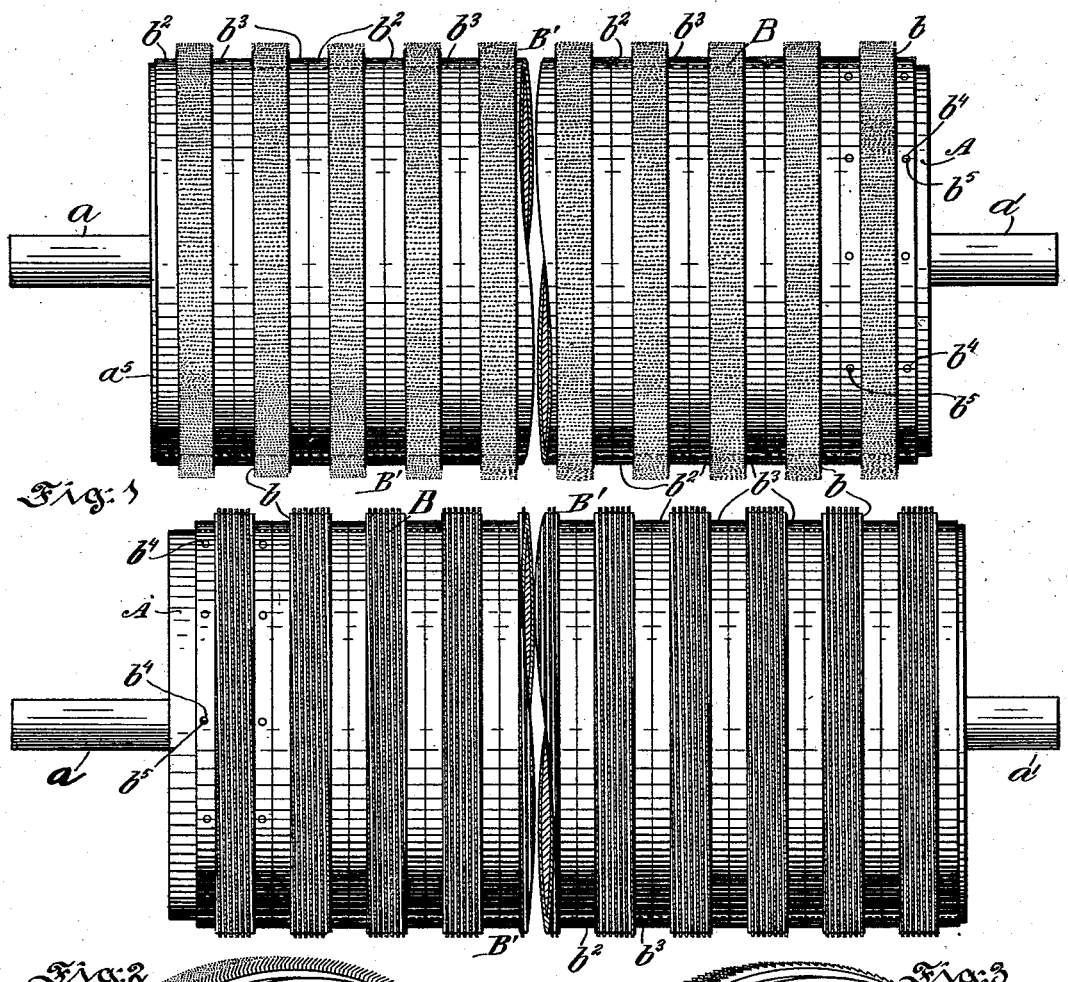
(No Model.)

J. K. PROCTOR.

RING DOFFER CYLINDER FOR CARDING MACHINES.

No. 524,348. Patented Aug. 14, 1894.



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UNITED STATES PATENT OFFICE.

JOSIAH K. PROCTOR, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE PHILADELPHIA TEXTILE MACHINERY COMPANY, OF SAME PLACE.

RING-DOFFER CYLINDER FOR CARDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 524,348, dated August 14, 1894.

Application filed April 14, 1894. Serial No. 507,558. (No model.)

To all whom it may concern:

Be it known that I, JOSIAH K. PROCTOR, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Ring-Doffer Cylinders for Carding-Machines, of which the following is a specification.

My invention has relation to carding machines; and in such connection it relates more particularly to improvements in the construction and arrangement of the ring doffer cylinders for such machines and of the type shown and described in the Letters Patent No. 508,065, dated November 7, 1893.

Hitherto doffer rings for cylinders have been made of leather or the like provided throughout the surface thereof with wire clothing tacked, screwed or glued to each cylinder at suitable distances apart thereon. These leather rings have generally been formed by inserting wires into the leather from the back and so as to project at an angle from the face, but the main objection to such rings has been the time required to secure the same to the cylinder, the want of accuracy of position thereon and the necessity for constant stripping thereof in order to remove matter as motes, &c., accumulating around and about the clothing of the same, because such interfered with the effective combing or straightening out of the fleece or fibrous material and necessitated frequent removal of the rings from the cylinder and replacement of them by others. Moreover, such leather bands with their wire clothing and with the rings tacked, screwed or glued to the cylinder of wood or the like have been found to warp and stretch and the wires thereof to break away along unprotected portions of the same necessitating thereby stopping of the machine for repairs or for providing the cylinder with new rings.

The principal object of my invention is to overcome the above mentioned disadvantageous features by providing a comparatively simple, inexpensive, durable and efficient ring doffer cylinder, in which uniformity in the stripping or combing of fleece or fibrous material thereby is insured.

My invention consists of the improvements in ring doffer cylinders constructed and arranged in substantially the manner hereinafter described and claimed.

The nature and scope of my invention will be more fully understood from the following description taken in connection with the accompanying drawings, forming part hereof, and in which—

Figure 1, represents in front elevational view the upper and lower ring doffer cylinders of a carding machine having the rings provided with card clothing and with integral rims, said rings mounted on and held to the cylinders and said view also showing the relative positions of the rings of one cylinder with respect to those of the other for thoroughly combing or straightening out fleece or fibrous material presented thereto in the operation of the same. Fig. 2, is a perspective view illustrating the construction of one of the rings adapted to frictionally or otherwise engage a cylinder and showing the construction and arrangement thereof; and Fig. 3, is a similar view of a modified form of a ring formed of a saw toothed metal fillet set into the ring and provided with integral rims on both sides thereof.

Referring to the drawings A, is a cylinder of wood, metal or other preferred material provided with end journals a and a', adapted to fit in frames or standards of the carding machine of any well known form and adapted to be actuated by gear or other mechanism connected therewith, but which has not been shown. One end of each cylinder A, may be provided with a shoulder a^5, to permit the rim of a ring to abut against the same so as not to slip from the cylinder in the rotation thereof.

B, represents a ring of a series adapted to cover the entire body of the cylinder A, as shown in Figs. 1 and 2. Each ring B, is provided with a raised portion which is composed of card clothing inserted and secured into the body of the ring in any preferred manner and integral with the portion b, on both sides thereof are plain surfaced rims b^2 and b^3. These rims are adapted to engage complemental rims of other like rings B, of the cylinder A, as clearly shown in Fig. 1. The

rings B, are mounted on the cylinder A, so as to frictionally contact therewith; and the rims of the outer ring are secured to the cylinder by means of pins or screws b^4, inserted through openings b^5, provided therein to prevent displacement of the series of rings of the cylinder during rotation of the same and treatment of fibrous material by the clothed portions of the series of rings thereof.

The lower cylinder as illustrated in Fig. 1, is arranged so that the portion of each ring provided with card clothing b, will occupy a position on the cylinder opposite a space B′, of the upper cylinder, in order that material treated by the clothing thereof, may be caught and taken up by the respective rings of the series of the lower cylinder and effectually treated preparatory to presenting the sliver to a rub motion, not shown, for producing what is known as roving.

In Fig. 2, each ring is provided with clothing consisting of pins or wires in bent, straight or other form projecting therefrom and arranged so as to constitute the middle portion thereof and on both sides of the same are integral rims b^2 and b^3, in dimension about one half of the width of the clothed portion b, of the ring, so that each ring so formed is held to the cylinder and the series covering the entire surface thereof will give an equal area of clothed surface and a like area of space between companion rings of the series so that the clothed surface of the second cylinder may occupy a position between the spaced surface of the first mentioned cylinder.

In Fig. 3, each ring is formed of metal having a clothed portion b and integral rims b^2 and b^3, on both sides thereof. The clothed portion b, in this instance is formed by providing grooves b^6, in the ring and inserting a saw toothed metal fillet or strips b^7, into the grooves thereof in any well known manner and which fillet or strips is or are secured into the grooves of the middle portion b, of the ring, so that the teeth project therefrom in such manner as to constitute the clothing of the ring for thoroughly, as practice has demonstrated, combing out the fibrous material or fleece, known as sliver and preparatory to a treatment of the same to become roving for subsequent use.

In practice, it has been found advantageous to construct a ring doffer cylinder so that in the event of a clothed ring thereof breaking down at any portion of the cylinder, through destruction of its clothing arising from constant use or other causes, another ring may be readily inserted with the least possible time and labor attending upon the same, and a ring doffer cylinder such as hereinbefore described and illustrated permits of such being done without the loss of time hitherto required to adjust an inserted ring to a cylinder, for the reason that the clothed rings according to my invention are made so true and fit so snugly against the rim of a retained ring of the series of the cylinder as that by simply slipping the new ring into engagement therewith the machine may again be placed in a condition for use. Moreover, rings such as hereinbefore described fitting as they do a cylinder with absolute uniformity throughout the same will always insure the most desirable and satisfactory results in their treatment of fibrous material for bringing the same into a condition to be formed subsequently into roving.

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

The combination, in a carding machine, of a cylinder having a shoulder and a series of rings mounted on said cylinder and each provided with card clothing having rings of uniform width on both sides thereof, the rims of the series of rings of the cylinder abutting against each other thereon and one of the end rings being secured thereto by means of pins or screws and clamping the intermediate rings between the same and said shoulder, substantially as and for the purposes set forth.

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

JOSIAH K. PROCTOR.

Witnesses:
THOMAS M. SMITH,
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