(No Model.) 2 Sheets—Sheet 1.

W. SCHOFIELD.

LAP FEEDING DEVICE FOR CARDING MACHINES.

No. 348,421. Patented Aug. 31, 1886.

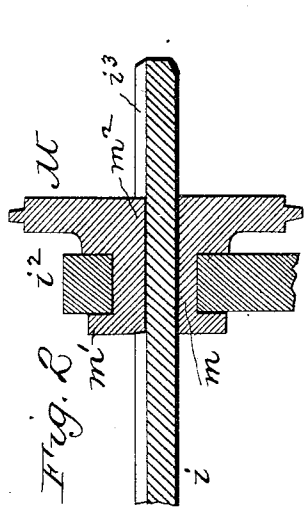


Fig. 2

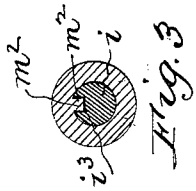


Fig. 3

Fig. 1

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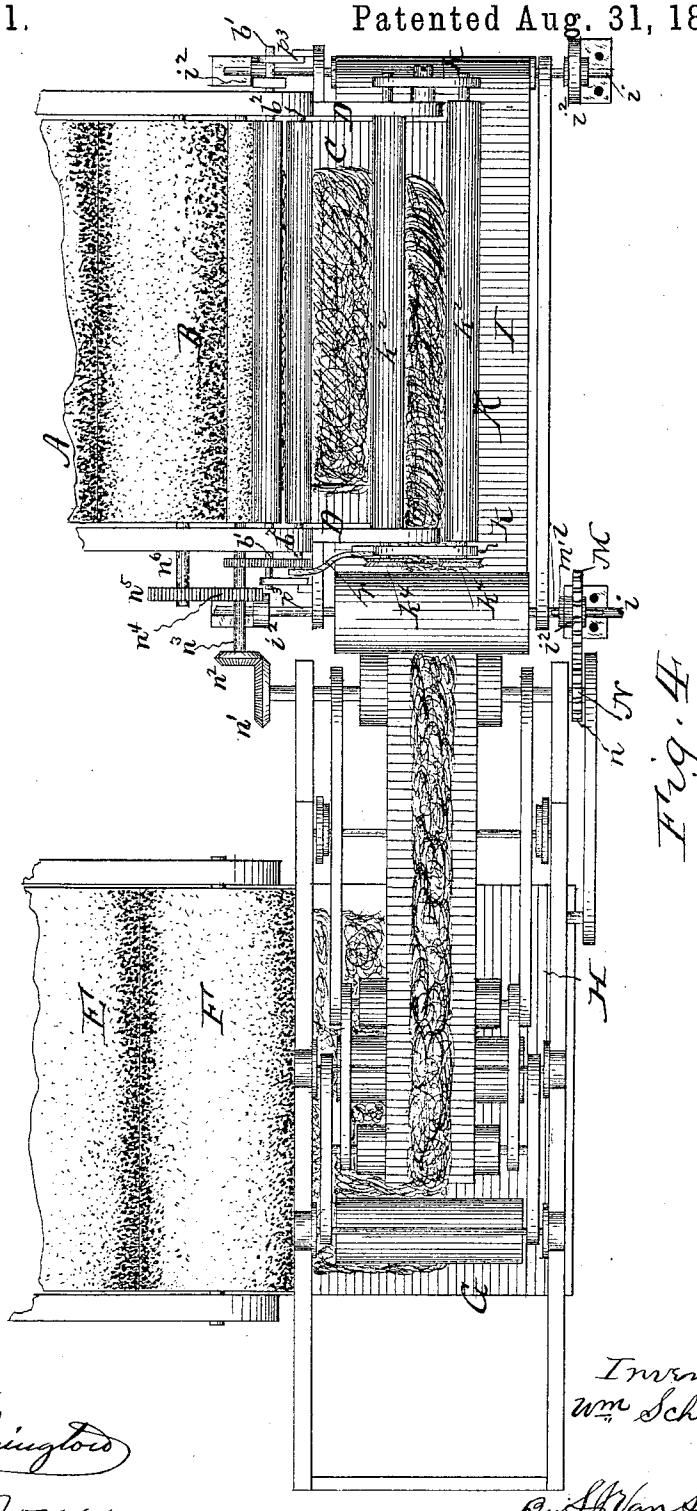


Fig. 1.

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UNITED STATES PATENT OFFICE.

WILLIAM SCHOFIELD, OF PHILADELPHIA, PENNSYLVANIA.

LAP-FEEDING DEVICE FOR CARDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 348,421, dated August 31, 1886.

Application filed June 9, 1885. Serial No. 168,132. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SCHOFIELD, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Lap-Feeding Devices for Carding-Machines, of which the following is a specification, reference being had therein to the accompanying drawings, wherein—

Figure 1 is a side elevation showing part of the first breaker-card, its delivery-apron, part of the supporting-frame for the latter, the apron at right angles to the delivery-apron for transferring the stock or web of fibers to the camel-back of a carding-machine and my improvements applied thereto. Fig. 2 is a detail section, drawn to an enlarged scale, of driving-wheel, spline, bearing, and shaft for the transferring-apron. Fig. 3 is a cross-section of said shaft and spline and wheel sleeve or hub; and Fig. 4 is a plan showing a part of breaker-card, part of the condenser-card, the camel-back, and delivery-aprons of a carding-machine with my improvements, showing modification in the connection of their actuating devices with shafts of the breaker-card.

My invention has relation to carding engines or machines of the form having a camel-back feeding device for the feeding-in apron of the condenser-card and an apron arranged at right angles to the delivery-apron of the breaker-card, for transferring the stock or web of fibers to the camel-back; and it has for its object to adapt the carding-engine for working a lower or poorer grade of stock, and also to working to a better advantage a good grade of stock than has heretofore been possible. To accomplish this the stock or web of fibers, as it passes off of end of the first breaker delivery-apron onto the apron at right angles thereto, is folded or overlapped upon the latter, and in such folded condition is transferred to the camel-back. This overlapping of the stock more uniformly and to a greater extent condenses it, and it is made much stronger than heretofore, so that it maintains a continuous even width as it is transferred to and passed over the camel-back, and in passing over the latter is not liable to be parted or broken by the rising and falling or closing and opening movements of the camel-back.

In two applications for carding-engines filed by me of an even date herewith, and serially numbered 168,130 and 168,131, respectively, I have in one of them shown a swinging frame attached to the end of the fixed supporting-frame of the breaker delivery-apron frame for effecting the overlapping or folding of the stock upon the transferring-apron at right angles to the delivery-apron, and in the other the transferring-apron is reciprocated transversely to overlap the stock upon it. In practice it is found that the employment of both the swinging frame and the reciprocating transferring-apron, moving in opposite directions, admits of reducing the throw or extent of their movement nearly one-half to produce the required width of lap of the stock, whereby said parts and their operating devices may be made more compact.

My invention accordingly consists of a carding-machine having a swinging frame at the end of the supporting-frame of the breaker delivery-apron a single longitudinally-traveling and transversely-reciprocating apron at right angles to the delivery-apron, and devices arranged to move said frame and apron in opposite directions.

In the drawings, A represents a part of the main cylinder of the breaker; B, the doffer of the same; C, the delivery apron; D, part of the frame supporting apron C; E, a part of the condenser-cylinder; F, a part of the licker-in; G, the feeding-apron therefor; H, the camel-back feeding device, and I the apron, arranged at right angles to apron C, all of which, except frame D and apron I, may be constructed and arranged for operation in the well-known or other desired way, or as substantially shown in Fig. 4.

To the outer ends, d, of frame D is pivoted a swinging frame, K, which depends near to and is in position over or above apron I. Frame K is composed of end bars, k, pivoted at k' to the ends d of frame D in any suitable manner, and the ends k are connected at their lower extremities by parallel bars, rollers, or ties k^2, rollers being preferred, and having secured to one end of their shafts k^3, outside of the adjacent end bar of frame K, grooved pulleys k^4, which are connected by means of a belt, k^5, with a like pulley, c, secured to the end of shaft c' of apron C, so that the rollers

k^2 will revolve in opposite directions or toward each other at the same rate of speed as that of apron-shaft c'. The single endless apron I has its usual forward traveling movement for feeding or transferring the web of fibers to the camel-back; but in addition to said movement it has a simultaneous transverse reciprocating movement.

To admit of the reciprocation of the apron I, its driving-shaft i has a pinion, M, in gear with a rotating shaft, N, of one of the apron-rollers of the camel-back H, in the usual manner. (See Fig. 4.) Shaft N is driven from shaft n^6 of the breaker by interposition of gear-wheels n^5 and n^4, shaft n^3, and bevel-wheels n^2 and n'. The gear-wheel n on shaft N, meshing with wheel M, gives to the apron I its forward traveling movement; but wheel M is loose upon shaft i, or is journaled in an adjacent bearing, i^2, by a sleeve, m, through which the shaft i passes. An end collar, m', holds the wheel in position, and a feather, m^2, in its bore entering a slot, i^3, in the shaft i (see more plainly Figs. 2 and 3) permits said shaft to slide as it is rotated by the driving-pinion M.

To relieve the shaft i of apron I of the weight of its frame L, it has lower cross-bars, l, provided with vertically-adjustable brackets l', having rollers l^2, traveling upon floor tracks or ways l^3. The bearing or brackets i^2 are firmly secured to the floor or a support, and are also made vertically adjustable, to provide for adjusting the apron I at different heights. As the frame K and apron I are moved to and fro in opposite directions, the stock or web of fibers, leaving the apron C and passing down between the rollers k^2 k^2, is overlapped upon the apron I, as indicated at x, Fig. 1, and this is effected by less movement of said frame and apron than if either were used separately.

Various devices and different modes of gearing them either directly or indirectly to different parts of the carding-engine may be used for operating the frame K and apron I.

In Fig. 1 is shown counter-shafting p and p', having pulleys or wheels p^5 and p^2, respectively, driving-belt p^8, connecting these pulleys, a belt-connection, p^4, from pulley p^5 to doffer-shaft b, rod attachment p^3, connected at one end to frame L of apron I and at the other is eccentrically attached to pulley p^2 in a radial slot formed therein, and a link attachment, r, from rod p^3 to one slotted arm, r', of a lever, R, pivoted to frame D, the other slotted arm, r^2, of lever R engaging with a stud on one end of frame K, the described connections of the link p^3 with pulley p^2, and link r with lever R, and of the arm r^2 of the latter with frame K, being all adjustable to vary the throw or travel of frame K and apron I to make different widths of lap on apron I.

In the above-described connections and arrangement of the actuating devices for apron I and frame K the devices are indirectly connected to the doffer-shaft; but, if desired, the eccentric connection for rods p^3 may be directly applied to one of the roller or other shafts, b', of the breaker, as shown in Fig. 4, and the like attachment for links or rods r for reciprocating frame K may be attached to another roller or other shaft, b^2, of the breaker, as indicated, and when so arranged the eccentric connection for rods p^3 and r with their respective breaker-shafts should be oppositely placed or arranged to give the desired reverse movements to frame K and apron I.

What I claim is—

1. The combination, with the breaker-card delivery-apron C and its supporting-frame D, the swinging frame K, pivoted to the outer ends of said supporting-frame, transversely-reciprocating apron I, at right angles to apron C, and actuating devices for moving said frame and apron in opposite directions, substantially as shown and described.

2. The combination of breaker-card delivery-apron C, its supporting-frame D, swinging frame K, transverse reciprocating apron I, at right angles to apron C, camel-back feeding device H, a second breaker or condenser having feeding-apron G, and actuating devices for swinging frame K and reciprocating apron I, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM SCHOFIELD.

Witnesses:
S. J. VAN STAVOREN,
CHAS. F. VAN HORN.