(No Model.)

T. KERSHAW & H. E. CUNNINGHAM.

Cleaning Roller for Carding Machines.

No. 241,997. **Patented May 24, 1881.**

FIG. 1.

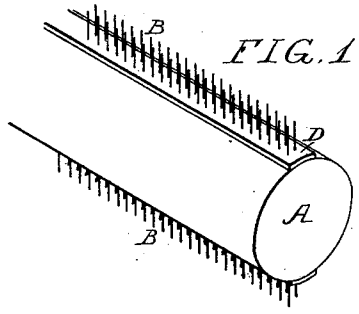


FIG. 2.

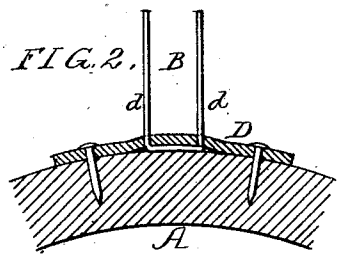


FIG. 4

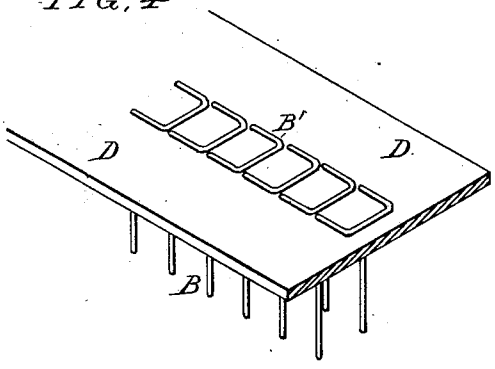


FIG. 5.

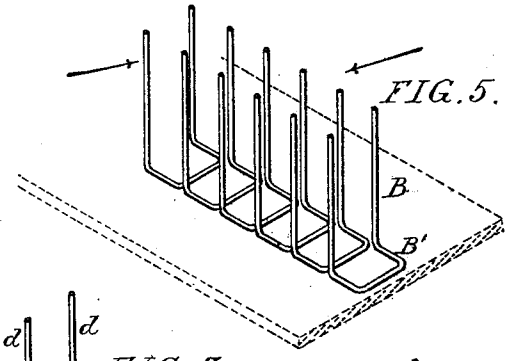


FIG. 3.

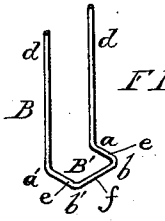


FIG. 9.

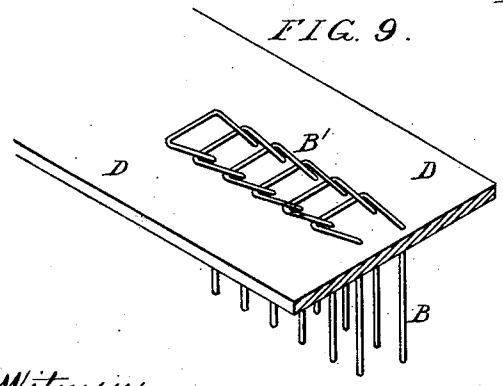


FIG. 6.

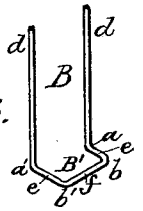


FIG. 7.

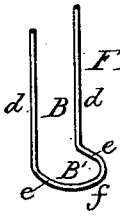
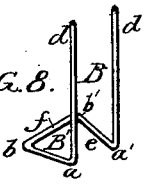


FIG. 8.



Witnesses.
James F. Tobin,
Harry Smith

Inventors.
Thomas Kershaw
and
Hermon E. Cunningham
by their Attorneys
Howson and Sons

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

THOMAS KERSHAW AND HERMON E. CUNNINGHAM, OF PHILADELPHIA, PA.

CLEANING-ROLLER FOR CARDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 241,997, dated May 24, 1881.

Application filed March 8, 1881. (No model.) Patented in England November 6, 1879.

To all whom it may concern:

Be it known that we, THOMAS KERSHAW and HERMON E. CUNNINGHAM, citizens of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Cleaning-Rollers for Carding-Machines, of which the following is a specification.

This invention relates to the construction of the toothed roller ordinarily employed for cleaning the main cylinder of a carding-machine, the object of the invention being to construct the cleaning-teeth and secure them to the said roller in such a manner that they will possess great elasticity and strength and will not easily be broken, the present invention being an improvement on that described in Kershaw's Patent No. 220,905, dated October 21, 1879.

In the accompanying drawings, Figure 1 is a perspective view of part of the improved cleaning-roller for carding-engines; Fig. 2, a full-sized view of part of Fig. 1; Fig. 3, a perspective view of a detached tooth; Fig. 4, a perspective view of the under side of the strip of leather or other card-clothing material, and showing the arrangement of the bases of the teeth which have been inserted in the said strip; Fig. 5, a perspective view, showing the arrangement of teeth, the strip of leather being indicated by dotted lines; Fig 6, a perspective view of a tooth of modified form; Figs. 7 and 8, other modified forms of teeth; and Fig 9, a view showing the method of arranging the teeth, Fig. 8.

The roller to which the invention relates, and which is described in the aforesaid patent, is intended to clean the main cylinder, working-cylinders, and other cylinders of a carding-machine by striking fiber and refuse material therefrom, the teeth of the said roller penetrating a short distance between those of the cylinders, so as to more effectually accomplish the desired object.

A represents the roller, made preferably of wood; and B B′ a duplex tooth, composed of a strip of wire of tempered steel or other suitable metal, bent at the four points *a a′ b b′*, as shown in the perspective view, Fig. 3, so as to form projecting teeth *d d* and a base, B′, comprising legs *e e* and a connection, *f*.

D is a strip of leather, rubber, or other material usually employed in the manufacture of card-clothing, and through the strip are passed the teeth *d d* of each bent wire, the base B′ of the tooth remaining at the back of the strip, as shown in Fig. 4, and the bent wires, when attached to the strip, occupying the relative positions shown in Fig. 5. Two of these wired strips are ordinarily secured to the roller, as shown in Fig. 1; but the roller may have but one set of teeth or more than two sets, and the strip or strips are arranged longitudinally, as in Fig. 1, on the roller.

Instead of bending the wire at the two points, *b b′*, it may be bent in a semicircle, as shown in Fig. 7. Indeed, it is immaterial how the wire is bent providing it is formed into a base, B′, to be interposed between the roller and the strip D, through which the teeth pass.

It should be here understood that we do not desire to claim teeth having bases formed by bending the wires of which the teeth are composed, but it is essential to our invention that the bases of the teeth should be arranged in the direction of the length of the roller and not circumferentially thereon.

In Fig. 6 the wire is so bent that one leg *e* is shorter than the other, so that when a strip, D, provided with these wires, is secured to the roller the points of the teeth *d* will be more generally distributed than when the teeth are made as shown in Fig. 3.

Fig. 8 shows another mode of bending the wire, so that in addition to the difference in length between the legs *e* of the base B′, the connection *f* is longer than the space between the teeth *d d*. The wires thus made are preferably inserted in the clothing material so that the teeth of one wire will be passed through the clothing over or within the bent base portion or loop B′ of an adjoining wire, as illustrated in Fig. 9, the adjoining wires being in this manner interlocked and so adding to the strength of the teeth.

It will be observed that when pressure in the direction of either of the arrows, Fig. 5, is exerted upon the projecting teeth *d*, such pressure causes a twisting of the leg *e* of the base which forms a continuation of the tooth, and it is this, together with the yielding of the strip between its fastenings, which enables the tooth to resist the strains to which it is subjected and imparts to it its superior elasticity.

We claim as our invention—

1. The combination of the roller A, a series of teeth having bases B′, arranged in respect to the roller, as set forth, and a strip, D, of clothing material for confining the bases of the teeth to the said roller, as specified.

2. The combination of a strip of clothing material with wires having bases, substantially as described, and inserted in said material so as to interlock, as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

THOMAS KERSHAW.
HERMON E. CUNNINGHAM.

Witnesses:
JAMES F. TOBIN,
HARRY SMITH.