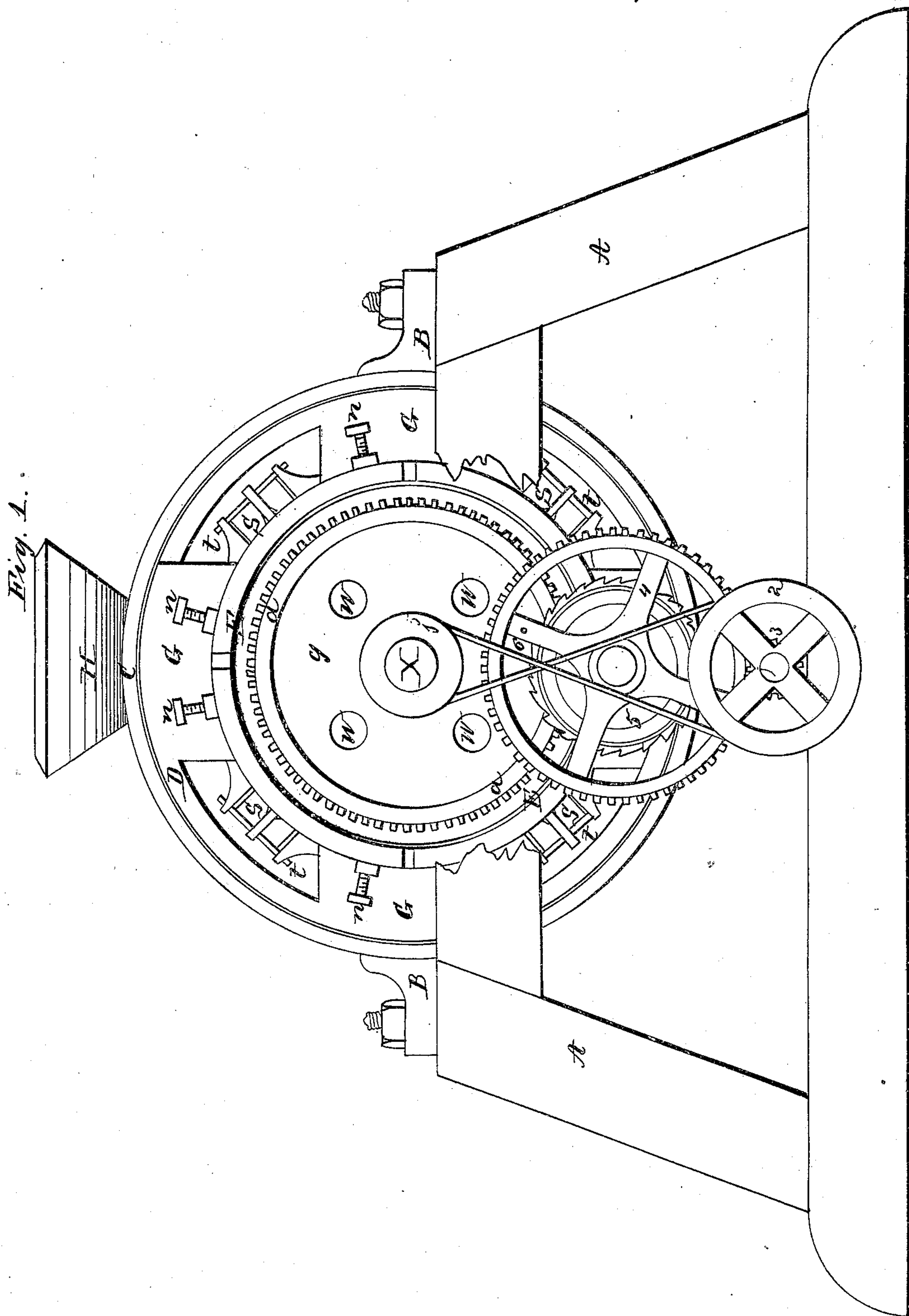


J.C. Fonda. Sheet 1. 3 Sheets.
Pulp Grinder

N^o 8,261.

Patented Jul. 29, 1851.



Pulp Grinder.

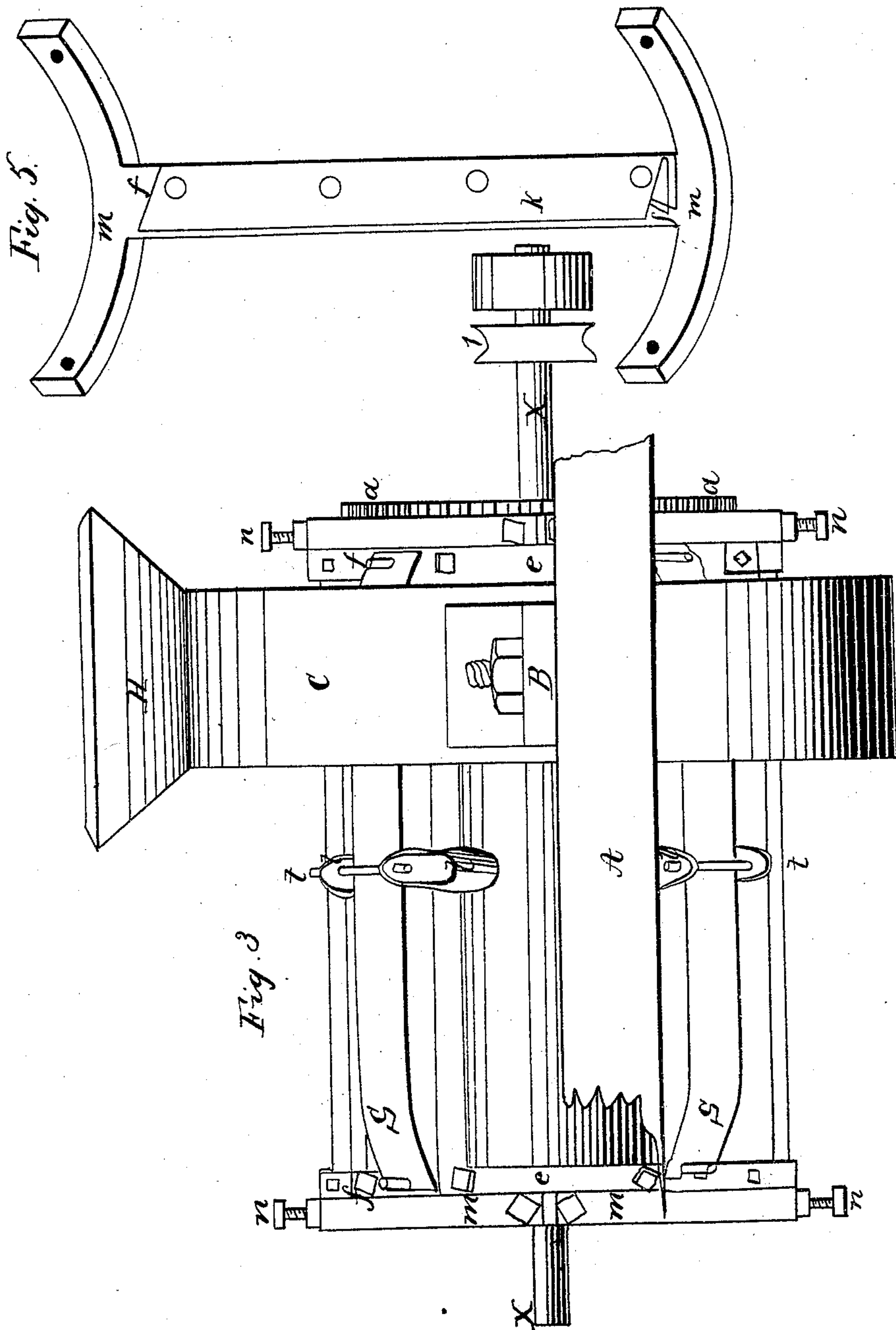
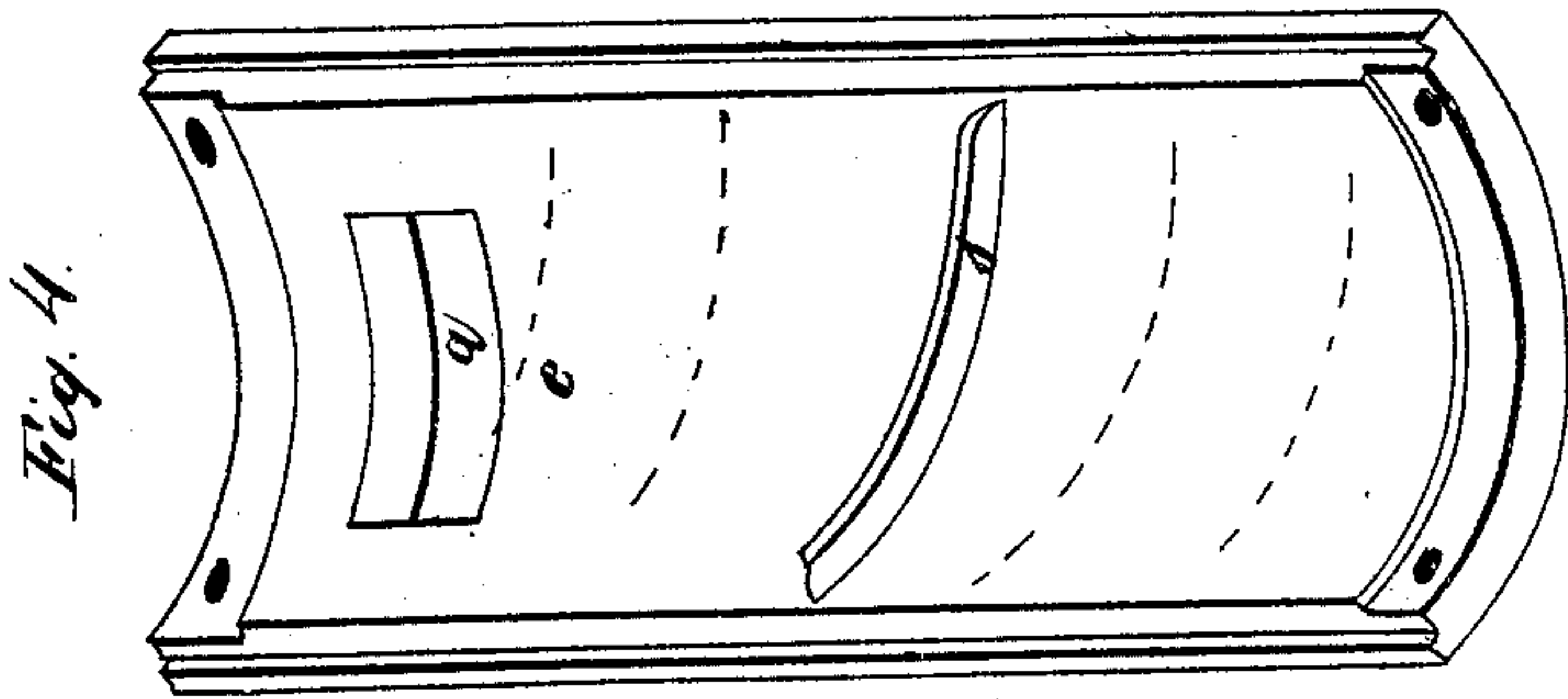
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J.C. Fonda Sheet 3.3 Sheets.
Pulp Grinder

N^o 8,261.

Patented Jul. 29, 1851.



UNITED STATES PATENT OFFICE.

JOHN C. FONDA, OF ALBANY, NEW YORK.

IMPROVEMENT IN MACHINES FOR GRINDING FLOCK.

Specification forming part of Letters Patent No. 8,261, dated July 29, 1851.

To all whom it may concern:

Be it known that I, JOHN C. FONDA, of the city of Albany and State of New York, have invented a new and useful machine for grinding the flock or shearings from woolen cloths or any similar material, and preparing them for further use in the manufacture of woolen cloths or other fabrics, which I call "Fonda's Dry-Flock Grinder; and I declare the following specification, with the drawings appended thereto and forming part of the same, to be a full and perfect description thereof, similar letters in all the drawings referring to the same parts.

Figure 1 represents an end view of the machine with its motive apparatus. Fig. 2 represents the other end view, with a portion of the interior apparatus; Fig. 3, a side view of the same; Fig. 4, a reversed panel of the cylinder, showing the oblique ribs; Fig. 5, the inner side of a cutter-rest is shown in reverse.

A A is a stout frame, to which is bolted by means of flanges B B the metal circle or ring C C. On the top of this circle is a hopper, H, at its bottom opening through the circle. Within this circle, and fitting close to its inner diameter, revolving within it, is a similar circle or ring about equal to it in breadth, (marked D D.) Within the last ring, at a short space within it and running concentric with it, is a cylinder, E E, much longer than the ring is wide. The ring D stands nearly over one end of the cylinder E, and is attached to it by four chambers, G G G G, open at top and bottom, the object of these chambers or passages being to pass the material which is put into the hopper into the interior of the cylinder E. The cylinder E is thus constructed: The one end shown at Fig. 1 is a solid disk, *g*, with a cog-wheel, *a a*, attached to it. The end shown by Fig. 2 is a ring, *b b*, with cross-arms connecting it with a central disk, *o*. Connecting these two ends are rectangular staves or panels *e e*, Fig. 4, secured to the solid disk *g* and the ring *b b* by screws or otherwise. Obliquely across the interior surface of these panels low projecting ribs *s* extend, whose line of direction is diagonally across the panel and in the converse direction of the oblique line of the revolving knives, hereinafter described.

Fig. 4 represents a panel reversed, *s* showing a rib, and the dotted lines showing the positions of other ribs, if made. *q* indicates the

opening into the hopper. Between these panels are left slots or spaces, within which lie the cross-bars of the cutter-rests *f f*. At Fig. 5 the inner side of a cutter-rest is shown. The cross-bar has affixed to it a knife or cutter, *k k*, lying at an angle with the radial lines of the cylinder E, and is secured to end pieces, *m m*, at both ends, forming segments of rings fitting the outer circle of the disk *g* and of the ring *b*; and in order to hold the cutter-rests down thereupon, a spring, S, lies on the outer side of the rest, which passes against a pin, *t*, passing through two ears, *l l*, which project from the panels *e e*. To regulate the distance of the knives from the axis of the cylinder-set-screws *n n* are employed, passing through taps or nuts in the end pieces, *m m*, and pressing against the edges of *g* and *b*.

An axle, X, passes through and revolves within an orifice in the center of the disk or head *g* and of the disk *c*. Attached to the axle is a drum, *p p*, extending the whole length of the cylinder E, to the periphery of which are attached knives or beaters *r r*, inclined forward from the line of their attachment to the drum at an angle acute to the radial lines of the drum. These knives *r r* do not lie parallel with the axis X, but at a small angle oblique thereto, inclining forward along the surface of the drum from its end O to its inner end, where they are attached to a disk, (which cannot be shown in the drawings,) which forms the end of the drum, with its periphery extending to the outer edges of the knives *r r*, these edges of the knives being parallel with the axis of the drum. This last-mentioned disk runs parallel with and close to the disk *g*, (head of the cylinder,) and in order to permit a current of air to pass through the cylinder, openings W W are made in the said disk *g* and corresponding ones in the disk end of the drum, so that as these two disks revolve one past the other the openings coincide at times with each other.

The movement of the machine is as follows: Any given power gives motion to the axis X, turning it from the left hand to the right hand. The axis, by the band-wheel 1 and cross-bands, moves the wheel 2 from right to left. The wheel 2, by its attached pinion 3, drives the wheel 4 from left to right, and this again, by a pinion on its shaft, which in the drawings is concerted by the ratchet-wheel 5, drives the wheel *a*,

with its attached cylinder, from right to left, or in a contrary direction from that of the axle X, but with an increased velocity, the result being that the knives *r r* travel with great velocity in one direction and the cylinder slowly in another. The ratchet-wheel 5 is attached near its bottom to the ring C. The axis of wheel 4 passes and turns through its center. To one of the arms of 4 is attached a pawl, 6. The object of this apparatus is to prevent a backward movement of the revolving machinery.

The operation of the machine is thus: Flock is fed into the hopper, which falls down through the uppermost of the chambers G into the cylinder E. There it is cut up by passing between the revolving knives. The successive portions of flock, as they pass between the revolving knives and the oblique ribs on the panels, are pressed forward, changing their positions, and subjected to repeated and minute cuttings up as they progress from the closed to the open end of the cylinder, from which the finished article emerges. The object of the revolution of the cylinder is to bring its panels alternately uppermost, which, by raising the flock to the top of the cylinder, prevents it from adhering to the cylinder, and allows it to drop upon the revolving knives in successive portions.

I do not limit myself to grinding or cutting flock, but any article to which the machine can be advantageously applied.

I claim—

1. A cylinder or drum with knives or beaters attached, extending its length, said knives being set at an oblique angle both with the radial lines and the axis of the drum, in combination with an outer cylinder, within which the drum revolves, the outer cylinder also revolving in an opposite direction, and having on its

inner surface at intervals knives extending its length, the said knives being parallel with its axis, but oblique to its radius, said outer cylinder also having in the intervals between its knives panels containing projecting ribs oblique to its axis, and so arranged that the action of the revolving knives upon any material lying between the ribs shall gradually carry it from the inner to the outer end of said cylinder, thus subjecting the material to repeated cuttings between the revolving knives, substantially as set forth in the above specification.

2. The method of constructing the outer cylinder of alternate panels, the one set being permanent and having on its inner surface oblique ribs, the outer set being movable and adjustable (these panels are called "cross-bars" in above description) by screws and springs, and having on its inner surface oblique knives, the fixed panels being connected with an outer and concentric ring of metal by chambers or passages, the same being in combination with another cylinder or ring of metal, within which it fits and revolves, which last ring has a hopper upon it to receive the material to be operated on, opening into the said chambers or passages, and by them into the cylinder containing the knives, substantially as set forth in the above specification.

3. The combination of outer and inner rings with the inner and outer revolving cylinders and their knives and ribs, making a machine for grinding flock or any other material, substantially as set forth and described in the above specification.

JOHN C. FONDA.

Witnesses:

RICHD. VARICK DE WITT,
JAMES B. SANDERS.