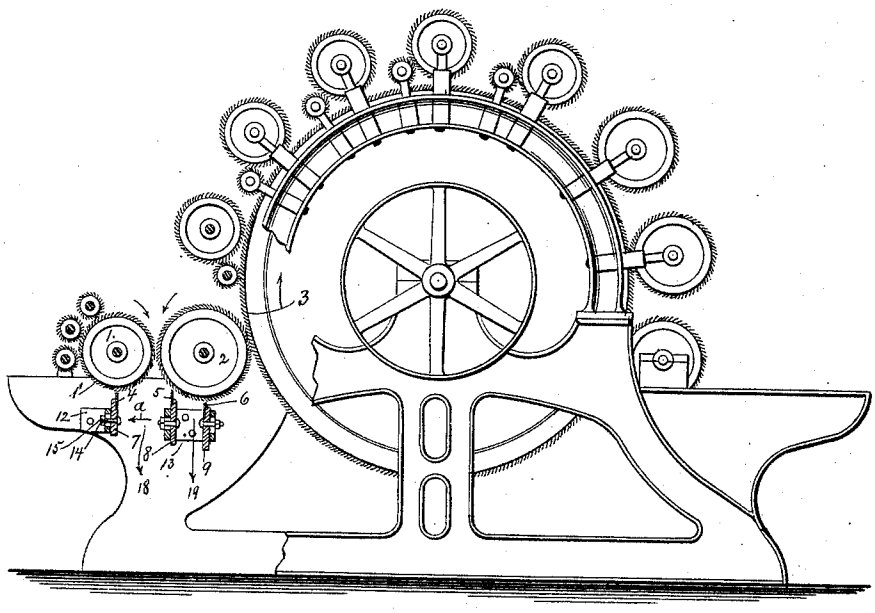
(No Model.)

# W. SULLIVAN.

## BURR AND SHIVE EXTRACTOR FOR CARDING MACHINES.

No. 482,395. Patented Sept. 13, 1892.

Fig. 1.



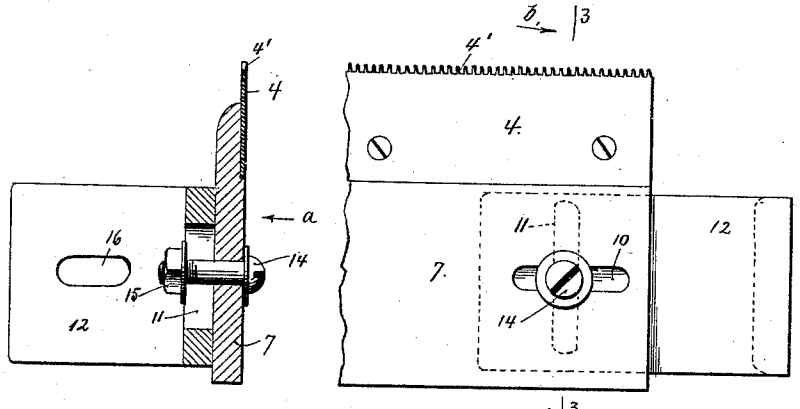




Fig. 3.

Fig. 2.

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# UNITED STATES PATENT OFFICE.

WILLIAM SULLIVAN, OF CHERRY VALLEY, MASSACHUSETTS.

## BURR AND SHIVE EXTRACTOR FOR CARDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 482,395, dated September 13, 1892.

Application filed February 23, 1892. Serial No. 422,407. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM SULLIVAN, a citizen of the United States, residing at Cherry Valley, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Burr and Shive Extractors for Carding-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, which, in connection with the drawings making a part of this specification, will enable others skilled in the art to which my invention belongs to make and use the same.

My invention relates to worsted or woolen cards, and more particularly to an improved burr or shive extractor to be combined with the licker-in and tumbler rolls of worsted or woolen cards for the purpose of extracting the burrs and shives and other foreign matter from the wool being carded; and its object is to provide a simple and inexpensive device adapted to be attached to woolen cards of ordinary construction, and to be combined with the licker-in and tumbler rolls of the card to extract the burrs and shives or other foreign matter from the wool as it is carried around on said rolls.

My invention consists in certain novel features of construction and operation of the burr and shive extractor, combined with the licker-in and tumbler rolls of the card, and more particularly in combining with the licker-in and tumbler rolls of woolen cards, a series of stationary combs and shields arranged under the licker-in and tumbler rolls, as will be hereinafter fully described, and the nature thereof indicated by the claim.

Referring to the drawings, Figure 1 is a side view and partial section of portions of a card of ordinary construction, sufficient to illustrate the nature of my invention applied thereto. Fig. 2 is a detail, on an enlarged scale, of a portion of the stationary comb and shield, looking in the direction of arrow *a*, Fig. 3; and Fig. 3 is a section on line 3 3, Fig. 2, looking in the direction of arrow *b*, same figure.

It will be understood that the card shown in the drawings is of any ordinary construction and operation and forms no part of my invention, which relates only to a supplemental attachment or device adapted to be combined with the licker-in and tumbler rolls of the card for the purpose of extracting the burrs and shives and other foreign matter from the wool fiber as it is carried around on said rolls. It will therefore not be necessary to describe the construction and operation of the card, but only the construction and operation of my burr and shive extractor attachment.

In the accompanying drawings, 1 is the licker-in roll, which carries the wool stock to the tumbler-roll 2. From the tumbler-roll 2 the wool stock is carried to the large cylinder-card 3, all in the ordinary way.

My shive and burr extractor attachment is arranged directly under the licker-in and tumbler rolls 1 and 2, as shown in Fig. 1, and consists of two or more, and preferably three, stationary combs 4, 5, and 6, which extend from side to side of the card in the direction of the length of the licker-in and tumbler rolls and in this instance are secured to and supported on the cross bars or shields 7, 8, and 9. One comb 4 of the series of combs and its support or shield 7 are placed directly under the center of the licker-in roll 1, with the teeth 4′ of the comb pointing upward toward the teeth 1′ on said licker-in roll and as close as possible and not have the comb-teeth 4′ touch the card-teeth 1′ of the roll, causing all the fiber retained on said licker-in roll, known as "backlash," to be drawn through teeth 4′ of said comb 4, which will extract the burrs and shives and other foreign matter from the wool fiber. A second comb 5 of the series of combs and its supporting bar or shield 8 are placed under the tumbler-roll 2 to one side of the center of said tumbler-roll toward the licker-in roll, with the teeth of the comb extending upward above the bottom of the tumbler-roll and as close as possible to the teeth of the tumbler-roll without touching the same. The tumbler-roll 2 carries all the fiber thereon down to the comb 5, causing all said fiber to pass through the teeth of said comb, thereby arresting the burrs, shives, and other foreign matter and causing the same to drop onto the floor through the passage-way 18, formed by the supports or shields 7 and 8. The comb 6 of the series of combs and its support or shield

9 are placed directly under the center of the tumbler-roll 2, with the comb-teeth pointing upward toward the bottom of the tumbler-roll and placed as close to the teeth of said tumbler-roll as possible and not touch the same. The fiber carried on the tumbler-roll 2 after passing through the teeth of the comb 5 will all pass through the teeth of the comb 6 and any burrs and shives or other foreign matter which escape the action of the comb 5 will be extracted by the teeth of the comb 6 and will drop onto the floor through the passage-way 19, formed by the supports or shields 8 and 9. The supporting bars or shields 7, 8, and 9 are preferably adjustably supported at their ends, so that the same may be adjusted longitudinally in the direction of the length of the licker-in and tumbler rolls or vertically to raise or lower the combs and adjust the comb-teeth relatively to the teeth on the licker-in and tumbler rolls.

In applying the bar and comb to the carding-machine the comb may not extend directly under the roll—that is, one end of the comb may extend out slightly beyond one end of the roll, and, vice versa, one end of the roll may extend out slightly beyond the other end of the comb—and it is for this reason that the comb is made adjustable longitudinally, so that when the bar supporting the comb is secured to the carding-machine it will only be necessary in case the comb does not extend exactly under the roll with the end of the comb extending out to the end of the roll to adjust the bar without removing it from the machine, the advantages of this being that it saves time. In this instance the shields 7, 8, and 9 are provided with longitudinal and vertical slots 10 and 11 at each end, and are adjustably secured to the supports or angle-brackets 12 and 13 by bolts 14 and nuts 15. (See detail views, Figs. 2 and 3.) It will thus be seen that by loosening the nuts 15 the shields or supporting-bars 7, 8, and 9 may be moved longitudinally on the supporting-brackets 12 and 13, and may also be raised or lowered relatively to said brackets. If desired, the supporting-brackets 12 and 13 may be provided with slots 16 therein, as shown in Fig. 2, to allow of the brackets being moved in a horizontal plane, so as to change the position of the combs under the licker-in and tumbler rolls. By means of the solid cross bars or shields 7, 8, and 9, which support the combs 4, 5, and 6 and extend in a vertical plane below the licker-in and tumbler rolls, all currents and drafts created by the revolution of the licker-in and tumbler rolls are arrested, and by means of the vertical passage-ways 18 and 19, formed by shields 7, 8, and 9, said drafts are directed toward the floor, causing the burrs, shives, and other foreign matter to drop directly onto the floor.

The advantages of my improved burr and shive extractor will be readily appreciated by those skilled in the art. It is of very simple and inexpensive construction and readily applied to woolen-cards of ordinary construction and requires no motive power to operate it. As the teeth of the combs become worn from constant use, the combs can be adjusted as desired.

I have shown in the drawings and described herein a series of three combs, one arranged under the licker-in roll and two under the tumbler-roll; but, if preferred, only two combs may be used, one under the licker-in roll and one under the tumbler-roll, or more than three combs may be used, if desired.

I have shown in the drawings a card provided with a licker-in and tumbler roll and described my improved burr and shive extractor combined with both of said rolls; but in some instances cards are used which only have one of these rolls, and in that case the combs would be combined with only one roll and only one comb might be used, or more than one, if preferred.

It will be understood that the details of construction of the combs and their supporting bars or shields may be varied somewhat from what is shown and described, if desired.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a carding-machine, the combination, with a frame, of two brackets secured to the inner side thereof underneath the licker-in or tumbler roll, each bracket consisting of two wide flat arms arranged at right angles to each other, one of which arms forms the base of the bracket and said arms being each provided with a slot and occupying a vertical plane when secured to the frame, the slot in the base being longitudinal, whereby the bracket may be adjusted horizontally relatively to the roll, and the slot in the other arm being transverse or vertical, and one arm of each of said brackets projecting toward the corresponding arm of the opposite bracket, and a bar secured to the projecting portions of said brackets, having a comb upon its upper edge and provided with a longitudinal slot at each end, whereby said bar when secured to the brackets occupies a vertical position and is adjustable longitudinally and vertically thereon, substantially as set forth.

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