J. SULLIVAN.

Straw Cutter.

No. 6,838.

Patented Oct. 30, 1849.

Fig. 3.

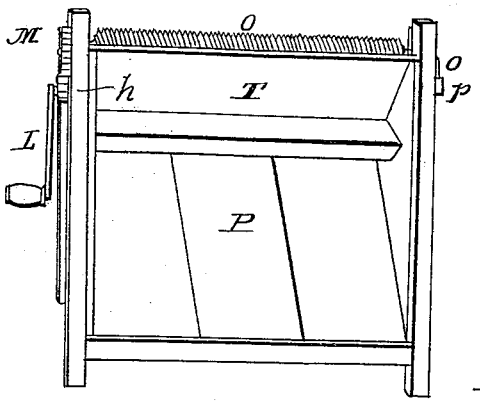


Fig. 2.

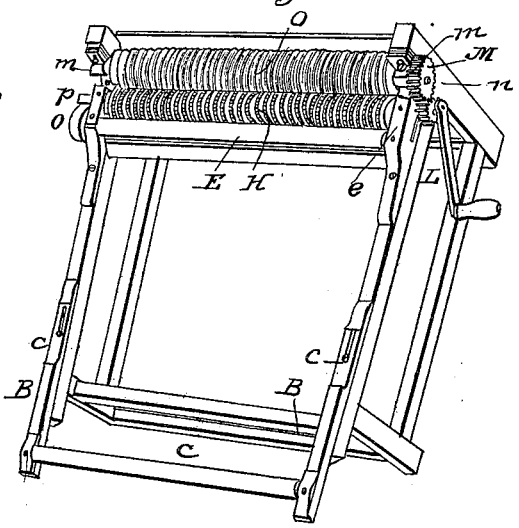
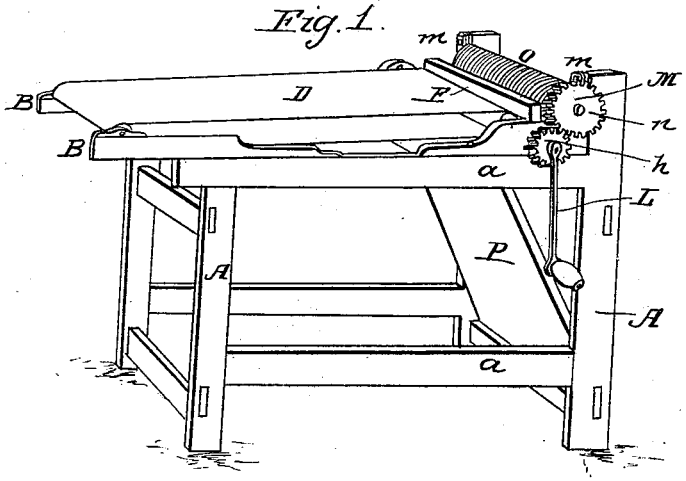


Fig. 4.

Fig. 1.



UNITED STATES PATENT OFFICE.

JONATHAN SULLIVAN, OF DAVIDSON COUNTY, NORTH CAROLINA.

STRAW-CUTTER.

Specification of Letters Patent No. 6,838, dated October 30, 1849.

To all whom it may concern:

Be it known that I, JONATHAN SULLIVAN, of the county of Davidson and State of North Carolina, have invented a new and useful Machine for Cutting Straw, Hay, Fodder, and other Like Material for the Food of Stock; and I do hereby declare that the following is a full, clear, 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 a perspective side view; Fig. 2, a longitudinal elevation; Fig. 3, an end view front; Fig. 4, a representation of the interior grooved metallic plate.

A, A, Fig. 1, is a side view of the frame upon which the machine is placed, 3 ft. 2 in. wide, 4 ft. long, and 2 ft. 10 in. high, made of timbers 4 inches wide by 2½ inches thick, put together in the usual manner with mortise and tenon. B, B, supports on which the roller C, 3 inches in diameter and 3 ft. 2 in's. long revolves. These supports are made movable by bolts and screws, as at *c*, *c*, Fig. 2, for the purpose of tightening the apron D, Fig. 1. E, Fig. 2, a roller of similar length and size, supported by the blocks *e*, *e*, which blocks also support the square piece F, designed to regulate the feeding of the machine. These blocks are firmly attached to the frame. *h*, Figs. 1, 2, 3, is a small cog-wheel, placed on the axle that passes through, and gives motion to the series of indented plates H, Fig. 2. On the same end of this axle is also fixed the iron crank L, designed to give motion to the machine. M, Figs. 1, 2, 3, is another and larger cog-wheel gearing into the wheel *h*, from which it receives and communicates motion to the circular knives O, Figs. 1, 2, 3. *m*, *m*, metal bearings, Fig. 2, which support the ends of the axle *n*, upon which the circular knives are placed. These bearings are attached to the upright posts by means of slots and screws, &c., to regulate the depth to which the knives enter into the grooves between the indented rings shown at H, Fig. 2. The axle *n*, upon which the knives are placed, is elevated at about an angle of 45° above and forward of the axle supporting the indented rings. *o*, Figs. 1, and 2, is the pulley on the farther end of the roller E, Fig. 2., that receives motion by means of a belt from the small pulley *p*, Fig. 2, and 3, placed on the opposite end of the axle to which the crank is attached and communicates the same to the feeding apron D, upon which the material to be cut is placed. P, Figs. 1 and 3, is a sloping plank floor or chute upon which the feed falls, and is thereby conducted to the front end of the machine. T, Fig. 3, is the board to the interior side of which the grooved metal plate Fig. 4, designed to rub the feed after being cut, is attached.

The principle of this invention consists in using a series of circular knives or saws, arranged on an axle, as described above. These knives may vary in size in different machines, from 3 to a greater number of inches in diameter. They are placed on the axle by means of holes through the center of each, and at such distance apart as will cut the straw or other material of the required length—say ½ an inch more or less. On the axle, between the knives, are placed circular plates of wood or other substance, which are intended by filling up the space between the knives to keep them firmly in position, their diameter being in all cases so much less than that of the knives, as to allow a projection of the knives beyond their verge to any required distance. Upon a second axle placed parallel to the first, just described, and being of the same length, is fixed another series of rings or plates, in diameter about equal to the knives, and made of cast iron or other suitable material, and arranged at a distance apart, corresponding to that of the knives on the opposite parallel axle, that is, so far apart as to allow the knives to work freely between them. These plates have small indentations on the verge, for a two-fold purpose, to carry forward the material to be cut, from the delivery of the feeding apron to the knives, and afterwards to break and rub the feed cut against a grooved metallic plate, placed below the knives, and nearly in contact before the series of indented plates.

The operation of this invention is by a revolution of the parallel axles in opposite directions, but with different velocities, the

motion being so regulated by cog-wheels, as to allow a greater velocity to the series of indented circular plates, which, by adding friction to pressure, thus brings the cutting principle more fully into action.

What I claim as my invention, and desire to secure by letters patent, is—

The operation of cutting and comminuting straw substantially as herein described and represented.

JONATHAN SULLIVAN.

Witnesses:

P. K. ROUNSAVILLE,

CHS. F. FISHER.