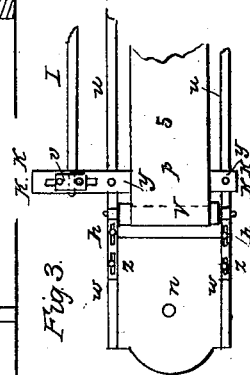


Straw Cutter.

Patented Aug. 15, 1848.



UNITED STATES PATENT OFFICE.

L. A. HARPER, OF RUSSELLSVILLE, KENTUCKY.

STRAW-CUTTER.

Specification of Letters Patent No. 5,717, dated August 15, 1848.

To all whom it may concern:

Be it known that I, LOWRENCE A. HARPER, of Russellsville, in the county of Logan and State of Kentucky, have invented a new and
5 Improved Straw Cutter or chopper, and I do hereby declare that the following is a full and exact description, reference being had to the annexed drawings, making a part of this specification.

10 The nature of my invention consists in placing the wheel-work in such a manner as to act immediately on the back of the knife or cutter by a crank and pitman with great power and quick motion, the straw is moved
15 forward under the knife by an eccentric wheel and cam-yoke, in the moment when the knife is fully above the straw—the arrangements are further so, that any scythe may be attached and used as a cutter or
20 knife.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

At the annexed drawing is Figure 1, a front view; Fig. 2, a view from the right side; Fig. 3, a view from below showing a part of the machine.

In Figs. 1 and 2 is (A) the main bottom sill, 3 by 12 inches thick, $3\frac{1}{2}$ feet long: (B,
30 B) the two front posts 2×12 inches and 5 feet long, framed in the bottom sills 13 inches apart: (C) the cap, $2\frac{1}{2}$ by 15 inches, and 21 inches long framed on the top of the front posts and projecting over the fly-
35 wheel: (D) a cross piece $2\frac{1}{2}$ by 3 inches and 2 feet long lapped in front of the main posts 15 inches above the main sill (A); the bearing of the knife is supported at one end of this piece, it also forms the bottom of the
40 front of the cutting box: (E E) two head-blocks $2\frac{1}{2}$ inches square 22 inches long framed through the main posts (B B) to support the wheel-work, fastened by long tenons and keys on the outside. There is also a
45 small piece (x') confined between the main posts in front for the purpose of preventing the knife (I) from raising the straw when in the act of cutting; a common steel plate (a', a') is confined in front of the box: (F)
50 the main cogwheel, 8 inches diameter (the power is applied to the crank (g) which gears into a pinion (b)—4 inches diameter on the main shaft (d) of the crank (f) and flywheel (W), the crank (f) being $3\frac{1}{2}$ inches
55 long: (H) the pitman 18 inches long, of

wrought iron confined to the crank (f) and the back of the knife (I) which is 23 inches from heel to point, arch about 4 inches,—the main body of the knife is made of wrought iron, (as shown by the dotted line ($i i$) on
60 the drawing) and a thin blade of steel, (or a scythe) is confined to it by screws. The one end of the knife is confined at (k) to a horizontal roller or shaft (I) 3 feet 10 inches long confined on the outside of the box (U)
65 its extremity opposite of the knife is movable by a slide box (v) at the block (K K) screwed to the box (U) at the back end: (L) the eccentric wheel $3\frac{1}{2}$ inches diameter of cast iron confined on the shaft of the
70 crank (f) before the pinion (b) with a groove in the edge for the yoke to run in: (M) the yoke, wrought iron, whole length 12 inches; the lower end is confined to a cross lever (N) which moves the iron ratch
75 (O); the lever passes through one of the posts (B) at (l) and is confined with a movable joint between two pieces of cast iron (q) screwed on the inside of the posts:
80 (O) the ratch iron confined on the outer end of the lever with a small spring (t) to confine it to the face ratch wheel: (P) a double ratch wheel 8 inches diameter of cast iron with face and edge ratches (q) the
85 ratch iron (O) works on the face ratch and the click (q) on the edge ratches; this wheel is confined to the gudgeon of the front bottom roller (t), which is a wooden roller 4 inches diameter $13\frac{1}{2}$ inches long. There is
90 another roller (u) immediately above the one described of the same diameter and length of cast iron and fluted; the straw passes between those rollers (t and u); the upper one is movable up or down in proportion of the body of straw that is between
95 them; the upper roller receives its motion by the two cogwheels (R R) on the opposite side of the ratchwheel; two springs ($s s$) one confined on each side of the box (U) and presses on the gudgeon of the upper
100 roller (u) at (m): (T, T) the hind leg 3 by $2\frac{1}{2}$ inches and 2 feet 4 inches long framed in the bottom (n) that supports the one end of the cutting box: (U) the cutting box 13
105 inches wide 4 feet 8 inches long: (V) the back bottom roller 4 inches diameter; an endless leather or cloth (p) moves around the two bottom rollers to move forward the straw: (W) the flywheel cast iron 2 feet 10 inches diameter, rim 3 by 2 inches thick; 4
110

arms confined on the back end of the crank shaft (*d*): The bearings are all held down by cast boxes and screws.

Fig. 3 showing from below the cutter, the 5 movements of the movable block (K K) which may be moved with the shaft (I) by the sliding box *v* in or out, to adjust the knife before the box as required, and is fastened by the screws (*y y*) to the frame: 10 There is also a slit piece (*w*) of iron on both sides of the frame, attached to the roller (V) on its gudgeons, which move on pins (*z z*) and are kept stationary by the screws (*h, h,*) for the purpose to draw the revolving 15 leather or cloth (*s*) tight.

The advantages of my straw cutter depend more upon the arrangement of parts than any novel invention in those parts.

In most straw cutters, the fly wheel and 20 apparatus for producing the feed motion are on the side of the machine, so as to be out of the way of the feeding, and delivery of the straw. This requires much room, and makes the machine too heavy on one side. 25 In other straw cutters, where knives are attached to the fly wheel, there is this same objection.

In all instances where the vibrating knife, similar to mine, working without a gate, has 30 been used. I believe the knife has either been worked directly, by hand, or a crank, and fly wheel have been used in front of the machine, and at one corner, thus making it unequally heavy, and interfering with the

delivery of the straw, or the crank and fly 35 wheel have been directly in front, and some distance from the knife, thus making the knife difficult to get at, and requiring additional posts to support those parts, or the 40 crank and fly wheel have been placed behind the knife, and below the feed box, requiring a very high feeding trough, and attended with the disadvantages of requiring a 45 treadle, or the stooping of the person, working the machine, and the pitman attached to the knife, being in the way of the delivery of the straw.

I am not aware that the fly wheel and parts for operating the knife and feed 50 rollers have ever been placed, as in my machine, above it and behind the knife in the manner specially set forth.

This arrangement gives me a steady machine, few operating parts, makes the crank 55 easy to handle, from its position, removes all obstructions from the mouth of the box, while it brings the feeding box low down, and makes it easy to be supplied.

I therefore claim—

Arranging the fly wheel and the line of its 60 shaft, and the parts for operating the feed rollers, with respect to the knife and feeding box, in the manner which I have above set forth.

L. A. HARPER.

Witnesses:

PETER VON SCHMIDT,
LUND WASHINGTON, Sr.