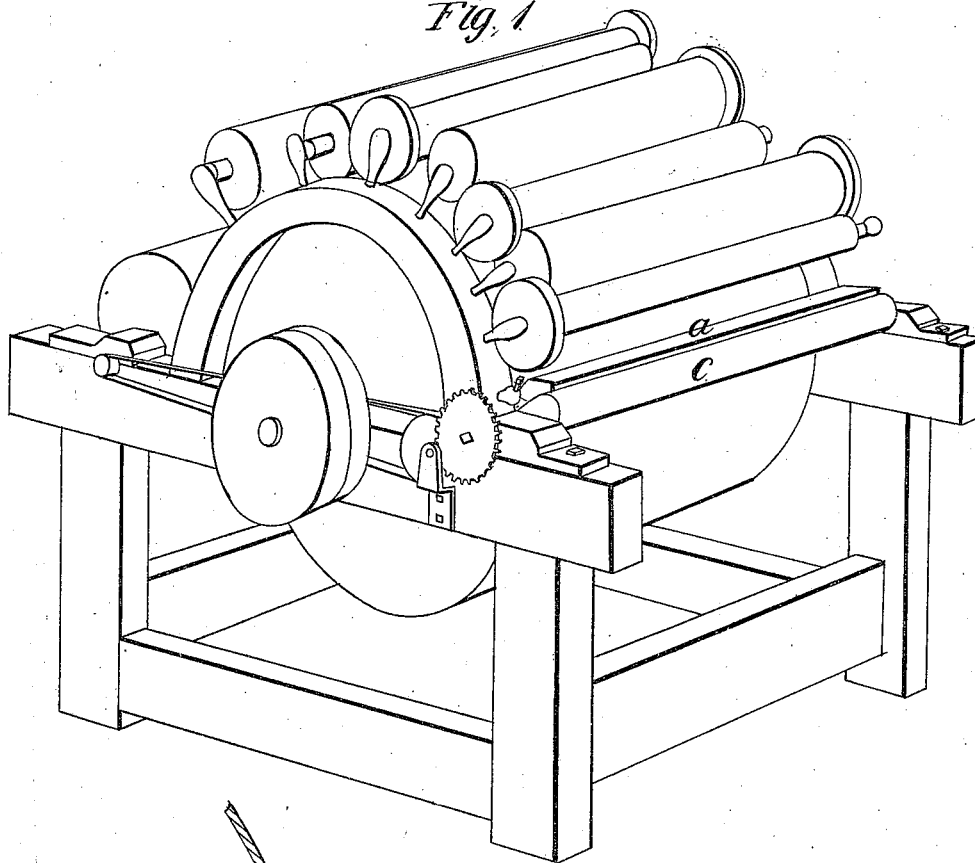


*N. Freeman.*  
*Carding Mach.*

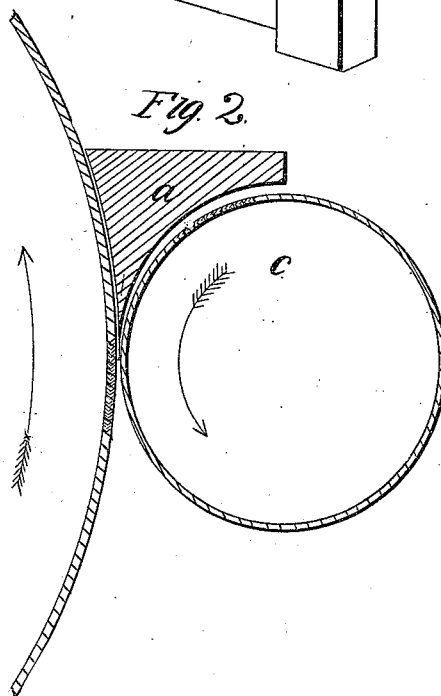
*Nº 1,462.*

*Patented Dec. 31, 1839.*

*Fig. 1*



*Fig. 2*



# UNITED STATES PATENT OFFICE.

NATHAN FREEMAN, OF LOWELL, MASSACHUSETTS.

## IMPROVEMENT IN CARDING-MACHINES FOR CARDING WOOL.

Specification forming part of Letters Patent No. 1,462, dated December 31, 1899.

*To all whom it may concern:*

Be it known that I, NATHAN FREEMAN, woolen manufacturer, of the city of Lowell, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Carding-Machines for Carding Wool, in order to operate with them more effectually in shortening, equalizing, and straightening the staple of and carding wool, which invention and improvement I specify and describe as is herein set forth.

The drawings hereto annexed are to be taken and considered as a part of my specification and description.

I use a bar of the shape shown in the drawings in Figures numbered 1 and 2, respectively, and designated by the letter *a*, instead of one of the feeding-rolls. I usually place it near to and partly between the faces of the main card-cylinder and the feeding roll or cylinder, as shown in the drawings, dispensing in this case with the tumblers and the other feeding-roller, or near to and partly between the faces of the tumbler and the feeding roll or cylinder, dispensing with the other feeding roll or cylinder, if a tumbler or tumblers be used. It is deemed best to apply it between the faces of the main card-cylinder and a feeding roll or cylinder upon some one of the breakers between the first breaker and the finisher, and it may be applied with about the same advantage upon either of these intermediate breakers. It will answer the purpose tolerably well when applied upon the finisher, and it may be applied with some, though less, advantage upon the first breaker. It may also be applied, but with less advantage, between any of the workers and strippers, retaining in this case all other parts of the carding-machine; and it may be applied in connection with a feeding-roll and between it and any carding-cylinder. If it be applied upon either the finisher or the first breaker, it will in this case work best with a tumbler or tumblers. It will work best with the common feeding-roll covered with card.

It will be obvious to any machinist of ordinary skill that the bar may be turned upside down and placed partly between the faces of the same cylinders in the same manner below, instead of being placed above, as is represented in the drawings; but in this case the

motion of the feeding-roll must be in a reversed direction.

If either the feeding-roll or carding-cylinder between the faces of which the bar is placed move in a direction opposite to that represented in the drawings, the bar, in order to work best, should be placed partly between the faces of the cylinders below and not above, as represented in the drawings, although if in this case a tumbler be used the bar may be placed and used with some effect above, as there represented.

The bar I use is made of cast-iron; but it may be made of other metal or wood or partly of both, provided that it be sufficiently hard and stiff so as not to bend, yield, or give way. Cast-iron or other hard metal, however, is deemed preferable. The bar has a lip, as represented in the drawings, extending down or up between the cylinders, as it may be placed above or below, near or quite to the center of the feeding-roll in connection with which it is used. This lip at its end should be about one-sixteenth of an inch in thickness, and the bar is concave on two of its sides, as shown in the drawings. The concavity on the side to be applied next to the face of the main cylinder, tumbler, or carding-cylinder ought to correspond with the periphery of such cylinder or tumbler, and the concavity on the other side, next to the feeding-roll ought nearly to correspond with the periphery of that feeding-roll; but it should be so made and the feeding-roll should be so placed that there may be a small space between the feeding-roll and the bar, larger where the wool enters and gradually becoming smaller as it approaches toward the end of the lip. This space should be sufficiently large where the wool enters to allow it to enter freely, and sufficiently small at the end of the lip to cause the wool to be pressed and held between it and the feeding-roll while it is passing by that end in such manner that it may be operated upon to the best advantage by the carding-cylinder, accordingly as it may be required to operate upon the staple, more or less. The bar ought to be placed as near to the face of the main cylinder, tumbler, or carding-cylinder as it may be and leave the cylinder to work and operate without touching it, and the feeding-roll should be brought near to the end of the lip

on the other side in order that the wool may be pressed and held between it and the lip near to the main cylinder, tumbler, or carding-cylinder while it is passing by the end or edge of the lip and is under the operation performed upon it by such main cylinder, tumbler, or carding-cylinder. The feeding-roll should be placed nearer or farther from the lip of the bar, accordingly as it may be required to operate upon the wool or the staple thereof, more or less, or to operate well upon wool of the particular kind or quality to be submitted to the operation. The bar has a bearing at each end resting in the head of a puppet inserted like the other puppets in the arch of the frame, or it may be inserted in the frame itself and made fast, in either case by a nut and screw, or in any other convenient way.

The bar is made movable upon its bearings, so that it may be turned a little from time to time either one way or the other, so as always to be kept within a proper distance of the faces of the cylinders between which it is to be applied, and it is firmly held wherever it may from time to time be fixed by means of a set-screw applied through the head of the puppet to the bearing at each end. The bearings of the feeding-roll turn in boxes which are capable of being moved nearer toward or farther from the bar, so that the feeding-roll may be from time to time placed, adjusted, and fixed nearer or at a greater distance from the lip of the bar, as occasion may require, in order to operate more or less upon the wool or the staple thereof, or to operate to the best advantage upon the wool or the staple thereof of the particular kind or quality sought to be operated upon. The box at each end in which the bearing turns is fixed wherever it may be placed by a nut and screw passing through a slot either in the box or frame. The wool being conveyed and supplied to the feeding-roll by means of an endless apron or drawings, or bats, or in any other convenient way,

is carried toward the end of the lip of the bar, and while pressed between it and the feeding-roll and passing the end or edge of the lip is operated upon by the teeth of main cylinder, tumbler, or carding-cylinder, as the case may be, and the fibers of the wool are broken, separated, and straightened, and operated upon and the knobs of the wool are disentangled, so as to card the wool better and more effectually than it can be done in the ordinary way when it passes through and is pressed between feeding-rollers at a greater distance necessarily from the main cylinder, tumbler, or carding-cylinder, as the case may be.

The drawing designated by Fig. 1 is intended to represent a common carding-machine without the tumblers and with but one feeding-roll C, between which and the main cylinder the bar above described is placed.

The drawing designated by Fig. 2 is intended to represent an end view of the main cylinder or carding-cylinder, the bar, and the feeding-roll, and their relative position, as it respects each other, when the bar is placed above and not below. Their relative position when the bar is turned upside down and placed below is too obvious to require any other description or representation of it.

What I claim as my invention is—

The application and use of such bar as aforesaid upon carding-machines for carding wool near to and between or partly between the faces of such cylinders as aforesaid used in such machines, in the manner and for the purposes aforesaid.

In witness whereof I, the said FREEMAN, have hereto set my name this 17th day of December, A. D. 1839, in the presence of two witnesses.

NATHAN FREEMAN.

Witnesses:

ELISHA TOWER,  
BEN. RAND.