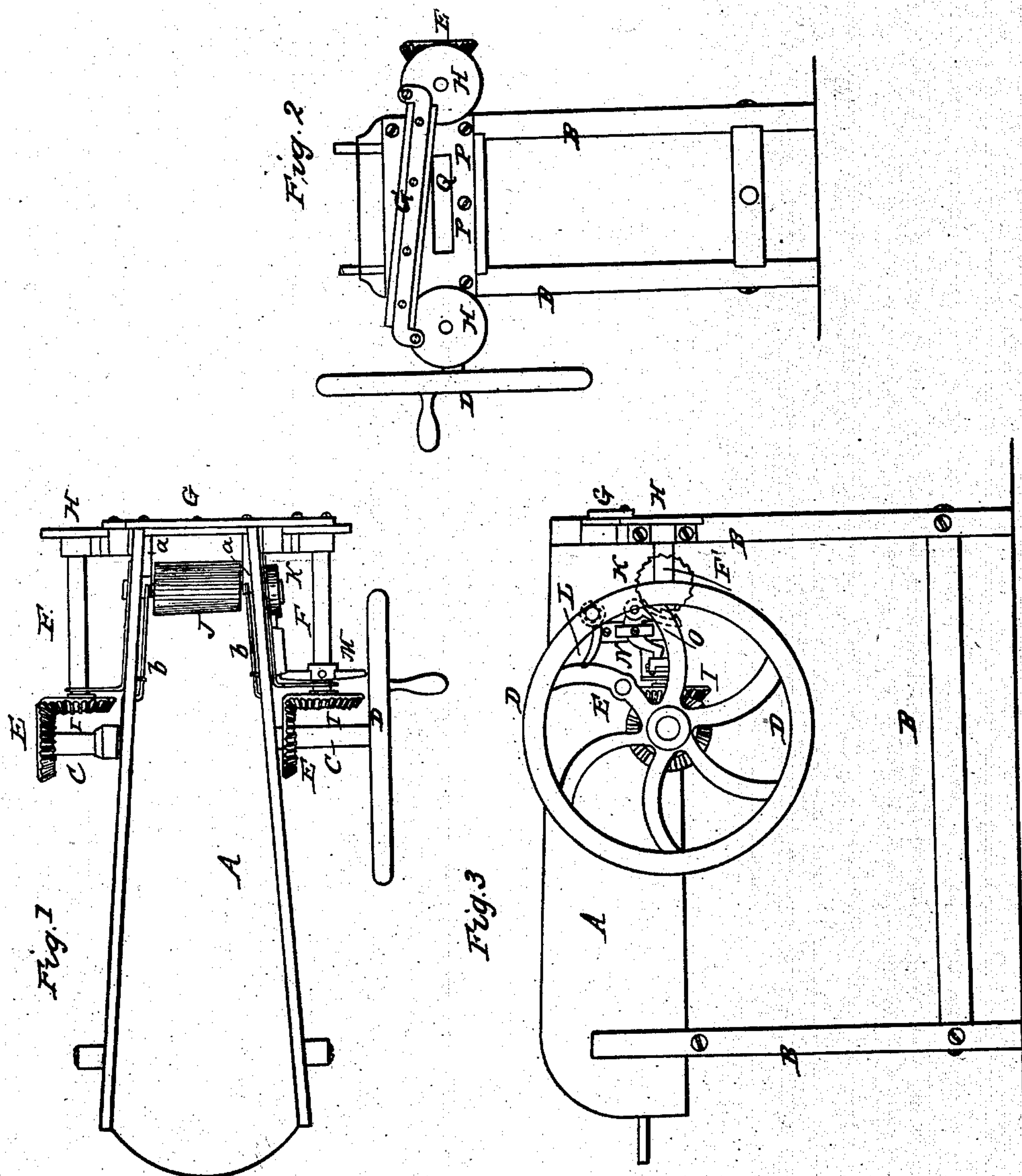


J. McMAHEL.

Straw Cutter.

No. 49,478.

Patented Aug. 15, 1865.



WITNESSES  
Geo L. Brown  
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# UNITED STATES PATENT OFFICE.

JOHN McMAHEL, OF HAMILTON, OHIO, ASSIGNOR TO HIMSELF AND ABNER CORY, OF SAME PLACE.

## IMPROVEMENT IN STRAW-CUTTERS.

Specification forming part of Letters Patent No. 49,478, dated August 15, 1865.

*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, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure I represents a top view of my machine. Fig. II represents a front or end view of the machine with the knife and its crank-wheels. Fig. 3 represents a right-hand side view of the machine with the mechanism for actuating the feed-rolls.

My invention relates to the feeding mechanism and to the arrangement and operation of the cutter, the latter having a combined rotary and reciprocating motion.

By reference to the drawings it will be seen that the box A is supported upon the frame B B.

C is the driving-shaft, provided with the balance-wheel D and bevel-gears E E.

F F' are the shafts communicating motion from the driving or crank shaft C to the knife G, the latter being pivoted at each end to the crank-wheels H H, which are fastened to the front ends of the shafts F F', and the rear ends of these are provided with the bevel-gears I I, which mesh with gears E E upon the driving-shaft C. These several shafts are journaled in suitable boxes attached to the box A.

J is the top feed-roll, and the lower one is of like construction, but not seen in the drawings. The feed-rolls may be corrugated or ribbed, as represented in the drawings. The lower feed-roll is provided with a ratchet-wheel, K, upon the end of its journal on the right-hand side of the box A, and the pawl L, pivoted to the box, works in the ratchet-wheel, as seen in the drawings. The feed-rolls are actuated through the shaft F', which is provided with the double tappet M near its rear end, and to the same side of the box A is attached in a metal slot a bent lever, N, and to the front end of the lever N the hook O is hinged in such relation to the ratchet-wheel K as to cause it to revolve when the machine is in operation. The top feed-roll, J, is journaled in metal slides a a, recessed in grooves in the sides of the box A, and the roll

J is held down upon the material being cut by the springs b b, attached to the side pieces of the box A, and resting and pressing upon the slides a a of the upper feed-roll, as seen in the drawings. The lower feed-roll is journaled at the bottom of box A, so that about two-thirds of its diameter is below the bottom of the box.

A metal face-plate, P, is screwed to the front of the box A, and provided with the opening Q for the discharge of the straw which is being cut. The face of this plate is flush with the end of the box A, into which it is sunk or rabbeted, and is also flush with the faces of the crank-wheels H H, to which the cutter is pivoted at each end. The cutter is double-edged and cuts both ways, as will be hereinafter described.

The double tappet M is capable of adjustment upon the shaft F', and secured thereon by a set-screw. This arrangement will enable the feed to be varied, as will be seen. The tappet, when adjusted upon its shaft and secured near the bevel-gear, will cause the bent lever N to rock a sufficient distance for the hook O to catch but one tooth of the ratchet-wheel; but when adjusted upon its shaft in the direction of the knife the tappet, as it revolves, will rock the lever N a sufficient distance for the hook O to revolve the ratchet-wheel and feed-roll to the extent of two teeth of the ratchet-wheel. I have constructed the double-edged knife of a plate of steel and secured it by screws to a rigid bar, as seen in the drawings, and its flush edges and face are brought close against the slotted face-plate P. The slot of the face-plate, which may be of cast-iron, is provided with square corners, upon which the material to be cut rests as the knife severs it, and serves as a fixed blade of a pair of shears.

It will be observed that the knife is caused to have a reciprocating and drawing motion as its ends are caused to revolve with the crank-wheels, to which they are connected.

The material to be cut is placed in the box A in the usual manner, when, by the revolutions of the driving-shaft C, it is fed between the feed-rolls to the knife, the feeding being done by the action of the double tappet M upon the rear end of the bent lever, which carries the hook O, and which actuates the lower feed-roll by means of ratchet-wheel K, and the shafts



F F', by means of the bevel-gears E E and I I, communicate motion to the crank-wheels H H, to which the knife is attached, as described.

It will be observed that the knife is caused to pass the slot of the face-plate twice at each revolution of the crank-wheels, and, being double-edged, gives two cuts during the same time.

It will also be observed that by the use of the double tappet M the feed (which is effected at proper intervals between the cuts of the knife) is done at each half-revolution of the crank-wheels, which carry the knife, the tappet being upon the same shaft that carries one of these wheels. The upper feed-roll, J, is actuated by the revolutions of the lower feed-roll, which has a positive motion. The upper feed-wheel, being pressed down by the springs b b, will be revolved by the action of the lower one, and at the same time allowed to yield to the inequalities of the material being cut.

To avoid accident by turning the gearing backward, a pawl may be attached to the box

A, so as to fall into teeth cut into the periphery of one of the wheels H.

Having fully described my improved straw-cutter, what I claim, and desire to secure by Letters Patent, is—

1. The arrangement of the knife G with its double edge, in combination with the crank-wheels H H and slotted face-plate P, to operate in the manner described, for the purpose specified.

2. The combination of the feeding mechanism with the knife and crank-wheels, whereby the feeding and severing of the material are effected alternately and both at each half-revolution of the shaft F', substantially as described.

In testimony whereof I have hereunto set my hand this 15th day of June, 1865.

JOHN McMAHEL.

In presence of—

A. P. K. PECK,

GEO. C. BARNITZ.