C. Bishop.

Carding Mach.

No. 4,778. Patented Sept. 26, 1846.

Fig. 1.

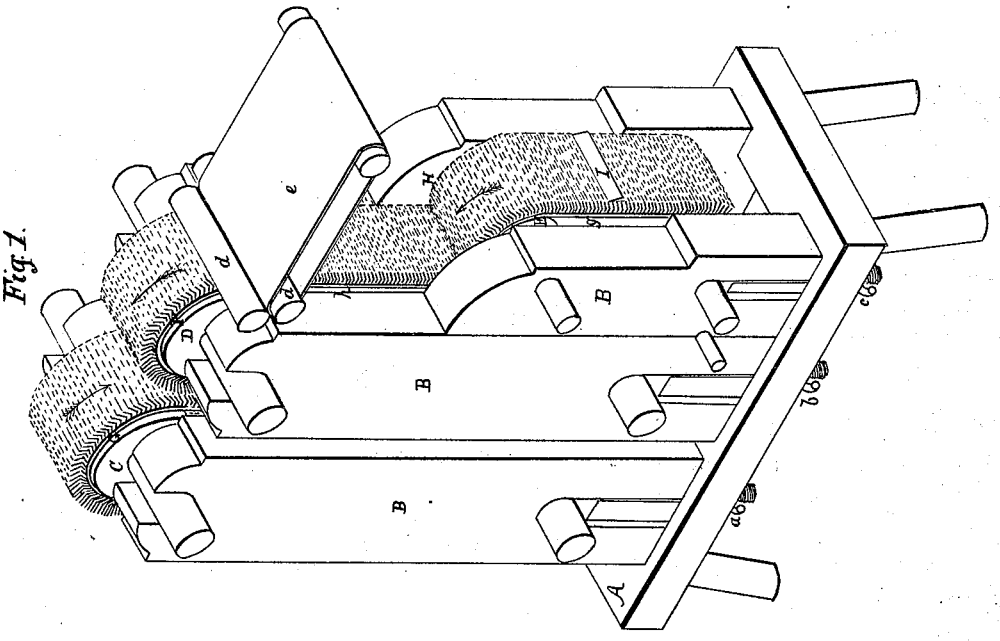
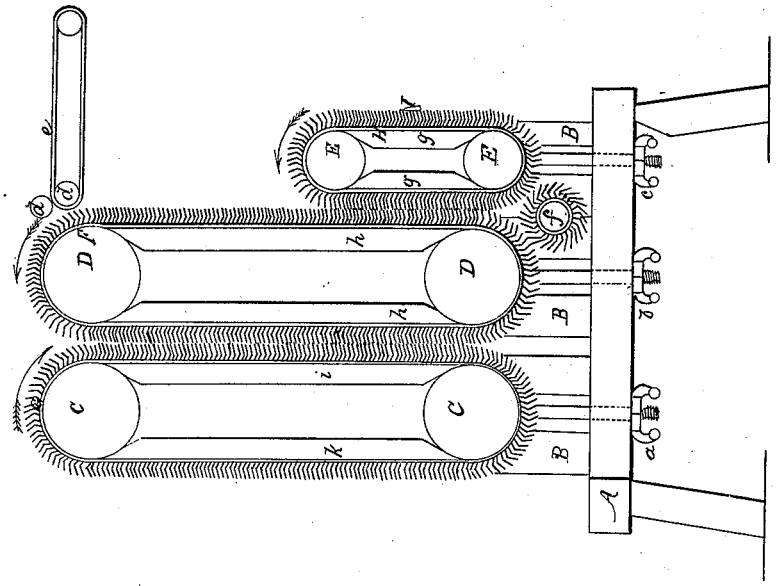


Fig. 2.



UNITED STATES PATENT OFFICE.

CHARLES BISHOP, OF NEWTOWN, CONNECTICUT.

IMPROVEMENT IN CARDING-MACHINES.

Specification forming part of Letters Patent No. **4,778**, dated September 26, 1846.

To all whom it may concern:

Be it known that I, CHARLES BISHOP, of Newtown, in the county of Fairfield and State of Connecticut, have invented a new and useful Machine for Carding Wool, Cotton, and other Fibrous Substances; and I declare that the following is a full, clear, and exact description of the principle or character which distinguishes it from all other things before known, and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective representation of the carding-engine, and Fig. 2 a vertical section thereof.

The same letters indicate like parts in all the figures.

In the carding-engines now in use the card-teeth project from cylindrical surfaces, and the fibers to be carded are only acted upon as the cylinder which carries them passes in succession the series of small cylinders arranged around it, and as only a small portion of the surfaces of these cylinders are in contact with each other the fibers are only acted upon during a small portion of their circuit. This is obviously defective.

The object of my invention is to make the action of the card-teeth on the fibers continuous and so to arrange them that a greater portion of the teeth shall be in active service than can be effected by the present method; and this I effect by placing the card-teeth on a series of endless belts which pass around rollers, with the surfaces of the belts thus covered with teeth running in contact along the straight surfaces between the rollers around which they pass, which prevents the card-teeth from converging or diverging, as when placed on curved surfaces.

In the accompanying drawings, A represents the frame of the machine properly adapted to the various parts, and B B B three sets of standards adapted to the reception of appropriate boxes in which turn the journals of three pairs of rollers C C, D D, E E, around which pass three endless belts F G H. The boxes of the upper rollers are permanent and the lower ones slide in grooves in the standards and are provided with set-screws *a b c*, for the purpose of distending the belts. The three belts are made of leather or other appropriate substance covered with card-teeth in the manner of carding-cylinders. The belt F takes the place of the carding-cylinder in the well-known carding-engine, and has the teeth bent in the direction of the arrow, which indicates the direction in which the belt moves. The teeth on this belt receive the fibers to be carded from the feed-rollers *d d* and feed-apron *e*, which are carded in passing down between this belt and the other belt G, covered with teeth in like manner as the belt F, and bent in the reverse direction of the arrow which indicates the motion of this belt, which is slower than the other. After the fibers have been carded between these two belts, they are carried around and further carded between this main belt and the third one H, which is much shorter than the other two and takes the place of the doffer in the common carding-engine, and from this last belt, which moves in the direction indicated by the arrow, the fibers are stripped or doffed by the comb I, constructed and operated in the usual manner. If desired, a small roller *f*, covered with card-teeth, may be placed at the bottom, between the belts F and H, to take the place of the fancy used in the common card; but this may be dispensed with. Tables *g h i k* are attached to the standards and placed within the belts to form plane surfaces to prevent them from yielding while the teeth are in action. These belts may be made of any desired length and the number increased or decreased to suit the kind of fibers to be carded and the judgment of the constructer. As the belts begin to curve around the rollers the points of the teeth separate, which facilitates the delivery of the fibers, and hence fancy-rollers may be dispensed with.

The main carding-belt F should move with a velocity equal to that given to the main carding-cylinder in the common carding-engine, or with any other velocity suited to the judgment of the constructer or operator, but faster than the second belt G, and the velocity of the third belt should bear about the same relation to the main belt which the doffer of the common carding-engine does to the

carding-cylinder. These motions are to be given by belts or cog-wheels in manner well known to machinists.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The method herein described of carding fibrous substances by the action of the straight surface of a belt of cards stretched and carried around rollers when this is combined with one or more similar belts of cards, substantially as herein described.

2. In combination with such belts of cards, the tables employed for keeping their acting-surfaces in the proper line of action, substantially as described.

CHARLES BISHOP.

Witnesses:
ISAAC H. HAWLEY,
DAVID H. BELDEN.