E. G. CUSHING.

Straw Cutter.

No. 17,207. Patented May 5, 1857.

Fig. 1

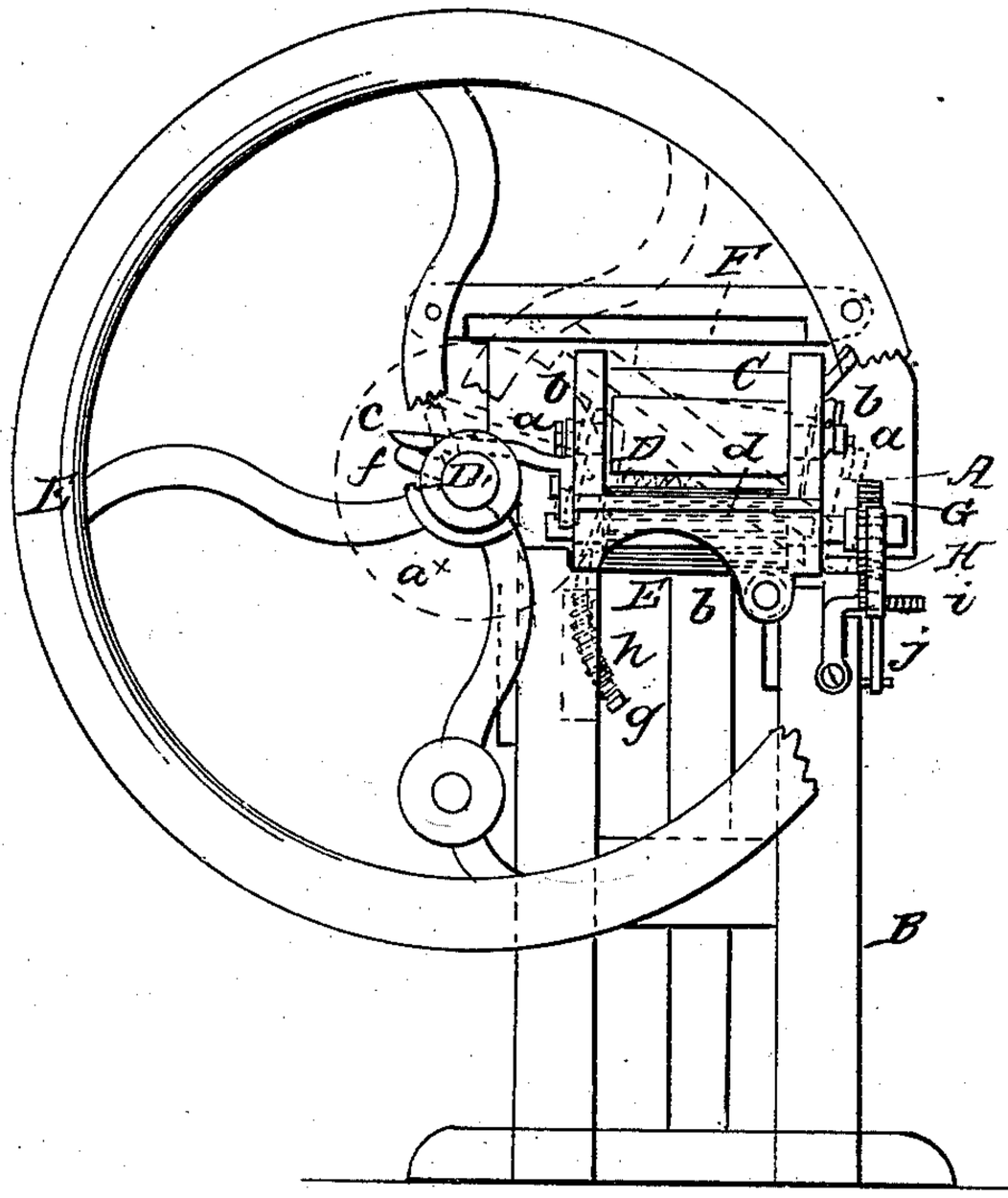



Fig. 2

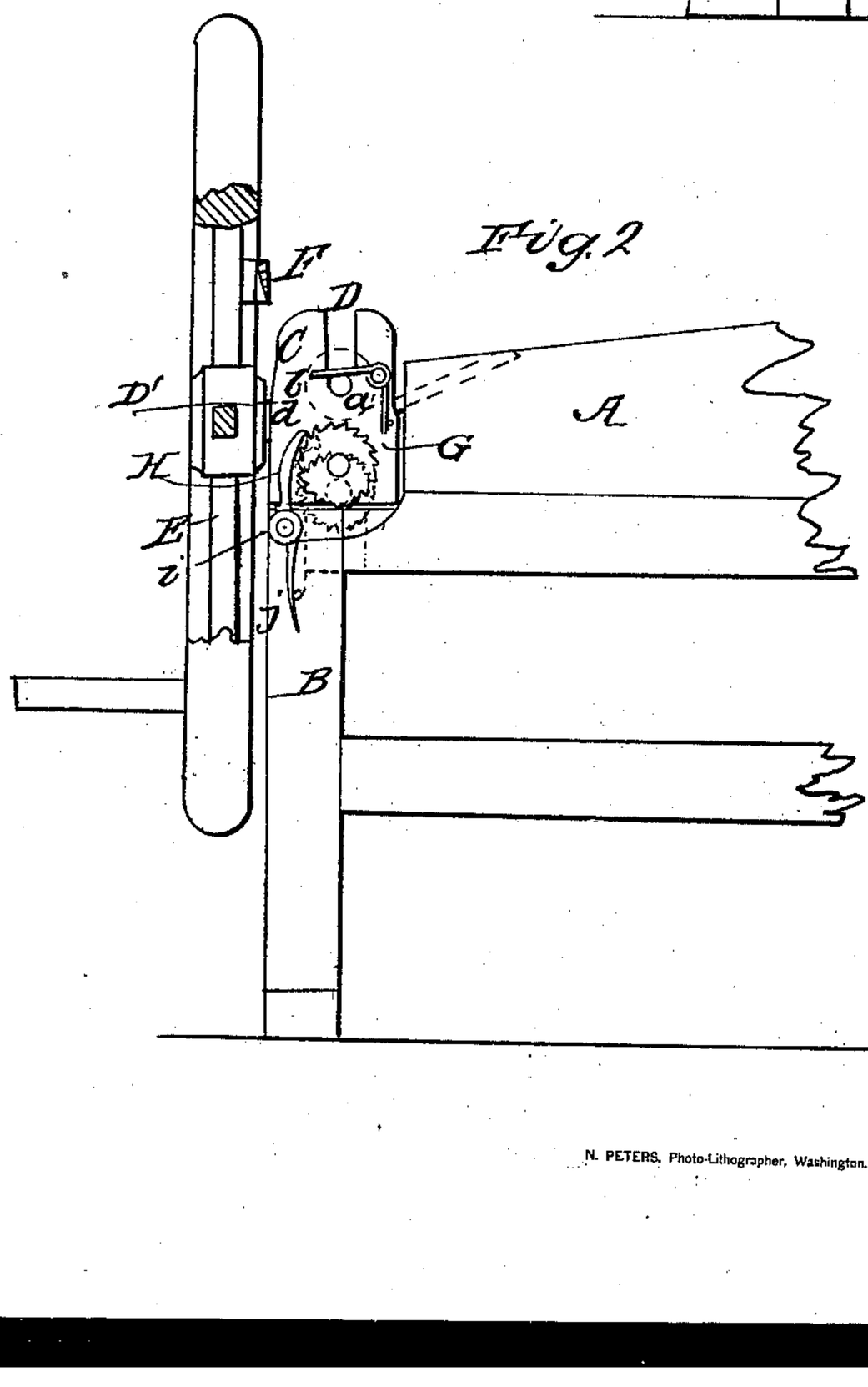
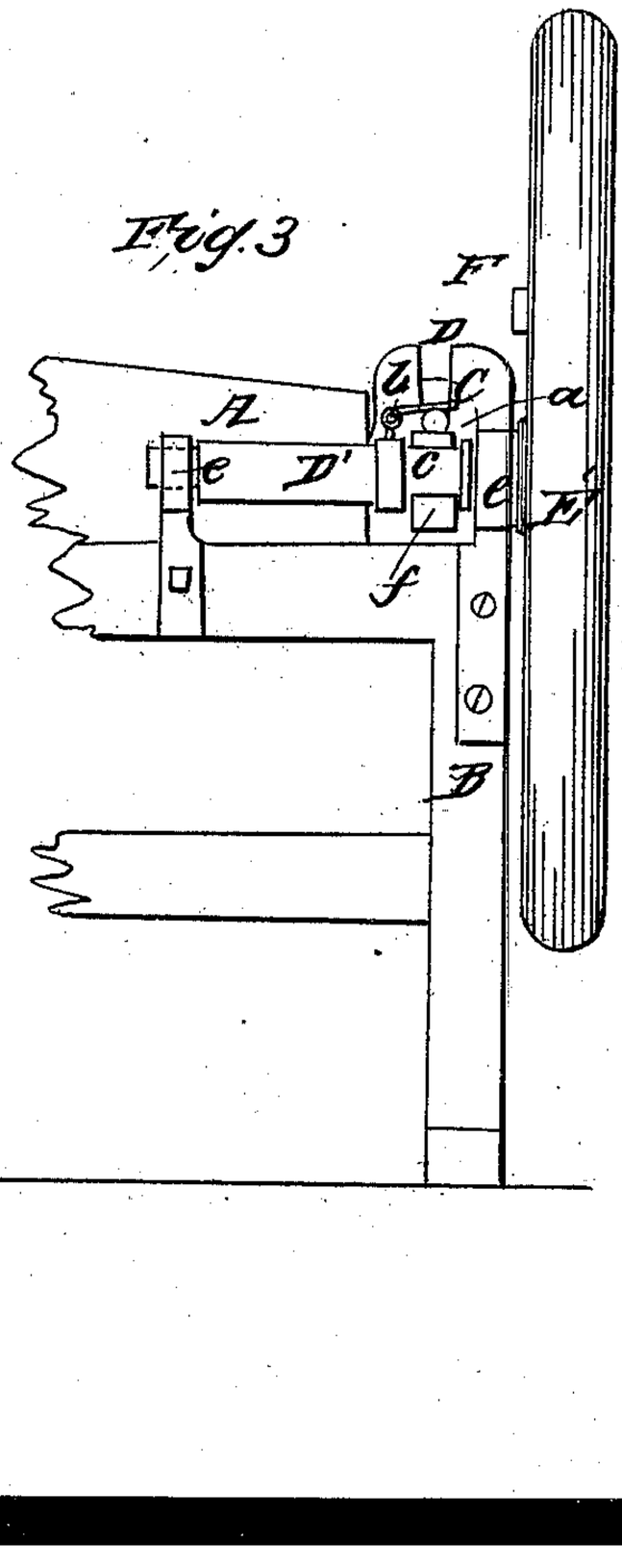



Fig. 3



# UNITED STATES PATENT OFFICE.

E. G. CUSHING, OF DRYDEN, NEW YORK.

## STRAW-CUTTER.

Specification of Letters Patent No. 17,207, dated May 5, 1857.

*To all whom it may concern:*

Be it known that I, E. G. CUSHING, of Dryden, in the county of Tompkins and State of New York, have invented a new and Improved Straw and Stalk Cutter; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a front view of my improvement; a portion of the cutter-wheel being broken away. Fig. 2 is a side view of the same, showing the feed movement. Fig. 3 is a view of the opposite side of the same.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to a new and useful improvement in that old and well-known class of straw and stalk cutters, in which, cutters are attached to a rotating disk wheel. Implements of this description possess many advantages over those of modern construction; but still there are some disadvantages attending them which my improvement is intended to obviate.

My invention consists in giving the box to which the "leger" blade or cutter is attached, and within which the feed rollers are placed, a vibratory movement, as will be hereinafter fully shown and described, whereby a greater cutting angle and also a longer stroke is obtained, and the straw or stalks held or grasped firmly in position while being acted upon by the cutters, and a simple and adjustable feed motion also obtained.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A, represents a feed-box; and B represents a frame which supports it. These parts are of the usual construction and therefore do not require a minute description.

C, represents a metallic head or box, in which two feed rollers D, E, are placed. The lower roller E is corrugated as usual, and is fitted in permanent bearings; but the upper roller D has a smooth periphery, and has its journals fitted in slots (*a*) in the sides of the heads; springs (*b*) bearing upon the journals. The upper roller, therefore, is allowed to yield or "give."

One end of the head or box C is hinged or jointed to the frame B, and at the discharge end of the feed box, see Fig. 1, ($b^{\times}$) indicating the joint; and the opposite end of the head or box has a projecting bar (*c*) attached. The front edge (*d*) of the bed or bottom of the head or box C, is made perfectly true, and forms a "leger" blade or cutter.

$D^1$ is a shaft, the bearings (*e*) of which are secured to one side of the frame B, see Fig. 3. To the outer end of the shaft $D^1$, a wheel $E^1$ is secured. This wheel is of sufficient diameter to allow its rim or periphery to extend beyond the farther end of the head or box C.

To the wheel E, a knife or cutter F, is attached. This cutter is placed tangentially with a circle, the circumference of which is in contact with the inner corner of the head or box C, when raised to its greatest height. This circle is designated by ($a^{\times}$) and is shown in blue in Fig. 1.

On the shaft $D^1$, a tappet (*f*) is secured, and to the under side of the head or box C, adjoining the tappet, a segment or curved rod (*g*) is attached; said rod having a spiral spring (*h*) around it; the upper end of the said spring being attached to the under side of the frame B.

The journal of the lower feed roller E, extends through the side of the head or box C, and has a ratchet wheel G placed on it. This wheel may be made adjustable, and to the side of the frame B, a pawl H is attached; said pawl being fitted on a pin (*i*) and having a spring (*j*) attached to its lower end to insure its catching into or between the teeth of the ratchet wheel G.

The operation is as follows: The straw or stalks to be cut being placed in the feed box A, motion is given to the wheel $E^1$ by grasping a handle attached thereto; and as the cutter F passes over the edge of the "leger" cutter (*d*) the said "leger" cutter will be raised and gradually moved toward the cutter F; the "leger" cutter (*d*) being raised in consequence of the tappet (*f*) acting upon the projection (*c*). It will be seen that a vibratory motion is given the head or box C; the tappet raising the head or box, which falls by its own gravity, aided by the spring (*h*) each time the tappet leaves the projecting bar (*c*). The tappet is so placed on the shaft $D^1$, that it will come in contact with the projecting bar (*c*) and actuate the head or box C, at the same time that the cutter F is passing over the "leger" cutter (*d*).

By the vibrating movement of the head or box C, the necessary feed movement is given to the rollers E, D; for each time the box C descends, the pawl in consequence of catching into the ratchet G, causes the lower roller E to rotate a certain distance, and this distance may be varied as required by changing the position of the ratchet G; the farther the ratchet is placed out on the journal the greater the feed will be. By this improvement also, a longer cutting stroke is obtained than usual; and the lifting or raising of the bed causes the straw or stalks to be held firmly and thereby prevented from being drawn out or otherwise disturbed while being acted upon by the cutters; thus insuring a clean and even action during the cutting process; and the long cutting stroke causes the machine to work with but comparatively a small expenditure of power.

I do not claim a knife or cutter, attached to a rotating disk or cutter-wheel; for they are old and well known; neither do I claim the feed-roller irrespective of the means by which they are operated; but having thus described the nature and operation of my invention, what I claim as new, and desire to secure by Letters-Patent, is:

1. The disk-wheel $E^1$, with cutter F, one or more, attached, in combination with the vibrating head or box C, in which the feed rollers D, E, are placed, and the "leger" cutter (*d*) attached; the above parts being arranged and operating conjointly as shown for the purpose set forth.

2. I claim operating the feed-rollers by means of the ratchet wheel G, and pawl H, when used in connection with the vibrating head or box C, and arranged substantially as herein shown and described.

E. G. CUSHING.

Witnesses:
E. S. FARNHAM,
H. D. RUMSEY.