

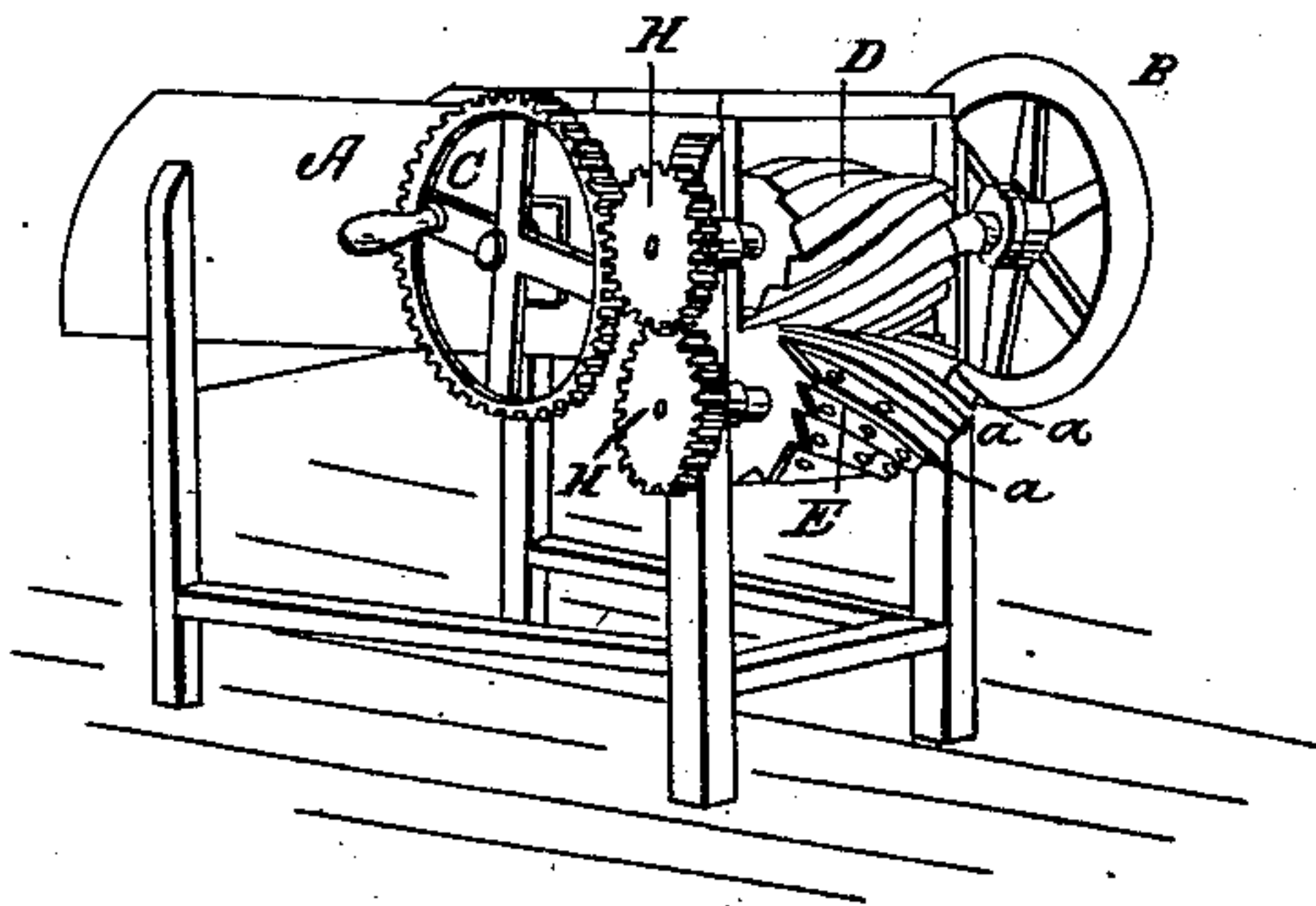
J. McMAHEL.

Straw Cutter.

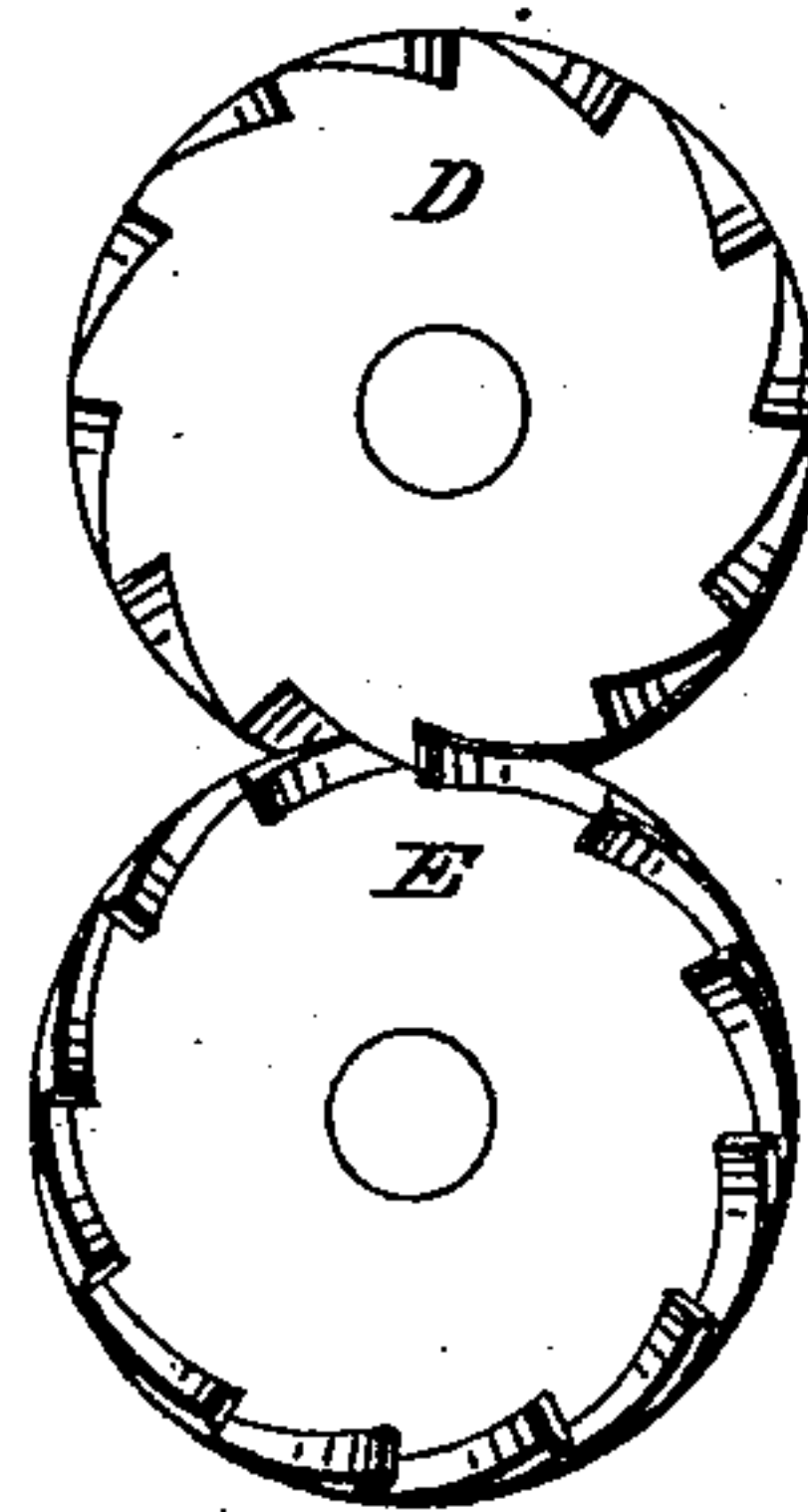
No. 59,433.

Patented Nov. 6, 1866.

*Fig. 1.*



*Fig. 2.*



Witnesses:  
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# UNITED STATES PATENT OFFICE.

JOHN McMAHEL, OF HAMILTON, OHIO.

## IMPROVEMENT IN STRAW-CUTTERS.

Specification forming part of Letters Patent No. 59,433, dated November 6, 1866.

*To all whom it may concern:*

Be it known that I, JOHN McMAHEL, of Hamilton, in the county of Butler and State of Ohio, have invented a new and useful Improvement in Straw-Cutters; and I do hereby declare that the following is a full and exact description thereof, reference being made to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 of the drawings represents my improved machine; and Fig. 2 shows the ends of the rolls detached, with their grooves and knives.

The object of my present improvement is to furnish such a construction of cutting apparatus as shall sever the material by what is known as a "shearing cut," which enables the machine to accomplish more work in a given time with less power than can be accomplished with machines such as have knives arranged to give a square cut upon the whole body or bulk of the material at the same time.

To enable others to make and use my invention, I will describe it with references to the accompanying drawings.

The letter A indicates the box. B is the balance-wheel. H H are the gear-wheels. C is the driving-wheel, and D and E are the feeding and cutting rolls.

By reference to the drawings, it will be seen that the roll D is made with spirally-formed grooves upon its surface. These grooves are nearly right angles in form; and the roll E is similarly constructed, and each of the ribs or ridges thereof is furnished with a knife of spiral form, which knife is secured to the roll by screws. The position of the knives corresponds with the curved or spiral conformation of the angular grooves upon the surface of roll D. The knives also incline laterally, so as to form an angle to a line radiating from the axis of the roll E.

It will be seen from the drawings that the knife-roll E is hung in suitable boxes, by means of its gudgeons, below the roll D, and so that its top surface is in line with the bottom of the straw-box A. The roll D is also hung at the front of the straw-box in like

manner, and at the right-hand side of the machine the gudgeons of these rolls D and E are provided with pinion-wheels H H, meshing into each other, and the upper wheel is actuated by main driving spur-wheel C. On the left-hand side of the machine the gudgeon of the roll D is provided with the balance-wheel B.

In using my improved straw-cutter, the straw is placed in the box A, and caused to be fed between the knives and roll D by the action of the two rolls D and E. The cutting action is effected by the knives working in close proximity to the square shoulders formed by the angular grooves on the surface of roll D.

When the machine is in operation, the several knives and the corresponding angular projections or shoulders on roll D are gradually brought in connection from the left to the right hand side of the machine, as the gear-wheels H H, which are of the same diameter, revolve, causing a revolving motion to be communicated to the feeding and cutting rolls D and E. In severing the material in this manner the action of each knife, with its corresponding shoulder on the upper roll, is like the action of the blades of a pair of shears.

It will be observed that the use of an upper roll of cylindrical form, with grooves in the form of narrow slots, into which the knives would work, will produce the same effect; and instead of using screws to secure the knives to the roll E, the knives may be fastened by bands at the ends of the rolls carrying the knives.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, as an improvement in straw-cutters, is—

The knives arranged spirally upon one of the feed-rolls, in combination with the grooved or shouldered upper feed-roll, as represented in the drawings at D and E, substantially as described, and operating to give a shearing cut, as set forth, for the purpose set forth.

JOHN McMAHEL.

Witnesses:

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