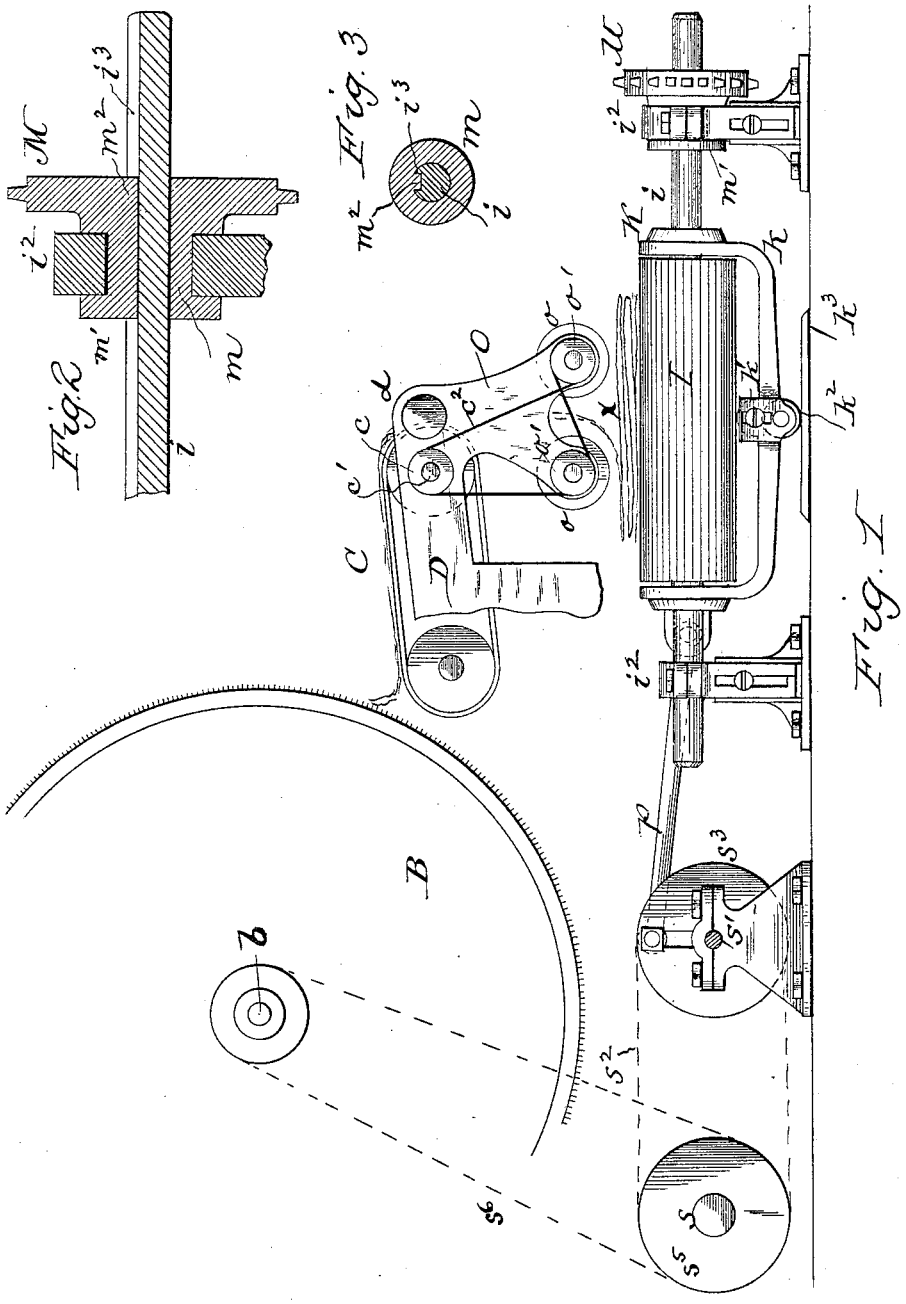
(No Model.) 2 Sheets—Sheet 1.

W. SCHOFIELD.

LAP FEEDING DEVICE FOR CARDING MACHINES.

No. 348,420. Patented Aug. 31, 1886.



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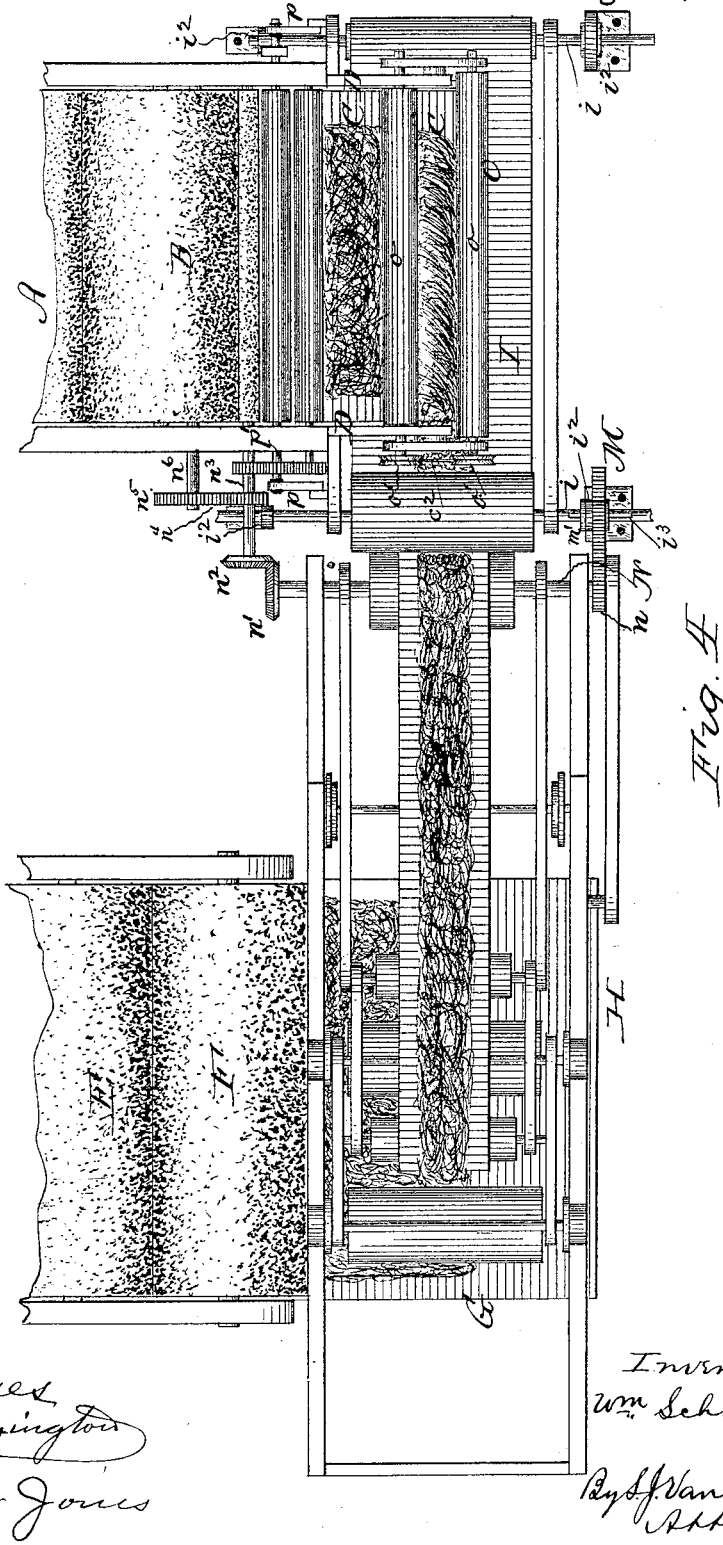

Fig. 4.

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UNITED STATES PATENT OFFICE.

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LAP-FEEDING DEVICE FOR CARDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 348,420, dated August 31, 1886.

Application filed June 9, 1885. Serial No. 168,131. (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 endless traveling and transversely-reciprocating 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 actuating mechanism for transversely reciprocating said transferring-apron and its supporting-frame, such mechanism being shown applied to a counter-shaft separate from the breaker-card shafts. Fig. 2 is a detail section, drawn to an enlarged scale, of a driving-wheel, spline-bearing, and shaft for the transferring-apron. Fig. 3 is a cross-section of said shaft, wheel, sleeve, and spline; and Fig. 4 is a plan showing part of breaker-card and its delivery-apron, part of a condenser and its feeding-apron, a camel-back feeder for the condenser feeding-apron, an endless traveling and transversely-reciprocating apron for transferring the web or stock from the delivery-apron of the breaker-card to the camel-back feeder, and actuating mechanism for reciprocating said transferring-apron and its supporting-frame, said actuating mechanism being shown applied directly to one of the 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 first or 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 the end of the first breaker-card delivery-apron to 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 same.

My invention accordingly consists of a carding-engine of the form having a camel-back feeder for the feeding-in apron of its second breaker or condenser, combined with an endless traveling and transversely-reciprocating apron arranged at right angles to the first breaker-card delivery-apron for transferring the web from the breaker-card delivery-apron to the camel-back, and of actuating devices in gear or connected directly or indirectly with either the breaker-card or other driving-shaft of the carding-engine for imparting to said transferring-apron its transverse reciprocating motion.

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 apron I, may be constructed and arranged for operation in the well-known or other desired way. (See Fig. 4.) The 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 for folding or overlapping upon it the web of fibers coming off of the end of the breaker-card delivery-apron, as indicated at *x*, Fig. 1, said overlapping of the web being accomplished before it is fed to the camel-back.

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, in the usual manner. (See Fig. 4.) Shaft N is driven from one of

the breaker-shafts n^6 through the medium of gear-wheels n^5 n^4, shaft n^3, and bevel-wheels n^2 and n', in the usual manner, as indicated in said last-named figure, and the meshing of gear-wheel n upon shaft N with said gear-wheel M on adjacent apron roller-shaft i communicates to the apron its usual forward traveling movement; but this 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 shafts of apron I of the weight of its frame K it has lower cross-bars, k, provided with vertically-adjustable brackets k', having rollers k^2 traveling upon floor tracks or ways k^3. The bearing or brackets i^2 are fixed to the floor or other support, and, if desired, are also made vertically adjustable, to provide for adjusting the apron I at different heights.

At the end d of the frame D is preferably mounted a fixed depending frame, O, having lower parallel cross-bars or rollers, o o, preferably the latter, the shafts of which are provided with grooved pulleys o', in gear with a like pulley, c, on shaft c' of apron C, by means of a belt, c^2, to revolve rollers o o in opposite directions, or toward each other, to feed the web of fibers coming off of apron C to apron I, and as the latter reciprocates it folds or overlaps upon it said web or stock, as indicated at x, Fig. 1. Any number of overlaps for the stock may be made by suitably timing the speed of reciprocation of the apron 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 moved over the camel-back feeding devices, and as it is passed 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, or a good grade of stock worked to a better advantage by the carding-engine than heretofore.

Various actuating devices and different modes of gearing them to different shafts of the condensing-engine for reciprocating the apron I may be used. In Fig. 1 is shown separate counter-shafting s and s', having pulleys or wheels s^5 and s^3, respectively, a belt-connection, s^2, for said pulleys, a like connection, s^6, from pulley s^5 to shaft b of doffer B, and links or rods p, secured at one end to frame K of apron I, and at the other eccentrically connected to wheels or pulleys s^3 on shaft s'. The latter pulleys have, preferably, slots for admitting variation or adjustment of the eccentric connection of rods p therewith to alter the throw of the same to make different widths of laps on apron I. In this case the actuating devices for reciprocating frame K and apron I are indirectly connected to the doffer-shaft; but, if desired, the connecting rods or links p for frame K may be eccentrically connected to one of the roller or other shafts, p', of the breaker, as shown in Fig. 4.

What I claim is—

1. The combination of breaker-card delivery-apron C, endless traveling and transversely-reciprocating apron I at right angles to apron C, actuating devices for reciprocating said apron, a camel-back feeder, and a second breaker or condenser having a feeding-apron, substantially as shown and described.

2. The combination of breaker-card delivery-apron C, frame D, having depending end or frame O, rollers o o in frame O, actuating mechanism for reversely rotating said rollers, apron I at right angles to apron C, and actuating devices for reciprocating apron I, substantially as shown and described.

3. The combination, with the delivery-apron C, of a breaker-card, the apron I at right angles to apron C, and having slotted shaft i, and driving-pinion M, having feather m^2, and devices for reciprocating apron I, substantially as shown and described.

4. The combination, with a breaker-card delivery-apron and its fixed supporting-frame, of a transversely-reciprocating and longitudinally traveling apron at right angles to said delivery-apron, a camel-back feed, and a frame attached to the outer ends of the frame supporting said breaker delivery-apron, and devices for operating said transferring-apron, substantially as shown and described.

5. The combination of the breaker-card and its apron C, the frame K, the endless traveling transferring-apron I at right angles to apron C, devices for reciprocating apron I, a camel-back feeder, H, and a second breaker or condenser card having a feeding-apron, G, substantially as shown and described.

6. The combination, with delivery-apron C, of the breaker-card, the apron I, having frame K, with rollers k^2, sliding shafts i, driving-pinion M, and devices for reciprocating frame K and 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.