(12) **United States Patent**
Preston

(10) **Patent No.:** **X6157**
(45) **Date of Patent:** **Oct. 1, 1830**

(54) **STRAW CUTTER**

(76) Inventor: **Titus Preston**

Titus Preston

Letters Patent

The Schedule referred to in these Letters Patent and making part of the same containing a description in the words of the said Titus Preston himself of his improvement in the machine for Cutting Straw for feeding Cattle called "Prestons improved Straw Cutter"

To all to whom these presents shall come—

Be it known that I Titus Preston of Wallingford in the County of New Haven and State of Connecticut a native citizen of said State have invented a new and useful improvement in the machine for cutting Straw for feeding Cattle called "Prestons improved Straw cutter" and that the following is a full and exact description of construction and operation of said Machine as invented or improved by me. including for a more clear illustration, parts of the Machine heretofore in use in connection with my improvements.

My improved Straw cutter consists of an outer or main box. supported on four legs, and an inner box or feeder sliding within it moved by a rack and endless screw connected with the shaft of the knife wheel and thereby drawing the straw to the operation of the knife. In describing the parts. I call the end at the knife the front or fore end, the other the back or rear end. the side next the person using the Machine I call the near side—the other the off side The Machine may be proportionally greater or less than the one herein described. but I prefer the following dimensions viz. For the outside or main box. the top and ends of which are open make the sides three feet eight inches long one foot four

two and a half inches high. the bottoms seven inches wide of the same length, and all 7/8 of an inch thick.
On the inside of the off side piece I make a groove one fourth of an inch wide, half an inch deep and half an inch from the bottom to receive a pin on the side of the feeder and thereby guide its motion. I also make a groove in the upper side of the bottom an inch wide and half an inch deep. the centre to be two inches from the off inside of the bottom and extending from the back end, to within five inches of the front and there ending with a slant upwards to permit the straw to rise. This groove is made to permit the rack on the bottom of the feeder to play freely.
On the forward end of the box next to the knife I fix a cramping piece of wood five inches wide, one and a quarter thick made fast to the inside of the off side piece and extending from the bottom to the top of the box. the upper part of the back edge must be fitted to the circular motion of the press board, hereafter described and must be beveled to permit the free passage of the straw near the same end of the box. I also surround a press board. the width of the inside of the box and thirteen inches long, traversing on pivots inserted near the top edge of the box, eleven inches from the front end of the box and one inch from the back end of the board.
The traversing end of the press board is fitted to the circular bevil of the cramp board, and on it is fixed a block an inch and a half thick and near the lower back edge of that is attached an iron peg a little 2¼ inches long, playing into a circular rack of cast iron such its thickness into the inside of the near side of the box and descending six inches from the top with cogs, one quarter of an inch from centres. The use of the cramping

piece

piece and pressboard is to compress the straw as it approaches the knife. On the same end of the box strip firmly with screws a strip of steel welded upon tough iron and made very hard and ground true and even to receive and guard the edge of the knife. This strip is about three fourths of an inch wide and one fourth thick rising about ten inches upon the inside edge of the cramping piece and turning a square corner & tends about four inches on the bottom and is setted its full thickness into both. the ends being a little slanted to receive the knife. The top piece one and a half inch wide may be shouldered down and fastened across the top of the fore end of the box to preserve its regular width. The feeding box I make in the following manner. The top and ends are open like the other. The sides are three feet 24 inches long about eleven inches high. three fourths of an inch thick. The bottom is of the same length an inch or more thick and of a width to slide easily in the main box. within and across the feeding box I select a gate to slide up and down with teeth in the bottom to press on the straw and hold it fast. The posts of the gate should be of tough timber one inch thick and three wide standing up and down inside of the box inserted with a dove tail groove into the sides half an inch deep. when they may be glued and fastened and the pressing edges near the bottom trimm'd off. The posts must be pinned at such distance from the fore-end as just to clear the press-board when the other end comes over with the hind end of the main box. The near post may be sixteen inches long, the other two feet. Each post has a groove facing the other, half an inch deep and three fourths wide. A gate of suitable dimensions slides up and down in these grooves, the top of which is shaped for a handle. the bottom is sawed into teeth

teeth to hold in the straw. Then fit into the off gate post adjoining the groove and making part of the back side of it a rack seven and a half inches long, the lower end to be 9/10 inches from the bottom, it may be half an inch square and let in the depth of the groove and there fastened with screws the cogs or teeth a quarter of an inch apart, the under side square. A dog four inches long is fixed on a pivot near the bottom of the gate to play into the rack and thus hold fast the pressure of the gate upon the straw. a hook from one gate post to the other secures the box from spreading. A suitable handle is also attached to the rear corner of the rear end of this box to raise that end, and draw back the box as occasion may require and the upper corners of the forward end of the feeding box are slanted off to prevent their interference with the press board. To prevent the feeding box from rising. Drive an iron cog or pin a quarter of an inch in diameter into its off side half an inch back from the fore end and half an inch from the bottom leaving half an inch of its length projecting to enter and slide in the groove made to receive it in the side of the main box. This pin or cog passes through an iron plate three inches long. Sunk in and fastened to the side. The under corner of the plate and of the box are rounded off to permit the rear end of the box to be raised without shearing on the cog. A moveable check pin may be inserted across the groove to prevent the feeding box being drawn back so far as to ungear the machinery. The feeding box when drawn back rests on a support of leading from the rear of the main box about one foot placed a little obliquely to avoid the screw which but level with the upper side of the bottom. The feeding box is moved forward by a screw wheel made fast on the rear end of the main shaft playing into a rack on the under side of the feeding box. This rack I make of cast iron two feet six inches long with suitable trunnions to fast on

en it by and may be cast in two pieces $\frac{1}{16}$th of an inch thick of which I take $\frac{7}{16}$ for the cogs which are set a little bevelling to fit the bevel of the screw. The back side of the cogs are perpendicular to the base, the other side bevels at the rate of six inches in twelve, leaving the out end less than one eighth of an inch and the space between the cogs a little more. The distance between the cogs from the centre to centre seven sixteenths of an inch. This rack is let into the under side of the bottom of the feeding box about one fourth of an inch directly over the centre of the shaft and over the groove in the bottom of the main box. The teeth or cogs projecting so as to fit into the screw wheel the top of which is to be level with the top side of the bottom of the main box a part of which is cut away to receive it. The wheel which I call a screw wheel to work in this rack I also make of cast iron. The front part for the screw is four and a quarter inches in diameter and tapers back with a curve to one and and three fourth inch in diameter leaving it two and a quarter inches thick in the centre. Thro' which is a hole for the shaft tapering, from 1/8 in front to 7/16 inch in diameter. I have a notch one fourth of an inch broad and three eighths deep in the opposite sides of the back for a key, to pass through it and the shaft, to prevent its turning on the shaft. Three and a quarter inches in diameter of the front side of this wheel, presents a flat smooth surface to the rack, the other half inch all round forms the screw gaining about seven sixteenths of an inch, or one cog of the rack in each revolution or the thread of this screw may stand at right angles with the shaft half way round, while the knife is cutting, then so oblique as to gain a cog, in completing the revolution when so made the straw will be stationary while cutting and

move only while the knife is coming round. The main
boy is supported by two legs at each end of firm wood three
feet ten inches long, and two and a quarter inches
square. Each pair of legs is connected by a rail (made
of hard two inch plank 8 or 9 inches wide. The front
rail is 19½ inches long. the other 15½ inches. The top of
the rails when finished, to be two and a half feet from
the floor. The rails are fitted to the front side of the legs
by shoulders of at least half their thickness all except
the off fore leg. slanting or bevelling out 1½ inch in
12 as they go down. the other to slant 4 in 12. to
brace against the force of cutting, leaving the shoul
ders on the upper edge of the front rail 11 inches apart.
The posts above the rails are then trimmed and fitted
to the size of the box. Holes are bored through these rails.
in the front rail 2 inches, in the other 1½ inch in diam
eter, the centre of each 1¼ inch from the top of the rail
and two inches from the off inside of the box. The shaft is
made of hard wood about four and a half feet long
and two inches in diameter. The front end is left
square about 3 inches, to receive the knife plank the
remainder of the length is made round in a lathe
and fitted to pass thro the holes in the rails with a shoulder
in front of the back rail and also through the sweep wheel
behind it. The shaft when in place projects in front
of the box about four and a half inches and behind the
sweep wheel two inches. The plank to carry the knife is of firm
wood two inches thick, about two feet two inches long and
sixteen inches wide, shaped at one end to the curve of the
knife. the other is made circular, projecting as a balance
This plank has a mortise two inches square near the
centre to receive the end of the shaft and is there made
fast in the usual manner of securing in place a
joiners

Knife and for these jointly and severally, I claim an exclusive right and privy that the same may be secured to me by Letters Patent. In testimony whereof I set my hand and seal this twenty ninth day of June A.D. 1830

Witness
Ebenezer Baldwin
Daniel Baldwin

Tilly Preston

Old Mill