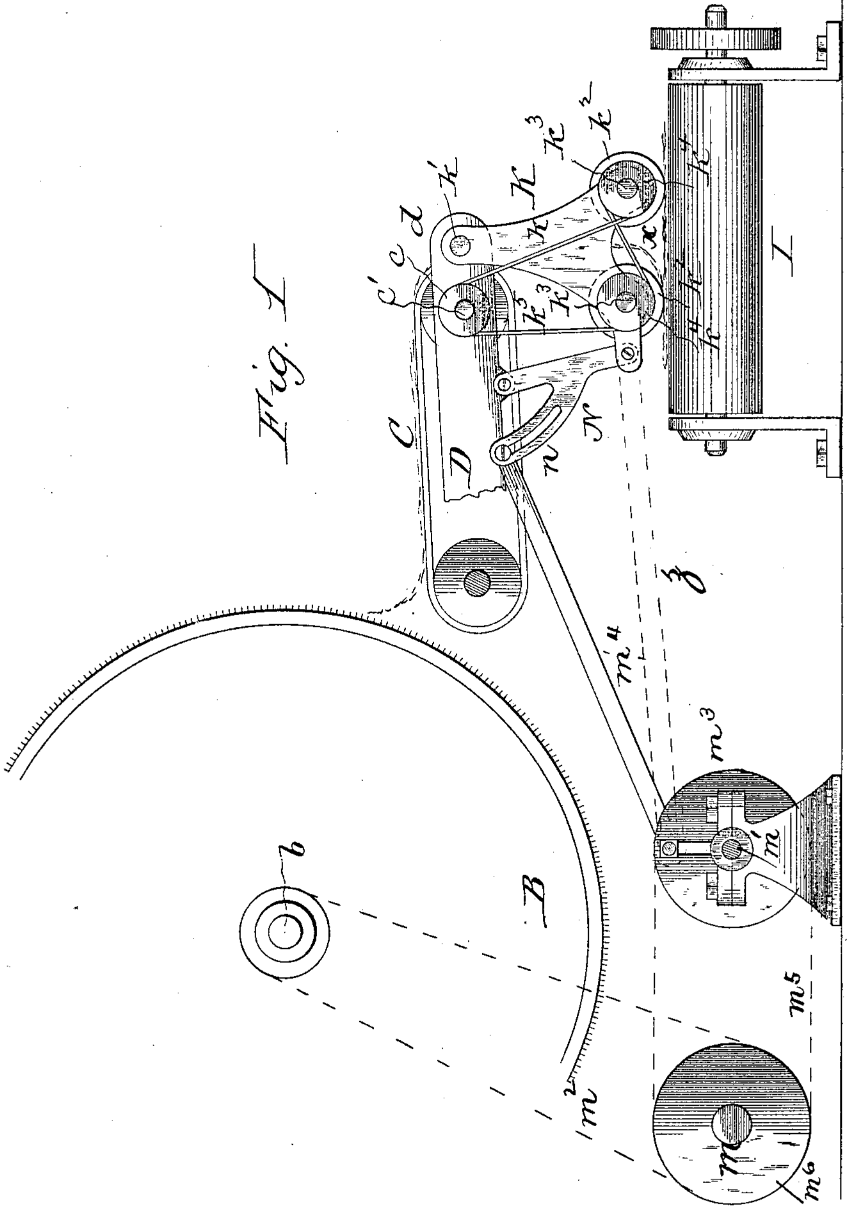
(No Model.) 2 Sheets—Sheet 1.

W. SCHOFIELD.

LAP FEEDING DEVICE FOR CARDING MACHINES.

No. 348,419. Patented Aug. 31, 1886.

Fig. 1



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(No Model.)

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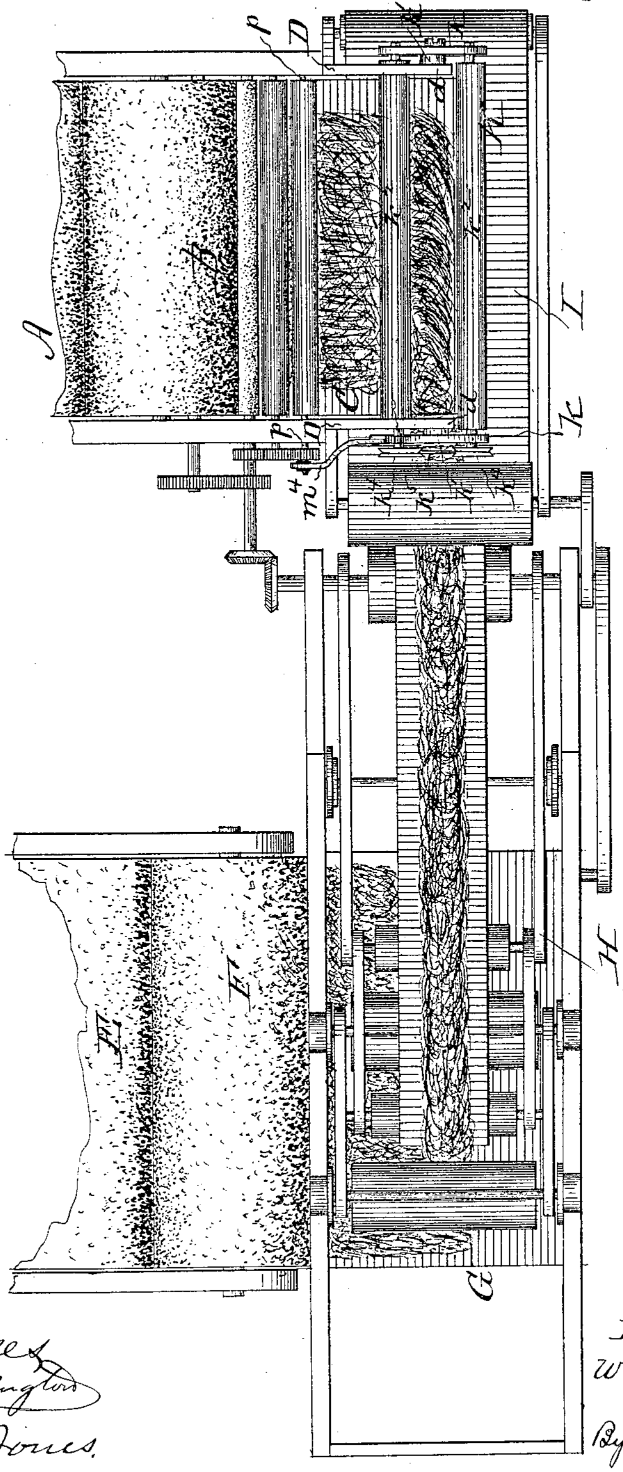

Fig. 2

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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. 348,419, dated August 31, 1886.

Application filed June 9, 1885. Serial No. 168,130. (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 fixed or rigid 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, a swinging frame embodying my improvements applied to the outer end of the delivery-apron-supporting frame, and actuating mechanism for the swinging frame, said mechanism in this figure being shown attached to a counter-shaft separate from the breaker; and Fig. 2 is a plan showing a part of a breaker-card, part of the condenser-card, the camel-back, and delivery-aprons of a carding-machine, swinging frame at the end of the fixed frame for the delivery-apron of the breaker-card, and actuating mechanism for the swinging frame, said mechanism being shown applied directly to one of the shafts on the breaker.

My invention has relation to carding machines or engines 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 first 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 than has heretofore been done, and also for working to better advantage a good grade of stock. To accomplish this the stock or web of fibers as it passes off of the end of the first breaker-card delivery-apron is folded or overlapped upon the apron at right angles thereto, or that which transfers the stock 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 same.

My invention accordingly consists of a carding-engine of the form wherein the breaker-cards have delivery-aprons supported in fixed or rigid frames, endless traveling aprons at right angles to the delivery-aprons, and a camel-back feeder for transferring the web or stock from the right angled aprons to the feeding-apron of the second breaker or condenser, combined with a swinging or reciprocating frame hinged or pivoted to the outer end of the fixed frame supporting the breaker delivery-apron and connection between the swinging frame and a driving-shaft of the breaker for imparting to the frame its swinging or reciprocating motion.

In the drawings, A represents a part of the main cylinder of the breaker, B the doffer of the same, C its delivery-apron, D the part of the fixed frame supporting said apron, E a part of the condenser-cylinder, F a part of its 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 may be constructed and arranged for operation in the well-known or other desired way, or substantially as illustrated in Fig. 2.

To the outer ends, d, of frame D is attached a swinging frame, K, (see more plainly Fig. 1,) 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 these 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 as frame K swings to and fro the rollers k^4 will revolve in opposite directions, or toward each other, at the same rate of speed as that of apron-shaft c'. As the swinging frame K is moved to and fro across the top of apron I, the stock or web of fibers passing off of the end of apron and dropping down between the rollers k^2 is by them folded or overlapped upon apron I, along its length, as indicated at x, Fig. 1, and as many overlappings may be made as desired by suitably timing the movements of frame K in relation to speed of travel of the aprons C and I.

The stock, overlapped as described upon apron I, I find in practice is uniformly condensed, and to a greater extent than formerly. It is stronger, and maintains a continuous even width as it is transferred to and moves over the camel-back feeding devices, and as it passes over the latter its rising and falling or closing and opening movements are less liable to part or break the stock; hence a lower or poorer grade of stock can be worked or treated by the carding-engine than formerly, or a good grade can be worked to better advantage.

When two breaker-cards are used, the delivery-apron of each will be provided with the swinging frames K.

Various actuating devices for swinging frame K to and fro across apron I, and different modes of gearing said actuating devices either directly or indirectly to different shafts of the condensing-engine for operating the frame K, may be used.

In Fig. 1 is shown counter-shafting m separate from the breaker, but driven by a belt-connection, m^2, from the doffer-shaft b. Upon shaft m is a suitable pulley or wheel, m^6, having a belt-connection with a like pulley, m^3, upon another counter-shaft, m'. m^4 is a link or bar having at one end an eccentric connection with pulley m^3, and at the other end is attached to the slotted arm n of lever N, pivoted to frame D, and connected at its lower extremity to a projection on frame K, as shown in full lines in Fig. 1; but, if desired, the link m^4 may be connected directly to said projetion on frame K, as indicated by dotted lines in said named figure. The arm n of lever K is preferably slotted, as is also the wheel m^3, to provide for adjustment of the end of the rod or link m^4 in said slots to alter the extent of the throw or movement of the swinging frame K across the apron I, for varying the width of the overlapping of the stock or web of fibers. In the above-described construction the actuating devices for the swinging frame K are indirectly connected to the shaft b of the doffer B. If desired, however, the adjustment for varying the extent of the swinging motion of frame K may be dispensed with, and the eccentric connection for rod m^4 may be applied to a roller or other breaker-shaft, p, as shown in Fig. 2, in which case the frame K is moved directly from said shaft without the interposition of counter-shafting.

The rollers k^4 in the lower part of the swinging frame K, being adjacent or parallel with a space between them, form two adjacent sides extending across the frame K, between which sides the stock or web passes as it is transferred from the delivery-apron C to and lapped upon the right-angle apron I. These rollers or their adjacent sides prevent the stock leaving or parting from the frame K as it swings to and fro across apron I; hence the lapping of the stock upon the latter is more evenly done or made by the frame K, and danger of disrupting or tearing the stock as it is lapped is avoided.

What I claim is—

1. The combination of a breaker-card delivery-apron, its fixed or rigid frame, an endless traveling transferring-apron at right angles to said delivery-apron, a swinging frame pivoted to the outer ends of the fixed frame supporting said breaker delivery-apron and having rollers or sides k^4, between which the stock or web from said delivery-apron passes, and actuating devices for operating said swinging frame, substantially as set forth.

2. The combination of the breaker-card and its apron C, a rigid frame supporting said apron, swinging frame K, having oppositely-rotating rollers k^2, actuating mechanism for swinging said frame K and for rotating said rollers, and endless traveling apron I at right angles to apron C, substantially as and for the purpose set forth.

3. The combination of a breaker card, a delivery-apron therefor, a fixed frame for said apron, a swinging frame, K, attached to the outer end of said apron-frame, and having parallel rollers between which the stock from said delivery-apron passes, devices for actuating frame K and for rotating said rollers, apron I at right angles to apron C, a camel-back feeder, H, and a second breaker or condenser having a feeding-apron, G, substantially as set forth.

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

WILLIAM SCHOFIELD.

Witnesses:

S. J. VAN STAVOREN,
CHAS. S. VAN HORN.