

No. 638,III.

Patented Nov. 28, 1899.

E. H. GILLETT & J. FOGG.  
CARDING ENGINE.

(Application filed Aug. 4, 1899.)

(No Model.)

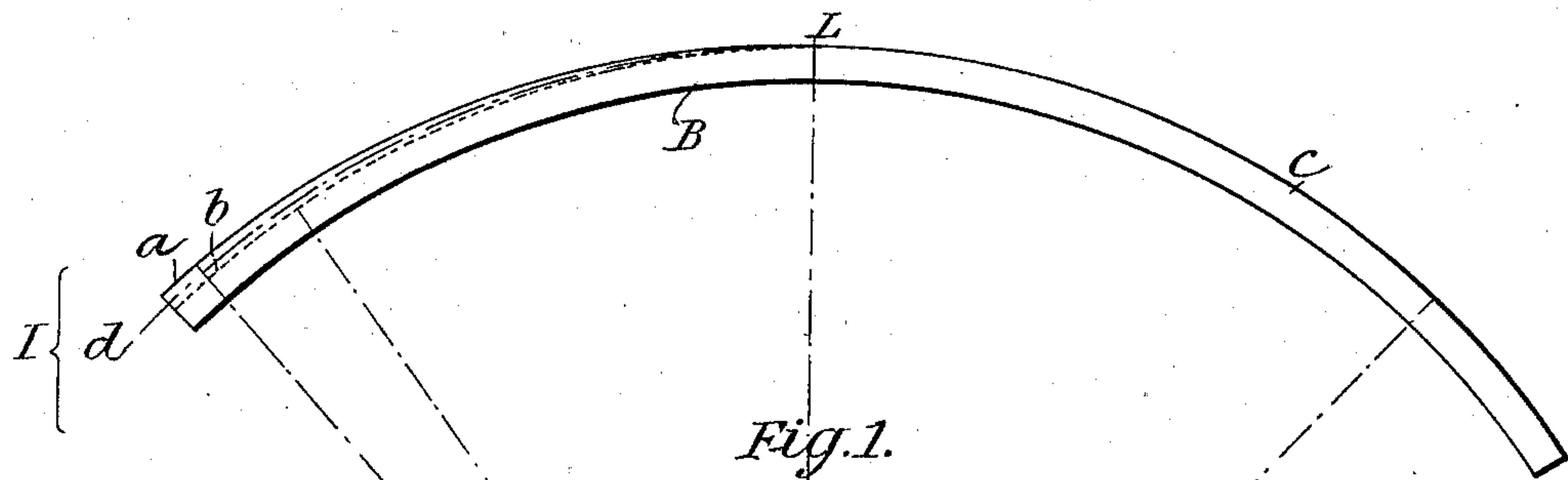


Fig. 1.

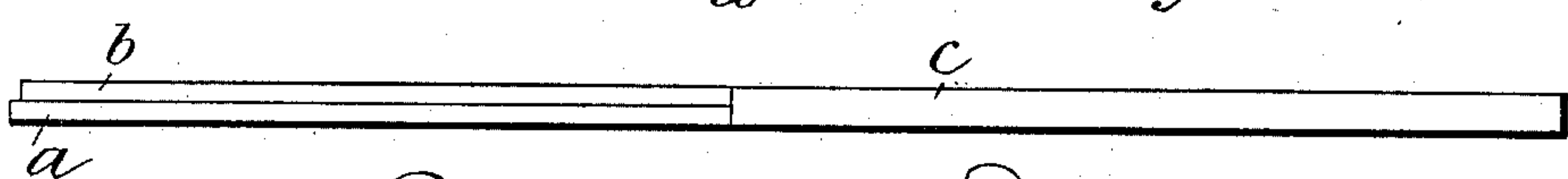


Fig. 2.

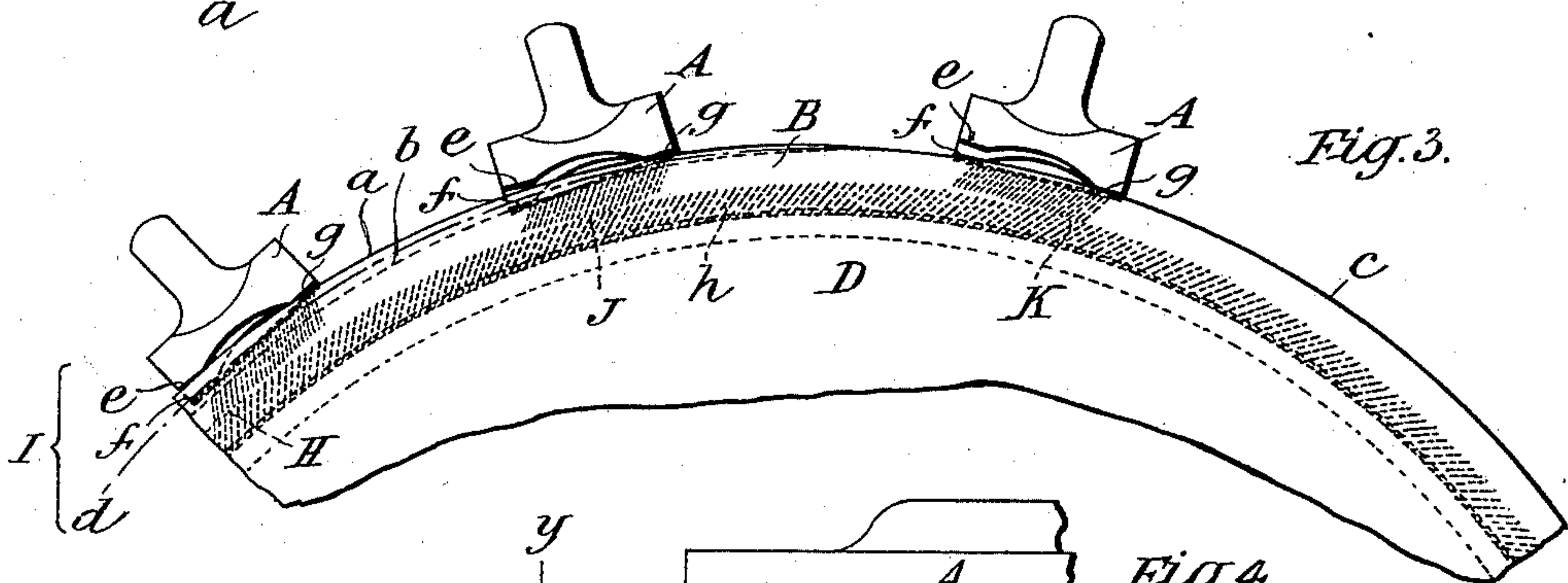


Fig. 3.

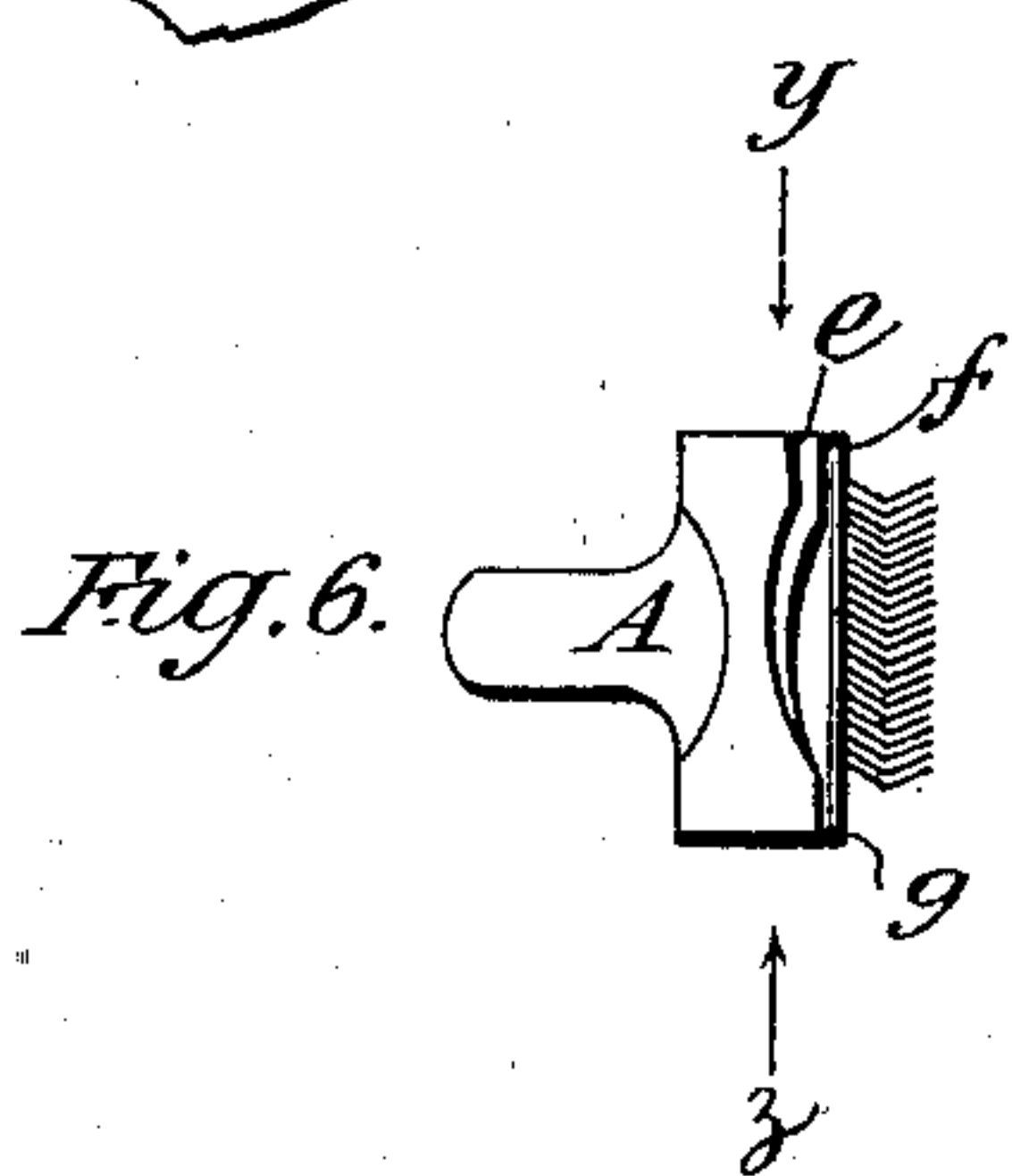


Fig. 6.

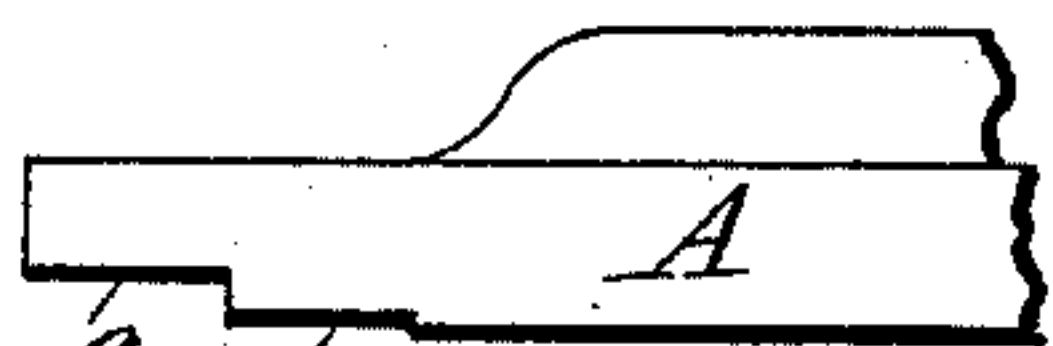


Fig. 4.

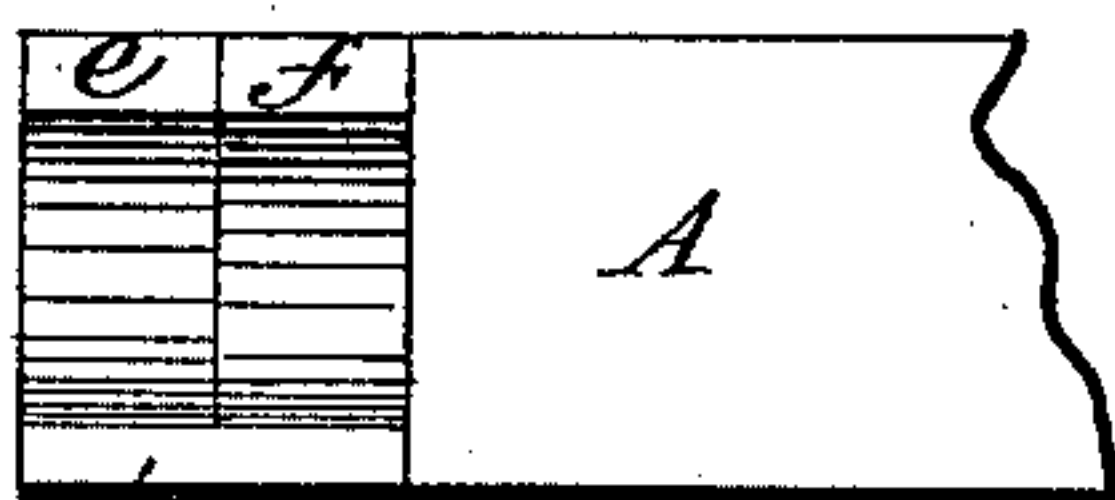


Fig. 5.

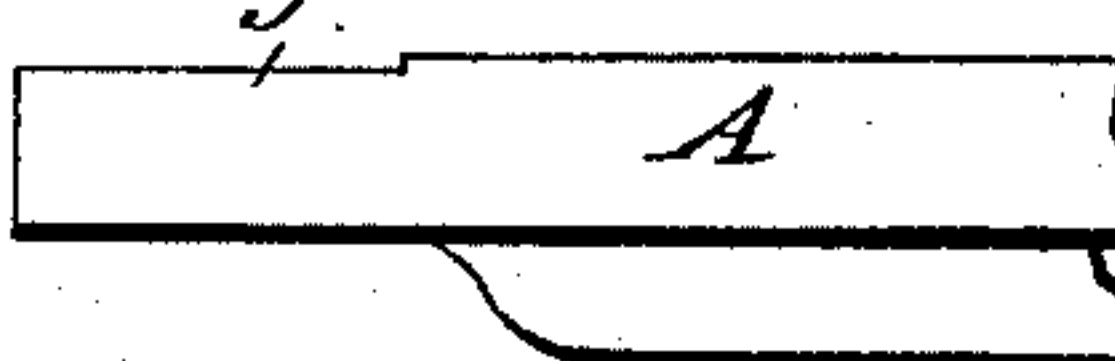


Fig. 7.

WITNESSES

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# UNITED STATES PATENT OFFICE.

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## CARDING-ENGINE.

SPECIFICATION forming part of Letters Patent No. 638,111, dated November 28, 1899.

Application filed August 4, 1899. Serial No. 726,164. (No model.)

*To all whom it may concern:*

Be it known that we, ERNEST HANNAN GILLET and JAMES FOGG, subjects of Her Majesty the Queen of Great Britain, residing at  
5 Chorley, in the county of Lancaster, England, have invented a certain new and useful Improvement in Carding-Engines, of which the following is a specification.

Our invention relates to improvements in  
10 traveling or revolving flat carding-engines.

The object of our invention is to construct the flats and flexible bends of carding-engines in such a manner that all the teeth or wires of the flats are in turn brought into contact with the cotton or fiber, whereby one  
15 portion of the teeth or wire of the flats may be used to deal with the entangled and dead cotton-seed leaf and the like, while the other portion of the teeth or wire being reserved  
20 will be in better condition for combing the fibers after they have to a great extent been separated from the heavier impurities.

In carrying out our invention we construct the flat ends so as to have two working or  
25 sliding surfaces and so arrange the flexible bends that as the flat first comes into contact with them the toe of the wires will come in contact with the cotton on the cylinder, and as the flats travel or slide around the flexible  
30 bends their position is gradually altered, so as to bring all the teeth or wires on the flats in their turn in contact with the cotton on the cylinder, the flat finally finishing up by working with the heel of the wires. Where the flat  
35 comes in contact with the fiber with the toe of the flat nearest to the cylinder, the flexible bends are arranged so as to keep the flat with its toe nearest the cylinder during the greater part of its travel around the first half, or  
40 thereabout, of the flexible bends without destroying the concentricity of the flats which may have passed the first half, or thereabout, of the flexible bends. When the flat has reached half-way around the flexible bends,  
45 or thereabout, the teeth or wires at the heel of the flat come in contact with the fiber, as stated, and remain so during its passage around the remaining part of the bends.

In the accompanying drawings is illus-

trated, partly diagrammatically, the arrange- 50  
ment of flats and bends above described.

In the drawings, Figure 1 is a diagram representing our improved arrangement of flexible bend in side view or elevation. Fig. 2 is a plan of same. Fig. 3 is an elevation of the  
55 flexible bend, showing three flats in different positions thereon. Fig. 4 is a side elevation of one end of a flat formed according to our invention, looking in the direction of the arrow *y*, Fig. 6. Fig. 5 is an under side view  
60 of same. Fig. 6 is an end view, and Fig. 7 is an end elevation, of the flat, looking in the direction of the arrow *z*, Fig. 6.

The flats *A* are each formed at their ends with three working or sliding surfaces *e f g*,  
65 the surfaces *e* and *f* being on one edge and being of different heights, while the surface *g* occupies the other edge and is approximately of the same height as surface *f*. The other end of the flat, it will be understood,  
70 is formed with the same surfaces, and the flexible bends *B* on both sides are formed with three surfaces *a b c*, of which about one-half or the leaving end *c* is concentric with the teeth *h* on the cylinder *D*, while about  
75 one-half or the entering portion of the bend is formed in two circular wedge-shaped surfaces which are struck from the centers *a' b'*, respectively, the surface *c* being struck from the center *c'*, so that if such surface *c* were  
80 continued, as indicated by the broken line *d*, the surface *a* would be outside or above *d* and the surface *b* would be inside or under *d*. All three surfaces meet at the point *L*, or thereabout. The arrangement is such that when  
85 the flat is resting with its surfaces *e* and *g* on the part of bend *a* the toe part of the wire is brought lower than the heel, while when the flat rests with the surfaces *f* and *g* on the part of bend *c* its heel is lower than its toe,  
90 as usual, an intermediate position bringing the flat level.

The operation is as follows: The flats revolving on their endless chains first come in contact with the flexible bend at the entering  
95 end *I*, Figs. 1 and 3, the surfaces *e* and *g* of the flat coming in contact with part *a* of the bend, so that, as shown at *H*, Fig. 3, the toe



of the wires are nearest to the teeth *h* on the cylinder D. The flat remains in this position until the surface *f* begins to come in contact with part *b* of the bend, which lifts the surface *e* of the flat away from part *a* of the bend, and as both parts *a* and *b* of the bend are of different relative heights the part *a* will bring the heel nearest the cylinder, while at the same time part *b* is taking the toe of the flat farther away from the cylinder, so that the flat is partly rolled over, assuming the position J, Fig. 3, when the center of the wires are in contact with the teeth *h* of the cylinder, while the continued onward movement past point L further rolls the flat, so that when the surfaces *f* and *g* are on the part *c* the flat assumes the position shown at K, with the heel nearest to the cylinder-teeth, so that the wires at the heel which have not hitherto had to do the work of freeing the fiber from seed, leaf, &c., and are in a comparatively clean condition are ready to do the usual work of carding around the remaining portion of the cylinder.

What we claim is—

1. In a carding-engine, the combination with a flexible bend secured to the cylinder, provided with bearing-surfaces of different heights above the cylinder; of a flat provided with bearing-surfaces of different depths upon one side thereof, said bearing-surfaces being arranged to engage corresponding bearing-surfaces upon said bend, so as to tilt the flat at different angles at different parts of its revolution around the cylinder, substantially as described.

2. In a carding-engine, the combination with the cylinder; of a curved flexible bend

secured to the same and having at one end upon its outer surface two bearing-surfaces, having curves described from different centers, the curves of said bearing-surfaces merging into the curve of the rest of the bend; and a flat adapted to run upon the said surfaces, provided at its end with a bearing-surface, the bearing-surface upon one side of said flat being divided into two bearing-surfaces of different depths, so arranged that in traveling over said bend the flat is tilted so as to lower the wires upon one side of the same and raise the wires upon the opposite side and vice versa, substantially as described.

3. In a carding-engine, the combination with the cylinder; of a curved flexible bend secured thereto, having surfaces of different height at one end, such surfaces merging into a surface concentric with the cylinder; and a flat having bearing-surfaces adapted to engage with said surfaces upon said bend, the surface upon one side of said flat being divided into two bearing-surfaces, the deeper one of which bears upon the higher surface upon the bend and the other bearing upon the lower surface upon the same end and upon the continuation of the said bearing-surfaces upon the bend, substantially as described.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

ERNEST HANNAN GILLET.  
JAMES FOGG.

Witnesses:

JOHN BRIERLEY HOWARD,  
FREDERICK WHITLEY THOMSON.