(No Model.) 3 Sheets—Sheet 1.

W. H. RICHARDSON & W. GREAVES.

CARDING ENGINE.

No. 418,852. Patented Jan. 7, 1890.

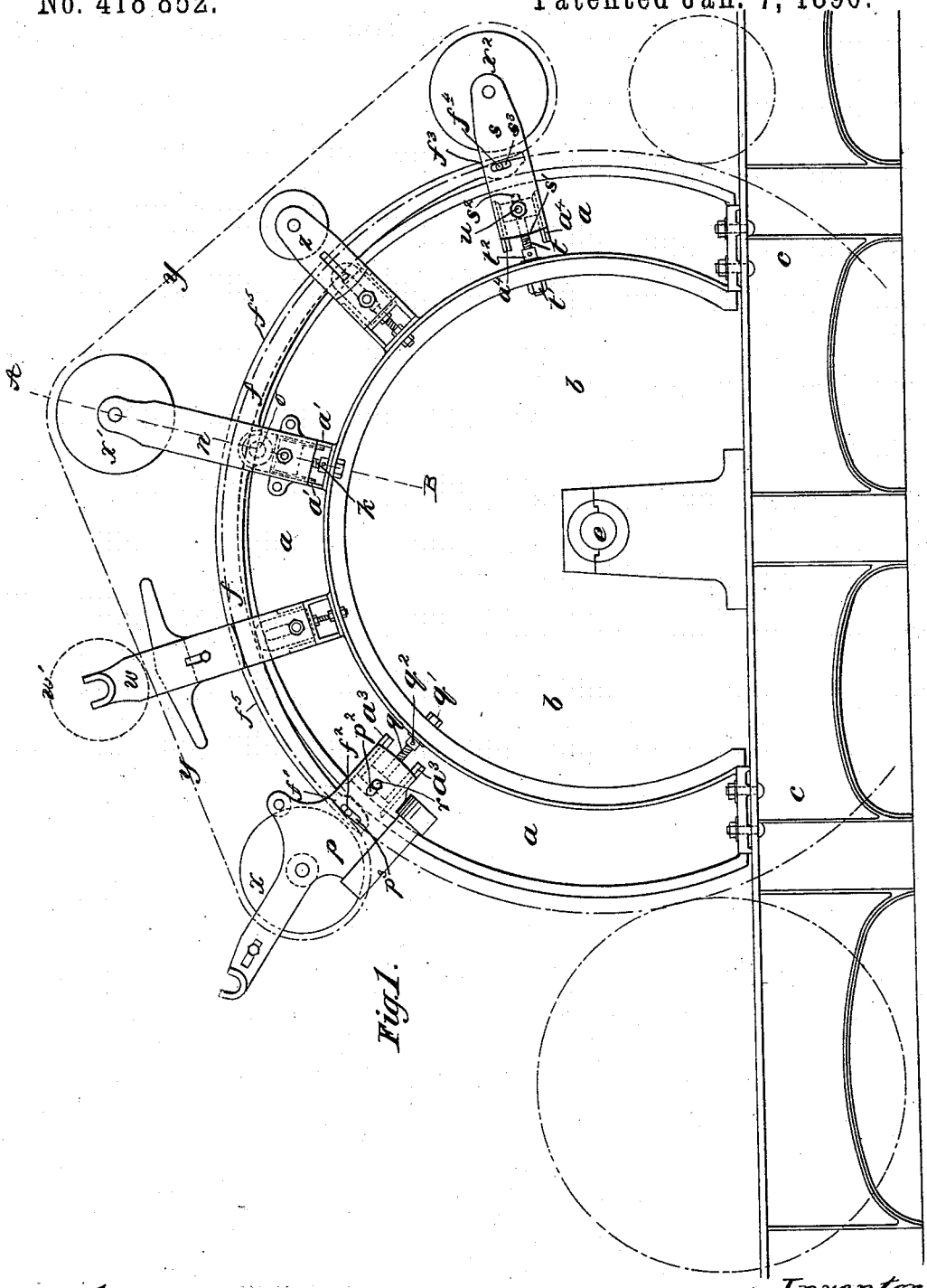

Fig. 1.

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C. L. Sundgren

Inventor:
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Brown & Ball

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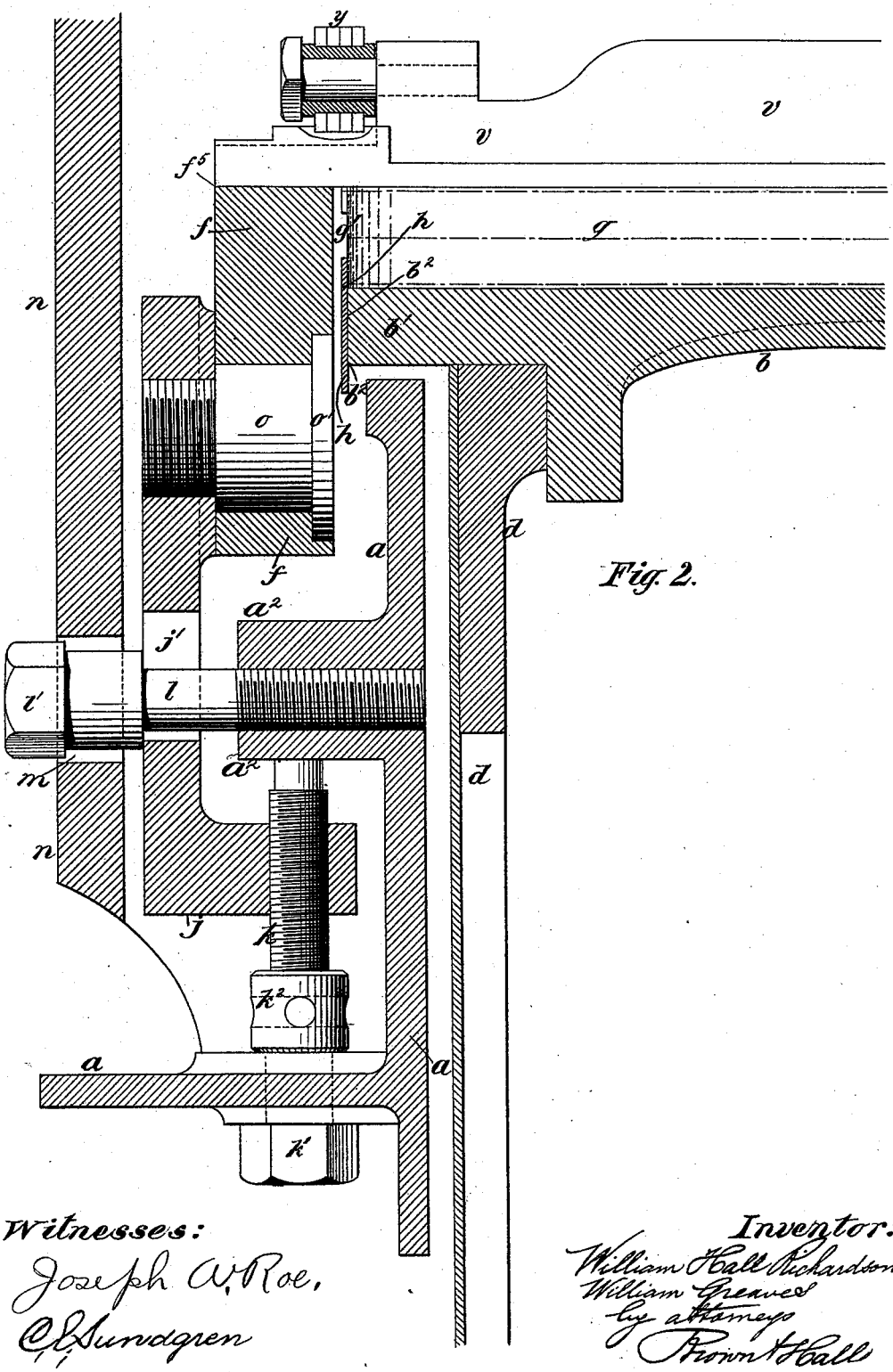

Fig. 2.

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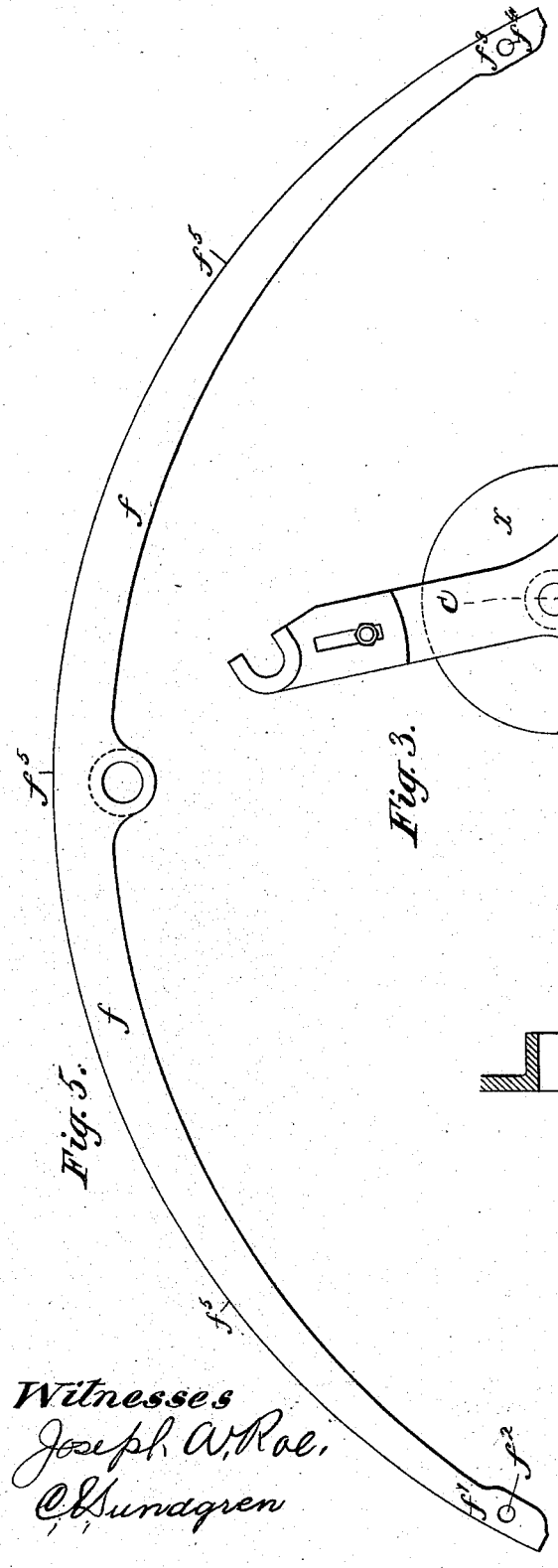

Fig. 5.

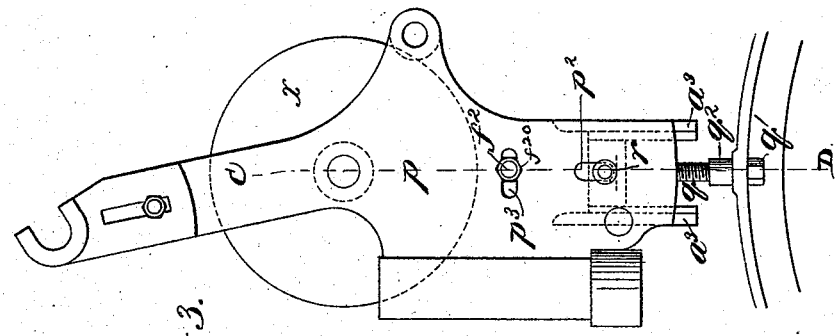

Fig. 3.

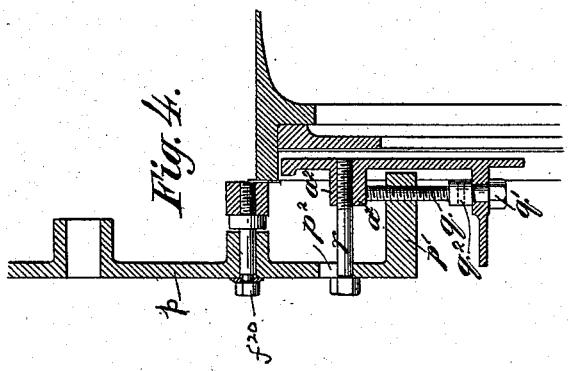

Fig. 4.

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UNITED STATES PATENT OFFICE.

WILLIAM HALL RICHARDSON AND WILLIAM GREAVES, OF OLDHAM, COUNTY OF LANCASTER, ENGLAND.

CARDING-ENGINE.

SPECIFICATION forming part of Letters Patent No. 418,852, dated January 7, 1890.

Application filed June 12, 1888. Serial No. 276,827. (No model.) Patented in England December 7, 1887, No. 16,829.

To all whom it may concern:

Be it known that we, WILLIAM HALL RICHARDSON, machinist, of Bank View, Derker, Oldham, in the county of Lancaster, England, and WILLIAM GREAVES, foreman, of 279 Park Road, Oldham, in the county of Lancaster, England, both in the employ of Messrs. Platt Brothers & Co., (limited,) of Oldham aforesaid, machinists, have invented certain new and useful Improvements in Carding-Engines for Carding Cotton and other Fibrous Materials, of which the following is a specification.

The same has been patented to us in Great Britain, December 7, 1887, No. 16,829.

The object of our invention is to enable carding-engines to be made of less width in proportion to the width of the card-surface than they have hitherto been, and to enable each of the flexible bends employed in certain carding-engines to be adjusted relatively to the "card-surface" of the "main cylinder" with greater ease and certainty than heretofore.

In the accompanying drawings, Figure 1 is a side elevation of so much of a carding-engine as is requisite to illustrate our invention. Fig. 2 is a cross section, on a larger scale, taken on the line A B of Fig. 1. Fig. 3 shows upon a larger scale a portion of that which is shown in Fig. 1. Fig. 4 is a cross-section taken on the line C D of Fig. 3; and Fig. 5 is a side view, also upon a larger scale, of the flexible bend which is shown in Fig. 1.

The same letters of reference are applied to corresponding parts throughout the whole series of figures.

Although the drawings show one side only of the carding-engine, we would have it understood that, so far as may be necessary, like parts are employed at both sides of such carding-engine, as will be readily understood by persons at all conversant with carding-engines.

In carrying out our invention, we place the bends *a* of the carding-engine within the ends *b'* of the cylinder *b* of the carding-engine. The bends *a* are secured to the side framings *c* of the carding-engine by bolts and nuts. To enable the bends *a* to be so placed, we place the rings *d*, which secure the cylinder *b* to the axle *e*, upon which such cylinder *b* is mounted, a sufficient distance inside the ends *b'* of the cylinder *b* to leave room for the bends *a*. To the bends *a* we secure the various brackets and attachments necessary to be secured to such bends *a*. We place the flexible bend *f* near to the edge b^2 of the cylinder *b*, and outside of the bend *a*, and to protect the edge *g'* of the wire *g* and prevent the escape of fiber and dirt we secure an annular plate *h*, of metal, to the edge b^2 of the cylinder *b*. The annular plate *h* of metal also prevents dirt and fiber from passing into the space between the end *b'* of the cylinder *b* and the bend *a*. Upon the bend *a* we form or apply ribs or guides *a'*, (shown more clearly in Fig. 1,) upon which we mount a bracket *j*, capable of being moved upon the ribs or guides *a'* nearer to or farther from the axis of the main cylinder *b* by means of an adjusting-screw *k*, which "takes into" screw-threads formed in the bracket *j*. The screw *k* is prevented from moving longitudinally by the head *k'* and collar k^2.

The bracket *j* is secured to the bend *a* by means of the set-screw *l*, which screws into a boss a^2, formed on the bend *a*. The set-screw *l* passes through a slot *j'*, formed through the bracket *j*. In order that the set-screw *l* may be conveniently screwed and unscrewed, we form a hole *m* through the bracket *n*, and cause the head *l'* of the screw *l* to project above the surface of the said bracket *n*, so that a key may be readily applied to the head *l'* of the set-screw *l*. Screwed into or otherwise secured to the bracket *j* is a stud *o*, upon which, and free to be turned thereon, we mount the flexible bend *f*.

The stud *o* is provided with a flange *o'*, by which the flexible bend *f* is prevented from being moved laterally. Upon the bend *a* we mount a bracket *p*. Screwing into the part *p'* of the bracket *p* is a screw *q*, which is capable of being turned in a projecting part formed upon the bend *a*. The screw *q* is prevented from moving longitudinally by means of the head *q'* and a collar q^2, secured upon the screw *q*. Through the bracket *p* we form a slot p^2, through which passes a set-screw *r*, screwing into a boss a^2, formed on the bend *a*. Upon the bend *a* we form guides a^3, upon which the

bracket p may be moved longitudinally by means of the screw q. To the bend a we secure a bracket s. Screwing into a part s' of the said bracket s is a screw t, which is capable of being turned in a projecting part formed upon the bend a. The screw t is prevented from moving longitudinally by means of the head t' and a collar t^2, secured upon the screw t. Through the bracket s we form a slot s^2, through which passes a set-screw u, screwing into a boss formed on the bend a. Upon the bend a we form guides a^4, upon which the bracket s may be moved longitudinally by means of the screw t. To the end f' of the flexible bend f we secure a stud f^2, which stud f^2 projects through a slot p^3, formed in the bracket p. We provide the stud f^2 with a nut f^{20}, by which the stud f^2 is prevented from being moved laterally. To the end f^3 of the flexible bend f we secure a stud f^4, which stud f^4 projects through a slot s^3, formed in the bracket s. We provide the stud f^4 with a nut, (not shown, but which is similar to the nut shown on the stud f^2,) by which the stud f^4 is prevented from being moved laterally.

When the flexible bend f is being adjusted, so that the surface f^5 of such flexible bend f, which supports the "flats" v when at work, shall be in a suitable position relatively to the card-surface of the main cylinder, the brackets p and s are moved by the screws q and t farther from or nearer to the axis of the main cylinder b of the carding-engine, as may be required, and the stud o is moved so as to be nearer to or farther from the axis of the main cylinder b, in a manner which is apparent from the drawings. The flexible bend f will be at liberty to turn upon the stud o, and the bending strain placed upon either end of the flexible bend f will be distributed throughout the entire length of the flexible bend f, thereby enabling the flexible bend f to be adjusted into a correct position with greater ease and certainty than heretofore. The slots p^3 and s^3 permit the movement of the studs f^2 f^4 consequent upon the bending of the flexible bend f, caused to take place by the adjustment of such flexible bend f. Hitherto it has been customary to form slots in the ends of the flexible bend, into which studs projecting from the brackets by which the flexible bend has been adjusted have passed, and such slots and studs, being behind the brackets, have been liable to be filled with dust and dirt, which from the position of the slots could not be readily removed therefrom, and such dust and dirt seriously interfered with the adjustment of the flexible bend.

By our invention the slots p^3 s^3 are exposed, and in case dust or dirt should have accumulated in the slots p^3 s^3 it can readily be removed therefrom. When the flexible bend f is being adjusted into position, the slots p^3 s^3 and studs f^2 f^4 can be readily inspected to ascertain if either of the studs f^2 f^4 is in contact with the end of the slot into which such stud passes. By the slots p^3 s^3 being formed in the brackets p s, respectively, the person adjusting the flexible bend f in position is enabled to ascertain whether either of the studs f^2 f^4 is hindered in any way from moving in the slot into which such stud passes.

The brackets w support the axle of the roller w', employed to grind the "wire" of the flats v.

The brackets p n s are respectively provided with parts which support the axles of the rollers or pulleys x x' x^2, around which pass the chains y, by which the flats v are secured together. The brackets z, bearing suitable pulleys, are employed for the purpose of tightening the chains to which the flats v are connected. They are longitudinally adjustable in manner previously described in reference to the brackets p s. In place of the stud o, a knife-edge may be employed.

By placing the bend a within the end b' of the cylinder b, instead of outside, as has hitherto been done, we are enabled to make carding-engines of much less width in proportion to the width of the card-surface of the main cylinder than they have hitherto been.

We have above described and shown our invention as applied to carding-engines provided with traveling flats; but we would have it understood that bends such as that hereinbefore described may be applied to carding-engines provided with "stationary flats" or "rollers," or with a combination of flats and rollers.

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

1. In a carding-engine, the combination, with a cylinder having recesses in its ends, of a main frame and bends mounted on said frame and arranged within said recesses, substantially as specified.

2. In a carding-engine, the combination, with a cylinder having recesses in its ends, of bends arranged within said recesses, brackets secured upon said bends, and flexible bends mounted upon said brackets, said flexible bends being outside the bends first named, substantially as specified.

3. In a carding-engine, the combination, with a cylinder having recesses in its ends, of bends arranged within the said recesses, flexible bends f, arranged upon the said bends, brackets upon which the flexible bends are pivotally mounted, said brackets being secured to the first-named bends, said flexible bends being provided at the ends f' with the studs f^2 and at the ends f^3 with the studs f^4, and brackets carried by the bends first named and provided with slots into which the studs f^2 and f^4 enter, substantially as specified.

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Witnesses:
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