

Sept. 10, 1963

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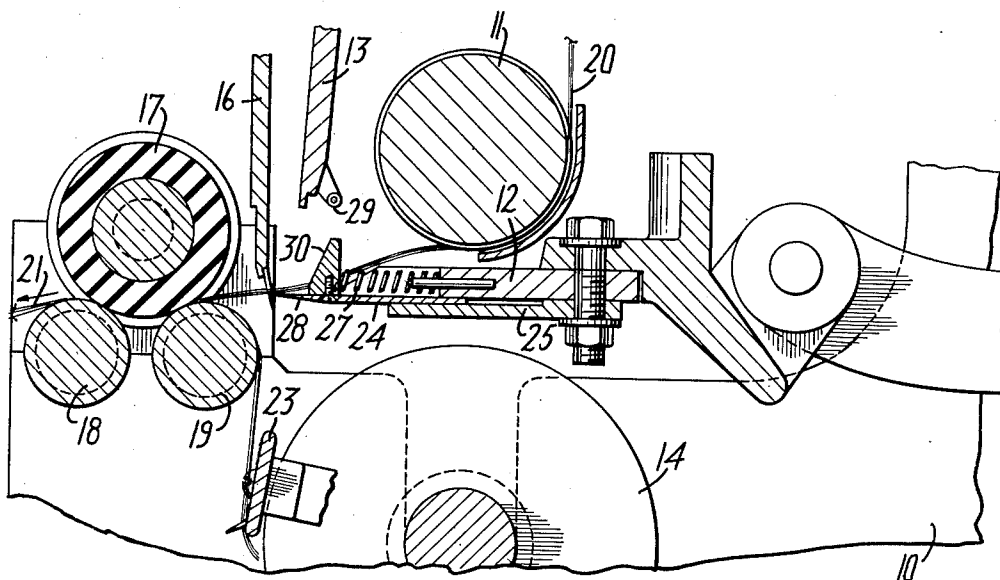
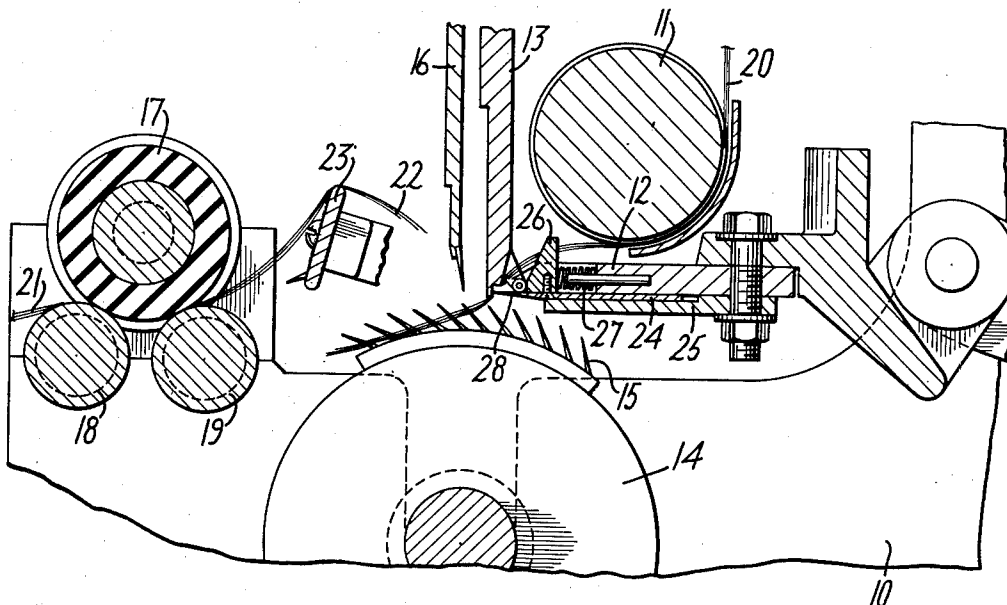
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FRINGE CONTROL BLADE FOR COMBING MACHINE

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FIG. 1



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FIG. 2

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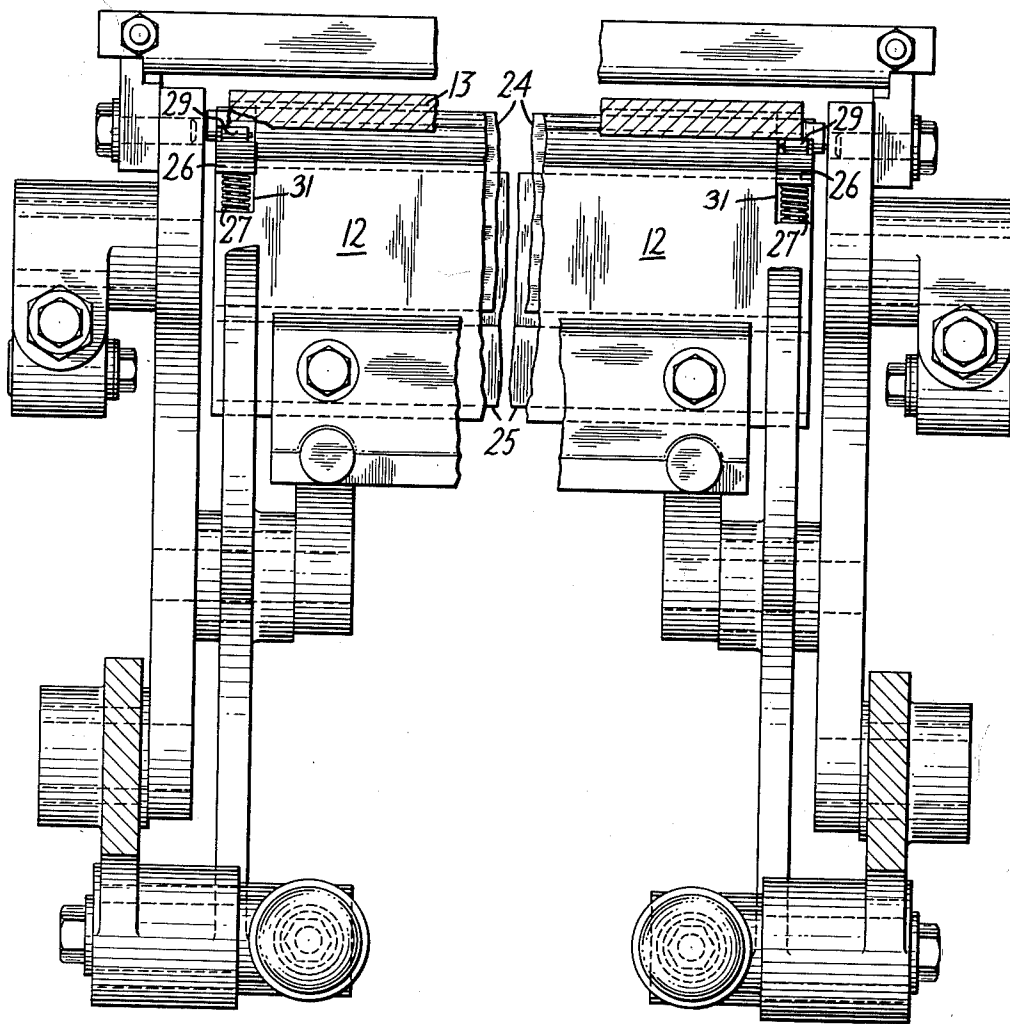
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FIG. 3



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FRINGE CONTROL BLADE FOR COMBING MACHINE

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7 Claims. (Cl. 19—225)

This invention relates to combing machines and, particularly, to mechanism by means of which all of the fibers of a fleece or web of fibers are effectively combed as they advance through the combing machine. Examples of typical combing mechanisms now used in the art are to be found in U.S. Patents Nos. 2,593,017 and 2,898,637. Generally speaking, these mechanisms include a feed roll by means of which the web of fibers (sometimes termed fleece or lap) is fed to the combing elements of a machine. The fleece is directed in such fashion that its fibers may be combed by a combing cylinder that lies beneath the fleece and also a top comb lying above the fleece. Detaching rolls serve to hold the fibers that have been combed and feed them forwardly to a receiving mechanism.

In the operation of the above mechanism, when portions of the fibers have been detached from remaining portions and held by the detaching rolls, it sometimes happens that the trailing ends of the detached fibers are not combed effectively because there is no positive means of maintaining these fibers in a position in which the top comb may comb them effectively.

In accordance with the present invention, it is an object to provide means whereby all of the fibers of a fleece are effectively combed as they progress through a combing machine.

Another object of the invention is to provide mechanism by means of which the trailing fibers of the portion of the fleece that has been detached from the fleece advanced by the feed roll are effectively maintained in a position to be combed by the top comb.

Yet another object of the invention is to provide a mechanism for positively positioning the trailing fringe of a fleece so that, as the top comb of the combing machine performs its function, all of the fibers are effectively combed thereby.

The foregoing and other objects are attained, in accordance with the present invention, by the provision of a slideable blade carried by the cushion plate of the combing machine and formed with an extension that comes into play at the proper time to support the fibers of the trailing fringe so that they are presented to the top comb and thereby combed effectively as they move into the detaching rolls.

The invention will now be described in greater detail in connection with the accompanying drawings, wherein:

FIG. 1 is a view in transverse section taken through a combing machine constructed in accordance with the present invention;

FIG. 2 is a view similar to FIG. 1 showing the manner in which the mechanism of the present invention serves to maintain the fringe fibers in combing position; and

FIG. 3 is a plan view showing the mechanism of FIGS. 1 and 2.

With reference to the above drawings, the frame of a combing machine is illustrated generally at 10 and is provided with a feed roll 11 in accordance with standard practice. As above-mentioned, these elements are described more particularly in the U.S. patents previously mentioned and, inasmuch as these elements and their related parts form no part of the present invention, they will not be illustrated in greater detail.

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Beneath the feed roll, a cushion plate 12 is provided, also in accordance with standard practice, a nipper knife 13 co-operating therewith to engage and hold the fleece of fibers when relative motion takes place between the foregoing elements and detaching rolls presently to be described.

Beneath the cushion plate there is provided a comb cylinder 14 having a plurality of needles 15 to comb the fibers of the fleece as illustrated in FIG. 1. A top comb 16 is also provided to comb the fringe or trailing fibers as they move toward the detaching rolls. This operation is illustrated in FIG. 2.

Beyond the combs above-mentioned, a plurality of detaching rolls are provided, in the form of the invention illustrated these rolls comprising a top roll 17 and spaced bottom rolls 18 and 19 co-operating therewith.

The fleece or web of fibers advancing to the feed roll 11 is illustrated at 20, and the fibers delivered by the detaching rolls are illustrated at 21. As the assembly including the nipper knife and cushion plate moves to the right as viewed in FIG. 1 and away from the detaching rolls 17, 18 and 19, the fibers of the fleece are separated or detached from each other along a line generally parallel to the axis of the cylinder comb 14. This is illustrated in FIG. 1 and the fringe fibers are shown generally at 22. In accordance with standard practice, these fibers are supported upon a sword 23 during the period of time that the bottom comb is combing the fibers of the remaining adjacent portions of the fleece.

In order that the top comb may comb effectively the portions of the fleece not combed by the bottom comb, the following mechanism is provided. Beneath the cushion plate 12 a blade 24 is mounted. A flange or retaining plate 25 may be secured to the cushion plate for this purpose and, at the opposite sides of the cushion plate, blocks 26 are provided, these blocks being mounted upon the slideable blade 24 and engaged by springs 27 that are received in cut-out portions 31 of the cushion plate. In this fashion, the springs urge the blocks 26 and blade 24 to the left as viewed in FIG. 2. The extreme lefthand end of the blade 24 is provided with an extension 28 which serves as a ledge upon which the fibers of the trailing fringe 22 rest during the functioning of the top comb 16. This is illustrated in FIG. 2. In this fashion, as the top comb descends, its needles pass through the fibers of the fringe which are supported upon the ledge 28 and, as the fibers are drawn into the detaching rolls, the top comb performs its combing function to comb effectively the fibers of the fringe, thus removing neps and other foreign matter effectively and assuring the complete combing of all of the fibers passing through the machine.

When the previously mentioned operation is completed, the nipper knife 13 descends in order to grip the fleece against the cushion plate and, in descending, moves the blade 24 to its retracted position as illustrated in FIG. 1. To accomplish this, the nipper knife is provided with pins or rollers 29 that engage the sloping face 30 of the blocks 26 to force the blocks and blade 24 to the right as illustrated in FIG. 1.

While the invention has been described with reference to the specific structure shown in the accompanying drawings, it is not to be limited save as defined in the appended claims.

I claim:

1. Fiber-controlling mechanism for a combing machine having top and cylinder combs and detaching rolls comprising a cushion plate, a nipper knife co-operating with the plate, means to supply fibers to the cushion plate and knife, a blade slidably mounted on the cushion plate, means normally urging said blade outwardly of said plate, and means on said nipper knife operative to move said blade inwardly of said plate.

2. A device according to claim 1 wherein a spring is provided to urge the blade outwardly of the cushion plate.

3. Fiber-controlling mechanism for a combing machine having top and cylinder combs and detaching rolls comprising a cushion plate, a nipper knife co-operating with the plate, means to supply fibers to the cushion plate and knife, a blade slidably mounted on the cushion plate, the outer extremity of the blade extending outwardly to support fibers that have moved outwardly of the cushion plate, means normally urging said blade outwardly of said plate, and means actuated by said nipper knife to move said blade inwardly against the action of said normally urging means when said nipper knife and said plate assume a predetermined co-operative relationship.

4. Fiber-controlling mechanism for a combing machine having top and cylinder combs and detaching rolls comprising a cushion plate, a nipper knife co-operating with the plate, means to supply fibers to the cushion plate and knife, a blade movably mounted on the cushion plate, means normally maintaining the outer extremity of the blade extending outwardly to support fibers that have moved outwardly of the cushion plate in a position above the lower extremity of the top comb, a block on the side of said blade, and means on said nipper knife to actuate said block to move said blade inwardly of said plate.

5. Fiber-controlling mechanism for a combing machine having top and cylinder combs and detaching rolls comprising a cushion plate, a nipper knife co-operating with the plate, means to supply fibers to the cushion plate

and knife, a blade movably mounted on the cushion plate, a fiber-supporting extension on the blade, a spring to urge the blade outwardly, blocks on the sides of the blade, and extensions on the nipper knife to actuate the blocks to move the blade inwardly against the action of the spring.

6. Fiber controlling mechanism for a combing machine having top and cylinder combs and detaching rolls comprising a cushion plate, a nipper knife co-operating with the plate, means to supply fibers to the cushion plate and knife, a blade slidably mounted beneath the cushion plate, a spring to urge the blade outwardly, and means on the nipper knife to move the blade inwardly.

7. In a combing machine having a cushion plate and a nipper knife cooperating with the plate, fiber-controlling mechanism comprising, means to supply fibers to the cushion plate and knife, a blade movably mounted on the cushion plate, means normally urging the blade to extend laterally beyond the cushion plate to support fibers that have moved laterally of the cushion plate, and means on said nipper knife operative to move the blade inwardly of the plate.

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