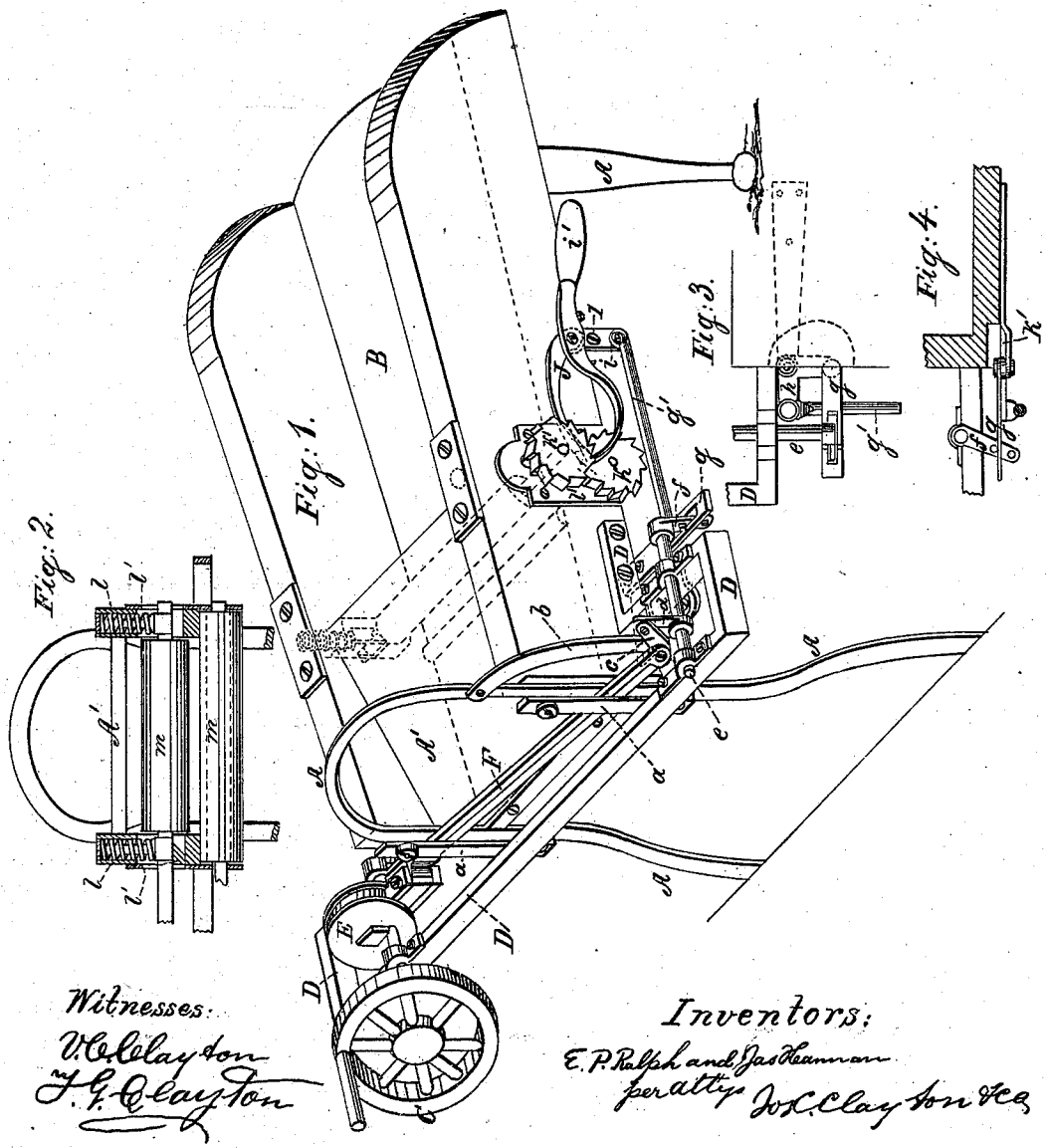
RALPH & HANNAN.

Straw Cutter.

No. 83,315. Patented Oct. 20, 1868.



Witnesses:
V. C. Clayton
J. L. Clayton

Inventors:
E. P. Ralph and Jas Hannan
per attys Jos C. Clayton & Co

N. PETERS PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

United States Patent Office.

ELLERY P. RALPH AND JAMES HANNAN, OF GALLIPOLIS, OHIO.

Letters Patent No. 83,315, *dated October* 20, 1868.

IMPROVEMENT IN STRAW-CUTTER.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, ELLERY P. RALPH and JAMES HANNAN, both of Gallipolis, in the county of Gallia, and in the State of Ohio, have invented certain new and useful "Improvements in Straw-Cutters;" and we 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, in which—

Figure 1 is a perspective view of the machine.

Figure 2 is a vertical section, showing the rollers and springs for feeding the material to the knife.

Figure 3 is a section, in plan, of the feed-devices.

Figure 4 is a side view, in section, of the same parts as in fig. 3.

The nature of our invention consists in manner of arranging the knife, so as to give to it a shear-cut, and the manner of arranging the feed-motion, all of which is hereinafter described.

To enable others to make and use our invention, we will proceed to describe its construction and operation.

In the construction of our straw-cutter, A A are the front legs, which are made of iron, and form the bow or mouth of the box; A″, the rear leg; B, the box, into which the material to be cut is placed; A′, the top of the box, under which the straw or other material is held and compressed when pushed through the box to the knife; *m m*, the rollers to feed up the material to the knife. These rollers have journals, with bearings, *l′ l′*, attached to the sides of box B, as seen in figs. 1 and 2.

The upper roller can slide up by means of a slot in its bearing, and is kept to the required position, and compresses the straw, by means of springs, *l l*, figs. 1 and 2, so that, by the pressure of the springs, a sufficient biting force is always given to the rollers to hold the straw, &c., firmly, in order to push it forward.

D, the frame for supporting the knife, and its devices for operating it. This frame extends beyond the box, on each side thereof, forming a square frame at each end, for bearings for the knife and its necessary operating-devices, and is firmly fastened to each side of the box by an arm fitting against the box on each side by screws.

a a are guides to the knife, and are, by screws, attached to legs and bow A.

The knife F, at the front end, is attached to a collar, which surrounds an eccentric-wheel, E, on the shaft of crank-wheel C, and which rests on the frame D, secured by ordinary journal-boxes.

The rear end of the knife F is attached to jointed levers *c* and *d*, which are attached to shaft *e*, which rests on frame D, and is secured by journal-boxes. The knife is, at the same point, attached to guide *b*, the upper end of which is fastened to the bow A, for guiding the knife in its regular shear-cut.

On the rear end of the shaft *e* is crank *f*, which passes through a slot in the end of connecting-lever *g*, which lever is fastened, by a joint, to the bell-crank lever *h*, in fig. 3, which has its bearing on the plate *h′*, in fig. 4, and seen in dotted lines in fig. 3.

To this lever *h* is attached a connecting-rod, *g′*, extending back to a lever, *i*, having its bearing on a journal firmly fastened to the bottom of the box B, and seen at *l* in fig. 1. This is a pivot-lever, as its fulcrum is in its centre.

To the upper end of this lever are attached two pawls, *i′* and *j*. These pawls fall into the ratchet-wheels *k* and *k′*, for operating the rollers *m m*, to the journals of which they are firmly attached.

The pawl *i′* is weighted at the rear end, so that, by its own gravity, it falls into the teeth of the wheel *k′*, and the pawl *j* falls into the teeth of wheel *k*, for the purpose of operating the feed-rollers *m m*, and giving motion to the rollers *m m*.

In the operation of our invention, the material to be cut is put into the box B, and entered between the rollers *m m*. The power is then applied to the handle of crank-wheel C, which turns the eccentric-wheel E, with the collar surrounding the same. As this wheel revolves, the knife is raised, by means of its bearings at the rear end, to a right angle with the side of the mouth of the box. The eccentric motion of the wheel depresses the end of the knife next to wheel E before the knife begins to cut. It is then drawn down and out, giving to the knife a regular shear-cut. The motion is communicated from shaft *e* to the pawls *i* and *j*, which, as they operate back and forth on the wheels *k* and *k′*, revolve the rollers *m m*, thus feeding forward the straw or other material under the top, A′, through the mouth of the box, where it is cut by the knife F, as already described.

We thus obtain a complete self-feeding machine, and a regular shear-cut is given to the knife, which are points of great value in straw-cutters.

Having thus described the construction and operation of our invention,

What we claim as new, and desire to secure by Letters Patent, is—

1. The eccentric cam-wheel E, collar and lever *c* and *d*, and guide *b*, to which the knife F is attached, in combination with the frame D, constructed substantially as described, and operating as and for the purposes set forth.

2. The shaft *e*, crank *f*, lever *g*, crank-lever *h*, rod *g′*, lever *i*, and pawls *i′* and *j*, in combination with wheels *k′* and *k* and rollers *m m*, substantially as described, and operating as and for the purposes set forth.

In testimony that we claim the above-described certain new and useful "improvements in straw-cutters," we have hereunto signed our names, this 29th day of February, 1868.

ELLERY P. RALPH.
JAMES HANNAN.

Witnesses:
M. R. WALKER,
JOHN PRIESTLEY.