

(No Model.)

2 Sheets—Sheet 1.

D. M. THOMPSON.

CARDING ENGINE.

No. 347,662.

Patented Aug. 17, 1886.

Fig. 1.

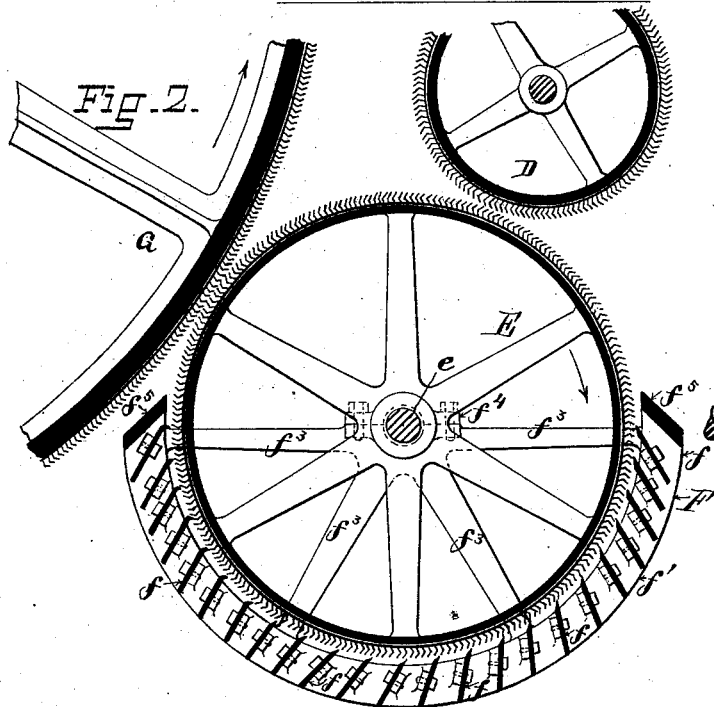
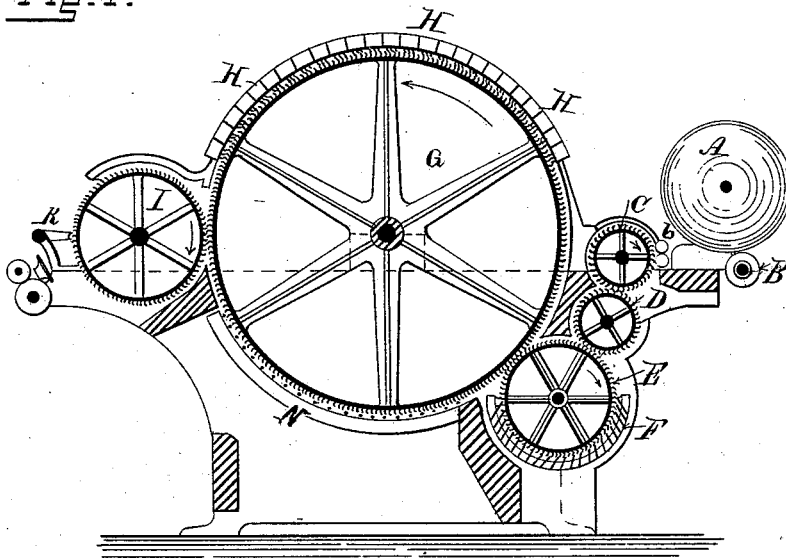
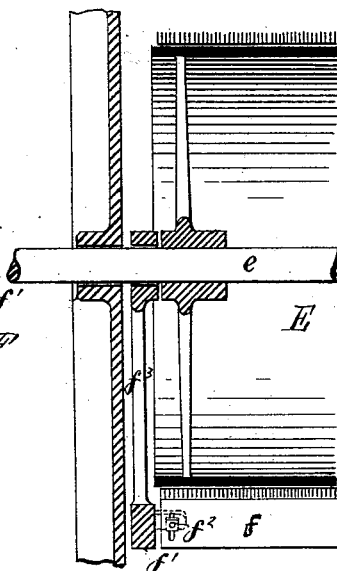


Fig. 3.



WITNESSES:

C. H. Leather

Wm. L. Cook

INVENTOR:

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(No Model.)

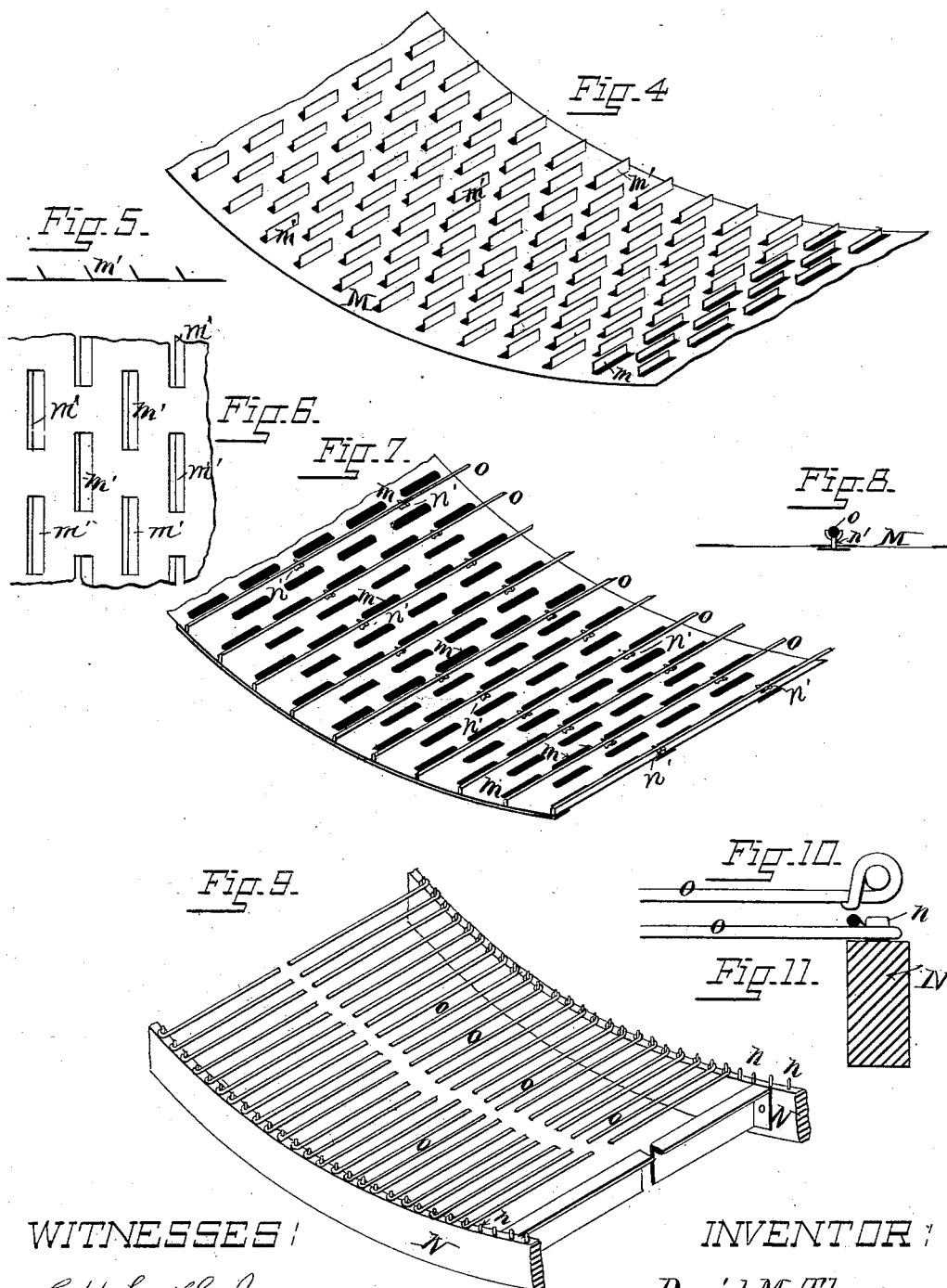
2 Sheets—Sheet 2.

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WITNESSES:

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Wm. L. Cook

INVENTOR:

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UNITED STATES PATENT OFFICE.

DAVID M. THOMPSON, OF PROVIDENCE, RHODE ISLAND.

CARDING-ENGINE.

SPECIFICATION forming part of Letters Patent No. 347,662, dated August 17, 1886.

Application filed February 21, 1883. Serial No. 85,791. (No model.)

To all whom it may concern:

Be it known that I, DAVID M. THOMPSON, of the city and county of Providence and State of Rhode Island, have invented a new and useful Improvement in Carding-Engines; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to machines for drawing out and placing in line the fibers of wool, cotton, or other staple; and the object of my invention is to so construct the machine that the fiber shall be worked and cleansed more or less before being delivered to the cylinder, and also that the fibers shall be operated upon by the cylinder without waste.

To the above ends my invention consists in the peculiar and novel construction and combination of the rolls for delivering the fiber to the cylinder, and of the screens for cleaning and retaining the fiber in the cylinder-chamber, as hereinafter described and claimed.

Figure 1 is a vertical longitudinal section of a carding-engine with my improvements applied. Fig. 2 is a transverse vertical section of the cleaner-roll and its knife-screen, and also of contiguous portions of the carrier-roll and carding-cylinder. Fig. 3 is a partial sectional view of the cleaner-roll and the knife-screen. Fig. 4 is a perspective view of a screen made by punching out three sides of rectangular pieces from a sheet of metal, and bending the same at an angle, as shown in Fig. 5, which is a sectional view of the same. Fig. 6 is an under side plan view of the same screen. Fig. 7 is a perspective view of a screen provided with wires raised above the surface of the screen, supported at the ends and at the intervals on said screen. Fig. 8 is a sectional view showing the supports secured to the screen on which the wires are supported. Fig. 9 is a perspective view of the wires secured to pins cast on the side frames. Fig. 10 is an enlarged top view; and Fig. 11 is an enlarged view of a portion of the screen, showing the end of a wire and the side frame in section.

In carding-engines for carding cotton fiber the quality and quantity of the work depends mainly on the condition of the cylinder, the teeth of which must be kept clean and sharp.

The object of this invention is to relieve the cylinder of a portion of its work and deliver the cotton fiber in as clean and straight a condition as possible to the cylinder. Another object of this invention is to prevent the waste caused by the old form of screens, and while allowing the impurities to pass through the screens to retain all fiber.

In the drawings, A is the lap-roll; B, the feed-roll; *b b*, the drawing-rolls; C, the licker-in; D, the carrier, which is also used as a worker; E, the cleaner-roll; F, a knife-screen adjustable with relation to the cleaner-roll E; G, the main cylinder. H H are the flats; I, the doffer; K, the doffer-comb, and N the screen.

The fiber is delivered from the lap-roll to the licker-in in the usual manner, and may be carried by the carrier D to the cleaner-roll E. By running the carrier sufficiently quicker than the licker-in to clean the same, by changing the speed of the carrier, making its surface-speed less than the surface-speed of the licker-in, and at the same time reversing the teeth, the carrier D becomes an efficient worker, both in connection with the licker-in and the cleaner-roll, opening and straightening the fiber, so that the cleaner-roll can more effectually separate the leaf and dirt therefrom.

The construction of the knife-screen F, and its connection with the cleaning-roller E is clearly shown in Figs. 2 and 3.

The knives *ff* are provided near each end with a slot, and are secured to an inwardly-projecting lug secured to the segmental frame *f'* by the bolts *f²*, so that the knives can be adjusted with reference to the wires on the cleaner-roll E, and to facilitate the accurate adjustment of the knives as close as possible to the wires the segmental frames *f'* are provided with the arms *f³*, extending from the central hub, which is accurately placed on the shaft *e* of the cleaner-roll E, which revolves independently of the frame. In adjusting the knives *f* the cleaner-roll is taken from its bearings and placed in a good light. The frame of the knife-screen F consists of the segmental frames *f' f'*, one on each end, each provided with the arms *f³ f³* and the central hub, and both united into a rigid frame by the end bars, *f⁵*, and the knives *ff*. This whole screen is

placed loosely upon the shaft *e* of the cleaner-roll E by the clamp-piece *f'*, and now in the open light all the knives *ff* are adjusted to the teeth of the roller. By slightly loosening the clamp *f'* the roller may be turned and all parts brought over the knives, so as to test the adjustment. The cleaning-cylinder, with the adjusted knife-screen, is now placed in its bearings by the bars *f^b*, the ends of which serve to hold the knife-screen steady against oscillation upon the shaft *e* of the cleaner-roll E, and the clamp *f'* is removed, so as to avoid friction. The knives will therefore retain the exact position with relation to the teeth on the cleaner-roll in which they were adjusted, and this adjustment can be done quicker, more accurately, and more securely than would be possible if the whole could not be so removed from the carding-engine.

From the cleaner-roll E the fiber is taken by the main cylinder G and subjected to the carding of the flats H H, and is taken off from the main cylinder by the doffer I in the usual manner. The rapidly revolving cylinder G draws air into the interior with the sliver, which air is expelled at the space between the doffer I and the working-roller E. The teeth are now free or nearly free from fiber, and therefore act to throw off the air and with the same the impurities contained in the cotton, but with these a large percentage of fiber is usually thrown off, and to prevent this I construct the screen with openings through which the air and the impurities may pass, while above the same and close to the teeth of the cylinder I place a series of wires extending transversely across the screen, so as to catch the fiber and return it to the cylinder.

Figs. 4, 5, and 6 represent the perforated screen. Figs. 7 and 8 show the connection of the wires with the screen, and Figs. 9, 10, and 11 the method of fastening the wires.

M represents a perforated sheet of metal.

m m are the perforations, the metal of which may be raised, as is shown in Figs. 4 and 5, to form abutments *m'*, by which the air-current is retarded and the fiber retained.

N is the frame of the screen, the sides of which are provided with the pins *nn*, to which the ends of the wires *oo* are secured. These wires may be supported on the standards *n'*, secured to the screen, so as to stiffen the same and prevent vibration. These wires catch the fiber and allow the air and impurities to pass through the screen, and as soon as enough fiber has accumulated on the wires the cylinder G will take it up and carry it to the flats. By the use of these screens the waste is considerably diminished, and by the use of the cleaner-roll the quantity and quality of the carding materially increased.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with the adjustable knives *ff*, of the segmental end frames, *f' f'*, provided with the arms *f^a f^a*, and the central hub provided with the clamp *f'*, constructed to secure the accurate adjustment of the knives to the roll, as described.

2. The combination, with the main cylinder G, of a perforated screen having wires extending transversely across the screen and placed closer to the cylinder than the screen to catch the fiber and prevent waste, as described.

3. The combination, with the perforated sheet *m*, of the end frame, N, provided with pins *n*, and wires *o*, secured at their ends to said pins, as described.

In witness whereof I have hereunto set my hand.

DAVID M. THOMPSON.

Witnesses:

J. A. MILLER, Jr.,
M. F. BLIGH.