(12) **United States Patent**
Ustick

(10) **Patent No.: X8625**
(45) **Date of Patent: Feb. 5, 1835**

(54) **STRAW CUTTER**

(76) Inventor: **Stephen Ustick**

Stephen Ustick's Patent for a Straw cutter

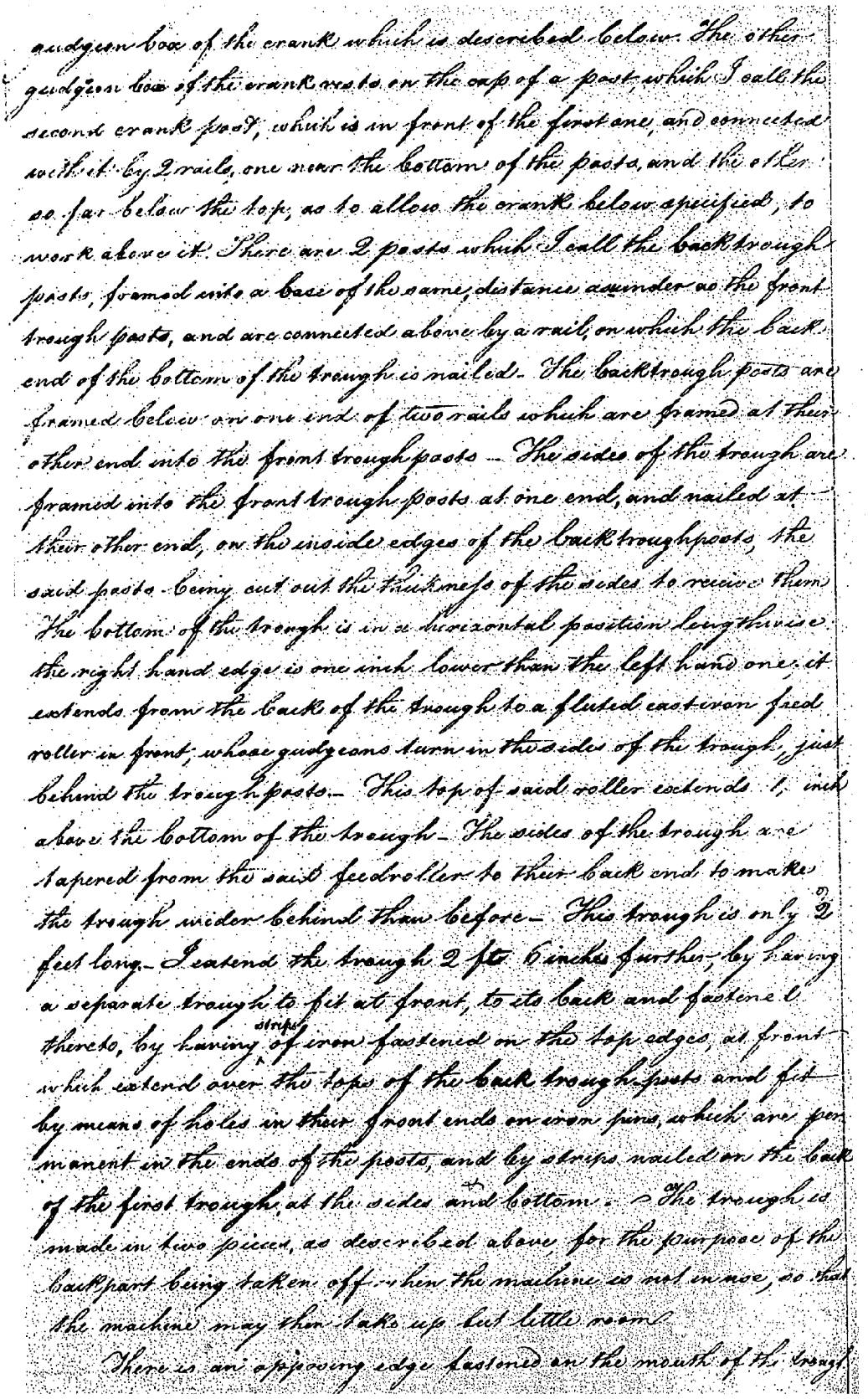
The Schedule referred to in these Letters Patent and making part of the same, containing a description in the words of the said Stephen Ustick himself, of his improvement in his Straw cutter, for which he obtained from the United States Letters Patent bearing date October 3d. 1834.

To all to whom these Presents shall come

Be it Known, that I. Stephen Ustick of Philadelphia, in the county of Philadelphia, and State of Pennsylvania, have invented a new and useful improvement on the Straw cutter, for which I obtained Letters Patent, from the United States, bearing date Octbr 3d. 1834, a Schedule of which is given below, and that the specification given succeeding said Schedule, is a full and exact description of the construction and operation of the said improvement as invented by me:

Schedule referred to above – To all to whom these Presents shall come, Be it Known, that I Stephen Ustick of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful improvement on the Straw-cutter for cuting straw, hay, & cornstalks, called Stephen Ustick's Straw Cutter, and that the following is a full and exact description of the construction and operation of the said machine as invented by me –

In the first place I have a frame constructed as follows – two posts, which I call the front trough posts, are framed into a base, one foot ascending said base piece extends beyond the right hand post, and has a post, which I call the first crank post, framed into it 6 inches from said post, the first crank post is framed at it top into one end of a rail, which is framed at its other end into the right hand trough post above specified – This rail serves as a foundation for a



gudgeon box of the crank which is described below. The other gudgeon box of the crank rests on the cap of a post, which I call the second crank post, which is in front of the first one, and connected with it by 2 rails, one near the bottom of the posts, and the other so far below the top, as to allow the crank below specified, to work above it. There are 2 posts which I call the back trough posts, framed like a base of the same, distance asunder as the front trough posts, and are connected above by a rail, on which the back end of the bottom of the trough is nailed. The back trough posts are framed below on one end of two rails which are framed at their other end into the front trough posts — The sides of the trough are framed into the front trough posts at one end, and nailed at their other end, on the inside edges of the back trough posts, the said posts being cut out the thickness of the sides to receive them. The bottom of the trough is in a horizontal position lengthwise the right hand edge is one inch lower than the left hand one; it extends from the back of the trough to a fluted cast iron feed roller in front, whose gudgeons turn in the sides of the trough, just behind the trough posts. This top of said roller extends 1/4 inch above the bottom of the trough. The sides of the trough are tapered from the said feed roller to their back end to make the trough wider behind than before. This trough is only 2 feet long. I extend the trough 2 ft. 6 inches further, by having a separate trough to fit at front, to its back and fastened thereto, by having strips of iron fastened on the top edges, at front which extend over the tops of the back trough posts and fit by means of holes in their front ends on iron pins, which are permanent in the ends of the posts, and by strips nailed on the back of the first trough, at the sides and bottom. The trough is made in two pieces, as described above, for the purpose of the back part being taken off, when the machine is not in use, so that the machine may then take up but little room.

There is an apjooving edge fastened on the mouth of the trough

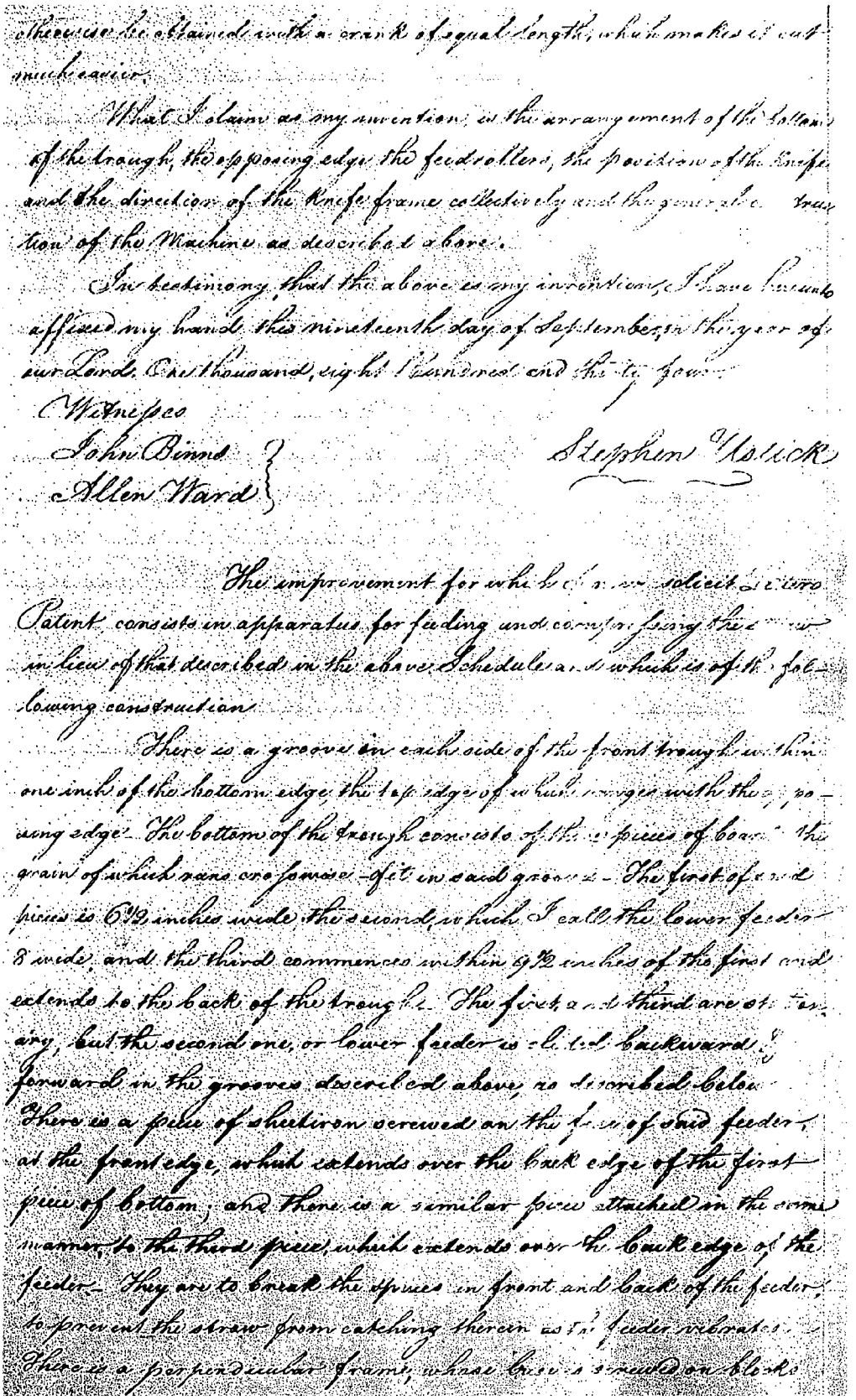
by means of screws; it consists of a bottom 2 uprights & three screws
are in the uprights. The top of the bottom part of said edge ranges
with the top of the feedroller above specified and is of the same height.
There is a strip of iron extending from it to the roller in a slo-
ending position which serves to guide the straw in front of the
roller over the opposing edges. There is another feedroller like the
above over it. It is in a horizontal position, lengthwise, and its
gudgeons work in a frame whose uprights work between the front
trough posts and strips which are fastened to the sides of the trough
The uprights have a rail at top above the roller, and one at bottom
which is near the bottom side rails. There are two springs, one to each side
of the said frame, which are fastened at one end, to the bottom side rails
of the machine. Their other ends bear on the bottom rails of the roller
frame. They are to incline the upper roller towards the lower one,
to compress the straw.

There is a cast iron frame with a short tongue at each corner.
The tongues slide in cast iron grooves inserted in edges of two rails
which are fastened on the front of the machine, by means of screws
or bolts. Said rails are in an oblique position, and may be more or
less oblique, running downward from the right side of the Machine.
There is a knife at the backside of said frame in such a position
with it as to be parallel with the top feedroller. The back edge
of it comes against shoulders of the frame, each end at the bevel side
rests on two screws which run through the frame. There is one
screw at each end of the knife, in a counter position with the above
and between them. The heads of these are countersunk in the face of
the knife, they have taps on their tail ends, which bear against
the face of the frame. The use of the first described screws is to
regulate the set of the knife. The knife frame vibrates by means
of a crank and Pitman. The Pitman is connected with the frame
by a pivot which is fastened in the lower corner of the latter. There
is a balance wheel on the front end of the crank, which has a handle
in one of its arms by which the crank is turned. In the drawing

motion of the knife frame, the knife cuts the straw, when it has nearly returned the straw is fed by means of a slope knob of the lower end of the frame working against the front end of the horizontal shaft, which works in brass that are screwed to the trough posts of that side of the machine, there being a catch hung on the inside of said shaft, which operates on a ratchet wheel of the bottom roller and one hung to an upright of said shaft operates on a ratchet wheel of the top roller. The upper catch is above its ratchet wheel, the lower one is below its ratchet wheel, it is kept up against the ratchet wheel by its tail end being heavier than its bill part. The top roller is kept from turning backward, by means of two palls hung on the upright of the roller frame, operating on the ratchet wheel. The bottom roller is kept from turning backwards, by two palls hung on the guiding strip of the roller frame, at that side of the machine. The upright of the roller frame has a slit in it, which works over the gudgeon of the bottom roller on which the ratchet wheel is. As the knife goes down, the catch shaft above described slips forwards by means of a half circle spring, whose tail bears against the tail boss of the catch shaft. The feed of the roller is regulated by a flat head screw in the back end of the catch shaft, which slides in the hole of the plate fastened on the trough post. The head of said screw coming against the plate prevents the catch shaft above described being pushed too far forward by the spring above.

There is a board, with the grain of the wood running perpendicular, fastened to the upper rail of the roller frame above described in front of the upper roller, extending to within ¾ inch in height of the bottom of the roller. This face is nearly as far in front as the opposing edge. The use of it is to prevent the straw from being raised by the knife in its upward motion.

By the position of the knife and the opposing edge with the rollers, and the direction of the knife frame as described above, I get a much greater draw of the knife on the straw, than can



whereas be obtained with a crank of equal length, which makes it much easier.

What I claim as my invention is the arrangement of the bottom of the trough, the opposing edge the feed rollers, the position of the knife and the direction of the knife frame collectively and the general construction of the Machine as described above.

In testimony that the above is my invention I have hereunto affixed my hand this nineteenth day of September in the year of our Lord, One thousand, eight hundred and thirty four.

Witnesses

John Binns
Allen Ward

Stephen Uhler

The improvement for which I now solicit a Letters Patent consists in apparatus for feeding and conveying the straw in lieu of that described in the above Schedule and which is as follows, to wit

There is a groove in each side of the front trough within one inch of the bottom edge the top edge of which ranges with the opposing edge. The bottom of the trough consists of three pieces of board the grain of which runs crosswise of said grooves. The first of said pieces is 6½ inches wide the second, which I call the lower feeder 8 wide, and the third commences within ½ inches of the first and extends to the back of the trough. The first and third are stationary, but the second one, or lower feeder is slided backward & forward in the grooves described above, as described below. There is a piece of sheetiron screwed on the top of said feeder at the front edge, which extends over the back edge of the first piece of bottom, and there is a similar piece attached in the same manner to the third piece, which extends over the back edge of the feeder. They are to break the spruces in front and back of the feeder, to prevent the straw from catching thereon as the feeder reciprocates. There is a perpendicular frame, whose bars are mounted on blocks

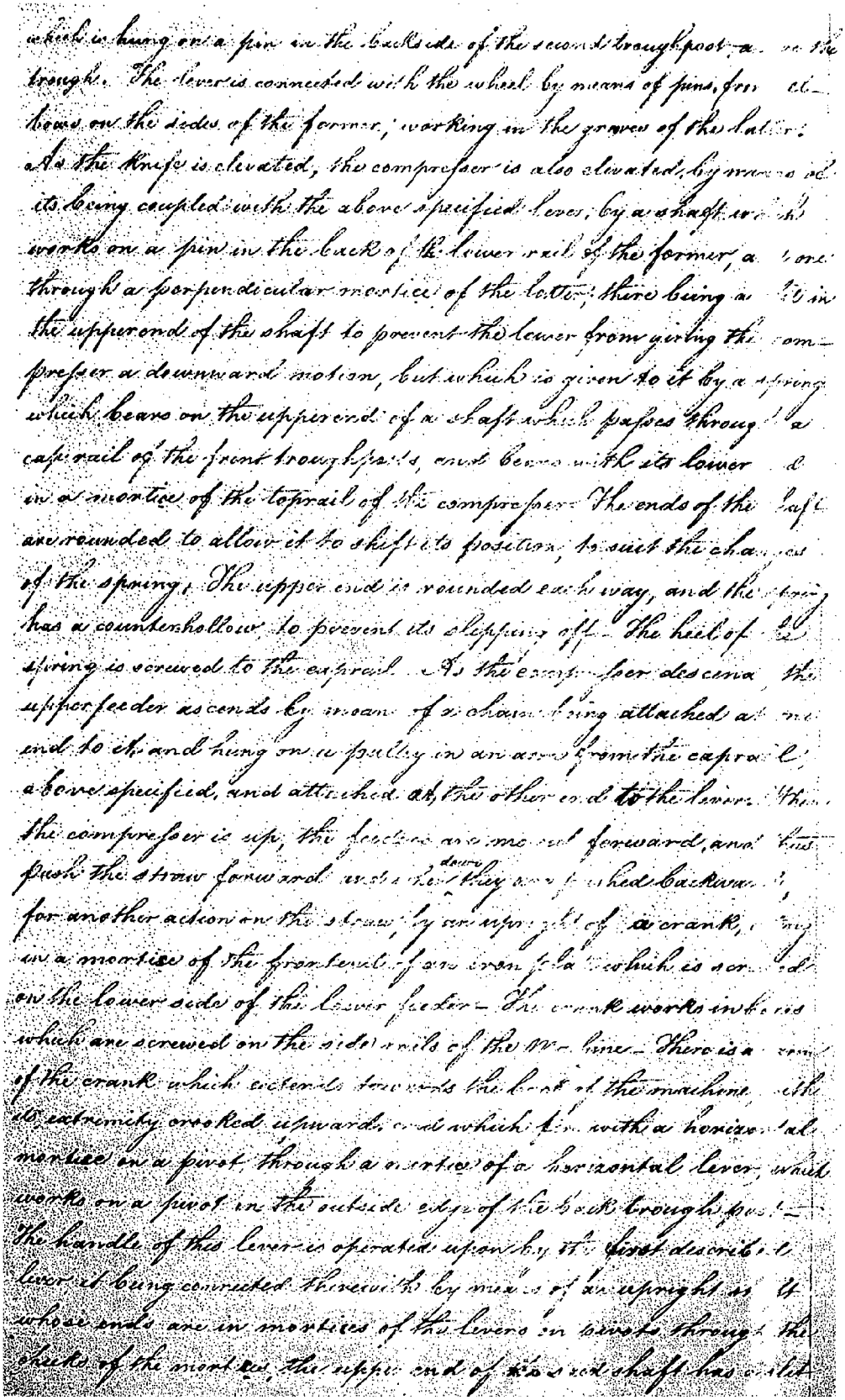
on the lower side of the above specified feeder, and in those uprights and inside of the trough sides, and which extend one foot above them, in each of which there is a groove extending from ½ of an inch of the side upward. The upper rail of the frame is framed behind said grooves. There is a board which I call the upper feeder, one foot wide, whose ends fit said grooves, from its upper edge slides in said grooves. The lower part of the ends is cut out, to allow the feeder to descend in the trough. There is a box on the face of said feeder, which holds sand, or gravel, to compress the straw between it and the lower feeder. The feeder forms one side of the box. *

There is a square frame, which I call the compresser, whose uprights have tongues on them, which slide in grooves of the front troughposts. Said tongues extend below the bottom rail of the compresser, and through the ends of the front piece of trough bottom, so that as the compresser is elevated, as is described below, the grooves below the lower rail of it are still filled, to prevent straw from working in them. The face of the compresser is flush with the face of the posts. The bottom rail of it, eight inches deep and 3 inches thick, it extends at the ends over the uprights between the posts.

There is a strip of cast iron ½ inches wide, with edges on its face formed by square edges on front and both sides, backward therefrom inserted in the face of the lower feeder at its front and a similar one, one inch wide screwed on the lower edge of the upper feeder.

There is a [illegible] cast iron ½ inches wide with edges on its face formed by square edges on front and both sides backward therefrom, inserted in the face of the lower feeder at its front and a similar one, one inch wide screwed on the lower edge of the upper feeder.

There is a cast iron wheel with a groove on each side near its periphery, which fits eccentrically on the square of the [illegible] of the crank specified in the above schedule which works a lever



which is hung on a pin on the backside of the second trough post, a
trough. The lever is connected with the wheel by means of pins, fro
bears on the sides of the former, working in the groove of the lat
and the knife is elevated, the compresser is also elevated, by mea
its being coupled with the above specified lever, by a shaft w
works on a pin in the back of the lower rail of the former, a
through a perpendicular mortice of the latter, there being a
the upper end of the shaft to prevent the lever from giving the com-
presser a downward motion, but which is given to it by a spring
which bears on the upper end of a staff which passes through a
cap rail of the front trough pieces, and bears with its lower
in a mortice of the toprail of the compresser. The ends of the last
are rounded to allow it to shift its position, to suit the cha
of the spring. The upper end is rounded each way, and the
has a countersunk hollow to prevent its slipping off. The heel of
spring is screwed to the cap rail. As the compresser descends the
upper feeder ascends by means of a chain being attached at one
end to it, and hung on a pulley in an arm from the cap rail,
above specified, and attached at the other end to the lower. When
the compresser is up, the feeders are moved forward, and thus
push the straw forward with the [down]ward key and pushed backward
for another action on the straw, by an upright of a crank,
in a mortice of the front end of an iron fork which is scr
on the lower side of the lower feeder. The crank works in
which are screwed on the side rails of the frame. There is a
of the crank which extends towards the back of the machine, th
is extremely crooked upward, and which is with a horizon
mortice on a pivot through a mortice of a horizontal lever, which
works on a pivot on the outside edge of the back trough post.
The handle of this lever is operated upon by the first describ
lever it being connected therewith by means of an upright st
whose ends are in mortices of the levers in order to pass through the
cheeks of the mortices. The upper end of the rod shaft has a slot

in it in which the pivot of the lower slides until it has nearly got to each extreme point.

There is a screw through the base of the frame in which the upper feeder slides, with its point end against the upright of the feeder crank, the turning of which gives more or less motion to the feeders, as may be required. The hole in the plate in which the upright works being long enough to allow some play of the latter.

* Instead of the said feeder and frame, there may be a square frame, with its sides sliding against the blocks on the outside of the trough sides, its bottom rail is below, and the top rail above the trough and a round bar, which fits inside of the trough with its top just to the lower edge of the top rail of said frame. There is a set screw in the end and 3 inches, screwed to the lower side of the lower feeder, there being blocks on the former to keep it below the trough. There are upright grooves in the ends of said above frame in the sides of the frame below. The frame is kept in a perpendicular position by two straps, one each side of the lower rail and fastened to the straps described above, and near the upright of the feeder rod. The regulator is fixed on the straps in the [illegible] of the frame of the upper feeders described.

What I claim [illegible] the bottom denominated [illegible] the general manner of the feeding apparatus [illegible] above.

In testimony that the [illegible] my invention I have hereunto affixed my hand this 21st day of January in the year of our Lord One thousand Eight Hundred and Thirty five.

Witnesses

John Barnes — Stephen Watts

Tho.s Burd

Rec.d Pat. Jan.y 21st 1835

Issued Jan.y 21st 1835