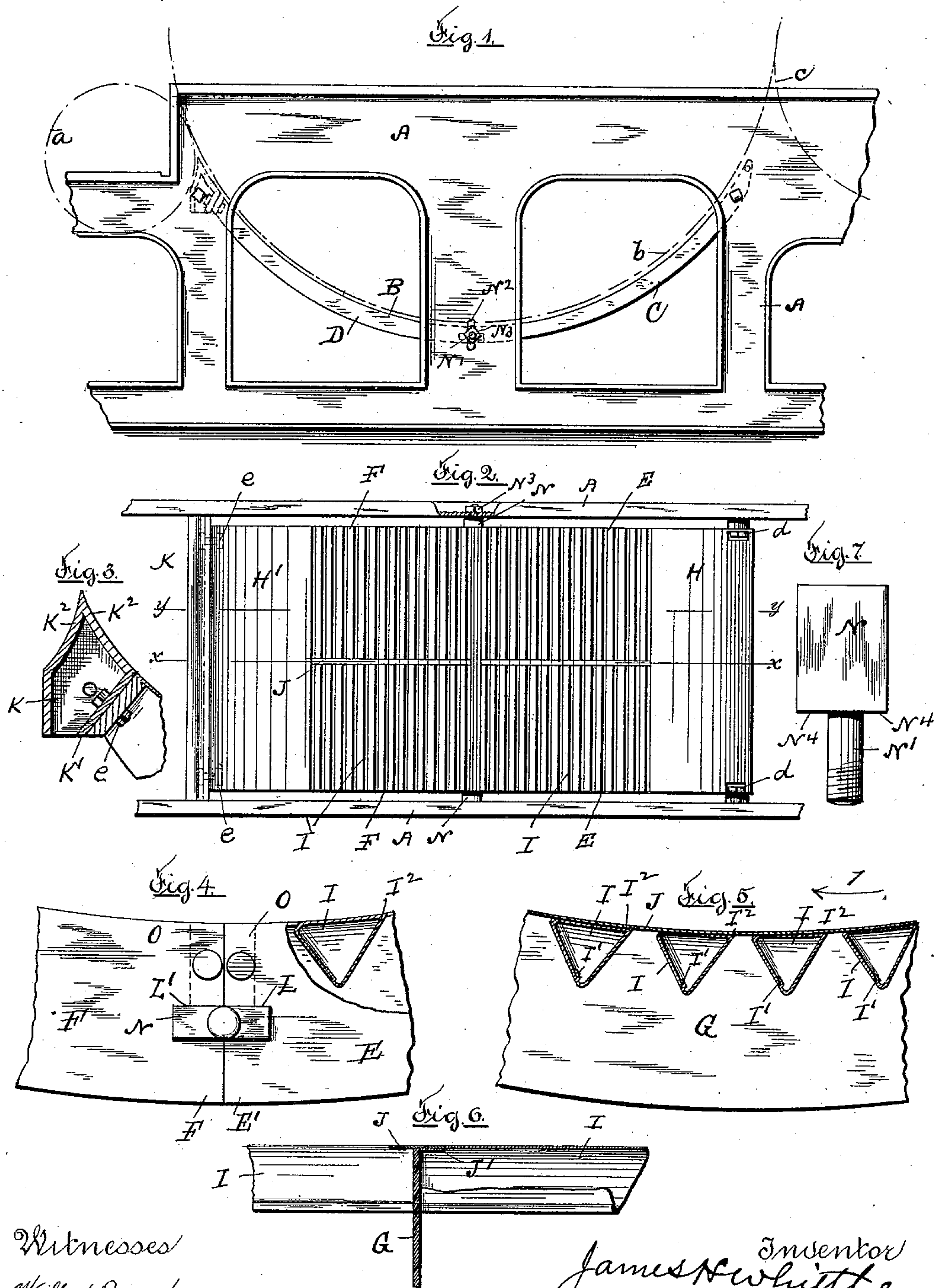


J. H. WHITTLE.  
SCREEN FOR CARDING ENGINES.

No. 488,684.

Patented Dec. 27, 1892.



Witnesses  
Walter Bowen  
P Baker

Inventor  
James H. Whittle  
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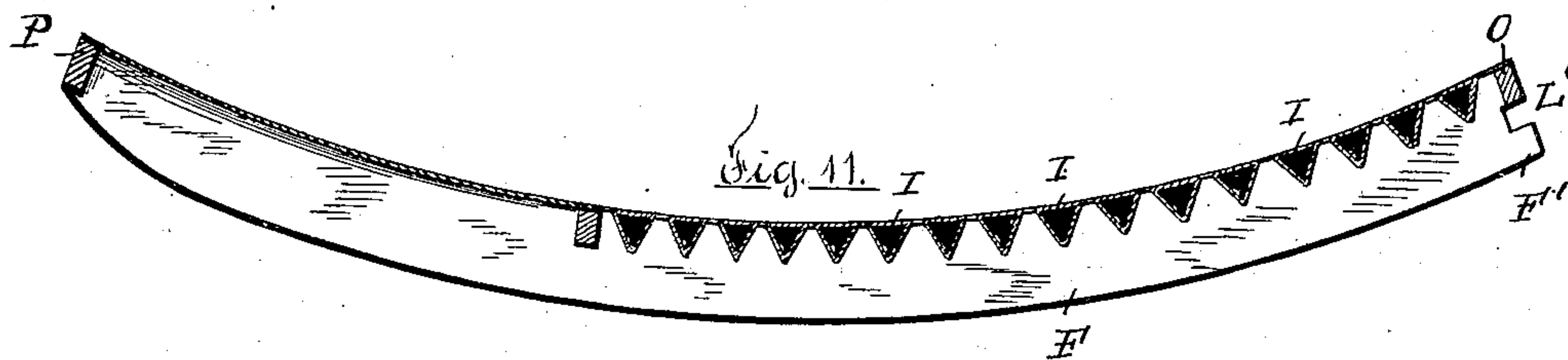
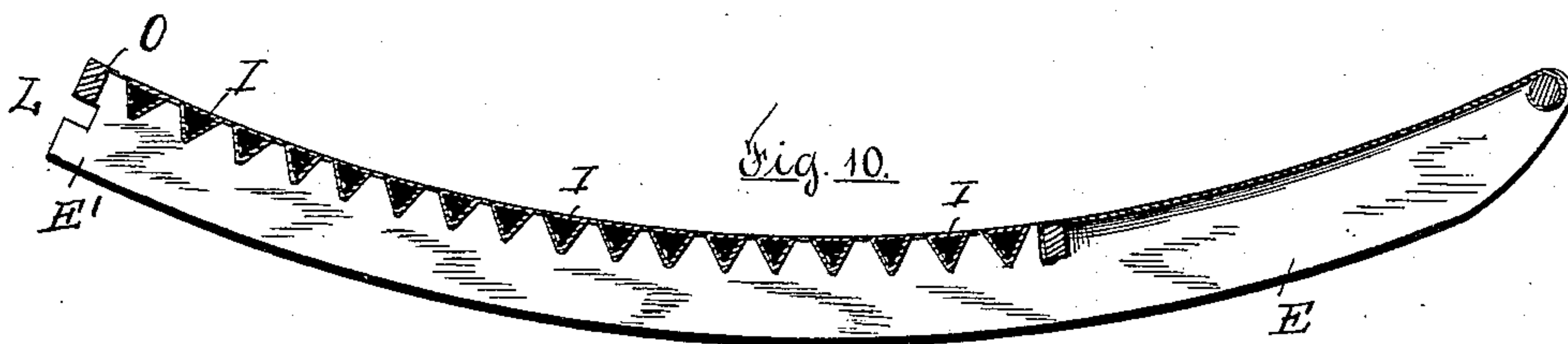
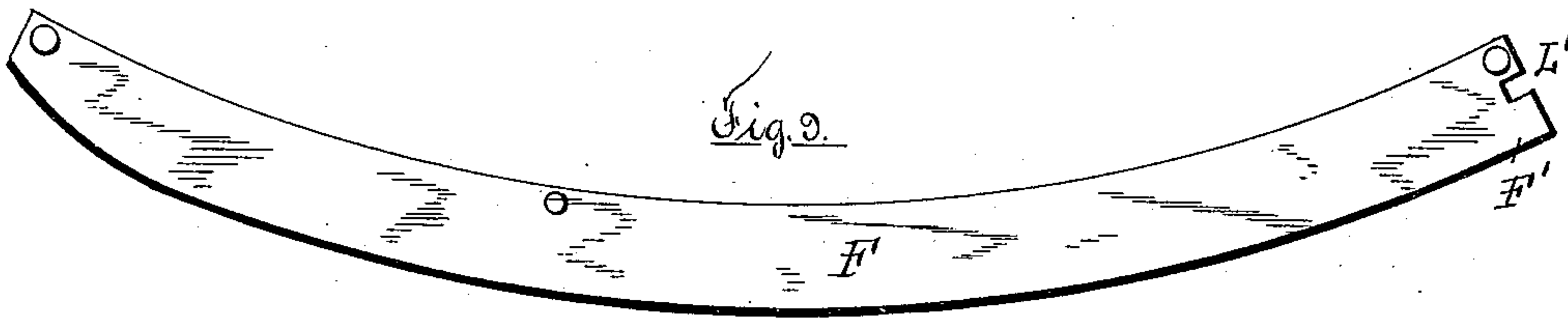
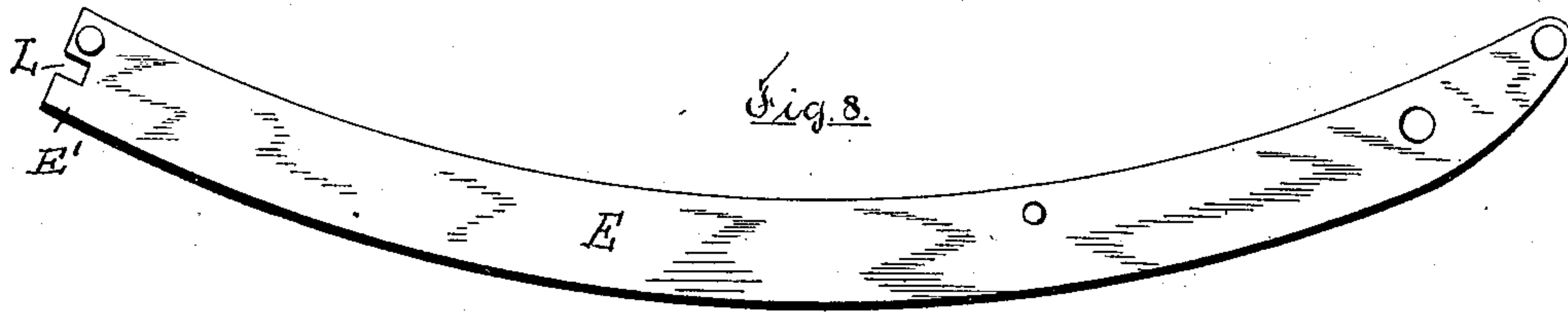
(No Model.)

2 Sheets—Sheet 2.

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# UNITED STATES PATENT OFFICE.

JAMES H. WHITTLE, OF WORCESTER, MASSACHUSETTS.

## SCREEN FOR CARDING-ENGINES.

SPECIFICATION forming part of Letters Patent No. 488,684, dated December 27, 1892.

Application filed April 5, 1890. Serial No. 346,761. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES H. WHITTLE, a citizen of the United States, and a resident of Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Screens for Carding-Engines, of which the following is a specification, reference being had to the accompanying drawings, forming a part of the same, and in which is shown a screen for carding-engines embodying my invention.

Figure 1 of the drawings represents a side view of a portion of the frame of a carding engine, with a screen embodying my invention, placed in position therein. Fig. 2 represents a top view of the screen as it would appear with the main cylinder removed. Fig. 3 is a transverse sectional view of the angular iron bar which is placed in the angle between the main cylinder and the licker-in cylinder. Fig. 4 is an enlarged view of the two side ribs showing the abutting ends in the center of the screen, a portion being broken away in order to disclose one of the triangular bars of the screen. Fig. 5 is a cross sectional view of a portion of the screen, showing four of the screen bars, the section being taken on line X, X Fig. 2. Fig. 6 represents the inner ends of two of the screen bars, with one of the bars partially broken away and showing a cross sectional view of the central rib. Fig. 7 is a detached view of one of the central supporting bars by which the central section of the screen is supported. Fig. 8 is a side view of one of the two sections of which the screen is composed. Fig. 9 is a side view of the other section of the screen. Fig. 10 shows a sectional view of one of the sections on line Y, Y, Fig. 2, and Fig. 11 represents a similar sectional view of the other of the sections.

Similar letters refer to similar parts in the different figures.

My present invention relates to the screens used beneath the main cylinders of cotton carding engines and it consists in the several novel features hereinafter described and illustrated in the accompanying drawings, in which:—

A, denotes a portion of the side frame of a cotton card, so much only of the framework of the carding machine being shown as will

be necessary to illustrate the essential features of my invention.

The curved broken lines *a*, *b*, and *c*, denote respectively the position of the licker-in, main cylinder and doffer.

B denotes the side of the main cylinder screen which embodies my invention, arranged in position beneath the main cylinder and concentric thereto, and supported by the frame A of the machine.

The screen is composed of a series of parallel bars with spaces between and so far resembles the screens now in use. My improved screen has, however, several new features, which distinguish it from the bar screens now in use.

I make the screen in sections, preferably in two sections, C and D, Fig. 2, the screen being divided in the center for the purpose of adjustment in bringing the upper surface of the screen concentric with the main cylinder. The parallel bars of which the screen is composed are supported at their ends by curved plates forming ribs, the ribs upon the side of the section C, being represented at E, Fig. 8, which denotes the rib upon one side that upon the other being a duplicate, and F, Fig. 9 denotes the rib upon one side of the section D, that upon the opposite side being a duplicate. When the two sections of the screen are in position the ends E' and F' are placed together as represented in Fig. 4, the two sections of screen forming a continuous arc, of a circle concentric with the main cylinder *b*. Midway between the side ribs as described is a central rib G which is represented in sectional view in Fig. 6. The space at each end of the screen is covered with a piece of sheet metal, H and H' and the space between the plates H and H' is occupied by the parallel bars I, consisting of a series of short bars extending half way across the screen or from the outside ribs to the central ribs G. The ribs are formed of heavy plates cut in the proper curved form to correspond with and be concentric with the main cylinder when the screen is in position. The bars are preferably equilateral triangular sheet metal tubes, and the outer ends of the bars or tubes are abutted against and soldered to the sides of the outer ribs E and F, and their inner



ends are abutted against and soldered to the opposite sides of the central rib G. The upper surface of the inner ends of the tubes forming the bars I, is depressed to receive the narrow band J, so the upper surface of the central band will be flush with the upper surface of the tubular bars I. This depression and the position of the central band J are shown at J', Fig. 6, where a portion of one of the tubular bars is broken away to show the depressed surface at J'. The surfaces in contact between the tubular bars, the central rib and the narrow band J are united by soldering. The bars are placed parallel, with a small space between each pair of bars to allow burrs, seed and other extraneous substances to pass freely and after they have passed the space between the opposing corners of the bars it is necessary that sufficient clearance between the bars be secured to prevent the space from being clogged by the cotton fibers, which would tend to cling to the sides of the bars. As the tubular bars are formed one of the overlapping edges is offset as shown at I', Fig. 5 so that the outer surface of the bar upon that side will lie in the same plane, thereby presenting a smooth surface without shoulders to which the fibers of cotton would be liable to cling. The motion of the main cylinder is in the direction of the arrow 1, Fig. 5, and the corners of the bars first passed over by the rotating cylinder are made in an acute angle so as to present a sharp corner I<sup>2</sup> Fig. 4 against which the burrs, and other extraneous matter in the cotton will be brought with a sharp blow causing them to be separated from the cotton fiber and passed through the spaces between the bars I. In order to facilitate the passage of the cotton seed and burrs between the bars I the corners of the bars opposite the acute corners I<sup>2</sup> are slightly rounded as at I<sup>3</sup>, Fig. 4, thereby increasing the width of the throat, or opening to the passage way between the bars, so the burrs, seed &c., will be more readily driven through the spaces between the bars by the rotation of the main cylinder. The section C is attached to the frame A, at one end by bolts d, d, Fig. 2, and the opposite end of the screen or outer end of section D, is attached by bolts e, Fig. 3 to the cast iron shell K, which is placed in the angle between the lick-in and main cylinder. The shell K is attached at its ends to the side frame A and its upper surfaces are curved at K<sup>2</sup>, K<sup>2</sup> to correspond with the circles of the lick-in and main cylinders, and it is provided with the flange K' to which is bolted the outer end of section D of the screen, by means of the bolts e, Fig. 3. The inner ends of the side ribs E and F are provided with the mortises L and L' in which is placed a short flat bar N shown in detached view in Fig. 7. One of these bars N is placed in the mortised ends of the ribs E and F upon each side of the screen as shown at N, N, Fig. 2. The bars N terminate in

a screw threaded bolt N' which passes through an oblong hole N<sup>2</sup> in the frame A and is provided with a nut N<sup>3</sup> which draws the shoulders N<sup>4</sup> of the bars N against the inside of the frame, holding them in position. The holes N<sup>2</sup> are elongated in a vertical direction to allow of a vertical adjustment of the bars N, and as the bars N serve to support the inner ends of the two sections C and D of the screen it permits the center of the screen to be adjusted with reference to the main cylinder, permitting the upper surface of the screen to be brought much nearer to the surface of the card clothing upon the main cylinder than would be possible if the screen were in a single piece and not adjustable at the center. The inner ends E' and F' of the ribs E and F are thus rigidly held by the bars N in their position close to the surface of the main cylinder. The inner ends of the side ribs E, E, and also the inner ends of the side ribs F, F, are united by the rectangular bars of iron, O, O represented in broken lines in Fig. 4, the ends of these bars resting upon the inner ends of the short supporting bars N, N. A similar rectangular iron bar P extends from side to side at the outer end of the side ribs F, F, which is bolted to the angular shell K. The band J at the center of the screen covers the upper edge of the central rib G and serves to prevent the cotton fibers from clogging at the center of the screen.

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

1. In a screen for carding engines, the combination with supporting ribs curved concentrically with the cylinder of the carding engine, of a series of triangular bars, said bars presenting sharp acute angles to the action of the rotating cylinder and having the opposing corners of adjacent bars rounded so as to increase the opening to the passage way between said bars, substantially as described.

2. A screen for carding engines, composed of sections, each of said sections forming a part of an arc of a circle concentric with the main cylinder of the carding engine, and each of said sections having connected means of adjustment, substantially as described, whereby said sections can be adjusted relatively to the surface of said cylinder, substantially as described.

3. The combination of the side ribs E and F, provided with the mortised ends E' and F', supporting bars N, N, provided with screw threaded bolts N', N' and nuts N<sup>3</sup>, N<sup>3</sup>, and frame A provided with the vertically elongated holes N<sup>2</sup>, substantially as described.

4. In a screen for carding engines, the combination of the sides ribs E and F, of a central rib G, said central rib consisting of a plate lying in a vertical plane and having its upper edge curved concentrically with the main cylinder of the carding engine, and a series of short bars attached at their outer ends to the inner sides of the side ribs E and



F and having their inner ends abutting against and attached to the opposite sides of the central rib G, substantially as described.

5 5. The combination of a series of parallel bars forming the body of the screen, of the central rib G and the band J, recessed in the upper surface of said bars, substantially as described.

10 6. The combination of a series of parallel bars forming the body of the screen, of the central rib G placed between and attached to the inner ends of said parallel bars and a band J attached to one edge of said central rib with the edges of said band overlapping  
15 the inner ends of said parallel bars, substantially as described.

7. The angular cast metal shell K attached at its ends to the frame-work and presenting a curved surface, curved concentrically with the main cylinder and upon the opposite side 20 a curved surface, curved concentrically with the licker-in and provided with a flange K' to which the body of the screen is attached, substantially as described.

Dated the 27th day of March, 1890.

JAMES H. WHITTLE.

Witnesses:

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WALTER S. BOWEN.