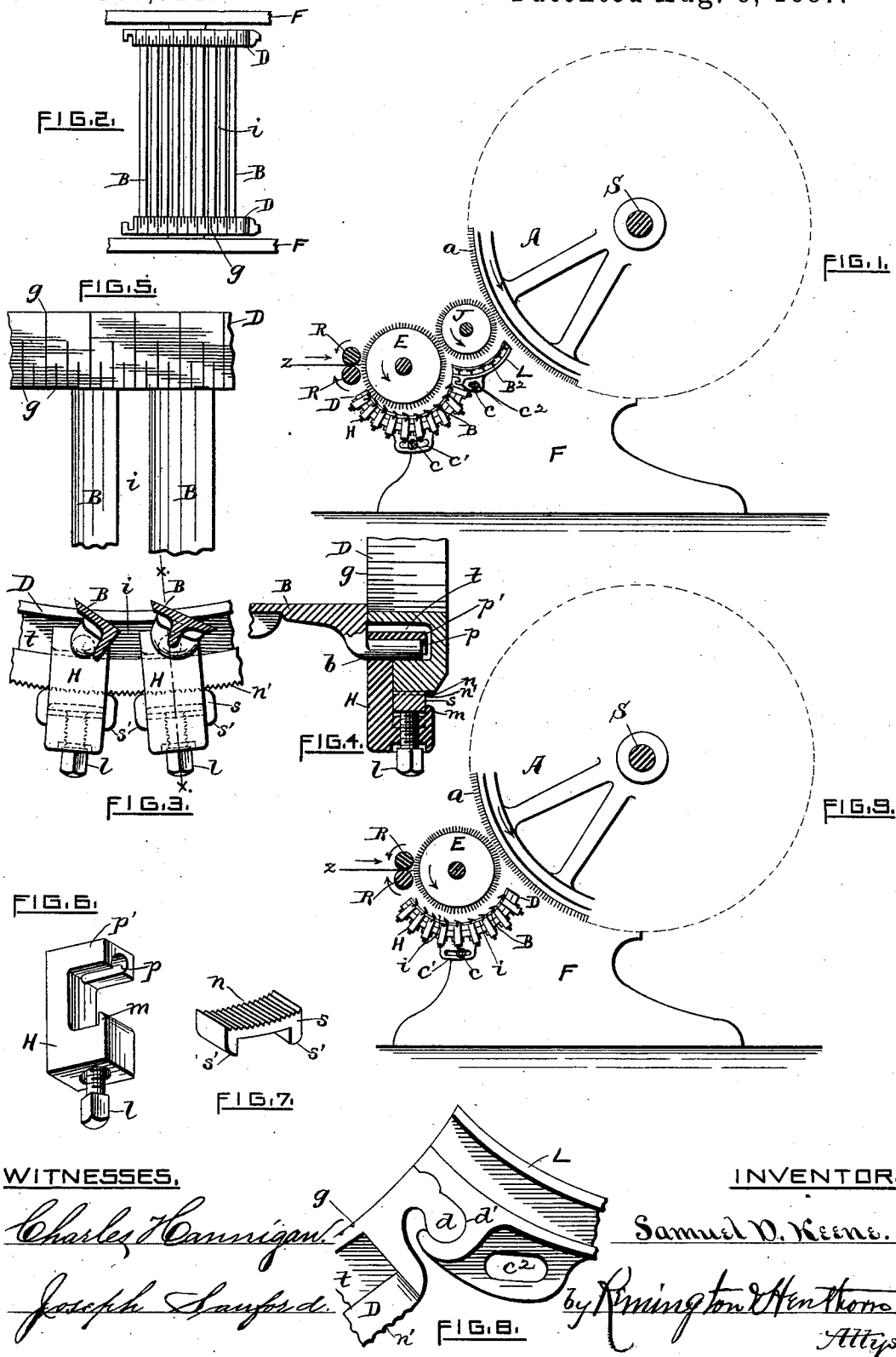


(No Model.)

S. D. KEENE.
CARDING MACHINE.

No. 367,914.

Patented Aug. 9, 1887.



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CARDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 367,914, dated August 9, 1887.

Application filed October 13, 1886. Serial No. 216,128. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL D. KEENE, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Carding-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This my present invention relates to certain novel improvements in carding-machines adapted more especially for the carding of cotton or other vegetable fiber; and it consists of an attachment combining slotted end frames, separator-bars adjustably secured to said frames, and means for adjustably securing the attachment to the card-frame.

It also consists in the novel device for adjustably securing the separator-bars to the curved frames, whereby each bar is adapted to be axially adjusted with relation to the "licker-in" or roll, and independently of the other bars composing the separator.

It further consists in providing the slotted end frames of the said attachment with a gage or scale, whereby the separator-bars mounted in the frames are adapted to be accurately spaced, all as will be more fully hereinafter set forth and claimed.

The object of my invention is to provide carding-engines with improved means for extracting notes and other foreign matter from the staple prior to feeding it to the main cylinder thereof.

In the accompanying sheet of drawings, illustrating the invention, Figure 1 represents a partial vertical transverse sectional view of a cotton-carding machine, showing the separator-bars, &c., in position below the licker-in or leader-roll. Fig. 2 is a detached plan view of the separator. Fig. 3 is an enlarged partial side view of the curved end frame, showing two separator-bars in section adjustably retained in position therein. Fig. 4 is a trans-

verse sectional view of the same, taken on line *x x*. Fig. 5 is a plan view thereof. Fig. 6 is a detached perspective view of one of the clamping-dogs. Fig. 7 is a similar view of one of the roughened gibs adapted to be used in connection with said dog. Fig. 8 is an enlarged side view showing the manner of joining the curved end frame to the short end frame, secured to the card-frame below the "working" or cleaner roll; and Fig. 9 is a view similar to Fig. 1, the working-roll and short end frame, however, being omitted, the cotton in this case passing from the feed-rolls to the leader-roll and thence direct to the card-cylinder.

The following is a detailed description of the invention, including the manner of its operation. I will, however, first describe the parts of the carding-machine which are common to this class of mechanism, and as represented in the drawings.

A, referring thereto in Fig. 1, indicates the card-cylinder covered with card-clothing having wire teeth *a* and secured to the shaft *s*, as usual.

R R designate the feed-rolls, between which the staple is fed to the said cylinder A, E being the licker-in or leader-roll, and J indicating the working-roll, which latter delivers the staple to the card-cylinder.

L designates a curved and grooved end frame secured (one at each end) by means of screws *c* to the main frame F below the working-roll J. These frames are adapted to receive T-bars B², thus forming a separator, also as common. On the front end of the frame L is formed the socket *d'*, into which the rear end, *d*, of the curved end frame, D, (about to be described,) is adapted to interlock, as shown enlarged in Fig. 8.

D D designate curved end frames, which are adjustably secured to opposite inner sides of the card-frame F by screws *c*. Each frame has a slotted opening, *c'*, formed in its lower portion, through which the screw passes. The radius for describing the curvature of the frame is slightly greater than that for the leader-roll E. The upper or concave side of the frames D are each provided with a series of grooves,

g, to form a gage, the lower or convex surface thereof being roughened or corrugated, as at *n'*.

l indicates a continuous groove formed in the face of the said frame.

H, Fig. 6, designates a dog or clamp having at one end an arm, *p'*, projecting at right angles therefrom, said arm being drilled at *p* to receive a journal, *b*, of the separator-bars B. The opposite end of the dog H is drilled and tapped to receive the set-screw *l*, the point of the latter engaging, when in use, the metal gib *s*. (See Figs. 3 and 4.) The said gib is provided with ears *s'*, which serve to retain it in position longitudinally, while a lip, *m*, formed on the dog, serves to prevent the gib from working out laterally. The upper surface, *n*, Fig. 7, of the gib is concave, and also made corrugated, to conform, essentially, to the lower surface, *n'*, of the frame D, before described, and as shown in Fig. 3.

B indicates separator-bars, each end thereof being provided with an offset journal, *b*, fitted to the hole *p* of the clamp H. (See Fig. 4.) Said bars may be T-shaped or angular in cross-section, as desired.

It is obvious that the separator-bars may be adjustably retained in position both axially and circumferentially in the curved end frames, D, by means of the clamps H, gibs *s*, and screws *l*, just described.

The operation is as follows: The curved frames D are first secured to opposite sides of the card-frame F by the screws *c*, and interlocking with the short supplemental frames L, if desired, as shown in Fig. 1. I prefer in ordinary work and using medium staple to set the forward end of the frames D so that the upper edge of the first bar B just clears the leader-roll E, while the rear end of said frames are adjusted so as to carry the adjacent bars about three-quarters of an inch from the said roll. It is obvious, however, that the adjustment of the frames D should be made with reference both to the kind of staple or fiber *z* and the quality being used. The separator-bars B should for like reasons be adjusted to the varying conditions of staple and grade.

For the lower grades of cotton, containing a large amount of motes, seeds, and other impurities, the bars should be set at quite an angle, so as to form comparatively large openings *i* between them, such axial adjustment being readily accomplished by loosening the screws *l*, then turning said bars to the desired position, and retightening the screws, the journal *p* then bearing against the lower surface of the groove *l* of the frames D, as shown in Figs. 3 and 4. To facilitate and insure the true alignment of the bars, I have introduced the gage *g*, as indicated in Figs. 2, 5, and 8.

In Fig. 9 all the bars B are represented as being substantially equidistant from the leader-roll. Now, upon rapidly revolving the rolls E J and the main cylinder A, and feeding, say, cotton staple *z* between the feed-rolls R, the staple is first taken up by the leader-roll

E, from which it is carried to and taken off by the working-roll J, which in turn delivers it to the card-cylinder, as usual. While the staple is thus being rapidly conveyed by the roll E from the feed-rolls to the working-roll J, the bars B serve to intercept and separate the impurities thrown off by centrifugal force from the cotton and conduct the same through the openings *i* to the floor or a suitable receptacle placed beneath.

The dogs H, together with the bars B, may be readily removed from the frames D when desired. The latter also may be quickly detached from the frames F and L by first removing the screws *c*.

I am aware that attachments provided with bars for separating impurities from cotton, &c., have been applied to carding-engines prior to my present invention. Therefore I do not, broadly, claim such apparatus; but

What I do claim, and desire to secure by United States Letters Patent, is—

1. The combination, with the feeding-rolls, leading-roll, and carding-cylinder, of right and left curved end frames provided with slots, bolts for adjustably securing said frames to the frame of the carding-machine below the leading-roll, bars B for intercepting and separating the motes, &c., from the staple while passing from the feed-rolls to the carding-cylinder, dogs or clamps having said bars journaled therein, and means for retaining the bars in position after adjustment, the whole constructed and arranged substantially as described, and for the purpose hereinbefore set forth.

2. The combination, with the curved end frames, D, each having a gage formed in its concave face, and means for securing said frames to a carding-machine, of separator-bars, dogs, as H, in which the bars are journaled, and screws for adjustably clamping the dogs in position, substantially as described, and for the purpose hereinbefore set forth.

3. The combination, with the curved end frame, D, having a corrugated surface, *n'*, of the dog H, adapted to receive the end of a separator-bar, a shoe or gib, *s*, adapted to engage said surface *n'*, and a screw for retaining the shoe and dog in position upon the said frame D, substantially as shown, and for the purpose set forth.

4. The combination, with the curved end frames, L, card-frame F, working-roll J, and separator-bars B², of curved end frames, D, interlocking with said frames L, a leading-roll, E, separator-bars B, dogs H, having said bars journaled therein, and means, consisting of gibs *s* and screws *l*, for adjustably securing the separator-bars B in position, substantially as shown and set forth.

5. The combination, with the curved frame L, having a socket, *d'*, formed therein, and means for securing the frame to the carding-machine, of the curved frame D, having an end, *d*, thereof adapted to rest in said socket, and means for attaching the frame D to the frame of the carding-machine, substantially as

shown, and for the purpose hereinbefore set forth.

6. The combination, with the curved end
frames, D, having a concentric groove, *t*, formed
5 therein, of the dog H, the separator-bar B,
 journaled therein and adapted to be loosely
 fitted into the groove *t*, and a clamping-screw
 and gib for adjustably securing the dog and
 separator-bar in position upon the end frame,

substantially as shown and hereinbefore set to
forth.

In testimony whereof I have affixed my sig-
nature in presence of two witnesses.

SAMUEL D. KEENE.

Witnesses:

GEO. H. REMINGTON,
JOHN T. HENTHORN.