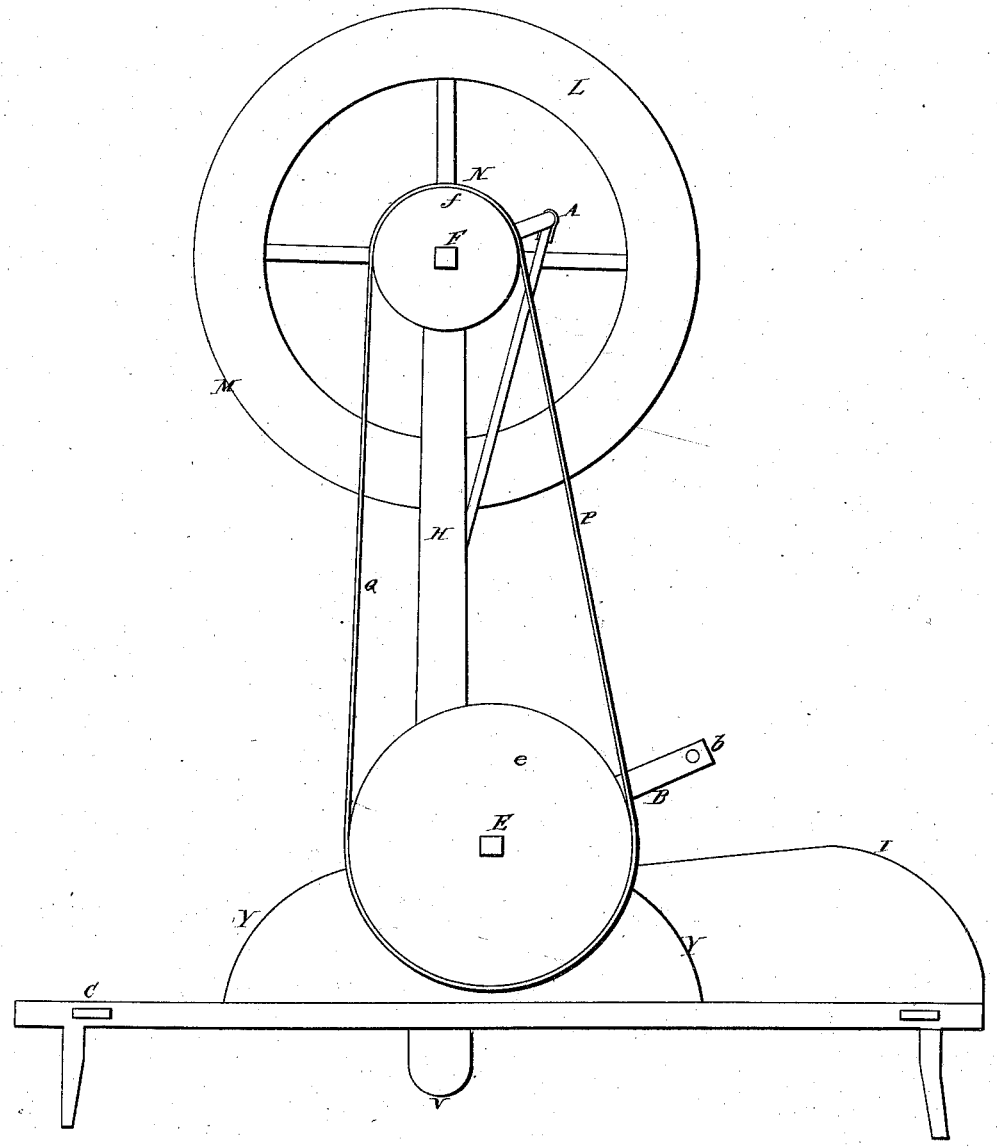
C. Utley.

Straw Cutter.

No. 4,209. Patented Sept. 27, 1845.

Fig. 1.



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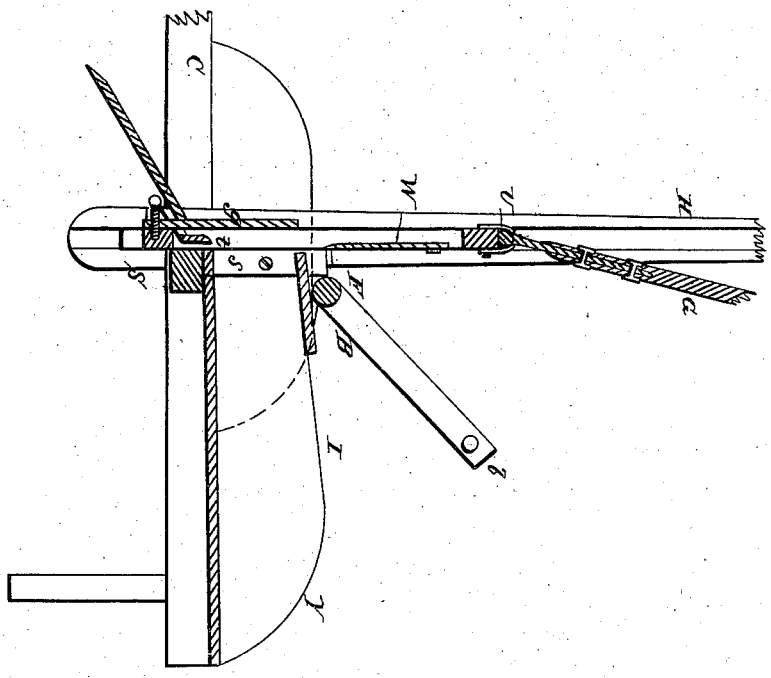

Fig. 3.

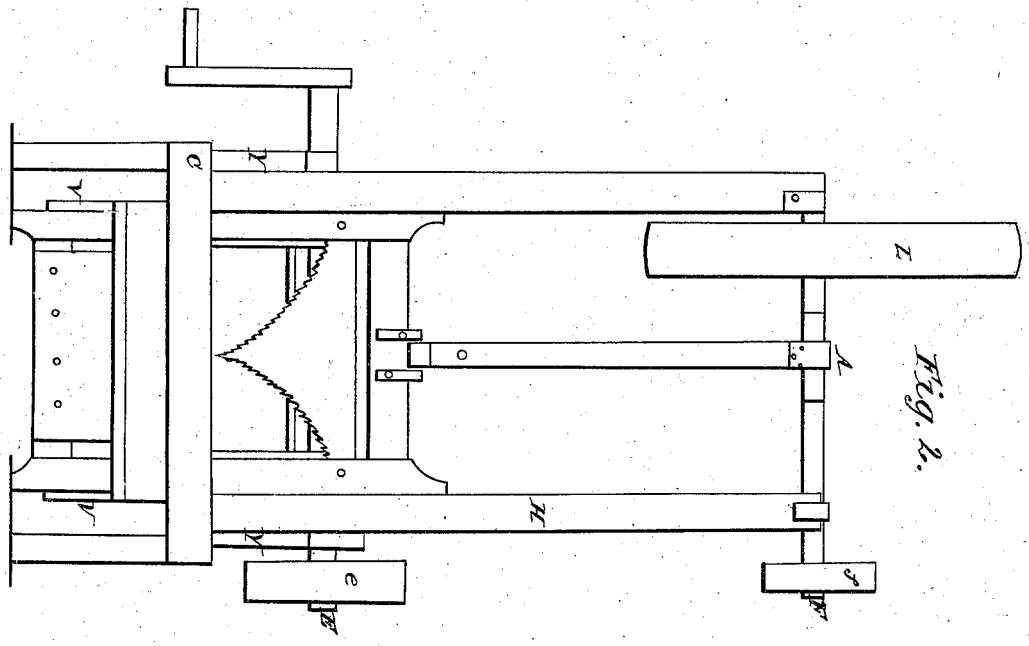

Fig. 2.

UNITED STATES PATENT OFFICE.

GREY UTLEY, OF CHAPEL HILL, NORTH CAROLINA.

STRAW-CUTTER.

Specification of Letters Patent No. 4,209, dated September 27, 1845.

To all whom it may concern:

Be it known that I, GREY UTLEY, of Chapel Hill, in the county of Orange and State of North Carolina, have invented a new and useful Machine for Cutting Straw, Hay, Husks, and other Rough Forage and other Materials; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a longitudinal elevation and Fig. 2 is an end elevation. Fig. 3 is a vertical section.

The machine consists of a bench or stand C D (Figs. 2 and 3) made of scantling, on which are erected two perpendicular posts H Z and K X (Fig. 2) standing opposite each other, mortised into the scantling of the bench and extending ten inches below; the posts serve as supports for the axis of a crank A placed at the top H, F, (Fig. 2) and at the same time, by means of grooves on the inside, they hold between them a sliding sash or gate U, R, S, T, (Fig. 2) in which is fixed a knife W (Fig. 2) set in the upper part of the sash with a point downward; the cutting edges *a*, *a*, *a*, *a*, (Fig. 2) of equal length, will thus be oblique to the perpendicular; these edges are made with series of parallel cutting edges *a* so that they shall cut in succession; Y, Y, (Fig. 1) are planks screwed one to each post, extending along and above the edge of the bench and serving as braces; on the upper edge of these planks and close to the posts is a transverse shaft B, E, (Fig. 2) moved by a handle *b* (Fig. 2) and having at the opposite end a band-wheel *e* (Fig. 1). This crank axle A, *d d* turning on the top of the posts has another band-wheel *f* (Fig. 1) at one end, and at the other end a fly-wheel L, M (Fig. 1) with a crank A, *d*, *d* (Fig. 2) in the middle; the pitman rod G (Fig. 2) is connected with the crank at A (Fig. 2) by a cuff and to the sash at G (Fig. 2) by a hinge; a feed-box Y J (Fig. 1) narrower at the end next the posts, rests upon the bench, having the narrow end armed with an iron strip *s* Figs. 2 and 2 and placed close to the plane in which the knife moves; another iron strip *t*, Fig. 3, is fixed horizontally to the bench on the opposite side of the plane of the knife, leaving only room for the blade to pass between the strips *s*, *t*. A stop-board *g g* (Fig. 2) is attached to the lower part of the sash, so that when the sash is raised, the board may be just opposite the end of the feed-box, and thus regulate the length of the straw to be cut off at each stroke. The distance between this knife and the plane in which the knife moves determines the lengths of the straw to be cut and which may be increased or diminished at pleasure by the use of set screws.

The handle B, *b*, (Fig. 2) being turned sets in motion the axle B, E, (Fig. 2) and the band-wheel *e* (Fig. 2). The band passing over the two band-wheels *e*, *f*, communicates motion to the upper axle H, F, (Fig. 2) on which is the crank A, *d*, *d* (Fig. 2)—the crank acting by means of the rod A, G, (Fig. 2) alternately raises and lowers the sash; and at each depression the knife cuts off the portion of straw between it and the stop board *g g*—the knife receiving two strokes at every revolution of the handle.

The knife W is made in a peculiar manner. It consists of a plate of steel resembling a spear pointing downward, having concave serrated edges. The edges (which are concave) are composed of a series of sharp chisels cut in a single plate. The two lowermost have their cutting edges on the same horizontal line on either side of a triangular point, which is designed to enter the substance to be cut before the chisel-shaped cutters commence their operation. The next pair of cutting edges are placed on another horizontal parallel line above the last named about 1 inch—the inner points of these cutters commencing at the outer edges of the last named cutters; and in this manner all the cutters are made gradually to rise above the succeeding pairs below, widening from the center line of the blade along the concave edges thereof. The blade thus formed is fastened to the sash in the usual manner.

The operation of the machine is the same as in other machines, except so far as relates to the cutters. These operate on the substances to be cut up, in succession, by pairs—the triangular point entering first, and then the lower pair of chisel shaped cutters, and then the next pair, and so on till the blade passes entirely through.

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

The before described construction of the knife—that is to say making it with a series

of sharp cutting edges, commencing near the top of the blade, on each side and gradually inclining downward and inward toward the center forming a serrated concave edge on both sides—each cutting edge being made in horizontal and parallel lines—the lower point being made sharp so as to pierce the article to be cut first, and each succeeding knife following in its turn and cutting the article.

GREY UTLEY.

Witnesses:
ALBERT E. H. JOHNSON,
WM. TRAPP, JR.