

W. SAILOR.
Corn and Cob Mill.

No. 24,082.

Patented May 17, 1859.

Fig. 1.

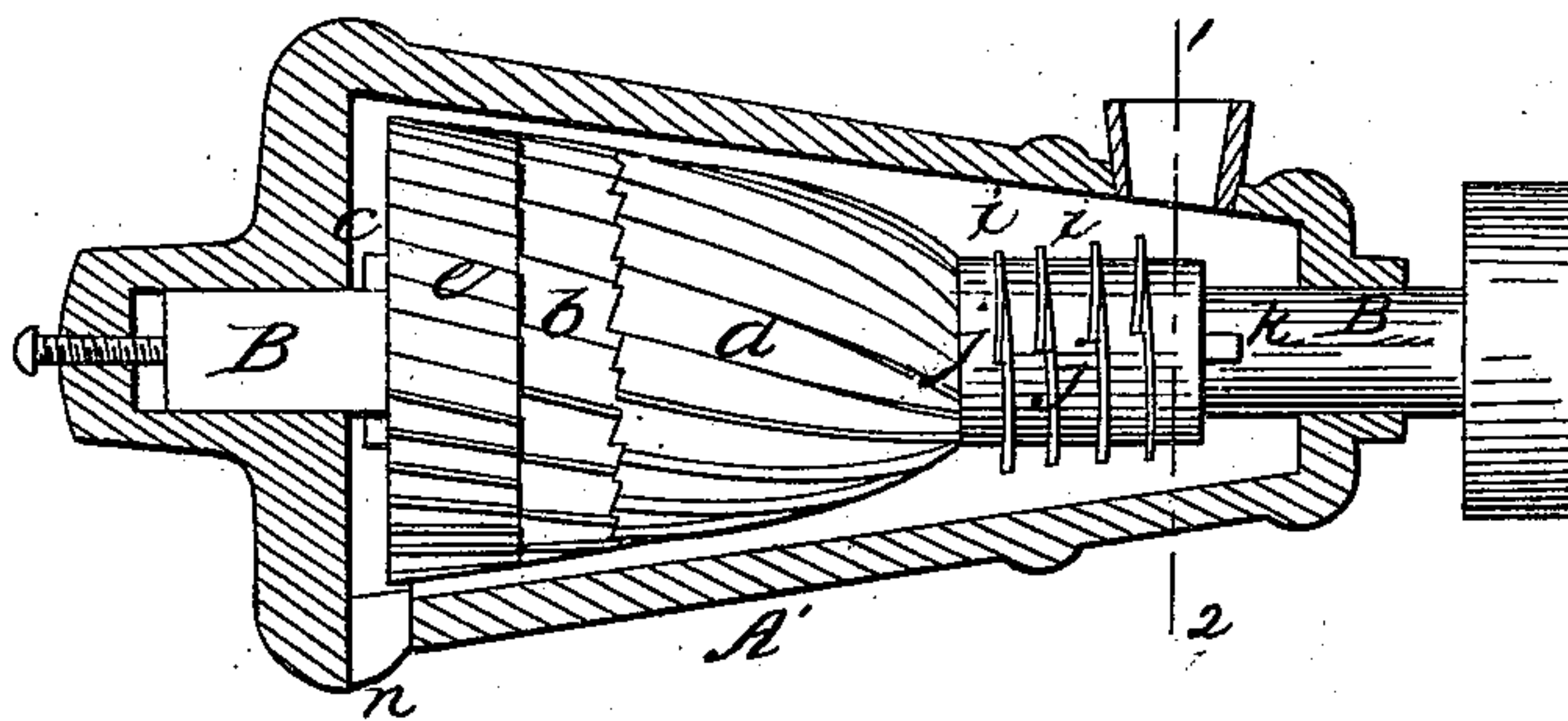


Fig. 2.

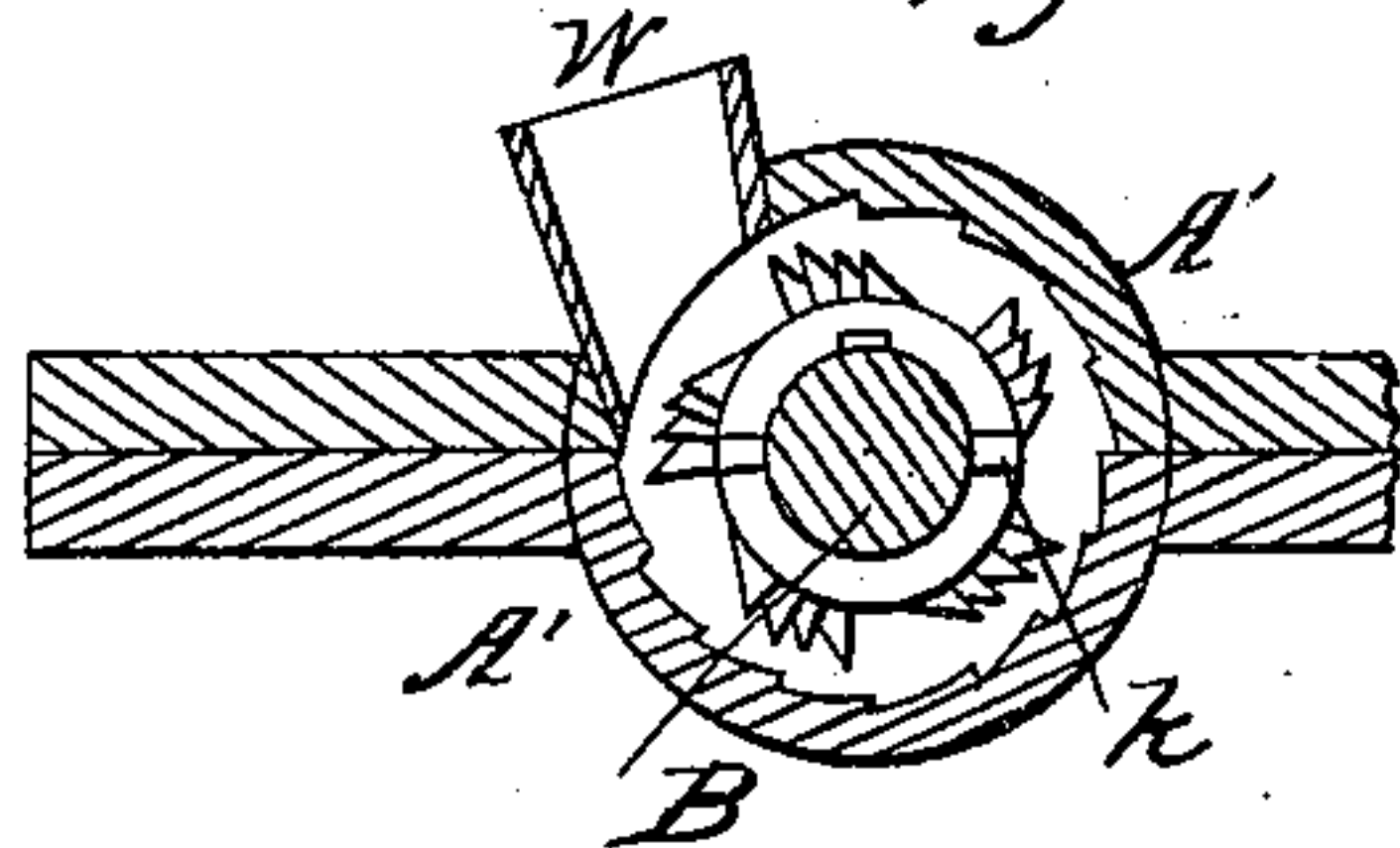


Fig. 3.

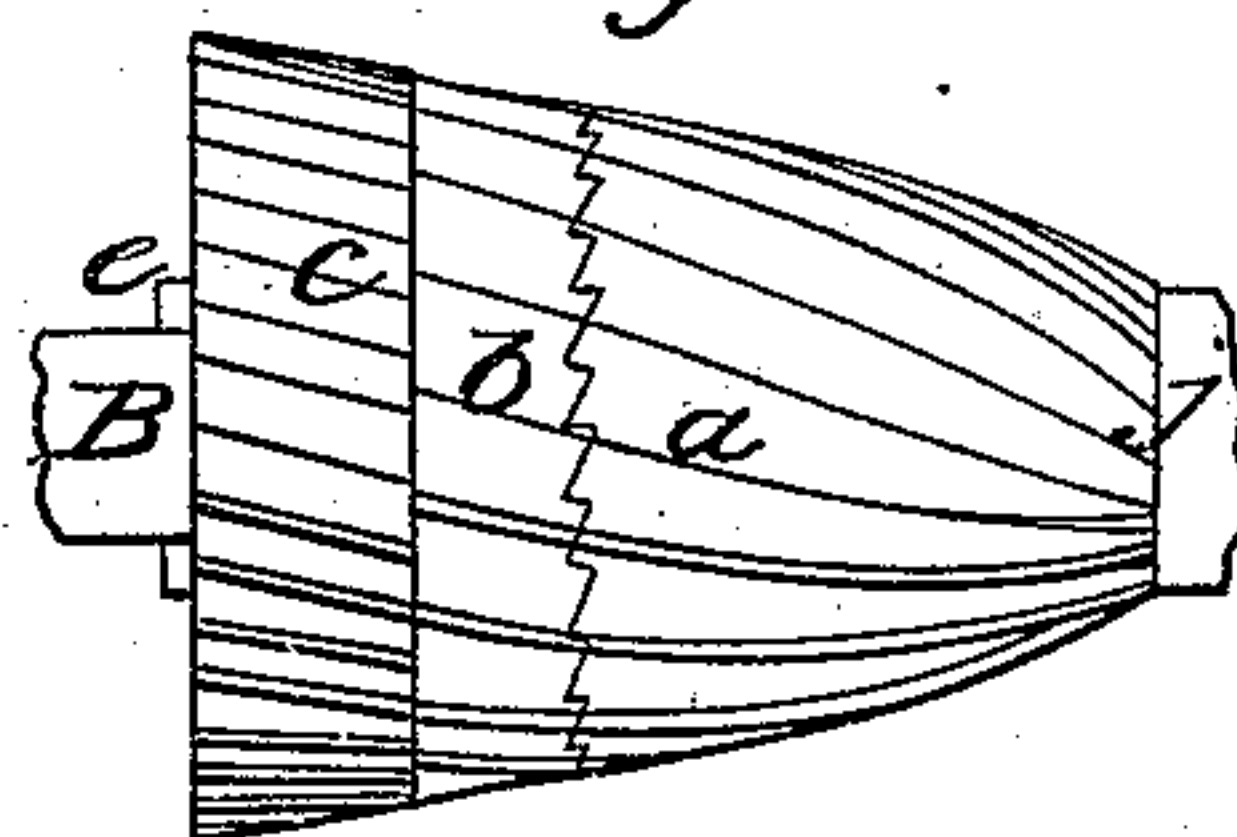


Fig. 6.

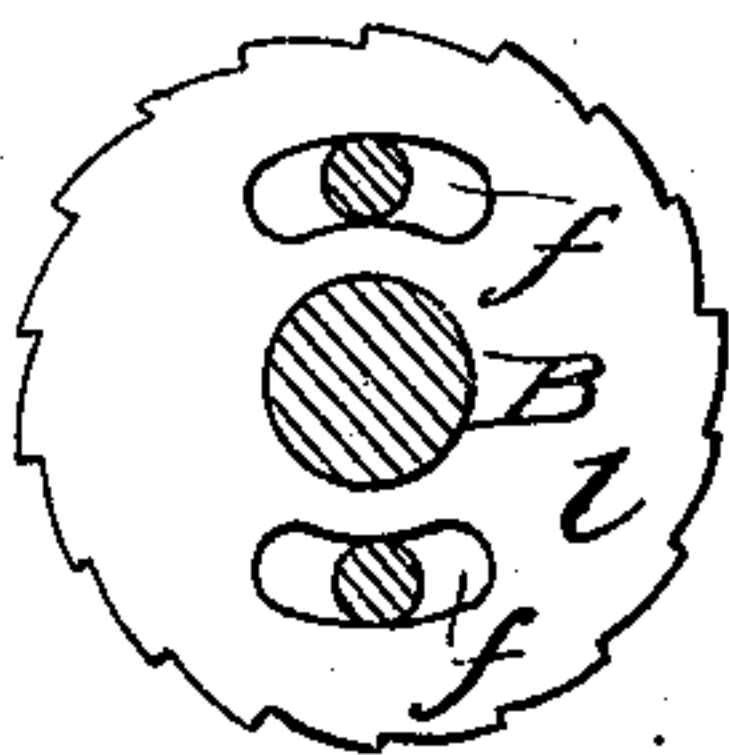


Fig. 4.

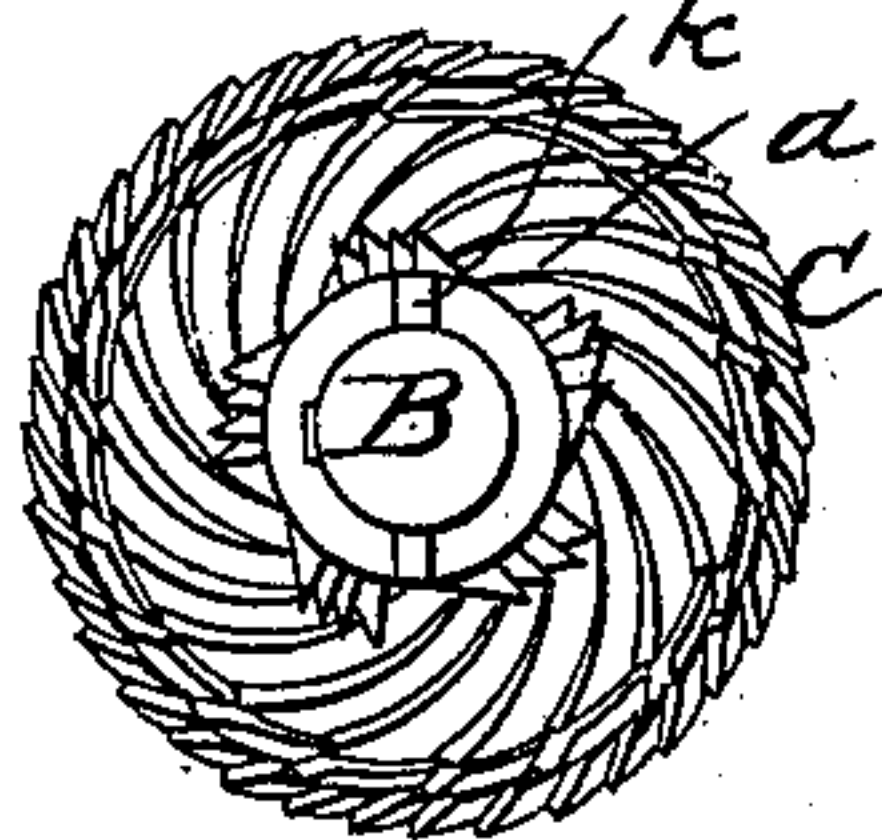
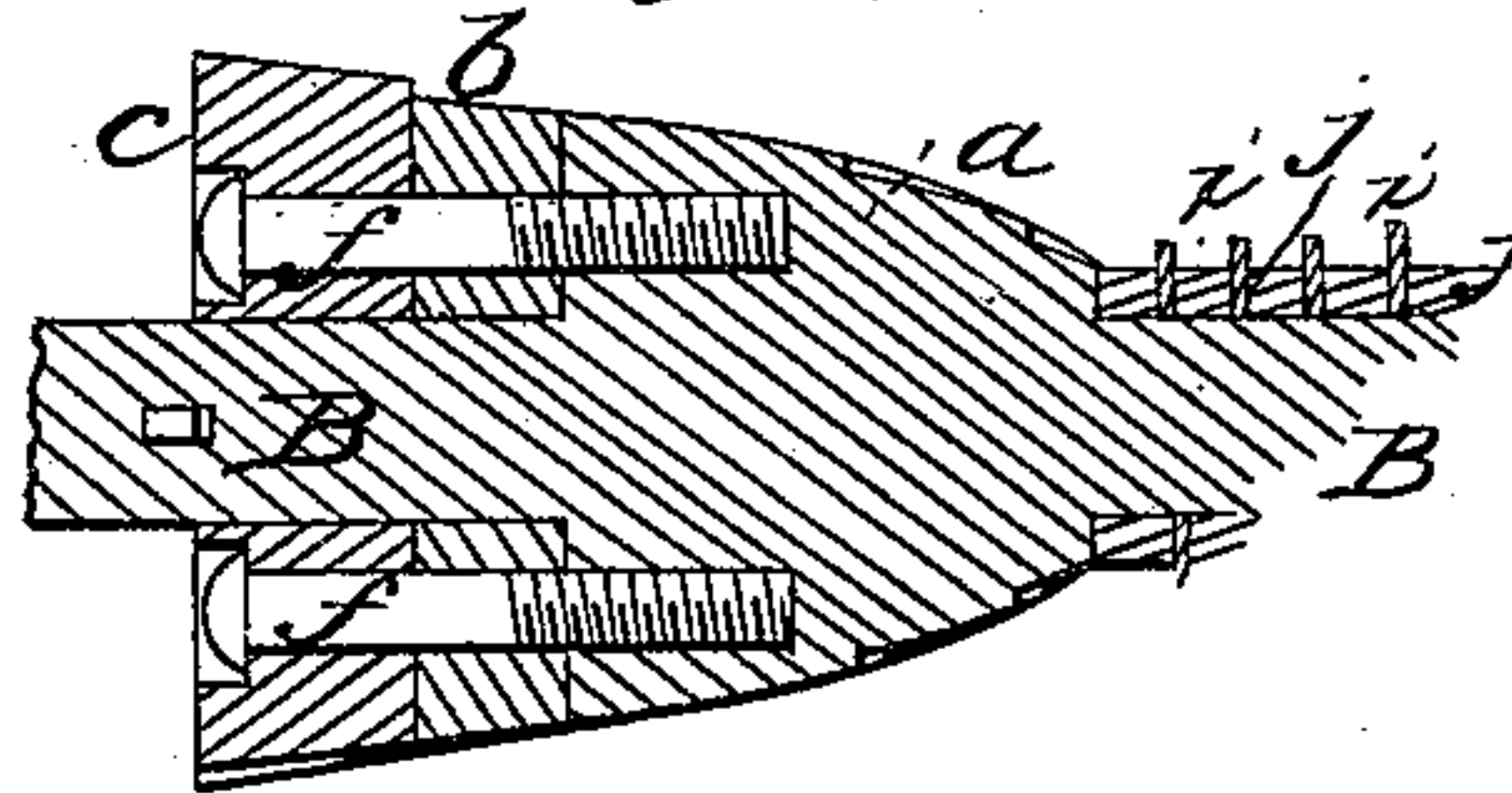


Fig. 5.



Witnesses:
Henry Houston
Loma Lee

UNITED STATES PATENT OFFICE.

WILLIAM SAILOR, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HIMSELF, WM. L. BOYER, AND H. K. BOYER, OF SAME PLACE.

CORN AND COB MILL.

Specification of Letters Patent No. 24,082, dated May 17, 1859.

To all whom it may concern:

Be it known that I, WILLIAM SAILOR, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Corn and Cob Mills; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

My invention relates to improvements in that class of mills used for tearing and grinding up corn and cob together, or for grinding corn alone; and my improvements consist, first, in certain plates with saw teeth on their edges, said plates being secured obliquely to the spindle and adjacent to the bur, and being arranged, in respect to the shell, substantially as set forth hereafter, so as to effectually tear up the cob and direct the broken pieces toward the bur; second, in a peculiar construction of the bur described hereafter, whereby portions of it may be readily renewed, when the teeth are worn.

In order to enable others to make and use my invention, I will proceed to describe its construction and operation.

On reference to the accompanying drawing, which forms a part of this specification; Figure 1, is a view of my improved corn and cob mill, with one half of the shell removed; Fig. 2, a sectional elevation, on the line 1, 2 (Fig. 1); Fig. 3, a view of the bur with its movable parts in a different position to that shown in Fig. 1; Fig. 4, an end view of the bur, looking in the direction of the arrow (Fig. 1); Fig. 5, a longitudinal section of the bur; Fig. 6, a face view of part of the bur.

Similar letters refer to similar parts throughout the several views.

The shell of the mill is made in two halves A and A', secured together by bolts passing through flanges on each half. The whole may be attached to a suitable frame, or to a box for receiving the ground material. The interior of the shell is furnished with the usual angular teeth, extending from one end to the other.

The bur is composed of three distinct parts *a*, *b* and *c*, the portion *a* being cast to or forming a part of the spindle B, the journals of which turn in bearings formed one at each end and between the two halves of the shell. The portion *b* of the bur consists

of an annular metal plate, having on one face angular projections adapted to angular recesses formed on the end of the portion *a* of the shell. The remaining portion *c* of the latter also consists of an annular metal plate fitting snugly against the portion *b*. The whole of these portions of the bur are bound firmly together by a key *e*, passing through the spindle B, and by screws *f*, *f* passing through the portion *c*, through oblong holes in the portion *b* and screwing into the portion *a* of the bur. The intermediate portion *b* is so arranged, that, on taking out the key *e* and loosening the screws *f*, *f*, it may be turned partially around on the spindle. The teeth on the intermediate portion *b* form a continuation of those on the portion *a*. This intermediate portion *b*, however, may be so turned on the spindle B of the mill, and so adjusted to the portion *a*, that the teeth of the latter shall not coincide with those of the former, as seen in Fig. 3, but assume the position shown in Fig. 1, where the teeth on the portion *b* are opposite to the angular recesses between the teeth on the portion *a* and vice versa. The object of this arrangement will be made apparent hereafter.

At the small end of the bur and to the spindle B, are secured a series of steel plates with saw teeth cut on their edges, the plates decreasing in diameter from the largest, which is nearest to the bur, to the smallest, which is nearest to the small end of the shell. These plates are set obliquely to the spindle by means of oblique washers *j*, *j*, the key *k*, which passes through the spindle, serving to secure the whole firmly together and to the bur.

The corn is fed to the mill through the hopper *m*, and the ground material is discharged from the mill through the opening *n*. A cob of corn, being passed through the hopper *m*, is first siezed by the teeth of the oblique plates *i*, *i*, which, aided by the teeth on the shell, break the cob up into small pieces, which are directed toward the bur by the obliquity of the plates. After being partially ground by the teeth of the portions *a* and *b* of the bur, the material is finally acted upon by the fine teeth on the portion *c* of the bur, by which it is thoroughly triturated, after which it passes off through the opening *n*.

When the mill is used for grinding the

corn and cob together, the intermediate portion *b* of the bur may be arranged as seen in Fig. 3, where the teeth of both portions coincide with each other. But when the mill is used for grinding corn alone, the intermediate portion *b* should be changed to the position shown in Fig. 1, where the teeth of one portion coincide with the angular recesses between the teeth of the other portion. When in this position, an interruption of the spiral course of the partially ground material must take place at the junction of the portions *a* and *b* of the bur, and this interruption will cause the material to change its position, thereby thoroughly exposing it to the grinding surfaces, between which it must subsequently pass.

The most important feature in my improved grinding mill, however, is the facility with which the portions *c* and *b* of the bur may be replaced with new ones.

It is well known that the teeth of that portion of conical grinding mills, where the finest grinding is executed, wear out very rapidly, much more so than the teeth, by which the coarser grinding is effected. Hence the importance of the detachable portions *b* and *c*, which, in some cases may be made of hardened steel. It will be ob-

served, that there is no possibility of the portions *b* and *c* changing their positions, as regards each other and the portion *a*, when secured in their proper positions, as the bolts *f*, *f*, prevent the portion *c* from turning, and the zigzag teeth on the portion *b*, fitting into the recesses on the end of the portion *a*, prevent either of these portions from turning without the other.

I claim and desire to secure by Letters Patent:—

1. The plates *i*, *i*, with their saw teeth, when the said plates are secured obliquely on the spindle and adjacent to the bur, and when both the bur and plates are arranged, in respect to the shell, substantially as set forth.

2. Forming the bur in three or more separate pieces, adapted and secured to each other and to the spindle substantially as specified.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

W. SAILOR.

Witnesses:

HENRY HOWSON,
C. HOWSON.