No. 822,503. PATENTED JUNE 5, 1906.

G. H. BOYNTON.

MEANS FOR CLEANING THE DRIVING BELTS OF MACHINERY.

APPLICATION FILED DEC. 6, 1905.

2 SHEETS—SHEET 1.

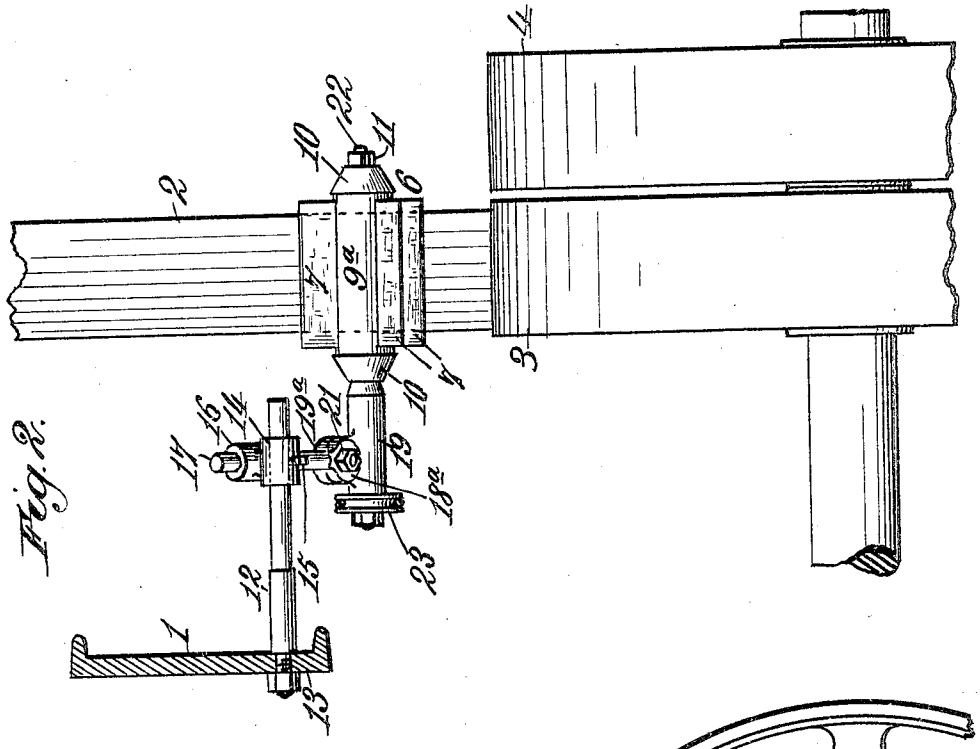


Fig. 2.

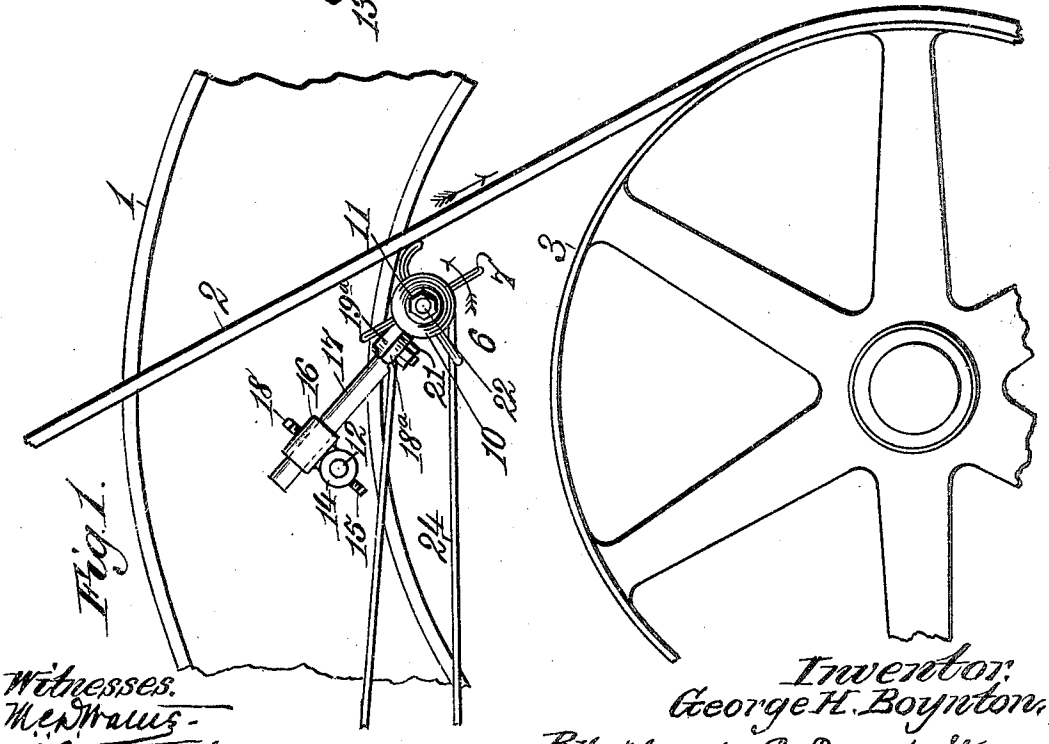


Fig. 1.

Witnesses.
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2 SHEETS—SHEET 2.

Fig. 3.

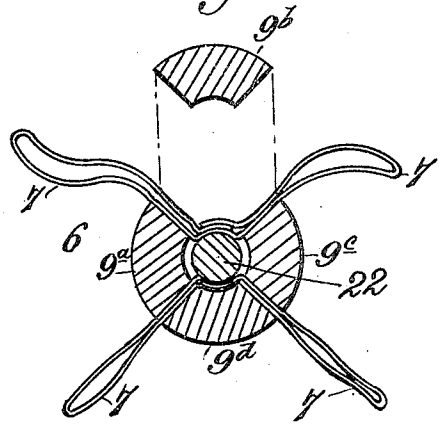


Fig. 4.

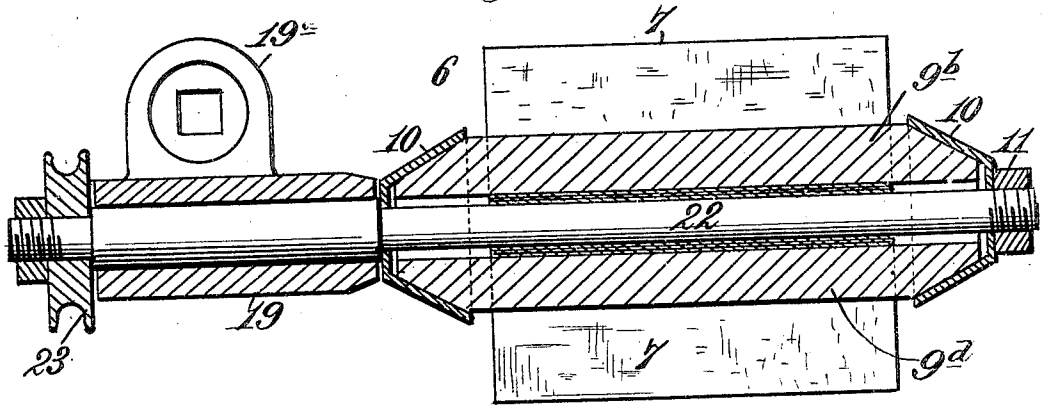
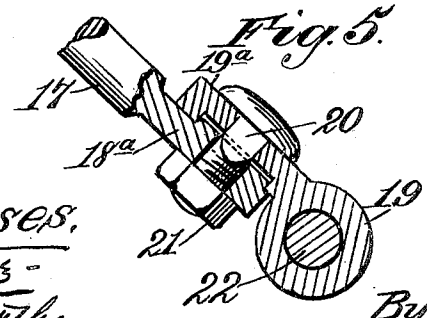


Fig. 5.



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UNITED STATES PATENT OFFICE.

GEORGE H. BOYNTON, OF PITTSFIELD, MASSACHUSETTS.

MEANS FOR CLEANING THE DRIVING-BELTS OF MACHINERY.

No. 822,503. Specification of Letters Patent. Patented June 5, 1906.

Application filed December 6, 1905. Serial No. 290,609.

To all whom it may concern:

Be it known that I, GEORGE H. BOYNTON, a citizen of the United States, residing at Pittsfield, in the county of Berkshire and State of Massachusetts, have invented new and useful Improvements in Means for Cleaning Driving-Belts of Machinery, of which the following is a specification.

My invention relates to means for cleaning driving-belts of machinery, and has for its object to provide means for automatically keeping such belts in a clean condition, free of foreign matter.

In the carding of wool it has been the experience that particles of wool from the carding-machine adhere to the machine-driving belt, causing the belt to slip on the pulleys, with a consequent loss of power and reduction of the useful life of the belt. Heretofore no automatic means have been provided to clean such belts and avoid such consequences; but when by accumulation of such wool particles upon the belt the consequence thereof was immediately felt or at fixed intervals the belt has been cleaned by hand.

By my invention I provide a means operating continuously as the driving-belt operates to keep the belt clean. The invention is particularly designed for use in connection with the driving-belts of wool-carding machines, where the wool particles, floating in the air, as it were, collect upon and adhere to the bight side of the driving-belt, causing it to slip upon the pulley, with the consequences set forth. While designed for this particular use, I do not intend to restrict my claim of invention to such use.

In the accompanying drawings, illustrating that which I regard as the best known embodiment of my invention, Figure 1 is an end elevation. Fig. 2 is a side view. Fig. 3 is a transverse section through belt-cleaning implement. Fig. 4 is a longitudinal section through the same. Fig. 5 is a detail section illustrating the connection between the implement-bearing and the hanger.

In the said drawings the reference-numeral 1 designates a fragment of a machine-frame, such as the frame of a carding-engine, 2 the driving-belt, and 3 and 4 pulleys—one a loose and the other a fast pulley, as usual, onto either of which the driving-belt may be shifted. The numeral 6 designates a rotary belt-cleaning implement the blades 7 of which are arranged to wipe against the surface of the belt in a direction opposed to the belt travel, as indicated by the arrows, keeping the belt clean and preventing the accumulation of foreign matter thereon. The wiper-blades 7 are in length at least equal to the width of the face of the belt to be cleaned, whereby each wiper-blade as it wipes against the belt cleans across the entire face thereof. The wipers are also separated from each other, as shown, so that each of them have adequate space for flying out under centrifugal action to discharge itself of matter cleaned from the belt, as hereinafter described.

The implement, as shown, is arranged to operate on the inner or bight surface of the belt in advance of the pulleys 3 and 4, keeping that surface clean. The blades of the implement constitute continuous flexible wipers commensurate in length with the width of the driving-belt to engage and clean the entire surface thereof and are subject to centrifugal action, as hereinafter set forth.

The wipers consist of strips of fabric and may conveniently be made up of strips of waste material. Preferably and, as shown, for the ready renewal of the wipers they are so attached or connected to the implement-body that they may with facility be disconnected and substituted by fresh or new wipers. This is accomplished by making the body of the implement a sectional one composed of segmental parts 9^a, 9^b, 9^c, and 9^d, assembled about and rotated by a spindle 22, hereinafter referred to, and between the meeting faces of which wipers are disposed. The sections of the implement-body are maintained in assembled relation by means of thimbles 10, preferably of conical formation, as shown. One of said thimbles is associated with the sections of the implement-body at one end to inclose such segments at that end and retain them in assembled condition and is held to work by means of a nut 11, arranged upon the spindle 22. The other of said thimbles is held in place to maintain the associated or assembled relation of the body-sections by a shoulder on the spindle.

The implement is supported in coöperative relation to the belt by means of a stud 12, connected to a part 13 of the machine-frame adjacent the driving-belt, upon which stud is adjustably arranged a carrier 14, so that it may be adjusted to compensate for variations in the organism of the plant between the machine-frame and the belt. As shown, this carrier is slidably arranged upon the stud and may be confined in any desired po-

sition of adjustment thereon by means of a screw 15, working therethrough and binding upon the stud. Not only is said carrier capable of adjustment longitudinally of the stud, but also radially thereof. The carrier is provided with a sleeve or socket 16, in which is adjustably arranged a hanger-arm 17, capable of longitudinal and axial adjustment within said sleeve or socket and held in adjusted position by means of a screw or a similar device 18. A bearing 19 is connected to said hanger, as by means of ears 18ª and 19ª and a bolt 20 passing through the perforations of said ears and held in place by means of nut 21. The bearing consists of a cylinder or sleeve having a bore in which the spindle 22 is journaled, and by reason of the manner of connection thereof with the hanger 17 said bearing may be adjusted radially of said hanger to accommodate various angular positions of the belt with relation to that part of the machine-frame to which the stud is connected.

The implement is rotated in a direction opposite that of the travel of the driving-belt by means of a pulley 23, fixed on the end of the spindle 22, and may be rotated by means of the belt 24 from any suitable source of power.

By my invention I provide a belt-cleaning implement supported from the machine-frame, the supporting devices being capable of adjustment both longitudinally and angularly to compensate for variation in distance and disposition of the driving-belt with relation to the machine-frame, one in which the several component parts of the cleaning device may be readily assembled for operation or disassociated for the purpose of renewing the wiper elements of the cleaning device. As stated, these wiper elements, as shown, consist of strips of fabric providing a continuous flexible wiping surface or edge coextensive with the width of the belt, so as to take care of the bight surface of the belt and clean it by yielding wiping pressure, so as not to injure the fabric of the belt. It is designed that the cleaning implement shall be rotated with great rapidity—say, for instance, though without intending to limit the invention thereto, one hundred revolutions per minute. In action the wipers, in addition to being belt-cleaners, are self-cleaners—that is to say, they clean or rid themselves of any matter which they wipe from the belt and which otherwise might cling to themselves and detract from their effectiveness. This self-cleaning feature and the manner in which it is accomplished is depicted in the drawings, where it will be observed that the implement is so associated with the belt that in wiping action the wipers are flexed, and when they circle out of contact with the belt they fly out, as shown, by centrifugal force and throw off any matter taken from the belt and that may have adhered to them. By reason of the nature of the work performed with these flexible fabric wipers it is desirable that they be renewed with facility, and this consideration is filled by the simple arrangement of parts hereinabove described, and illustrated in the drawings.

I have shown and described my improved driving-belt cleaner as supported from the frame of machine, as I prefer that it shall be so supported when possible. I do not, however, restrict the invention to that means of support, as the same may be otherwise supported in coöperation with the belt from the flooring or ceiling or wall of the room in which the belt runs or other support adjacent the belt.

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

1. In a means for cleaning driving-belts of machinery, the combination of a rotary cleaning element comprising a series of separated wiper-blades, means for supporting the same in coöperative relation to belt, and means for rotating the cleaning element in a direction opposite to the direction of travel of the belt.

2. In a means for cleaning driving-belts of machinery, the combination of a rotary cleaning element comprising a sectional body, a series of wiper-blades disposed between the members of said body, and means for holding the members and said wipers in assembled relation.

3. In a means for cleaning driving-belts of machinery, the combination of a rotary cleaning element consisting of segmental sections, flexible wipers held in place by said segmental sections, means for holding the segmental sections in assembled relation, and means for supporting said implement in cooperative relation to the belt.

4. In a means for cleaning driving-belts of machinery, the combination of a rotary cleaning element consisting of segmental sections, flexible wipers held in place by said segmental sections, and thimbles for holding said segments in assembled relation.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GEO. H. BOYNTON.

Witnesses:
WILLIAM H. WOODHEAD,
HUGH DRYSDALE.