

(No Model.)

H. S. HOUGHTON.
COTTON OPENER.

No. 555,953.

Patented Mar. 10, 1896.

Fig. 1.

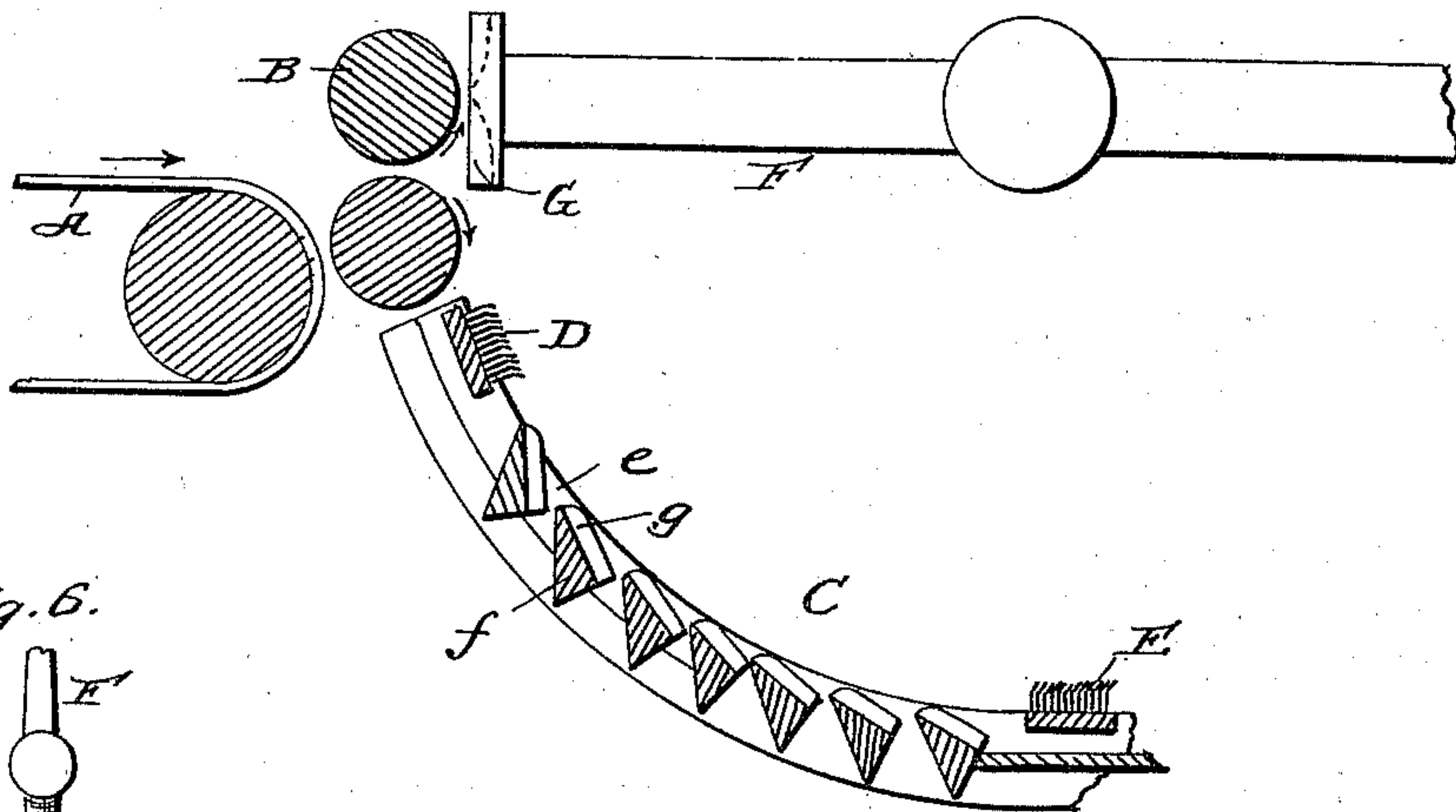


Fig. 6.

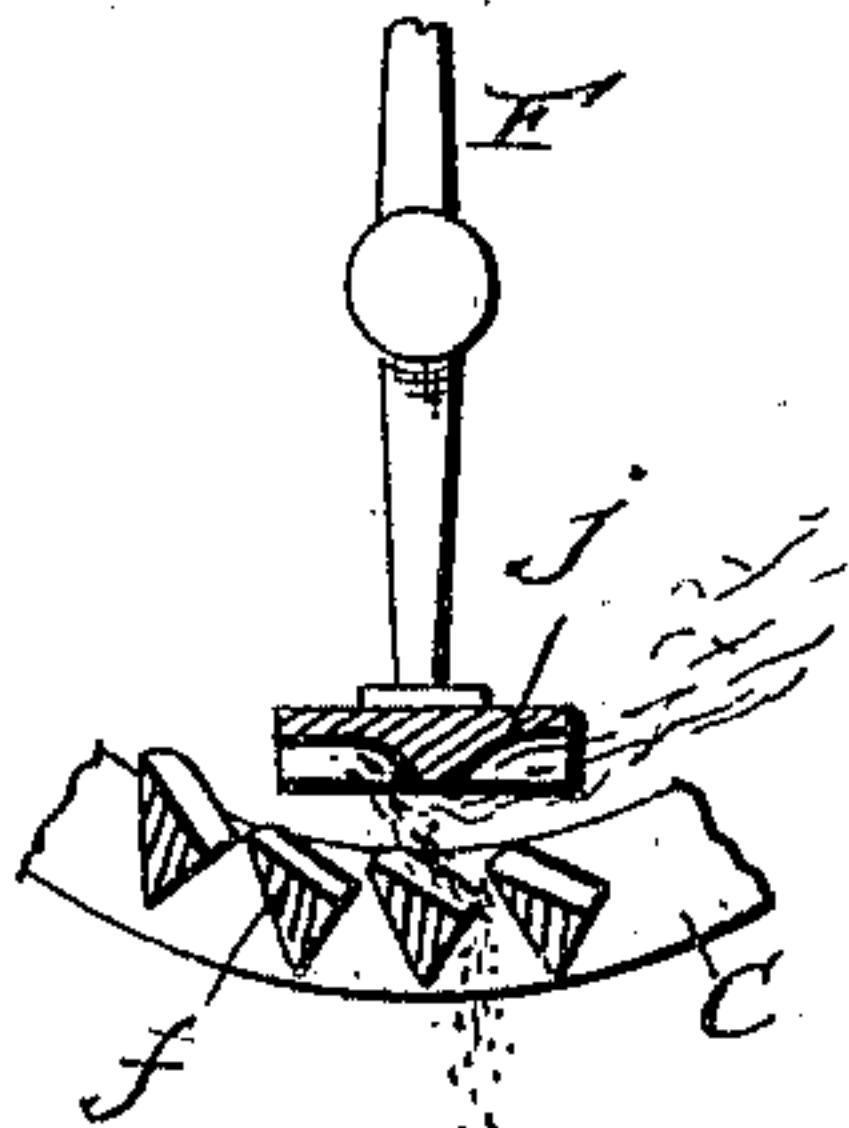


Fig. 2.

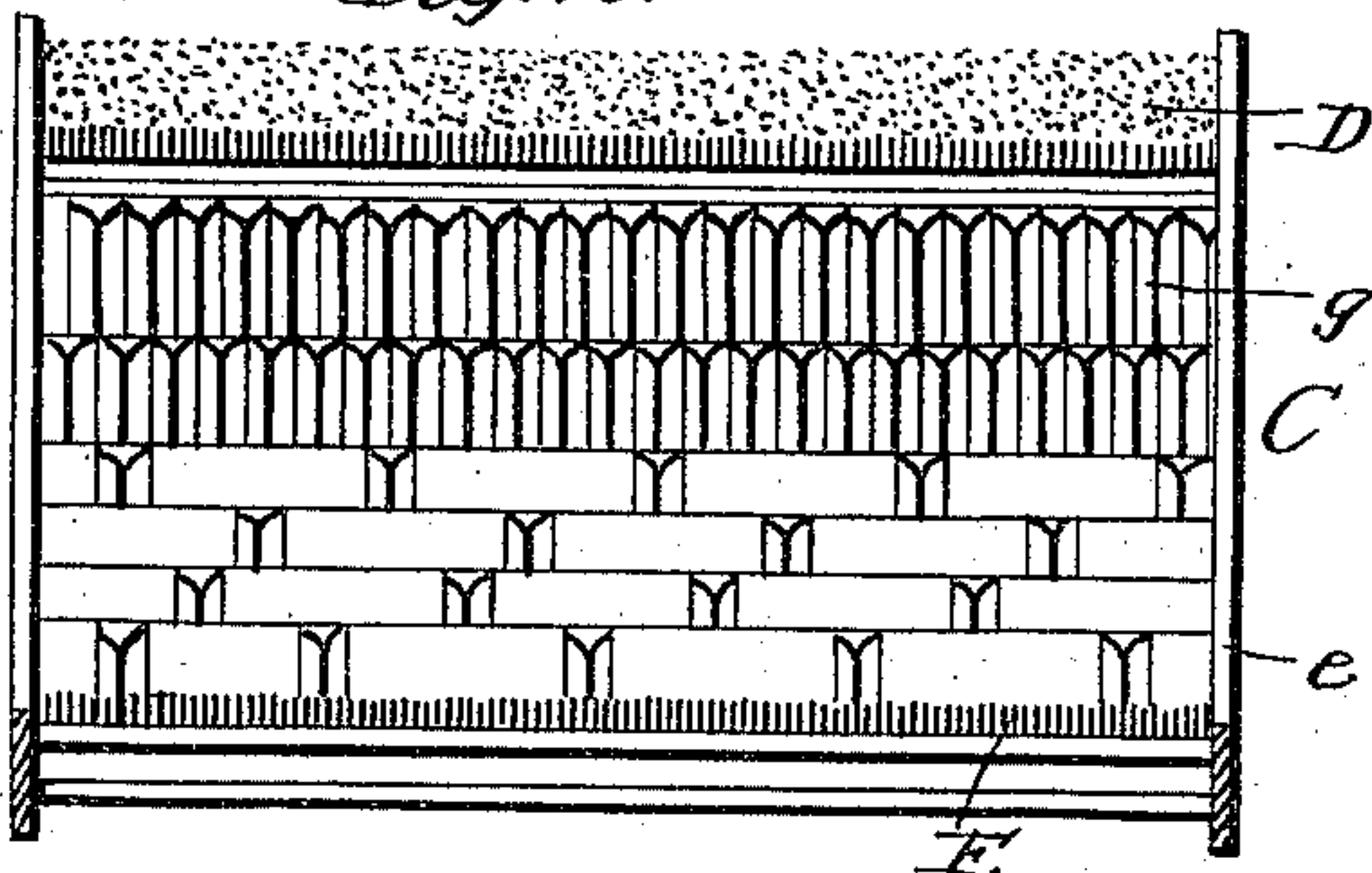


Fig. 5.

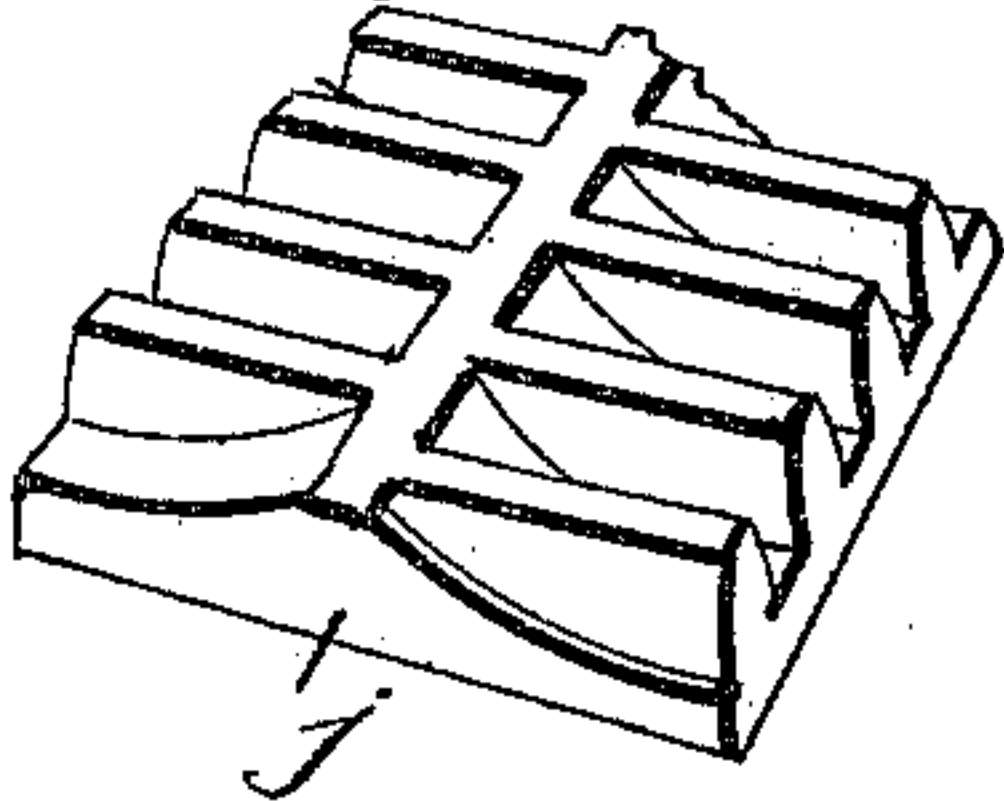


Fig. 4.

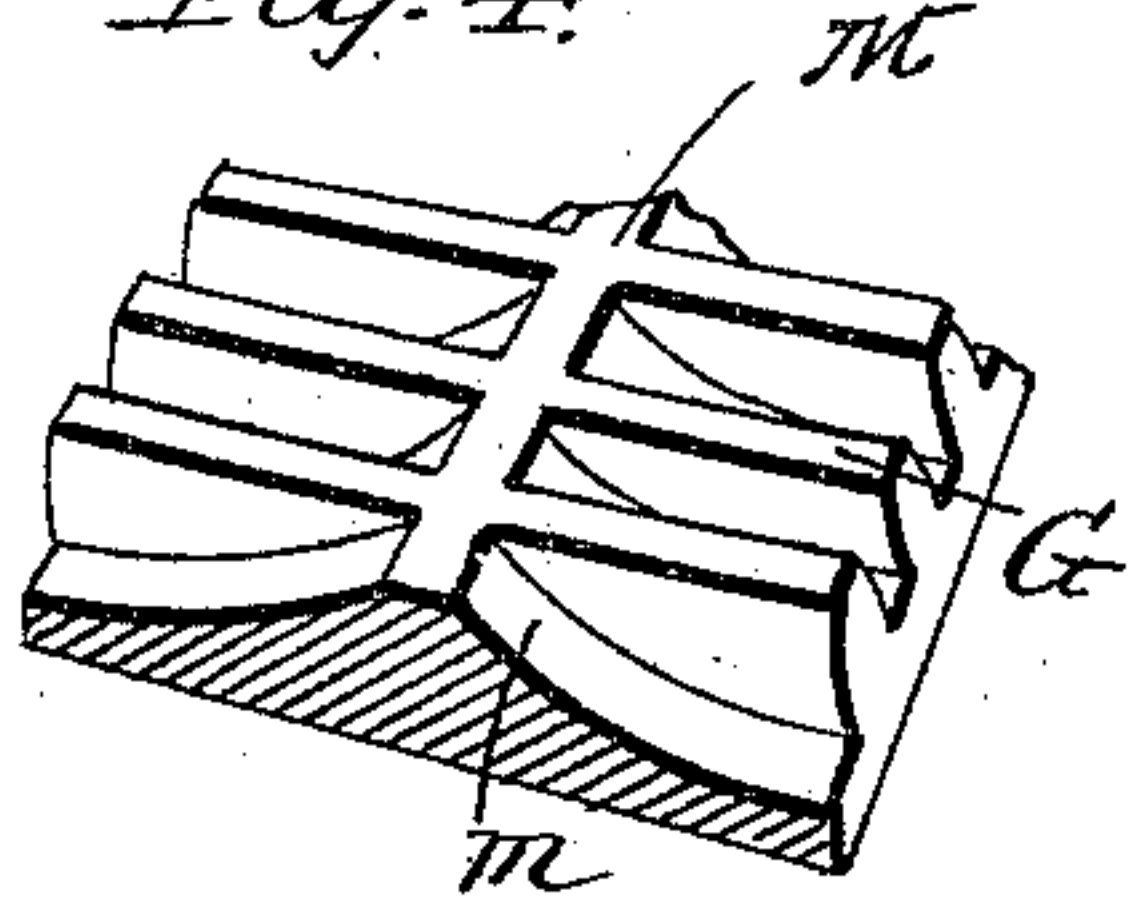
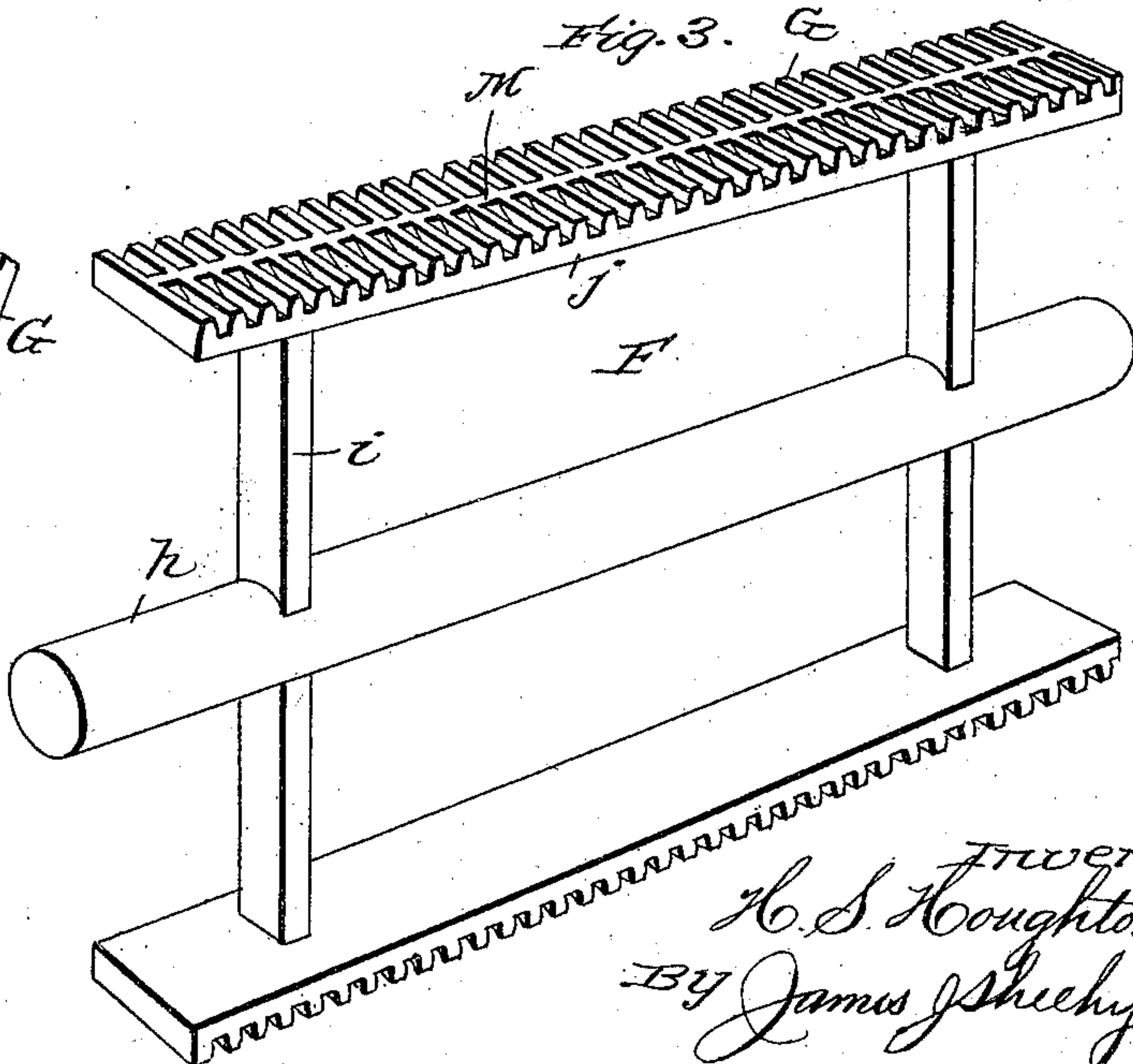


Fig. 3.



witnesses:

Chas. Raeder
N. O. Matthews.

H. S. Houghton
 BY James J. Sheehy
 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. 555,953, dated March 10, 1896.

Application filed November 18, 1895. Serial No. 569,350. (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-openers, and more particularly to beaters used therein; and it is designed as an improvement upon the opener illustrated in my Letters Patent No. 530,271, bearing date of December 4, 1894.

The general object of my invention is to provide a cotton-opener beater which is adapted when operating in conjunction with an ordinary grid or in conjunction with the grid disclosed in my said Letters Patent to thoroughly knock the cotton to pieces and open it to permit the escape of dirt, seed, &c.; and also adapted to thoroughly separate the fibers and check the dirt and throw it through the grid so as to prevent it from mingling again with the cotton, and further adapted to effectually prevent stringing of the cotton.

With the foregoing in view the invention will be fully understood from the following description and claims, when taken in connection with the accompanying drawings, in which—

Figure 1 is a vertical section of a portion of a cotton-opener embodying my invention. Fig. 2 is an elevation of the grid. Fig. 3 is a perspective view of my improved beater. Fig. 4 is a detail perspective view in section of a portion of one of the bars of the beater. Fig. 5 is a similar view of a modification; and Fig. 6 is a detail view illustrating how the beater serves to check the dirt, seed, &c., and cause them to fall through the grid.

In the said drawings, A indicates a feed-ing-apron.

B indicates feed-rolls, and C indicates the grid of the cotton-opener. This grid, like that illustrated in my aforesaid patent, comprises suitable curvilinear side bars *e* and transverse bars *f*, which are arranged a slight distance apart and are preferably of the form

in cross-section and inclined, as illustrated, and are provided upon their upper inner sides with teeth *g*, the bars adjacent to the feed-rolls being preferably provided with a greater number of teeth than those remote from the same, as shown. The said teeth *g* extend lengthwise approximately at right angles to the length of the bars and in the direction in which the cotton moves, and are provided with long faces or sides and with a blunt, square, beveled or curved forward end *a*, and the teeth of one bar are arranged in alignment with the spaces between the teeth on the next bars, as shown, so as to enable them to better engage and open all of the cotton.

In virtue of the peculiar form and arrangement of the teeth *g*, as just described, it will be seen that when the cotton is moved against them by the beater (presently described) they will separate and straighten the fibers of the same without catching and tearing, cutting, or otherwise injuring the same. Said teeth *g*, also, while permitting the dirt, seed, &c., to readily pass between the grid-bars, will effectually prevent any material amount of cotton from taking the same course, and will consequently effect a material saving of the same, which is a desideratum.

D E indicate the primary and secondary combs which are preferably employed in conjunction with the grid and are arranged as shown, and F indicates my improved rotary beater. This beater F may comprise a shaft *h*, radial arms *i*, and bars *j*, and it is provided upon the outside of said bars *j* with teeth *G*. (Better illustrated in Figs. 3, 4, and 5.) The teeth *G* extend lengthwise approximately at right angles to the length of the bars *j* and in the direction in which the beater rotates, and they are provided with long faces or sides and with a blunt forward end, as shown, and two sets or series of teeth are preferably arranged on each bar *j*, the teeth of one set being arranged in alignment with the teeth of the other set, as shown in Figs. 3 and 4, or the teeth of one set in alignment with the spaces between the teeth of the other set, as shown in Fig. 5, as desired.

Extending lengthwise of the beater-bars *j*, midway the width thereof and preferably

formed integral therewith and with the teeth G, is what I term the "bridges" M. These bridges M, which separate the teeth on each bar *j* into two sets, as above described, and
5 are arranged between the teeth of each set, preferably have their sides beveled or inclined, as indicated by *m*, and they are designed and adapted to separate the fibers and effectually prevent stringing of the cotton,
10 and are also adapted to check the dirt, seed, &c., in the manner shown in Fig. 6, so as to cause such dirt, &c., to take through the grid and prevent it from again mingling with the cotton.

15 The above-described teeth G and bridges M on the beater F, when such beater is used in conjunction with the grid C or an ordinary grid, will thoroughly knock the cotton to pieces and open it, so as to permit the escape
20 of dirt and seed and assist the teeth of the grid in separating and straightening the fibers and will at the same time prevent stringing of the cotton and will check the dirt and seed to cause it to take through the grid and pre-
25 vent it from again mingling with the cotton, which is advantageous, as it materially accelerates the opening of the same.

My improved beater, when used in conjunction with my improved grid C, forms a
30 highly-efficient opener, and I therefore prefer to use such beater and grid together in one machine. I do not, however, desire to be un-

derstood as confining myself to the use of my improved beater in conjunction with the grid C, as the beater may be used to advantage in
35 conjunction with an ordinary grid, and when so used will serve the purposes described.

Having described my invention, what I claim is—

1. In a cotton-opener, the combination of a
40 grid, and the rotary beater comprising a bar *j*, the teeth arranged upon the outside of said bar and extending in the direction in which the beater rotates, and a bridge extending in the direction of the length of the bar and
45 bridging the spaces between the teeth, substantially as and for the purpose set forth.

2. In a cotton-opener, the combination of a
50 grid and the rotary beater comprising a bar *j*; the teeth arranged upon the outside of said bar and extending in the direction in which the beater rotates, and the bridge extending in the direction of the length of the bar and occupying the longitudinal center thereof so
55 as to divide the teeth into sets and bridge the spaces between the teeth, and having beveled or inclined sides, substantially as and for the purpose set forth.

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

HENRY S. HOUGHTON.

Witnesses:

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