

No. 615,016.

Patented Nov. 29, 1898.

J. EATOUGH.

FLAT GRINDING MECHANISM FOR CARDING MACHINES.

(Application filed Mar. 31, 1898.)

(No Model.)

Fig. 1.

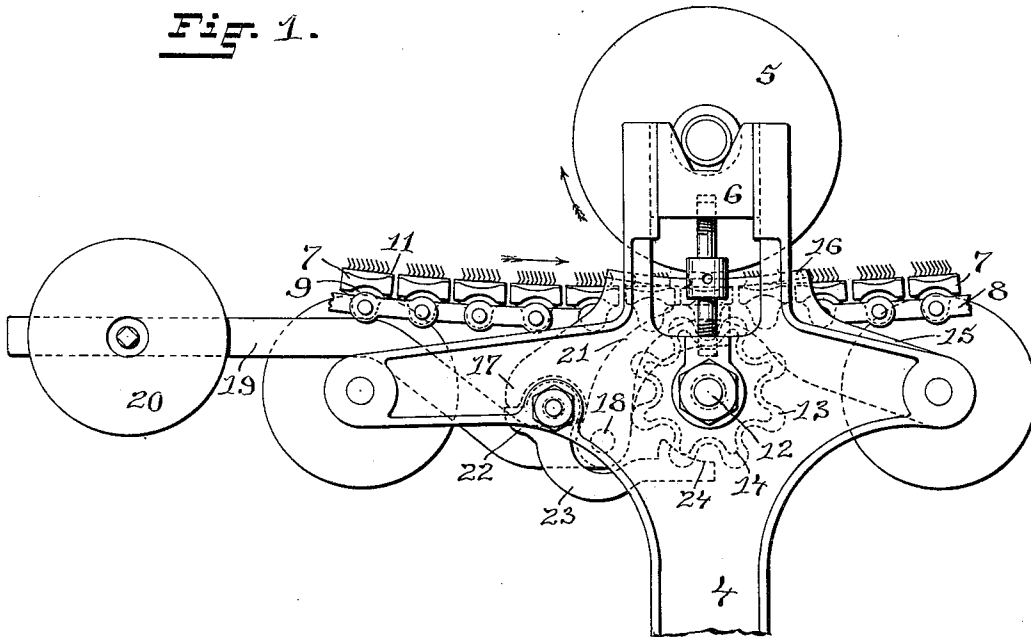


Fig. 2.

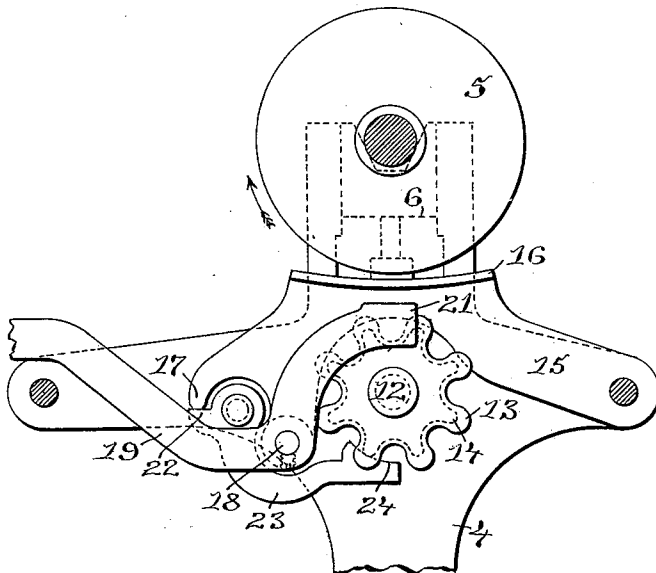
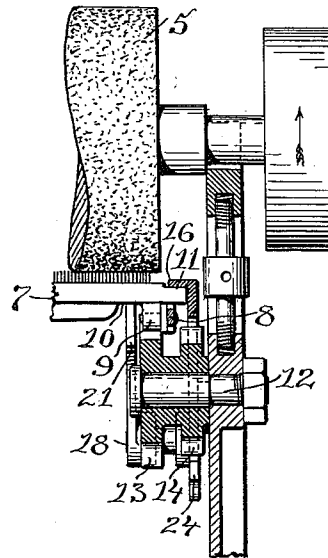


Fig. 3.



WITNESSES:

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FLAT-GRINDING MECHANISM FOR CARDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 615,016, dated November 29, 1898.

Application filed March 31, 1898. Serial No. 675,869. (No model.)

To all whom it may concern:

Be it known that I, JONATHAN EATOUGH, a
subject of the Queen of Great Britain, resid-
ing at Pawtucket, in the county of Providence
and State of Rhode Island, have invented a
new and useful Improvement in Flat-Grind-
ing Mechanism for Carding-Machines; and I
hereby declare that the following is a full,
clear, and exact description of the same, ref-
erence being had to the accompanying draw-
ings, forming part of this specification.

In revolving-flat carding-machines the
card-clothing requires to be ground as the
flats are passed in the inserted position back,
over, and above the portion of the flats in
contact with the cylinder of the carding-ma-
chine. In the passage of the flats under the
grinder the same require to be guided and
controlled, so as to secure microscopic accu-
racy in the uniform grinding of the wires in
the clothing of all the flats.

The object of the invention is to secure
greater accuracy in control of the flats dur-
ing the grinding and reduce the errors caused
by the wearing of the parts.

To this end the invention consists in the
peculiar and novel construction by which the
flat-guiding device is controlled by a cam
moved through a greater distance than the
flat, as will be more fully set forth hereinafter.

Figure 1 is a side view of part of a carding-
machine, showing the flat-grinding mecha-
nism. Fig. 2 is a side view of the flat-support-
ing mechanism. Fig. 3 is a transverse sec-
tional view of the flat-grinding mechanism on
one side of the carding-engine.

In the drawings, 4 indicates the bracket,
extending from each side frame of the card-
ing-engine and forming the support of the flat-
grinding mechanism; 5, the grinding-roll; 6,
the adjustable bearing for the grinding-roll;
7, the revolving flats; 8, the chain connecting
the flats. The flats of revolving-flat carding-
machines are provided at the back near each
end with a projecting gudgeon, which regis-
ters with the sprocket-wheels by which the
endless series of flats are operated. To these
gudgeons 9 the links of the endless chain 8
are pivotally secured. On the back of the
flats, between the gudgeon 9 and the rib of
the flat, the finished guiding-surface 10 forms
one bearing of the flat and the surface 11, on

the end of the face of the flats, the other bear-
ing-surface by which the flats are guided as
they move over and nearly in contact with
the carding-cylinder, and these guiding-sur-
faces on the flats are utilized to control the
flats when in the reversed position. The
wires of the clothing are ground, as is shown
in the drawings.

On the stud 12, which is secured to the
bracket 4, a double sprocket-wheel is jour-
naled. The sprocket-wheel 13 is in line with
and engages with the gudgeons 9 on the flats
7, while the sprockets 14 operate the flat-guid-
ing device consisting of the lever 15, pivotally
supported at one end on the bracket 4. On
the upper part of the lever 15 is the inwardly-
projecting guide 16, which forms the upper
guide for the flats and bears on the surface
11 at the end of the face of the flats. The
lever 15 has at its free end the toe 17 and is
provided with an arm supporting the stud 18,
on which the lever 19 is pivotally supported.
This lever 19 has the weight 20 adjustably
secured near one end. The arm 21 of the lever
19 bears on the surface 10 on the back of
the flat and holds the same against the curved
guide 16. The toe 17 rests on the heel 22 of
the lever 23, pivotally supported near the
heel on a stud secured to the bracket 4. The
free end of the lever 23 is provided with the
pattern 24, coacting with the sprockets 14.

To enable others skilled in the art to apply
and use my improved flat-grinding guide, I
will more fully describe the operation of the
same. The pattern 24 on the lever 23 is four
times as far from the fulcrum of the lever 23
as is the contact-point of the toe 17 with the
heel 19. The movement of the pattern end
of the lever 23 is thereby transmitted to the
lever 15, reduced to one-fourth, and as the
arm 21 bears on the flat at a point about half-
way between the toe 17 and the fulcrum of
the lever 15 the movement of the flat between
the bearing of the arm 21 and the guide 16 is
reduced one-half or to one-eighth of the move-
ment of the pattern 24. This proportion may
be altered if a larger or smaller cam is pre-
ferred. The pattern 24 is shown in the draw-
ings of such length that before the sprocket
14 in contact with the pattern leaves the
same the next sprocket will be over the pat-
tern and serve to control the levers 23 and

15. The shape of the pattern is such that the flats will be gradually raised as they pass under the grinding-roller to give to the wires the required inclined surface. As the flats pass under the grinding-roller in the direction indicated in Fig. 1 the gudgeons on the successive flats engage with and turn the sprocket-wheels 13 on each side of the carding-machine and with them the sprockets 14, which in passing over the pattern 24 depress the end of the lever 23 and gradually raise the toe end of the lever 15. The weighted lever 19, holding by the arm 21 the flat against the guide 16, follows this movement. As each successive sprocket 14 comes in contact with the pattern 24 and as each successive flat passes under the grinding-roll all the flats are successively guided and controlled by the pattern 24 and all are ground uniformly. The sprockets 14 and the pattern 24 are the only parts subjected to wear and any difference in the wear will affect the control of the flats only a fraction of the actual wear; but these parts can be made of material that will resist wear.

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

1. In a flat-grinding mechanism for carding-machines, the combination with the flats, the grinding-roll, and the guides, of sprockets rotated by the moving flats, a lever, and a pattern on the lever; whereby the grinding of the several flats is controlled by one pattern, as described.

2. In a mechanism for grinding the flats of revolving-flat carding-machines, the combi-

nation with the adjustable guides supporting the flats in their passage under the grinding-roll, of a pattern, mechanism for operating the pattern, and a lever constructed to transmit the movement of the pattern to the guides at a reduced scale, as described.

3. In a flat-grinding mechanism for carding-machines, the combination of the following instrumentalities: the flats provided with gudgeons, a sprocket-wheel engaging with the gudgeons on the flats, sprockets rotated by the sprocket-wheel, an upper guide supported on a pivoted lever, a lever having a short arm controlling the guide-supporting lever, a pattern on the long arm of the lever, and a counterweighted lever; whereby the movement of the flats under the grinding-roll operates the guides and controls the grinding of the flats by a pattern moving through a greater distance than the flats, as described.

4. In a flat-grinding mechanism for carding-machines, the combination with the flats, the grinding-roll, and the bracket 4, of the lever 15, the guide 16, the toe 17, and the weighted lever 19 on the lever 15, of the sprocket-wheel 13, the sprockets 14, the lever 23, the heel 22 near the fulcrum of the lever 23, and the pattern 24 on the long arm of the lever 23; whereby the grinding of the wires of the flats is controlled by the pattern, as described.

In witness whereof I have hereunto set my hand.

JONATHAN EATOUGH.

Witnesses:

JOSEPH A. MILLER, Jr.,
B. M. SIMMS.