No. 647,823. Patented Apr. 17, 1900.

J. FOSSEL.

GRINDING MECHANISM FOR REVOLVING FLATS OF CARDING ENGINES.

(Application filed July 30, 1898.)

(No Model.) 2 Sheets—Sheet 1.

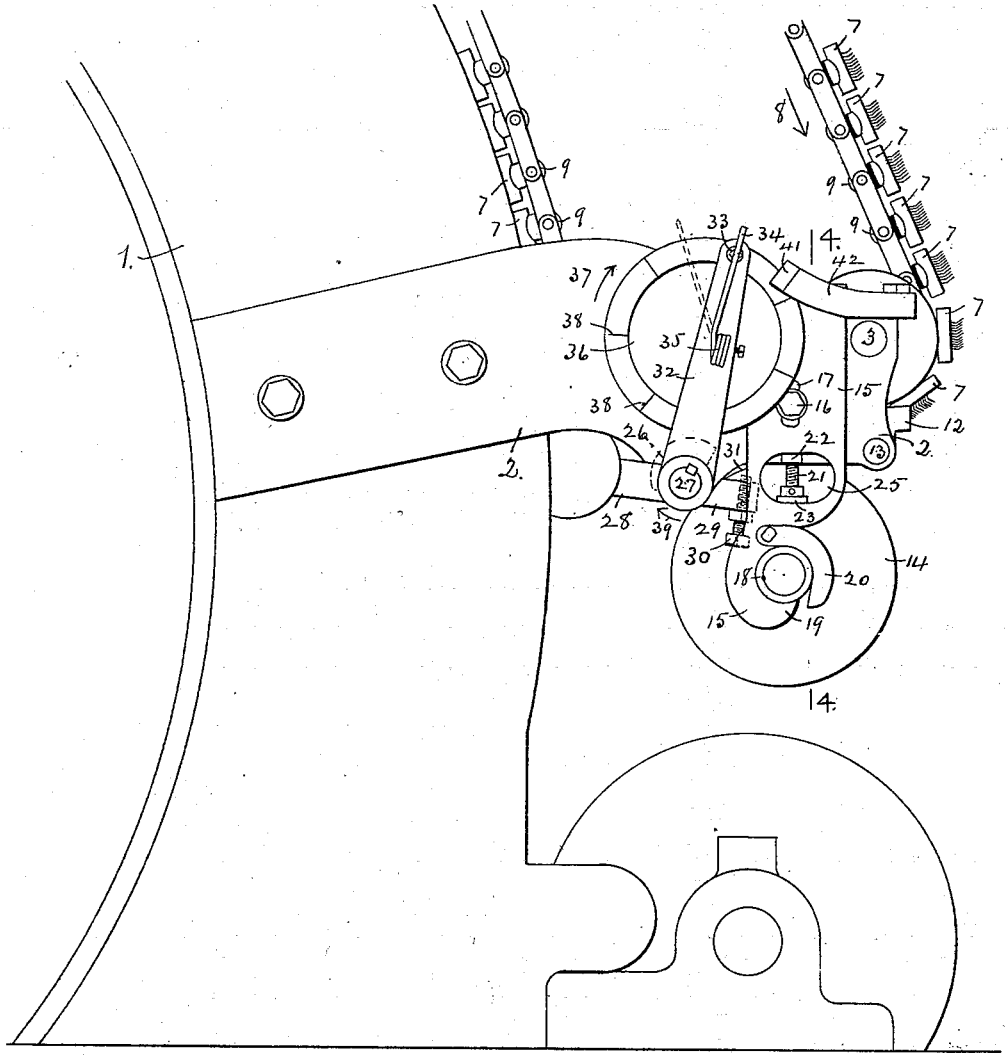

Fig. 1.

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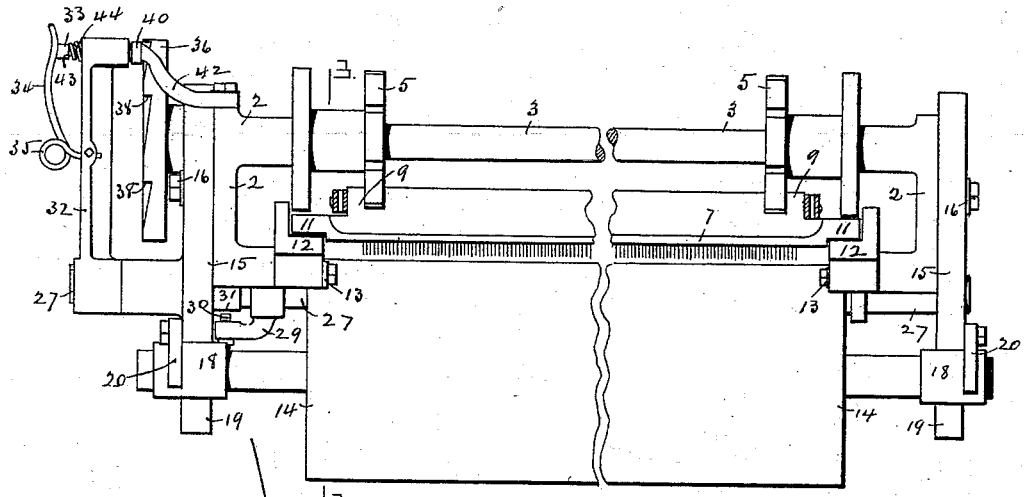

Fig. 2.

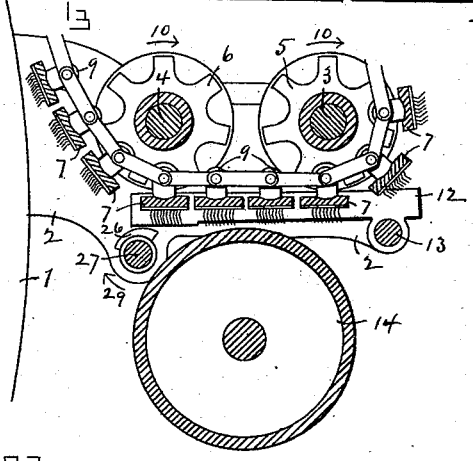

Fig. 3.

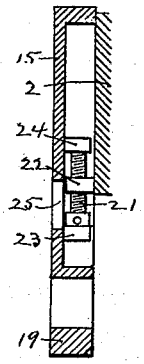

Fig. 4.

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UNITED STATES PATENT OFFICE.

JOSEPH FOSSEL, OF BOSTON, MASSACHUSETTS.

GRINDING MECHANISM FOR REVOLVING FLATS OF CARDING-ENGINES.

SPECIFICATION forming part of Letters Patent No. 647,823, dated April 17, 1900.

Application filed July 30, 1898. Serial No. 687,268. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH FOSSEL, a subject of the Emperor of Germany, and a resident of Boston, in the county of Suffolk and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Grinding Mechanism for Revolving Flats of Carding-Engines, of which the following is a specification, accompanied by drawings, forming a part of the same, in which—

Figure 1 represents a portion of the main cylinder of a carding-engine with my improved grinding mechanism attached thereto shown in side elevation. Fig. 2 is a rear view of a portion of the grinding mechanism. Fig. 3 is a sectional view on line 3 3, Fig. 2. Fig. 4 is a sectional view of part of the supporting-framework, showing the device for adjusting the grinding-roll.

Similar numerals refer to similar parts in the different figures.

The object of my invention is to provide means for grinding the teeth of revolving flats while they are supported in their working position, thereby obviating the deflection of the flats and the irregularity in grinding incident thereto, and also to provide means for producing the requisite bevel of the card-surfaces, and, further, to simplify the construction of the grinding mechanism and to provide means whereby the grinding-roll may be readily adjusted or thrown out of action whenever desired without stopping the carding-engine, and I attain these objects by the mechanism shown in the accompanying drawings and hereinafter described, and specifically set forth in the annexed claims.

Referring to the drawings, 1 denotes a portion of the main cylinder of a carding-engine to which the framework supporting my improved grinding mechanism is attached, said framework comprising a pair of brackets 2 2 at opposite ends of the carding-engine, one of said brackets being shown in elevation in Fig. 1, the opposite bracket being a duplicate, except that the brackets are right and left hand. Journaled in the brackets are shafts 3 and 4. The shaft 3 carries a pair of sprocket-wheels 5 5, and the shaft 4 carries a similar pair of sprocket-wheels, one of which is shown at 6, Fig. 3. As the revolving flats 7 are rotated over the surface of the cylinder in the direction of the arrow 8 their lugs 9 engage the sprocket-wheels and rotate the shafts 3 and 4 in the direction of the arrows 10 10. As the flats pass from the sprocket-wheels on the shaft 3 to those on the shaft 4 they move in a straight line, and the opposite ends 11 11 of each flat are supported upon the upper surface of pivoted levers 12 12. Each of the levers 12 is pivoted near one end to the supporting-brackets at 13 13, and they form a track on which the ends 11 of the flats rest as they pass over a revolving grinding-roll 14, supported by plates 15 15, adjustably attached to the brackets 2 2 by bolts 16 16, passing through slots 17 in the plates 15. The grinding-roll 14 is journaled in sleeves 18 18, which rest in hooked bearings 19 19 in the plates 15 and are held in place by curved latches 20 20, loosely bolted to the plates 15 to allow the insertion of the grinding-roll and afterward tightened to hold it in place. The grinding-roll 14 is adjusted vertically by means of adjusting-screws 21, carried in lugs 22, projecting from the brackets 2 and bearing at each end against lugs 23 and 24 on the plates 15. The heads of the adjusting-screws 21 are provided with holes to receive a spanner, which are accessible through openings 25 in the plates 15. The free ends of the pivoted bars 12 rest upon cams 26, carried upon a shaft 27, journaled in the brackets 2 2, so that a partial rotation of the shaft 27 will give a rising-and-falling motion to the free ends of the pivoted levers 12 in order to vary the distance of the flats from the surface of the grinding-roll 14 in order to produce the requisite bevel on the surface of the card-teeth. The shaft 27 is provided with a weighted radial arm 28 and also the radial arm 29, carrying an adjusting-screw 30, arranged to strike a fixed stop 31 and limit the rocking motion of the shaft 27.

Attached to one end of the shaft 27 is a radial arm 32, having a bearing in its free end for a sliding bolt 33, which is pressed in by the arm 34 of a coiled spring 35, pivotally attached to the radial arm 32. Attached to one end of the shaft 4 is a ratchet-wheel 36, which is rotated by the movement of the flats in the direction of the arrow 37. The ratchet-wheel 36 is provided with teeth 38, which engage the end of the sliding bolt 33 and cause the

arm 32 to move with the ratchet-wheel and rock the shaft 27 in the direction of the arrow 39, thereby turning the cams 26 and allowing the free ends of the pivoted bars 12 to gradually fall, carrying the flat as it passes over the grinding-wheel 14 nearer the surface of the grinding-wheel in order to give a slight bevel to the surface of the card-teeth. The sliding bolt 33 is provided with a beveled end 40, and as the arm 32 is carried by the ratchet-wheel 36 the beveled end of the sliding bolt is brought into contact with the beveled end 41 of a fixed arm 42, attached to one of the brackets 2, which causes the sliding bolt 33 to be pushed back against the tension of the spring-arm 34 until the bolt is disconnected from the ratchet-wheel, when the weighted arm 28 will reverse the shaft 27 until the adjusting-screw 30 strikes the fixed stop 31, thereby raising the free ends of the pivoted levers 12 into position for the passage of the next succeeding flat over the surface of the grinding-roll 14. As the next flat begins to be ground the shaft 27 is again rocked by the engagement of the ratchet-wheel 36 with the sliding bolt 33, thereby depressing the free ends of the pivoted bars 12, and when the grinding of the flat is completed the shaft 27 is again released and reversed by the weighted arm 28 bringing the pivoted levers 12 into position for grinding the next succeeding flat. The sliding bolt 33 is provided with a shoulder 43, between which and the arm 32 is a spiral spring 44, which is weaker than the spring-arm 34.

When it is desired to throw the grinding apparatus out of action during the operation of the carding-engine, the spring-arm 34 is rocked on its pivotal connection with the arm 32 and removed from the end of the sliding bolt 33, thereby allowing the spiral spring 44 to withdraw the sliding bolt out of the path of the teeth of the ratchet-wheel 36 and allowing the weighted arm 28 to rock the shaft 27 and hold the cams 26 in position to permanently maintain the pivoted bars 12 12 in their highest position, so that the flats will be raised out of contact with the grinding-wheel 14.

Attached to the shafts 3 and 4 are disk wheels 45, which are arranged to rotate over the ends 11 of the flats as they pass along the pivoted bars 12, and thereby hold them from being lifted by any cause out of contact with the pivoted bars 12. In addition to the disk wheels 45 or in place thereof a pair of spring-actuated shoes arranged to press upon the ends of the flats may be employed. Such spring-actuated shoes are now used for that purpose and their construction and use will be well understood by those conversant with this class of grinding apparatus.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a mechanism for grinding the flats of carding-engines, the combination with a grinding-roll, of a pair of bars pivoted to the framework, a rocking shaft, cams attached to said shaft and arranged to support the free ends of said bars, means for rocking said shaft in one direction and means for reversing the motion of said shaft, substantially as described.

2. In a mechanism for grinding the flats of carding-engines, the combination with a grinding-roll, of pivoted supporting-bars on which the flats are presented to the grinding-roll, a rocking shaft, cams attached to said shaft by which said supporting-bars are rocked, a rotating ratchet-wheel, an arm on said rocking shaft engaged by the teeth of said ratchet-wheel, means for disconnecting said arm from said ratchet-wheel, when the grinding of a flat has been completed, and means for reversing the motion of said rocking shaft, substantially as described.

3. In a mechanism for grinding the flats of carding-engines, the combination with a grinding-roll, of a pair of supporting-bars pivoted to the framework on which the flats are presented to the grinding-wheel, means for rocking said bars, means for moving the flats over said bars, sprocket-wheels engaged and rotated by said flats, and disk wheels, rotating over the ends of said flats, by which they are held from rising off the pivoted supporting-bars, substantially as described.

4. In a mechanism for grinding the flats of carding-engines, the combination with a grinding-roll, of pivoted supporting-bars on which the flats are presented to the grinding-roll, a rocking shaft, cams attached to said shaft by which said supporting-bars are rocked, actuating mechanism by which said rocking shaft is rocked in one direction and comprising a detachable clutching mechanism, and a counterweight by which said rocking shaft is reversed, substantially as described.

5. The combination of a grinding-roll, pivoted bars on which the flats are supported, rocking shafts, cams attached to said rocking shafts by which said bars are rocked, an arm on said rocking shaft, a sliding bolt carried by said arm, a ratchet-wheel engaged by said sliding bolt, a removable elastic arm by which said bolt is pushed toward said ratchet-wheel, and a spring by which said bolt is withdrawn from the ratchet-wheel, substantially as described.

6. The combination of a grinding-roll, means for supporting the flats as they are ground and means for varying the distance of the flat from the grinding-roll, comprising a rotating ratchet-wheel and an arm engaged thereby and means for disengaging said arm as soon as the flat has been ground, substantially as described.

Dated this 13th day of July, 1898, at Newark, New Jersey.

JOSEPH FOSSEL.

Witnesses:
WILLIAM MONK,
WILLIAM HARGREAVES.