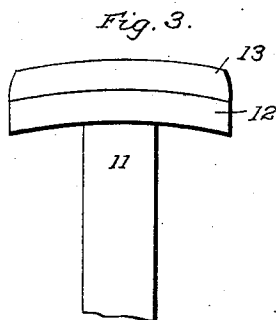
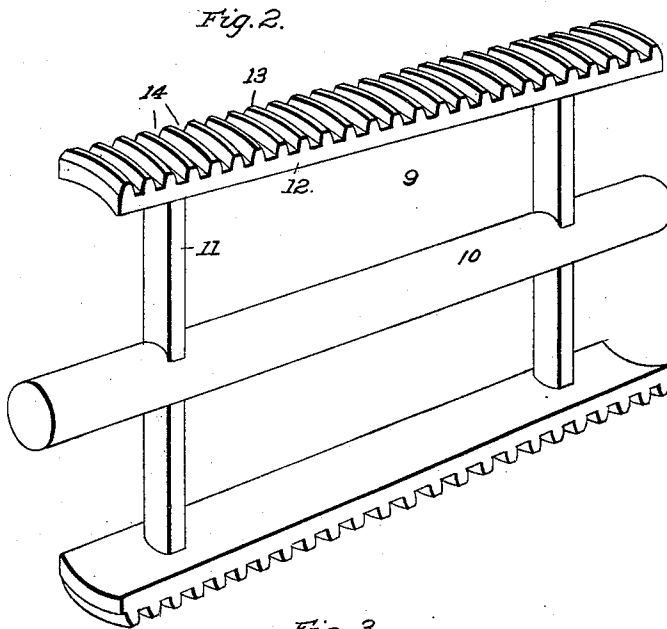
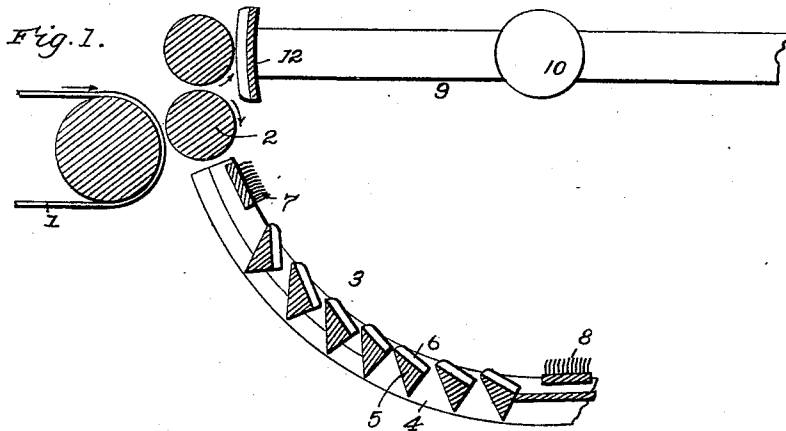


(No Model.)

H. S. HOUGHTON.
COTTON OPENER.

No. 582,922.

Patented May 18, 1897.



Witnesses:
E. J. Paeder
W. A. James

Inventor
H. S. Houghton
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Attorney

UNITED STATES PATENT OFFICE.

HENRY S. HOUGHTON, OF NORTHBRIDGE, MASSACHUSETTS, ASSIGNOR OF
ONE-HALF TO SAMUEL FOWLER, OF SAME PLACE.

COTTON-OPENER.

SPECIFICATION forming part of Letters Patent No. 582,922, dated May 18, 1897.

Application filed May 14, 1896. Serial No. 591,556. (No model.)

To all whom it may concern:

Be it known that I, HENRY S. HOUGHTON, a citizen of the United States, residing at Northbridge, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Cotton-Openers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to cotton-opener beaters; and it is designed more particularly as an improvement upon the opener-beater described in my Letters Patent No. 559,953, bearing date of March 10, 1896. The beater of the said Letters Patent is provided upon each of its cross-bars with two sets or series of teeth separated by a bridge which occupies the longitudinal center of the bar and obstructs the spaces between the teeth. These teeth, which are short and have flat faces, serve efficiently in separating and straightening the fibers when the said fibers are short, but when the fibers are long, as in "Egyptian" and "sea-island" cotton, they have a tendency to curl the fibers and do not prepare the same in perfect shape for the carding-machine.

The general object of my present invention is to provide an opener-beater having long teeth and continuous spaces between the teeth extending the full width of the beater-bars and also having the said teeth curved in the direction of their length and conforming to the curvature of the grid, whereby they are adapted at all times to engage the cotton fibers throughout their length and properly separate and straighten the longest fibers and deliver the same in proper shape for the carding-machine.

With the foregoing in view the invention will be fully understood from the following description and claim when taken in conjunction with the annexed drawings, in which—

Figure 1 is a portion of a cotton-opener embodying my invention. Fig. 2 is a perspective view of my improved beater, and Fig. 3 is a detail end elevation of one of the beater-bars.

Referring by numeral to the said drawings, 1 indicates a feeding-apron.

2 indicates feed-rolls, and 3 indicates a grid. This grid may be of any suitable construction, but I prefer to have it comprise the side bars 4, transverse bars 5, and the teeth 6 upon said bars and to provide it with the primary and secondary combs 7 8, as shown in the drawings and disclosed in my aforesaid Letters Patent.

9 indicates my improved rotary beater. This beater 9 may and preferably does comprise a shaft 10, radial arms 11, and cross-bars 12, and it is provided upon the outside of said bars 12 with teeth 13. (Better illustrated in Figs. 2 and 3.) The teeth 13, which may be of any suitable shape in cross-section, extend lengthwise at right angles to the length of the bars 12 and in the direction in which the beater rotates, and they are of a length corresponding to the width of the bars 12, so as to form continuous unobstructed spaces between them across the full width of the bars for the reception of the long fibers of cotton. Said teeth 13, in virtue of their great length and the fact that they extend the full width of the bars 12 and have continuous unobstructed spaces 14 between them, are adapted to open or separate and thoroughly straighten the very longest fibers, such as are found in Egyptian and sea-island cotton, and properly prepare the same for the carding-machine, so as to facilitate the carding operation, which is a desideratum.

To further increase the efficiency of the beater, I curve the bars 12, or at least the outer sides of the same, in the direction of their width and also curve the teeth 13 in the direction of their length, which is also the direction of the width of the bars, as better shown in Fig. 3. In virtue of this it will be observed that the faces of the teeth 13 and the floors of the spaces 14 will conform to the curvature of the grid and that consequently said teeth and the floors of the spaces 14 will at all times engage the cotton fibers throughout their length, which will materially facilitate the opening or separation and the straightening of the fibers.

Having described my invention, what I claim is—

In the cotton-opener described, the combination of the curved grid, and the rotary beater comprising the bars having their outer

sides curved convexly in the direction of their width in conformity to the curvature of the grid, and the teeth 13, arranged upon the outside of said bars and each extending continuously the full width of said bar and in the direction in which the beater rotates and having their faces curved in the direction of their length in conformity to the curvature of the bars and grid and also having continuous, unobstructed passages 14, between them;

the floors of which passages are formed by the outer, convex sides of the bars, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY S. HOUGHTON.

Witnesses:

E. LE ROY SPAULDING,
GEO. W. SPAULDING.