H. M. SMITH.

Straw Cutter.

No. 3,444. Patented Feb'y 20, 1844.

Fig. 1.

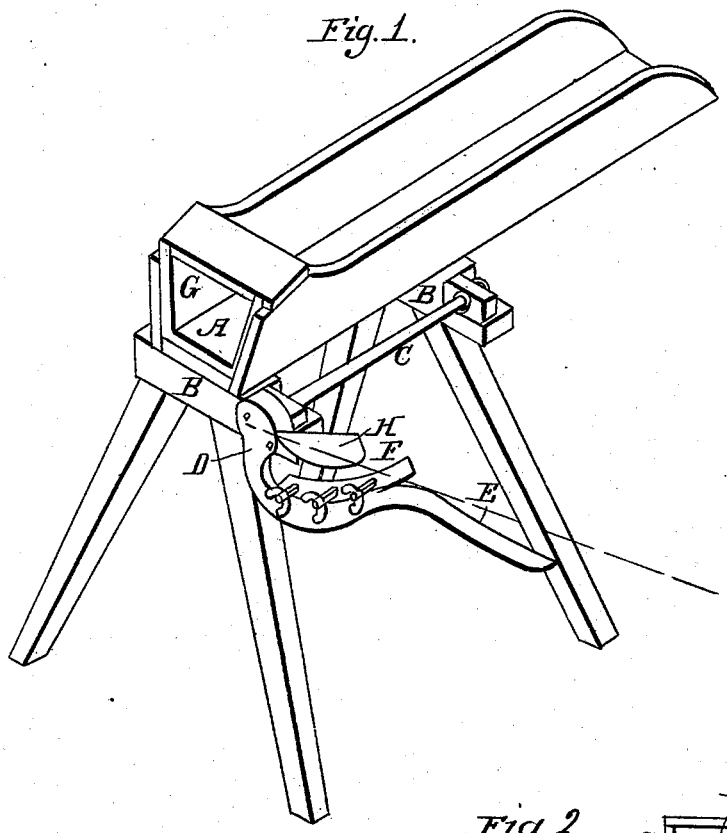
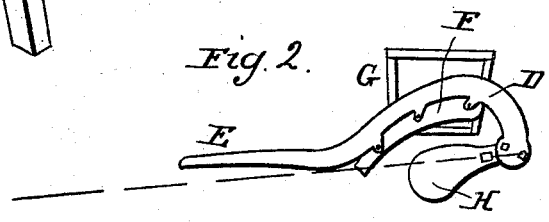


Fig. 2.



UNITED STATES PATENT OFFICE.

HIRAM M. SMITH, OF RICHMOND, VIRGINIA.

STRAW-CUTTER.

Specification of Letters Patent No. 3,444, dated February 20, 1844.

To all whom it may concern:

Be it known that I, H. M. SMITH, of the city of Richmond and State of Virginia, have invented a new and useful Machine for Cutting Straw, Cornstalks, Roots, &c.; and I do hereby declare that the following is a full and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is an isometrical perspective view of the machine with the handle turned back to show the knife and mouthpiece. Fig. 2, is a transverse section, showing the relative position of the mouthpiece and shaft-shape of the arm and knife-position of the guard, &c., all drawn to a scale of one inch to the foot.

Description of drawings, in which the same letters refer to the same parts in each, Fig. 1: A, hopper to receive the article to be cut; B B, pieces of wood or iron which are confined to the bottom of the hopper to receive and hold the legs and support the boxes 1 and 2; C, shaft; D, arm to hold the knife, which arm being extended to E, serves for a handle to operate the machine by; F, knife; G, stationary knife or mouthpiece; H, guard to govern the length of straw to be cut.

In constructing my straw cutter I make the 4 legs about 2 inches square and 2 feet 8 in. long and insert them in B B, as shown in Fig. 1. B, B, when of wood I make about $3\frac{1}{2}$ x $3\frac{1}{2}$ square and 16 inches long and cut away the top as shown in Fig. 1 to receive the boxes 1 and 2; B B, if made of iron, I make $3\frac{1}{2}$ inches wide and $\frac{3}{8}$ thick with flanches extending down to receive and hold the legs. The top part of the box for the large end of the shaft is formed in the same casting and is over the shaft, at the small end of the shaft the iron plate extends over the shaft and has the box which holds the shaft bolted up to it, the bolts passing through large holes in the casting which will admit of the box being moved in any direction necessary to adapt the knife F, to the mouthpiece. The bottom of the hopper A is made of hard wood $1\frac{1}{2}$ inches thick and about 7 in. wide at the mouth, and $8\frac{1}{2}$ at the other end, it is permanently attached to B B, and has the sides of the hopper nailed to it, the one next to the shaft forming an obtuse angle with the bottom, and the other a right angle. The shaft C, I make of cast or wrought iron 2 feet long with a flanch on the large end $3\frac{1}{2}$ inches diameter, to bolt the arm to. The shaft is so arranged in its bearings that the center shall occupy a point found by measuring in a horizontal direction from the corner of the hopper nearest the shaft $3\frac{1}{2}$ inches, thence perpendicularly down 2 inches.

The arm is made of cast iron, with a boss on the end next the shaft of the same size of the flanch on the end of the shaft, to which it is confined with 2 bolts; it is made curved and has 3 projections from the inner edge of the curve as shown in Fig. 2, against which the back side of the knife rests, and square bolts pass through square holes in these projections and secure the knife firmly to them by means of thumb nuts on the out side of the arm. The whole length of the arm and handle is about $2\frac{1}{2}$ feet. I make the knife of cast-steel about $\frac{1}{8}$ of an inch thick $2\frac{1}{4}$ wide and 12 in. long, curved so that the edge will correspond to a section of an ellipse taken from the minor axis which is 10-in. to within $1\frac{1}{2}$ inches of the major axis, which is 23 inches. I drill round holes in the knife large enough to admit the bolt and countersink them for the heads of the same.

The edge of the knife is made to touch the mouthpiece before any other part, by means of the convex shape of the projections on the arm to which it is attached.

The guard H I make of thick sheet iron about 9 inches long and 5 inches wide at the outer end, and diminish it on the upper edge toward the shaft so as to leave about $1\frac{1}{2}$ or 2 in. clear space between that edge and edge of knife. I bolt it on to a flanch on the cast arm made for that purpose. When the knife is up the guard covers the whole mouth of cutter except the space between the guard and knife. I make the machine cut different length by having as many washers as length required, which I use inside or outside of the guard at pleasure to vary the length and confine the whole with the bolt that passes through them.

To operate my straw cutter take the handle E in the right hand and raise it until the knife is above and the guard in front of the straw or article to be cut, then

shove the straw forward with the left-hand until it is in contact with the guard and bear the handle down low enough to cut all off.

What I claim as my invention and desire to secure by Letters Patent is—

The combination of the guard H, with the curved knife and arm, constructed and operating for the purpose above described and set forth.

H. M. SMITH. [L. S.]

Witnesses:
J. B. ROYSTER,
G. W. WILEY.