

No. 672,674.

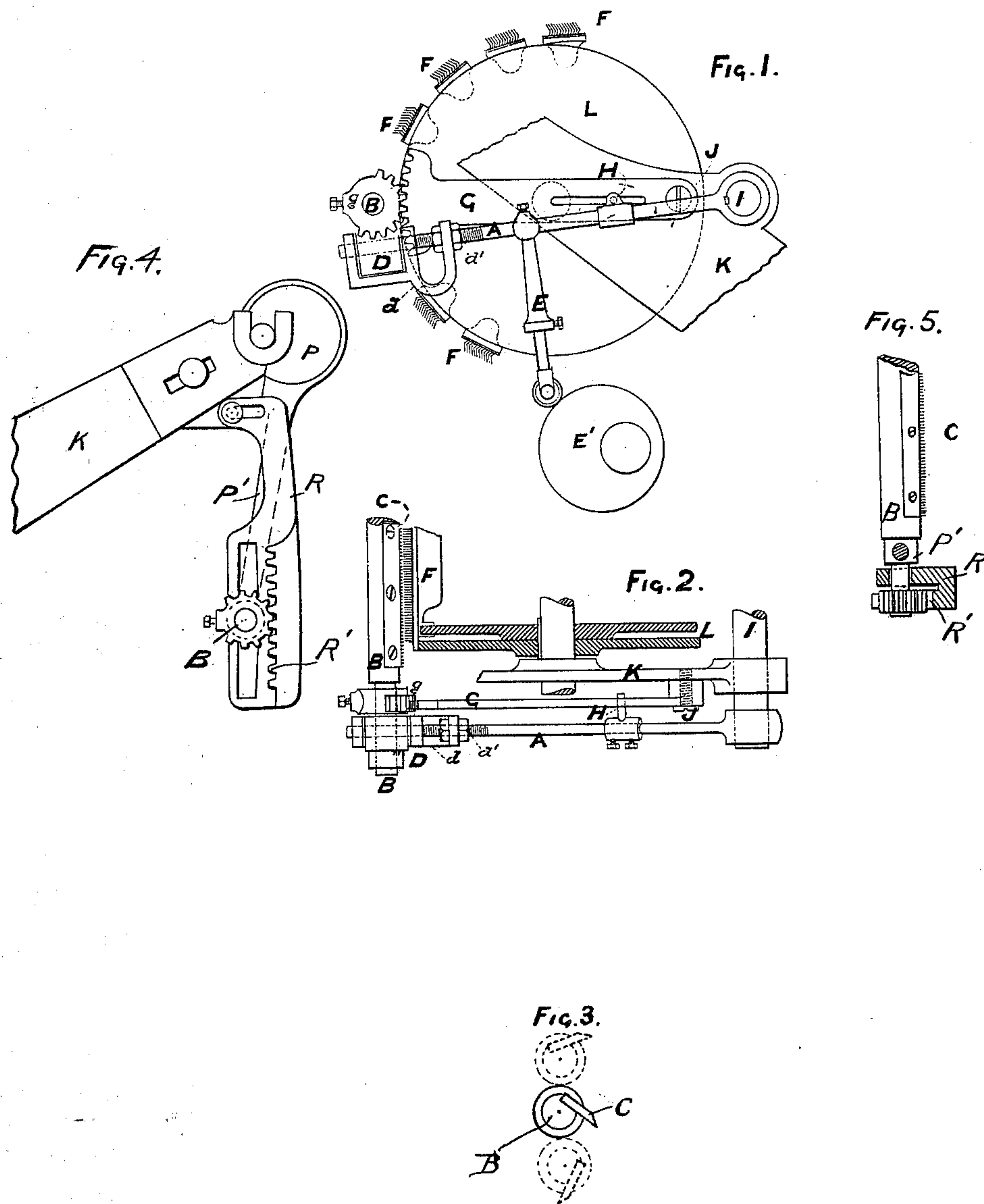
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J. JONES & W. HEAPS.

APPARATUS FOR STRIPPING REVOLVING FLATS OF CARDING ENGINES.

(Application filed Dec. 27, 1897.)

(No Model.)



Witnesses:-
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UNITED STATES PATENT OFFICE.

JOSEPH JONES AND WILLIAM HEAPS, OF ASHTON-UNDER-LYNE, ENGLAND.

APPARATUS FOR STRIPPING REVOLVING FLATS OF CARDING-ENGINES.

SPECIFICATION forming part of Letters Patent No. 672,674, dated April 23, 1901.

Application filed December 27, 1897. Serial No. 663,539. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH JONES, mill manager, of Parkville, 1 Chadwick street, Ashton-under-Lyne, and WILLIAM HEAPS, carding master, of Argyll street, Ashton-under-Lyne, in the county of Lancaster, England, have invented certain new and useful Improvements in Apparatus for Stripping the Revolving Flats of Carding-Engines, (for which we have obtained Letters Patent of the United Kingdom of Great Britain and Ireland, numbered 18,746, and dated August 25, 1896,) of which the following is a specification.

Our invention relates to apparatus for stripping the waste fleece or fibers known as "strips" from the revolving flats of carding-engines, which are employed for preparing cotton, silk, wool, and other fibrous materials.

In the arrangements ordinarily employed for stripping the waste fiber from revolving flats the vibrating comb is mounted on radial arms which have a vibrating or oscillating movement imparted to them, so that the comb is moved through a fixed arc curved in the same direction as the path in which the flats travel while being stripped, and in such arrangements should the comb be set too close to the flats or should the chain-links of the flats lengthen through wear or should the wire of the flats from any cause be brought too close to the comb damage will be done to the wire of the flats and the quality of the work performed thereby will be deteriorated.

The object of our invention is to minimize the risks and obviate the defects inherent in the arrangements ordinarily employed. According to our invention we accomplish this object by combining a comb bar or shaft or stripping-comb oscillating about its own axis with carrying-arms, so as to impart a vertical or nearly vertical movement to the comb bar or shaft or stripping-comb.

Our invention and the modes in which it may be carried into effect are illustrated in the accompanying drawings, in which are shown only such parts as are requisite for the illustration of our invention and the manner in which it may be carried into effect.

The same letters of reference are employed

to indicate corresponding parts throughout the accompanying drawings.

Figure 1 is a side elevation illustrating one form of the apparatus which we may employ according to our invention. Fig. 2 is a plan view, partly in section, of one side of the apparatus illustrated in Fig. 1. Fig. 3 is a diagrammatic view illustrating the movements of the comb-bar and stripping-comb. Fig. 4 is a side elevation illustrating another form of apparatus which we may employ according to our invention. Fig. 5 is a plan view, partly in section, of one side of the apparatus illustrated in Fig. 4.

It is obvious that parts similar to some of those illustrated in the accompanying drawings as applied at one side of the carding-engines, of which portions are illustrated in the said drawings, are necessarily employed at the other sides of such carding-engines.

The flats F, which are only indicated in Figs. 1 and 2 of the accompanying drawings, are constructed and connected together and carried around by the disks or bowls L in the usual way.

The combs C employed in accordance with our invention are in each of the arrangements illustrated in the accompanying drawings secured by means of screws or in any other suitable manner to a comb bar or shaft B capable of being oscillated about its axis and also capable of being caused to vibrate upward and downward through a fixed arc approximating in curvature to the path in which the flats F to be stripped move while being stripped.

In Fig. 3 the comb C is indicated in its highest, middle, and lowest positions, and thus such figure clearly indicates the motion which is imparted to the teeth of the said comb C. By causing the comb bar or shaft B to both oscillate about its axis and move upward and downward in the said manner we cause the teeth of the comb C which we employ to move to and fro in a curved path the curvature of which is opposite to the curvature of the path in which the flats being operated upon move while being stripped. In the first part of each downward movement of the comb C the teeth of such comb approach the flat F in position to be stripped at

that moment and in the latter part of such downward movement turn away and recede from the flat, so as to hook into or pluck the strips upon such flat and pull them out of it.

5 In making its upward movements the comb C frees itself from the strip which it has removed from the flats F. The position of the comb C in relation to the flats F may be adjusted in any convenient manner.

10 In the forms of apparatus illustrated in Figs 1 and 2 of the accompanying drawings the comb-bar B is mounted at each end in a bearing formed in a block or bracket D capable of being slid lengthwise of an arm A,

15 secured by means of a key to a shaft I, extending across the carding-engine and capable of being oscillated in bearings formed in the brackets K, supporting the notch-block shaft, on which the disks or bowls L are

20 mounted. The blocks or brackets D are adjusted into and secured in the required positions upon the arms A by means of yokes *d*, embracing the said blocks or brackets D and capable of being slid lengthwise of the arms

25 A and adjusted into and secured in position by means of nuts screwed upon screw-threads *d'*, formed upon the said arms A. The said arms A receive an upward-and-downward movement by one of them being provided

30 with a pillar E, (indicated only in Fig. 1,) on which is mounted a bowl which bears against a cam E', mounted upon a suitable revolving shaft, the arms A thus receiving motion similarly to the arms carrying the stripping-combs

35 hitherto ordinarily employed in revolving-flat carding-engines. In this form of apparatus the arm A at one side of the carding-engine is furnished with a projecting pin H, projecting from a block capable of being adjusted and

40 secured by set-screws in position upon the said arm A, and the said projecting pin H is made to project into a slot formed in a lever G capable of being oscillated about a stud J, secured in the bracket K, which is adjacent

45 to the said arm A and in a part of such bracket K nearer to the axis of the comb bar or shaft B than the axis of the shaft I, so that the upward-and-downward movements of the said arm A will cause the lever G to also move up-

50 ward and downward and to have an angular movement greater than the angular movement of such arm A and cause the free end of the lever G to have an upward-and-downward movement greater than the upward-and-

55 downward movement of the free end of the said arm A. The lever G is formed with a curved rack which is capable of engaging with a pinion or toothed sector *g*, provided to engage with it and secured by means of a set-

60 screw in a suitable position upon the comb bar or shaft B, so that the upward-and-downward movements of the arm A, moving the lever G, besides causing the comb bar or shaft B to move upward and downward cause the

65 comb bar or shaft B and comb C to oscillate about the axis of such comb bar or shaft B

during the upward-and-downward movements of the said comb bar or shaft B.

In the form of apparatus illustrated in Figs. 4 and 5 the comb bar or shaft B receives its 70 upward-and-downward movement from eccentrics P, which are mounted upon the brush-shaft Q, which carries the brushes commonly employed in revolving-flat carding-engines to clean from the flats the dust which 75 is too small for the stripping-combs to remove. These eccentrics are embraced by straps connected to eccentric-rods P', which embrace the said comb bar or shaft B, and in its upward-and-downward movements the 80 comb bar or shaft B is guided by being passed through slots of suitable form provided in brackets R, one of which is provided at each side of the carding-engine and secured to any suitable fixed part, and a pinion or 85 toothed sector, secured by means of a set-screw in a suitable position on the said comb bar or shaft B, is made to engage with a rack R', of suitable form, provided on one of the brackets R, so that as the said comb bar or 90 shaft B is moved upward and downward it will be caused to oscillate about its axis in the manner requisite.

In consequence of a stripping-comb arranged to operate in accordance with our in- 95 vention being made to oscillate and describe a large arc of small radius about the axis of the comb-bar or comb-shaft on which it is secured the teeth of the comb are caused in their downward movement to perform a large 100 angular movement, which facilitates the stripping of the flats by causing such teeth to rapidly approach and then turn away and recede to a considerable distance from the flat being stripped at any moment, and so enabling 105 the strips to be plucked from such flat and pulled out therefrom when the teeth of the comb are receding from the flat in the lower part of the downward movement of such comb instead of being merely scraped therefrom, as 110 in the arrangements ordinarily employed.

Our invention also renders it unnecessary to cause the stripping-comb to approach as closely to the wire surface of the flats to be stripped as has hitherto been the practice, 115 and thus enables all risks of injury to the said wire surface in either the upward or the downward movements of the comb to be avoided.

Our invention can, as is obvious from the 120 accompanying drawings, be easily applied to carding-engines already constructed.

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

1. In a revolving-flat carding-engine, the 125 combination of a stripping-comb for stripping the flats, a comb bar or shaft carrying such comb, arms wherein such comb bar or shaft may be oscillated, one of said arms being provided with means for engaging a cam, a 130 cam for imparting an upward-and-downward movement to such comb bar or shaft, a pin-

ion mounted upon said comb bar or shaft and a curved rack for acting in conjunction with said pinion and causing it to oscillate when moved upward and downward with the
5 comb bar or shaft and so produce the oscillation of the comb bar or shaft about its axis, substantially as and for the purpose herein described.

2. In a revolving-flat carding-engine, the
10 combination of a stripping-comb for stripping the flats, a comb bar or shaft carrying such comb, pivoted arms mounted upon a shaft and in which such comb bar or shaft may be oscillated, one of said arms being
15 provided with means for engaging a cam, a cam for imparting an upward-and-downward movement to such arms and comb bar or shaft, a pinion mounted upon said comb bar or shaft, a lever capable of being oscillated
20 about a pivot and furnished with a rack to engage with said pinion, and a pin connecting said lever with one of the said arms, all arranged and operating substantially as and for the purpose herein described.

25 3. In a revolving-flat carding-engine, the

combination of a stripping-comb for stripping the flats, a comb bar or shaft carrying such comb, pivoted arms mounted upon a shaft and in which such comb bar or shaft may be oscillated, one of said arms being
30 provided with means for engaging a cam, a cam to impart an upward-and-downward movement to such arms and comb bar or shaft, a pinion mounted upon the said comb bar or shaft, blocks or brackets mounted upon
35 said arms to form bearings for said comb bar or shaft, yokes upon said arms embracing said blocks, nuts upon said arms for adjusting and securing said blocks in position thereon, a lever and a fixed pivot on which it is
40 capable of oscillating, a rack carried by said lever and engaging with said pinion, and a pin connecting said lever to one of said arms, all arranged and operating substantially as and for the purpose herein described.

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