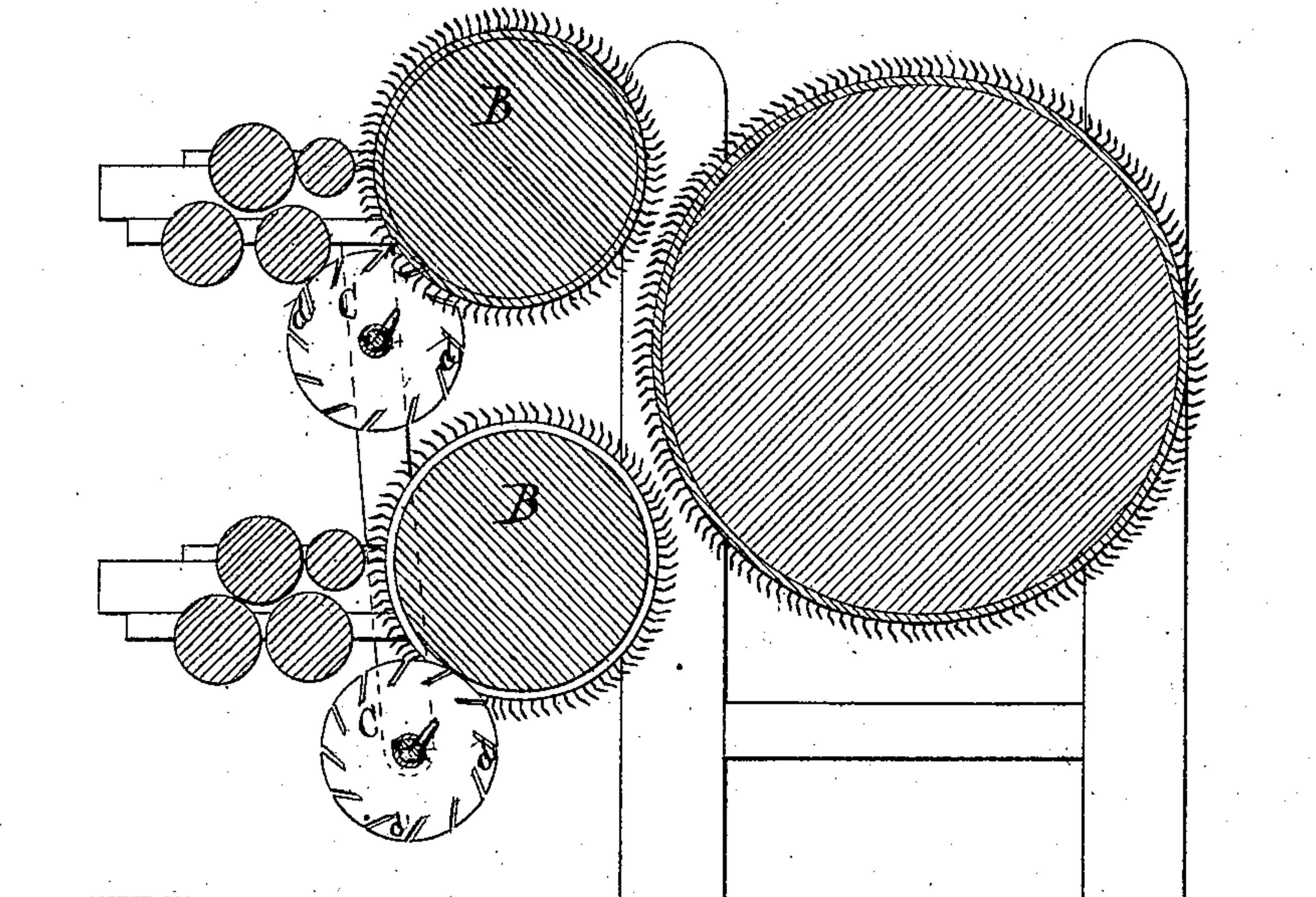


J. & J. BUTTERWORTH.

Carding Engine

No. 96,671

Patented Nov. 9, 1869.



Witnesses.
G. A. Smith.
E. R. Brown.

John Butterworth
James Butterworth
Inventors,
By J. C. Pheaker
their attorney.

United States Patent Office.

JOHN BUTTERWORTH AND JAMES BUTTERWORTH, OF TRENTON, NEW JERSEY.

Letters Patent No. 96,671, dated November 9, 1869.

IMPROVEMENT IN CARDING-ENGINE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, JOHN BUTTERWORTH and JAMES BUTTERWORTH, of Trenton, in the county of Mercer, and State of New Jersey, have invented a new and useful Improvement in Condensing Carding-Engines, which we denominate a Self-Stripper, Strand-Divider, and Fibre-Straightener; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon.

It is well known to carders that great injury and loss result to manufacturers in consequence of a portion of the fibres being thrown across the spaces between the rings of the doffers, thus connecting the strands, and delivering them to the rubbers in this connected condition. Especially is this the case when the spaces upon the doffers are narrowed up, as becomes necessary in spinning fine yarns; and still more so, when, as sometimes is the case, use has been made of small circular disks having saw-teeth on their peripheries, in combination with a stripper and the cylinder, for the purpose of sawing the entire material that has been thrown uniformly upon both the spaces and rings of the doffer, and carrying said material (that has been taken by the saw-teeth in dividing the strands on the doffer) to the stripper and to the cylinder, as in the condensing carding-engine patented, April 29, 1862, by Isaac Stead.

It is obvious that the saw-teeth, operating upon the entire material to be divided into strands, as shown, must leave the fibres on each edge of the strands in a very rough and hairy condition, and the strands must become united again by their elasticity, and by the action of attraction and electricity, which oftentimes is very great immediately after leaving the saw-disks, and while the doffer is carrying the strands from the disks to the rubbers, a distance, perhaps, of about twenty-four inches, more or less, according to the above arrangement, thus delivering the strands to the rubbers in a conjoined and connected condition.

Our invention and improvement are intended to remedy and correct all of the above difficulties from whatever cause; and consists in placing a revolving toothed strand-divider just below a doffer provided with rings of card-clothing, and between it and the rubbing-rollers, the strand-divider working between the rings of the doffer, and separating the material into strands just as it passes to the rubbers.

The strand-divider consists of revolving disks, placed at points corresponding with the centres of the spaces upon the doffer, and revolves in the same direction that the material is travelling, but at a little slower speed.

The disks are provided with teeth on their peripheries, pointing opposite to the direction that the ma-

terial and disks are travelling, so as to divide the strands.

As the disks travel in the same direction as the material, but slower, the teeth catch the fibres that have connected the strands together, press them sideways, and deliver them to their respective strands and to the rubbers in a more straightened and better-divided state. These disks are fitted on thimbles, and secured tightly to the shaft at points corresponding with the centres of the spaces between the rings of the doffer, and so that the teeth will point, when revolving, in an opposite direction to the course of travel of the disks, for the purpose of catching the fibres (that have been thrown across the spaces between the rings, and connected the strands together,) and carrying them to the rubbers and to their respective strands. These teeth will, by their proximity to the rubbers, be effectually cleaned by them, thus obviating the necessity for a stripper to keep them clean.

In the accompanying drawings—

A represents a shaft, placed just between the doffer B and the rubbers, at the point where the material is passing from the doffer to the rubbers, and extending the entire width of the rubbers. It is provided with a grooved pulley, fastened upon one end of the shaft, inside the boxes, to operate or revolve the shaft, by means of a band.

Fastened permanently on the shaft A, at points corresponding with the centres of the spaces on the doffer, are the disks C, provided with teeth or carriers *d*, pointing in an opposite direction to that in which the material and disks are travelling.

As the disks revolve at a slower speed than the doffers and material, the teeth or carriers *d* catch the fibres that have been thrown across the spaces between the rings, and carry them immediately to the rubbers, and to their respective strands, thus completely dividing the strands, and preventing their breaking at the guide-wires as they are being wound separately upon the spools.

Having thus described our invention,

What we claim as new, and desire to secure by Letters Patent, is—

The arrangement, with and between a ring-clothed doffer and condensing-rollers, of a series of toothed sliver-dividing disks, or their equivalents, having their teeth pointing in an opposite direction to the travel of the material, and revolving in the direction of the travel of the material, but at a slower speed, so as to separate the material into slivers, and press the diverging fibres toward the respective strands entering between the condensing-rollers, as described.

JOHN BUTTERWORTH.

JAMES BUTTERWORTH.

Witnesses:

ALBERT J. WHITTAKER,

EDGAR WHITTAKER.