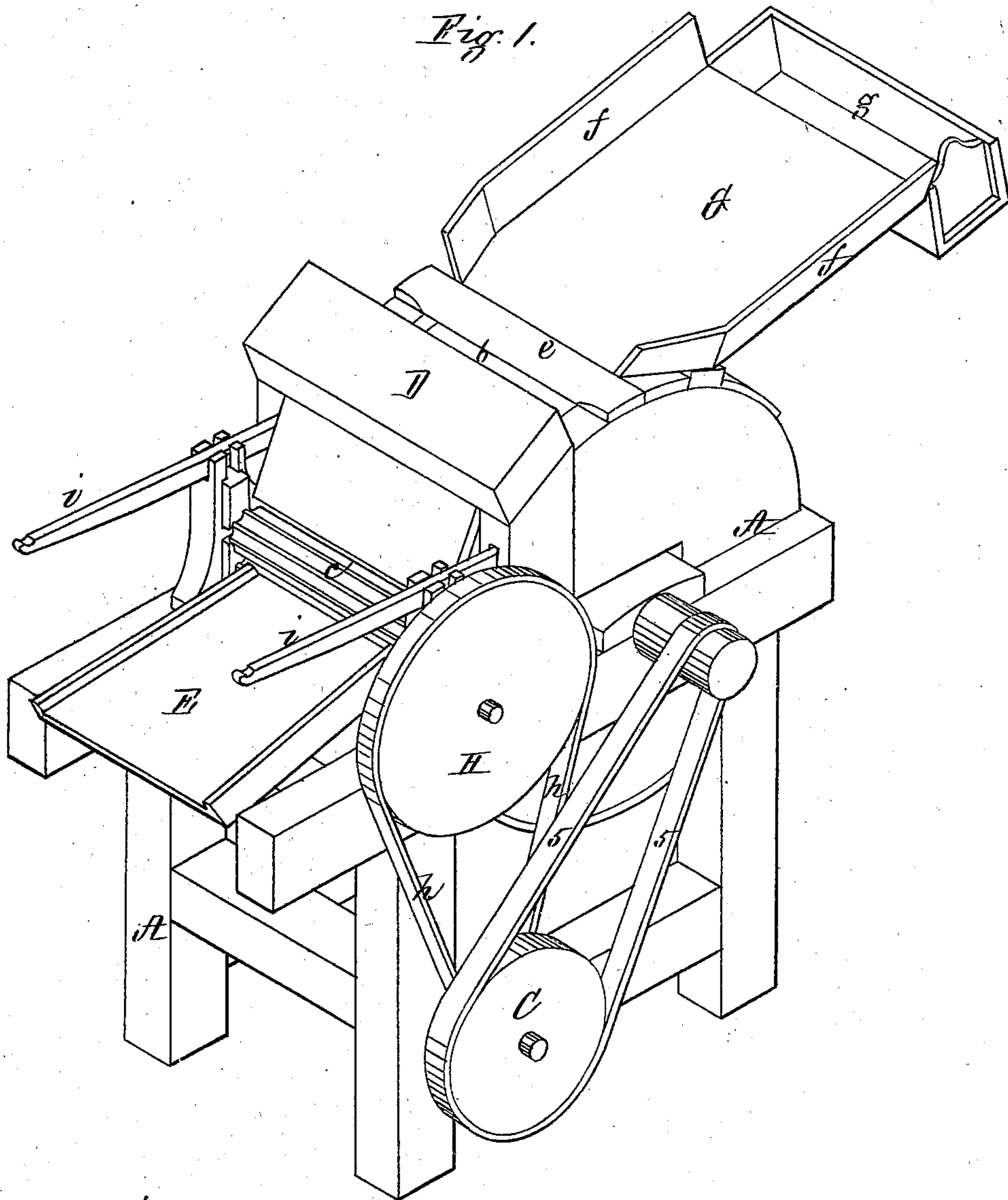


2 Sheets--Sheet 1.

D. S. TIBBALS.
Tow-Cleaning Machines.

No. 150,632.

Patented May 5, 1874.



Witnesses,
J. E. Teckemacher
W. J. Cambridge

Inventor,
D. S. Tibbals

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Fig. 2.

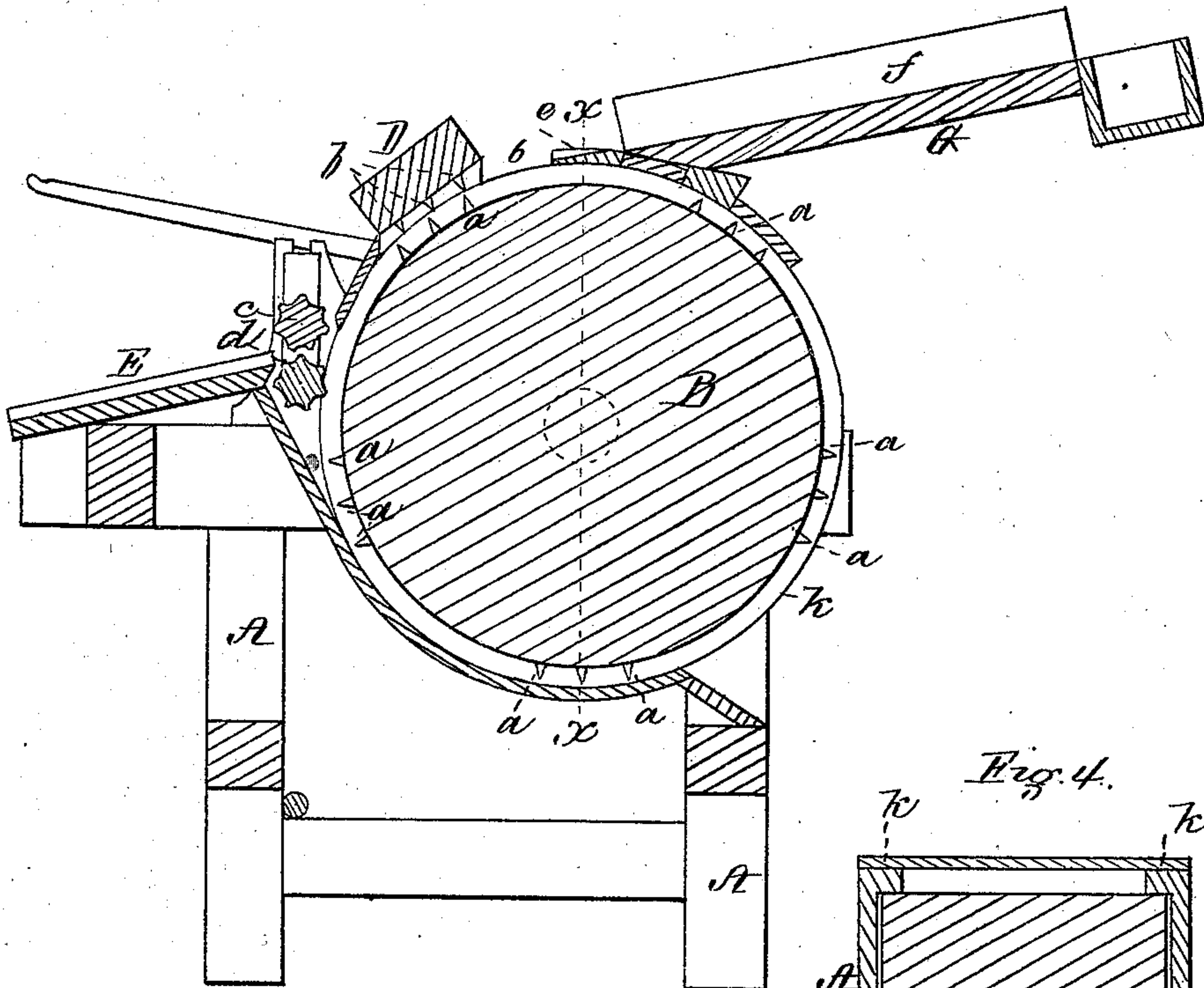


Fig. 3.

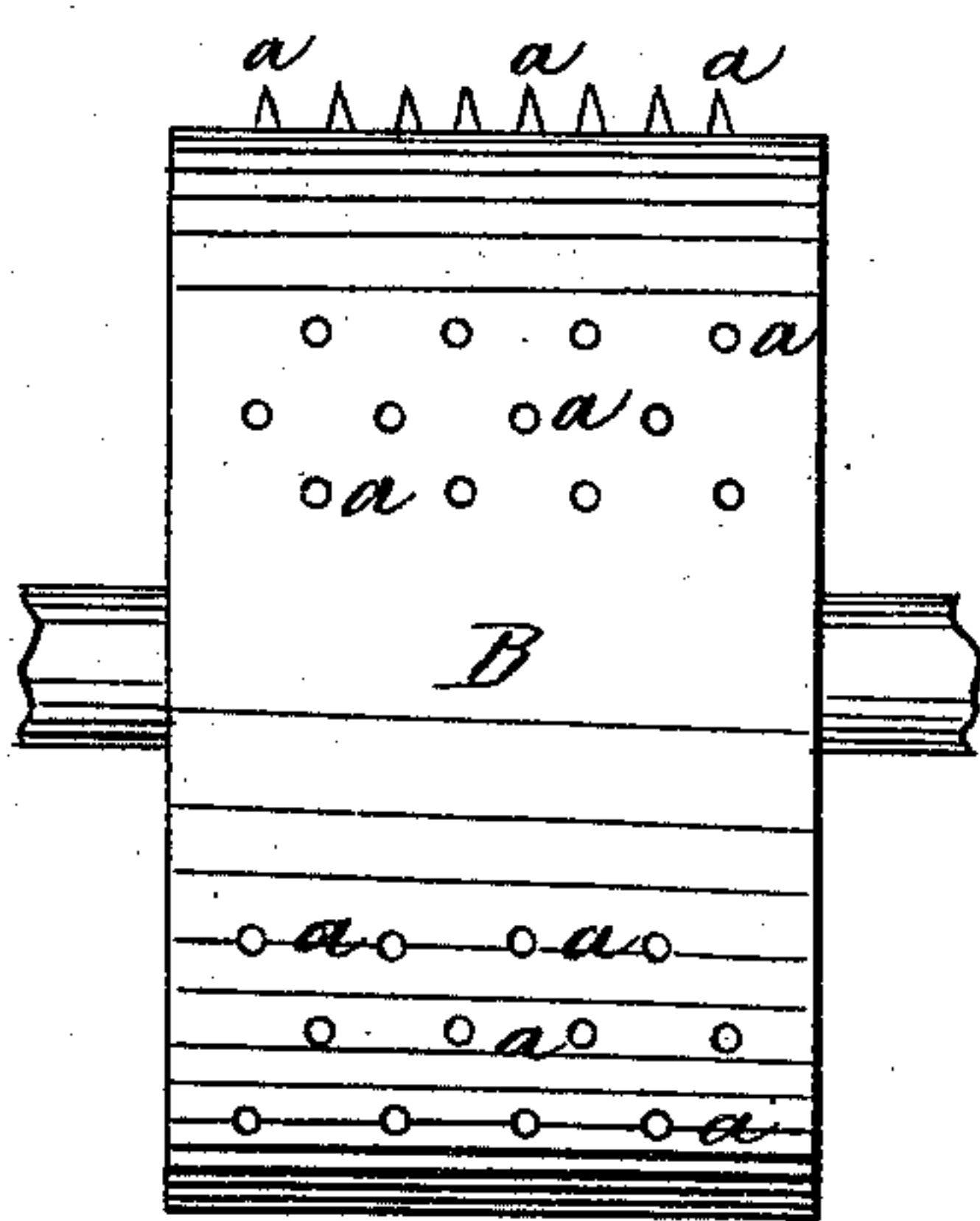
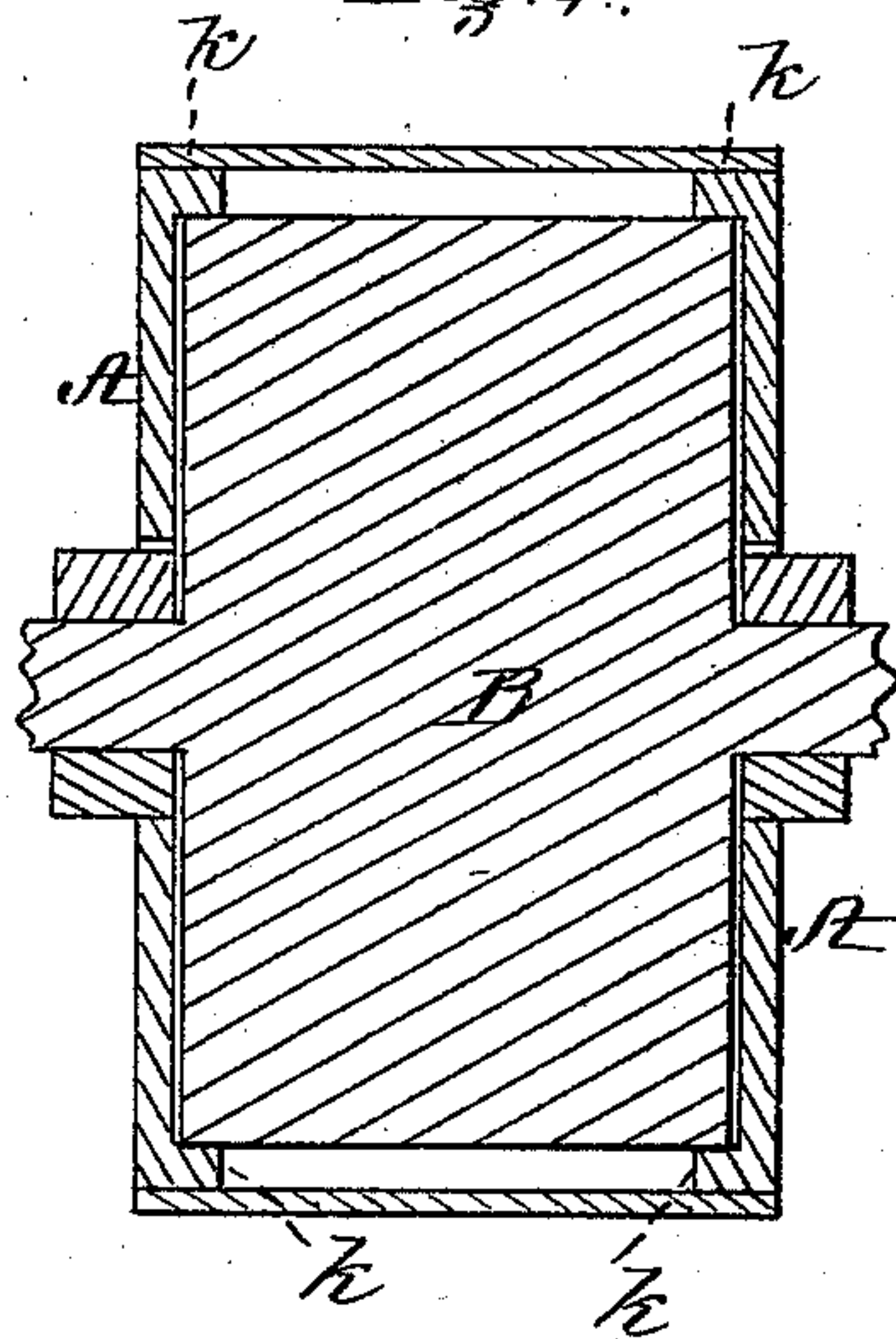


Fig. 4.



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UNITED STATES PATENT OFFICE.

DANIEL S. TIBBALS, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN TOW-CLEANING MACHINES.

Specification forming part of Letters Patent No. **150,632**, dated May 5, 1874; application filed February 14, 1874.

To all whom it may concern:

Be it known that I, DANIEL S. TIBBALS, of Boston, in the county of Suffolk and State of Massachusetts, have invented a Machine for Separating Shives and other Extraneous Matter from Tow, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of my machine for separating shives, &c., from tow. Fig. 2 is a longitudinal vertical section through the center of the same. Fig. 3 is an elevation of the drum or cylinder. Fig. 4 is a horizontal section on the line *x x* of Fig. 2.

It has hitherto been impracticable to employ tow to advantage in the manufacture of oakum, owing to the large quantity of shives and other extraneous matter which it contains, and which it has heretofore been found impossible to extract to any extent.

My invention has for its object to produce a machine for thoroughly cleaning tow from shives and dirt, so as to render it available for oakum of the best quality; and consists in the combination and arrangement of a revolving toothed cylinder, a series of stationary teeth, a division or separating plate, and a receiver for the shives and dirt, the tow being drawn between the revolving and stationary teeth, which serve to comb the fibers and break up and separate the shives and dirt therefrom, which are then thrown off by centrifugal force over the division-plate into the receiver, the clean fibers passing beneath the division-plate, where they are delivered in a state ready for use.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A is the frame-work of the machine, in suitable bearings in which runs the shaft of a large drum or cylinder, B, which is driven at a very rapid rate by a belt, 5, from a pulley, C. This cylinder is provided with a series of sharp pins or teeth, *a*, placed in rows, each pin of one row being opposite the center of the space between the two contiguous pins of the adjacent rows. On the cylinder (shown in the drawings) the pins *a*

are arranged in groups, with wide spaces between them; but, if preferred, the rows of pins may extend uniformly over the surface of the cylinder. D is a plate, which extends over the cylinder B at a short distance therefrom, and is provided on its under side with a series of sharp pins or teeth, *b*, arranged in a manner similar to those upon the cylinder B. E is a table, on which the tow is spread and pushed forward to the fluted feed-rolls *c d*, by which it is delivered to the cylinder B, and as the latter revolves it is acted upon by the teeth *a b*, which serve to comb out and straighten the fibers, and at the same time break up the shives and dirt, and separate them from the tow. The centrifugal force created by the rapid revolution of the cylinder causes the shives and dirt separated by the teeth to be thrown off therefrom over a division or separating plate, *e*, which extends transversely across the cylinder, its front edge being tapered or beveled, as seen in Fig. 2, and lying nearly in the line of a horizontal tangent to the circle of the cylinder. The centrifugal force of the cylinder is sufficient to throw upon the division-plate thus located the shives and dirt, and thus secure their separation from the fiber. Connected with the division-plate *e* is a trough or receiver, G, on which the shives and dirt fall, and which prevents them from coming into contact with the cleansed tow, which is carried by the cylinder B beneath the division-plate *e*, and delivered in a pile upon the floor ready for use. The sides *f* of the receiver G are intended to extend up to a considerable height to prevent the escape of the shives and dirt, which are thrown with great velocity through the space 6 between the plate D and division-plate *e* by centrifugal force, assisted by the current of air produced by the rapidly-revolving cylinder. At the upper end of the receiver G is a trough or box, *g*, into which the shives and dirt are scraped, and from which they are subsequently removed. It is evident that the front edge of the receiver G may form the division-plate, in which case it should, if made of wood, be provided with a shoe or covering of sheet metal to prevent wear. The upper feed-roll is driven by a belt, *h*, passing over a pulley, H, attached to its shaft, and the pressure of this roll upon

the tow being fed to the cylinder is regulated by weights on the lever *i*, in a well-known manner. *k k* are flanges or guards, which project slightly over the cylinder B, and serve to prevent the fibers of the tow from getting between its ends and the frame-work, and winding around the shaft, which would produce sufficient friction to interfere with the free revolution of the cylinder, and occasion combustion, thereby endangering the safety of the building containing the machine.

By thus separating the shives and dirt from the tow, and causing them to be thrown off from the cylinder by centrifugal force, in connection with the division-plate and receiver, arranged as shown, to prevent the shives and dirt, after being separated from the tow, from again coming into contact and mixing there-

with, I am enabled to thoroughly cleanse and free it from all shives and dirt, so that it can be advantageously employed for making oakum of the best quality—a purpose for which it has heretofore been totally unfit.

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

The combination and arrangement of the toothed cylinder B, stationary teeth *b*, division-plate *c*, and receiver G, substantially as and for the purpose described.

Witness my hand this 10th day of February, A. D. 1874.

DANIEL S. TIBBALS.

In presence of—

P. E. TESCHEMACHER,
W. J. CAMBRIDGE.