

Jackson & Moir.

Carding Machine.

N^o 7,072.

Patented Feb. 5, 1850.

Fig. 6.

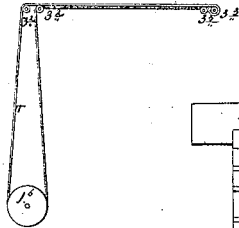


Fig. 1.

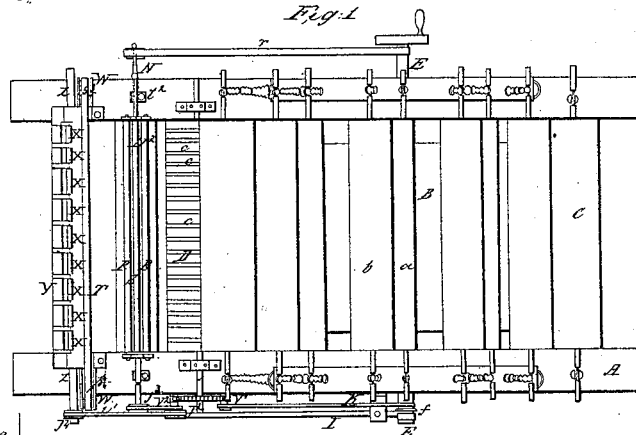


Fig. 3.

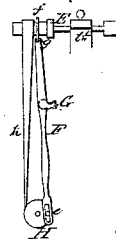


Fig. 2.

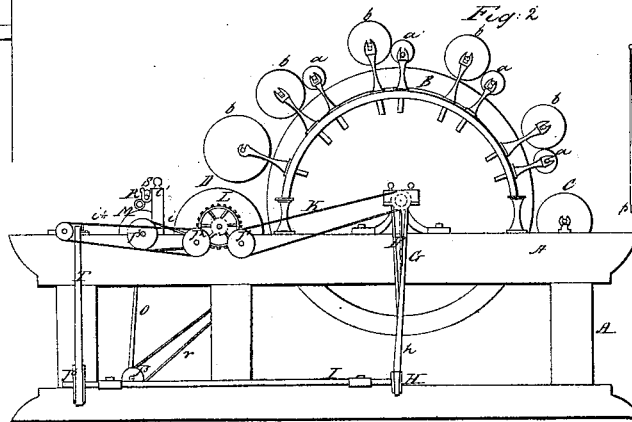


Fig. 5.

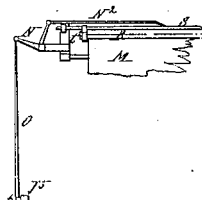
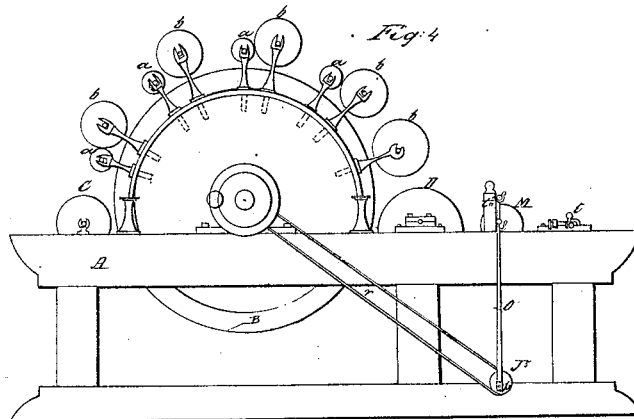


Fig. 4.



UNITED STATES PATENT OFFICE.

CHARLES JACKSON AND JAMES MOIR, OF CAZENOVIA, NEW YORK.

IMPROVEMENT IN ENGINES FOR CARDING AND DRAWING WOOL.

Specification forming part of Letters Patent No. 7,072, dated February 5, 1850.

To all whom it may concern:

Be it known that we, CHARLES JACKSON and JAMES MOIR, of Cazenovia, in the county of Madison and State of New York, have invented a new and useful Improvement on Machinery for Carding and Drawing Wool; and we hereby do declare that the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a top or bird's-eye view; Fig. 2, a side elevation showing the reciprocating rod of the condensing-cylinder. Fig. 3 is an end view of said rod. Fig. 4 is a side elevation showing the opposite side of the machine to that represented by Fig. 2. Fig. 5 is an end view of the reciprocating rod which vibrates the rub-rolls. Fig. 6 is an end view of the twist-band.

The same letters refer to like parts on the figures.

The nature of our invention consists in providing a condensing-cylinder with a reciprocating rod, to give the said cylinder a reciprocating motion, in combination with its usual rotary motion, so as to spread out and mix the wool better than has been heretofore done for the production of better roving and to obviate the employment of more than one doffer; also, in providing a twisting-band and drawing-rolls, to be used in combination with rubbing-rolls of the common construction to draw the roving on the carding-machine, reducing it prepared for the jack or spinning-frame.

To enable others skilled in the art to make and use our invention, we will proceed to describe its construction and operation.

A is a frame constructed in the usual manner.

B is the condensing carding-cylinder, and *b a* are the common workers and clearers. The surfaces of these are covered with cards in the usual way.

C is a licker-in. D is a doffer. *c c* are the usual rings of cards on the doffer. These parts need not be further described.

The difference between our condensing card-cylinder and others in use consists in giving it a reciprocating side-to-side motion

while it is revolving, to spread and mix the wool better than merely by a rotary motion—the only motion which common carding-machines have.

E is the shaft of the condensing-cylinder. It extends a short distance over the side of the frame. The distance between the sides of the frame A is greater than the breadth of the cylinder to allow the cylinder to move the required distance from side to side.

F is a rod, which has a notch *g* on the top of it.

f is a ring secured to the collar on the shaft E and gears into the notch *g* to connect the rod F and the shaft E of the cylinder F together. The rod F is secured to the side of the frame by a free center or pivot G.

I is a longitudinal shaft secured to revolve in proper bearings on the side of the frame.

H is a pulley fixed on the said shaft. This pulley has a pin *e* fixed in it a short distance from the center, which pin passes through a slot in the lower end of the rod F, as seen in Fig. 3.

h is a band passing from the small pulley or collar on the end of the shaft E and around the pulley H. When the cylinder B, therefore, is revolved, the band *h* gives motion to the pulley below and thus moves the rod F, which, being hung eccentrically on the pulley and oscillating on the pivot or fulcrum G, gives a reciprocating or side-to-side motion to the condensing-cylinder B while it is revolving. This double motion of the condensing-cylinder spreads and mixes the wool in carding far better than can be done by the common simple motion of the carding-machine now in use, and, as it is well known that on the carding operation both in the cotton and woolen manufacture, the "finishing quality" of the cloth is dependent, any improvement in carding is very important.

The rub-rollers receive a double motion, as follows:

R R are two extended rubbing-rollers. They are hung to rest on the cylinder M, and when it moves they receive a rotary motion from it. These rub-rolls are suspended on bearing-arms to revolve in their bearings.

S is an extended axle or reciprocating shaft to which the suspension-arms of the rub-rolls

are secured. The shaft S does not revolve, but is hung in bearings on the posts t' t'' ; but while it does not revolve it has a traverse motion, which thus moves the rub-rolls from side to side, while the cylinder M gives them a rotary motion at the same time.

The reciprocating motion is given to the axle S as follows: A band r , Fig. 5, passes from the shaft E around a pulley J^5 , on the side of which, a short distance from the center of it, is a pin p , which is connected to and forms a free joint in the lower end of the rod O, the upper part of which is connected by a joint to the angular arm N, which is secured at its vertex to a bar or plate attached to the post t' , vibrating on the said bar by a pivot-joint. When motion is communicated to the rod O by the pulley J^5 , the arm N rocks and moves the axle S from side to side, giving it a reciprocating motion by the arm N being connected to the axle S by a bar N^2 , as represented in Fig. 5.

The surfaces of the rub-rolls are covered with leather, and the slivers of wool as they come from the doffer pass between the said rub-rolls and the cylinder M, and by the action of the said rub-rolls the slivers of wool are formed into roping.

T is a cross-twist band. It is double, passing around and driven by the pulley J^6 and up at the side of the frame, Fig. 2, between two small friction-wheels Z^2 Z^3 (indicated by dotted lines, Fig. 1) in the end of the bar or plate W W, which is secured to the frame A. The top part of the band T runs in one direction while the under part is running in the contrary direction, and the roping from the rub-rolls passes between or through the said band.

X X are the drawing-rolls. They are fixed to play on their axles in small upraised bearings or arms, which extend up from and are secured to the plate Y, as seen in Fig. 1. These drawing-rollers are suspended on their axles to rest on or rub on the surface of the extended under roller Z, which receives motion from the pulley J^4 , Fig. 2. These drawing-rolls are constructed to operate upon the well-known principle to draw out and attenuate the roping of wool by their having a quicker motion than the surface motion of the rub-rolls and cylinder M. The rub-rolls have the same amount of surface rotary motion as the doffer.

J' J^2 are pulleys secured on axles which are inserted and run in bushes or journal-boxes in the side of the frame A. In the inside of the pulleys J' J^2 are secured small pinions V' V^2 , Fig. 1.

K is a band from the shaft E, extending around J' and drives it. The pinion V' drives the cog-wheel L on the axle of the doffer D, and thus the doffer is driven. The cog-wheel L meshes into the pinion V^2 and gives motion to the pulley J^2 and to the belt i , as seen

in Fig. 1, which gives motion to the cylinder M of the rub-rolls. The belt i' gives motion to the pulley J^4 and drives the roller Z, and thus gives motion to the drawing-rolls.

We have thus explained how motion is communicated to all the machinery.

The sheet of wool is fed into the licker-in C. It is taken off by the cards on the condensing-cylinder B, carried to the worker a , taken off by it, and then stripped by the clearer b , then carried forward from the clearer by the condensing-cylinder, and so on till the sheet comes to the doffer, when it is taken off the cylinder, and by the card-rings on the said doffer it is made into slivers, and then the slivers are received between the rub-rolls and the cylinder M, then between the lap of the cross-twist band, and then drawn out by the drawing-rolls X and received without any twist as drawn roping fit for the jack or the spinning-frame.

The way in which the roping is left without twist after having passed through or between the twist-band requires further explanation.

When the ends of the strands of wool, as they must be, are first drawn into their places between the rub-rolls through the belt and between the drawing-rolls, they have no twist in them. When the machine is set in motion, the cross-twist band twirls all the roping that passes through it afterward, leaving it in a fit state to be subjected to the action of the drawing-rolls, but that part of the strand or roping drawn through without a counter-twist, and the action of the drawing-rolls being first on it no twist can be made on it. Therefore as the pressure of the drawing-rolls is first exerted upon an untwisted strand they afterward receive the twisted roping from the band T and draw it in that state, but are still acting upon it to leave it free from twist, like the first part of the strand, and therefore by practical operation in this machine the finished roping, after it has left the drawing-rolls a few inches, becomes perfectly free from twist and remains to the end.

No condensing card-cylinder in use has a reciprocating and rotary motion, but merely a rotary motion. The compound motion of the carding-cylinder, besides spreading and mixing the wool better, also keeps the card-teeth better pointed, and this is a great advantage.

No carding-machine in use forms roping and draws it at one continued operation, leaving it without twist.

Having thus explained our invention, we claim—

1. The combination of what is termed the "main" or "condensing" cylinder with the reciprocating rod F, to give the carding-cylinder a reciprocating side-to-side motion, in combination with its rotary motion, in the

manner substantially as herein described, or in any other manner substantially the same, to produce the same effects.

2. The combination of a twisting-band and drawing-rolls with rub-rolls of the common construction, for the purpose of reducing roping by drawing it with twist upon the carding-machine, in the manner substantially

as herein described, or in any other analogous manner.

CHARLES JACKSON.
JAMES MOIR.

Witnesses:

BENJN. T. CLARKE,
THOS. B. DODD.