2 Sheets. Sheet 1.

E. Leigh,

Carding Machine.

No. 50,211. Patented Sept. 26, 1865.

Fig: 5.

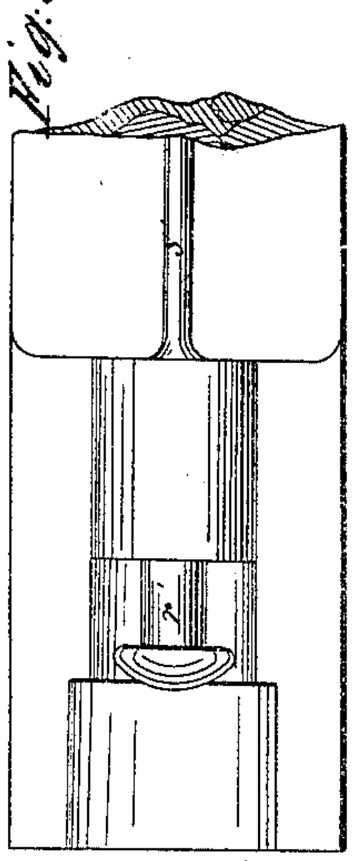

Fig: 3.

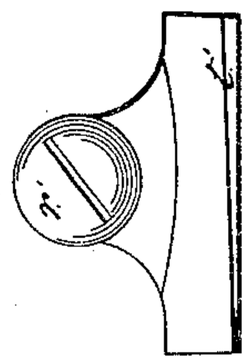

Fig: 1.

Fig: 4.

Witnesses.
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2 Sheets. Sheet 2.

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Carding Machine.

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Fig: 2.

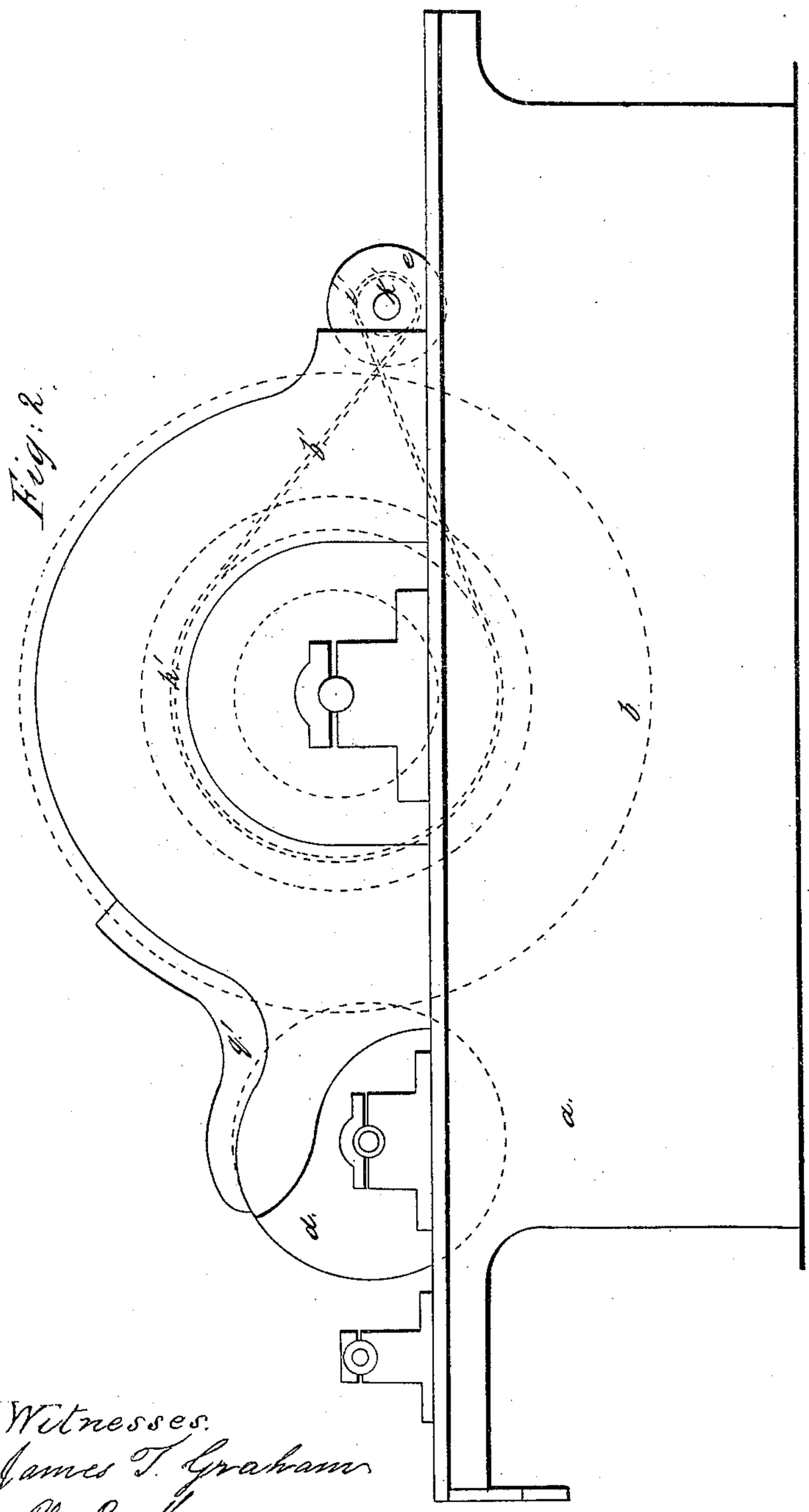
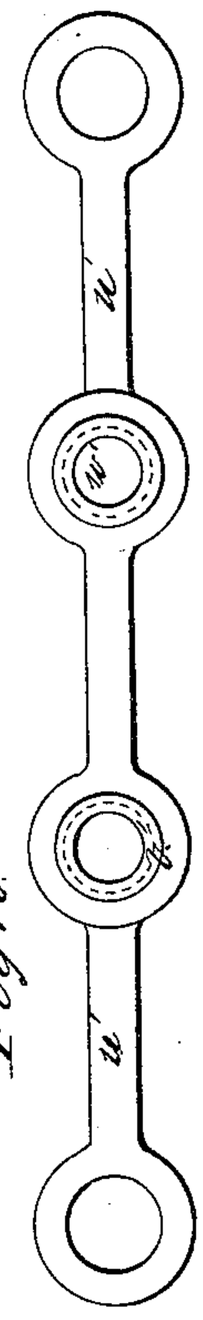


Fig: 7.

Fig: 6.



Witnesses:
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UNITED STATES PATENT OFFICE.

EVAN LEIGH, OF MANCHESTER, ENGLAND.

IMPROVEMENT IN CARDING-ENGINES.

Specification forming part of Letters Patent No. **50,211**, dated September 26, 1865.

To all whom it may concern:

Be it known that I, EVAN LEIGH, of the city of Manchester, in the county of Lancaster and Kingdom of England, mechanical engineer, have invented new and useful Improvements in Carding-Engines for Carding Cotton and other Fibrous Material; and I do hereby declare that the following is a full and exact description thereof, reference being had to the figures and letters on the accompanying sheet of drawings.

This invention relates to the engine or machine used for carding cotton or other fibrous materials, in which I employ an endless chain of flats or top-cards so connected that the flats are self-stripping and can accommodate themselves to the necessary angle to the surface of the main carding-cylinder required in carding while traversing over the main cylinder. I accomplish this desirable object by hanging or suspending them upon axes at their ends by means of set-screws inserted at each end of the flats, the said set-screws passing through bushed chains or links, as shown in the acccompanying drawings.

In order to adjust or set the flats or top-cards to the main cylinder, I employ adjustable segmental guides, over which they slide; and to give to the face of each of these top-cards the requisite angle to the face of the main carding-cylinder, I cut the ends of the flats (which I prefer to be made of cast-iron) to a bevel curve corresponding with and fitting the curve of the segmental guides. As these flats move slowly around they are stripped by a doffing-comb, to which an oscillating motion is given, and then they slide over an arched frame, a'', fixed on the top of the engine. The back edges of the flats, which are hollowed out or curved, come in contact with the said arched frame a'' and slide over it; but the curve or hollow is not beveled, but cut in a parallel line with the surface of the wire card on the flat, so that its outer edge can rest on the plates more efficiently. This arrangement admits of the flats being ground or sharpened by a grinding-roller as the cards are at work, without removing them from the engine.

Another of my improvements consists in supporting the stripping-box (which may be lifted to admit of grinding and stripping the main cylinder) on arms hinged from the same brackets that support the front or stripping comb-shaft, which arms are made with a curve or swan-neck to pass over the comb, which not only has the advantage of simplicity, but allows the bottom end of the stripping-box to come nearer to the doffer, which arrangement prevents the collection of waste between it and the doffer.

These improvements will be clearly understood by reference to the accompanying sheet of drawings, in which—

Figures 1 and 2 are side elevations of a carding-engine; and Figs. 3, 4, 5, 6, and 7 are parts of the same, drawn full size.

In Figs. 1 and 2, a represents the frame-work of the machine; b, the main cylinder; d, the doffer-cylinder; e, the licker-in as usually constructed; f, the endless chain of flats; g, the doffing or oscillating comb; h, an internally-toothed wheel which gears into the pinion i, (shown in dotted lines, Fig. 1,) which pinion is fixed on the end of the main-cylinder shaft. The internal wheel, h, has a pulley, k, cast upon or fixed to it, on which the strap l works. This strap passes to the under side of the large pulley m, keyed on the doffer-shaft, and then over the small pulley n, fixed on the calender-shaft o, and is kept tight by the weighted lever p and pulley q. To the large pulley m is fixed a chain wheel or pulley, r, which gives motion through the band or chain s to the small shaft t, on the end of which is fixed a chain wheel or pulley, over which the band or chain s passes. The small shaft t has a crank or eccentric upon it, which oscillates the stripping-comb u, and also drives the flats by means of the bevel-wheels v and worm w working in the worm-wheel x keyed on the shaft y, on which are also fixed notched wheels, which drive the flats. The flats are adjusted to the main carding-cylinder by turning the nuts d', which work upon the screws b'. These screws pass through the swivel-sockets c' to adjust the distance of the periphery of the segment a' from the center or axis of the main carding-cylinder. The peripheries of these segments should be finished to the same diameter of the circle as the main carding-cylinder, and when the cards of the latter become worn, so as to reduce the diameter, the segments a' may be sprung the merest trifle by means of the adjusting-screws, to make them correspond with the slightly-reduced diameter of the cylinder.

The flats or top-cards can be ground while the card is at work by the grinding-roller e', mounted on pedestals f', as shown in Fig. 1. A circular brush can also be worked, in place of the grinding-roller, from the same pedestals, or those shown at g'. On the shaft of the main cylinder is fixed a large pulley, h', which gives motion to a small pulley, i', on the end of the licker-in shaft k' by means of the cross-strap l', all shown in Fig. 2. The doffing-comb g is worked from the licker-in shaft k', on which is fixed a crank or eccentric, m', which gives motion to the connecting-rods n', Fig. 1, connected by a lever, o', to the oscillating shaft and comb g.

My improvements in stripping-boxes are shown in Figs. 1 and 2. Upon the brackets supporting the stripping-comb u are arms p', which are made of a suitable curve to allow the stripping-box q' (to which they are attached) to pass over the comb u and out of the way of the flats or cards when it is required to grind or strip the main cylinder. By this arrangement, also, the stripping-box is brought nearer the doffer, and consequently much less waste of fly is produced.

In my improved flat (shown in enlarged sections in Figs. 3, 4, and 5) the round projection s'', which receives the chain-screw r', is cast with and in contact with the back rib, s', by which the flat is materially strengthened, and a clear space is left at the surfaced end, where the flats slide upon the arched frames a''. These arched frames a'' are supported at their ends by the same brackets that support the ends of the segmental guides a', and are consequently adjusted with them. The bevel upon the under surface, adapted to suit the segmental guides a', is shown at t', Figs. 3 and 4.

The bushed chain or links, which are attached to the end of the flats, are shown at u', Figs. 6 and 7, the bush v' having a hole, w', through which the chain-screws r', Figs. 3, 4, and 5, pass, and thus allow the flats to accommodate themselves to the curves of the segmental guides a' and arched frames a''.

I claim—

1. The peculiar construction shown and described of an endless chain of flats or top-cards, being self-stripping, and to which any definite angle to the periphery of the main carding-cylinder, when at work, can be given.

2. The bushed chain, by which the flats are hung or suspended in such a way that the pressure of their own weight is received by the chain-bushes and the flats are allowed to swivel freely and adjust themselves to any angle to the surface of the main carding-cylinder they may have been cut for.

3. The general arrangement and combination of all the parts, as herein described, and illustrated in the accompanying sheet of drawings.

Done at Manchester, England, this 9th day of September, 1864.

EVAN LEIGH.

Witnesses:

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