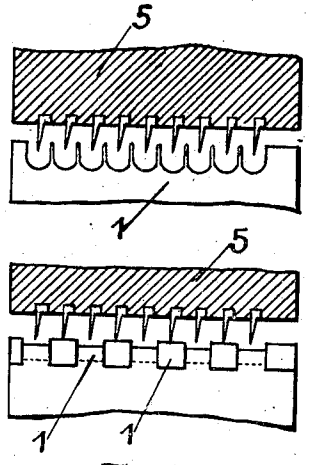


Fig. 7

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GRID USED IN MACHINES FOR OPENING, CLEANING, CARDING, AND LIKE TREATMENT OF TEXTILE FIBERS

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3 Claims. (Cl. 19—95)

(Granted under the provisions of sec. 14, act of March 2, 1927; 357 O. G. 5)

In machines used in preparatory operations in spinning, e. g. in openers, carding machines and the like, so-called mote knives are employed in addition to the well known grids, as auxiliary means for cleaning the fibers. These knives are disposed in substantially tangential direction beside the cylinders provided with saw toothed clothing, card clothing and the like and carrying the fibers to be opened and cleaned. By the action of the cylinders the fibers are beaten against the edges of the mote knives, whereby the impurities are partially removed.

It has also been proposed to provide grids of flat, curved or flexible steel bars with sharp edges arranged substantially radial to the fiber carrying cylinders. It is further known to employ bars or blades to which combs are fixed.

In these known arrangements the knives or the grid bars have to be re-sharpened repeatedly and in the case of tangentially disposed knives it is impossible to dispose a substantial number in series for the purpose of assuring better cleaning, since the beating action results in too much waste of fiber. Combs have proved inadequate as they do not only remove the impurities but also arrest a considerable portion of fibers.

The object of our invention is to improve these arrangements and to assure much more thorough cleaning than has been possible with the known machines. According to the invention, instead of the mote knives or grid bars we employ blades, preferably of steel, which are so thin that they have to be supported by grid bars and do not require any sharpening of their edges. The blades extend beyond the supporting bars in a direction towards the axis of the cylinder. By the employment of such blades a novel cleaning action of great intensity, quite different from those hitherto known, is brought about and at the same time the fibers treated are intensively separated and opened up. Since the blades have a scraping action they may be disposed in a substantial radial direction which, owing to the elimination of the sharp beating action, enables a large number of such blades to be employed with one cylinder. Re-grinding is superfluous, since the blades remain always sufficiently sharp even when they are worn.

The invention is illustrated by way of example in the accompanying drawing.

Fig. 1 is an end elevation of a saw toothed cylinder and the grid bars with the blades.

Fig. 2 is an end elevation of a grid bar with a strip of sheet metal with blade.

Fig. 3 is an elevation of the strip of sheet metal with blade.

Fig. 4 is a section on the line 4—4 of Fig. 3.

Fig. 5 is an end elevation of two grid bars with blades in various positions.

Figs. 6 and 7 show sections on the line 6—6 of Fig. 1, with modified forms of blades.

As shown in Figs. 2, 3, and 4 the blades 1 are preferably welded to strips 2 of sheet metal, which are riveted or screwed on to the grid bars 3. The arrangement is preferably such that the length of the part of the blade projecting beyond the grid bar is adjustable, as shown in Figs. 3 and 4. 4 is a pin whereby the grid bar may be inserted into suitable wall segments.

In Fig. 1 the cylinder 5 is supplied with a saw tooth clothing 6 and moves in the direction of the arrow. The grid bars 3 with blades 1 are disposed at short distances apart, one behind the other, in a substantially radial direction. The fibers 7 on the saw toothed cylinder sweep past the projecting blades, the impurities being thus scraped off. At the same time the sharp blades have a tendency to seize the fibers or pull them out of the saw tooth clothing. This is performed to such an extent that the fibers are well separated and are temporarily retained, whereby the impurities which are located inside the fibers and some of which adhere very fast are also brought to the surface and scraped off. Thus, the fibers adhering to the saw toothed clothing perform in part a sliding movement thereon, but are always seized again by following saw tooth tips. This action is supported by the form of the grid bars, the surfaces of which facing the cylinder are adapted to retain the loosened fibers until they are again arrested by tooth tips.

The scraping action can be increased by disposing the grid bars with the blades in an inclined position, as shown in Fig. 5. In order to be able to adapt the device to all requirements, it is preferable so to dispose the grid bars that their direction with reference to the swift can be adjusted individually or in groups. This may be accomplished with the aid of slotted brackets 8 adapted to be screwed on to the machine frame, or otherwise.

In the case of swifts provided with concentrically wound saw toothed clothing the scraping action may be enhanced by forming the scraping edges of the blades with substantially semicircular recesses, which are made to correspond to the rows of the saw tooth clothing, as shown in Fig. 6. In this case the blades engage the fibers on several sides.

Furthermore, as shown in Fig. 7, the blades may be provided with recesses in such a way that intermittent scraping edges are formed so that only short pieces of scraping edge are opposite every second or third row of saw teeth, whereby the parts of the scraping edges of the following blades are disposed in the gaps.

What we claim as our invention and desire to secure by Letters Patent of the United States is:

1. In a machine for opening, cleaning, carding or like treatment of textile fibers, the combination of a cylinder having toothed clothing, with grid bars arranged opposite said toothed clothing, and blades mounted on said grid bars and extending beyond their edges in a direction towards the axis of the cylinder, said blades being of such thinness that their edges are keen without being sharpened.

2. In a machine for opening, cleaning, carding or like treatment of textile fibers, the combination of a cylinder having toothed clothing, with grid bars arranged opposite said toothed clothing, and blades mounted on said grid bars and extending beyond their edges in a direction towards the axis of the cylinder, said blades being of such thinness that their edges are keen without being sharpened and being slidably disposed on said grid bars.

3. In a machine for opening, cleaning, carding or like treatment of textile fibers, the combination of a cylinder having toothed clothing, with grid bars arranged opposite said toothed clothing, and blades mounted on said grid bars and extending beyond their edges in a direction towards the axis of the cylinder, said blades being of such thinness that their edges are keen without being sharpened and being provided with recesses.

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