

(No Model.)

2 Sheets—Sheet 1.

H. A. STOLTENBERG.

FEEDING ATTACHMENT FOR THRASHING MACHINES.

No. 504,950.

Patented Sept. 12, 1893.

FIG. 1.

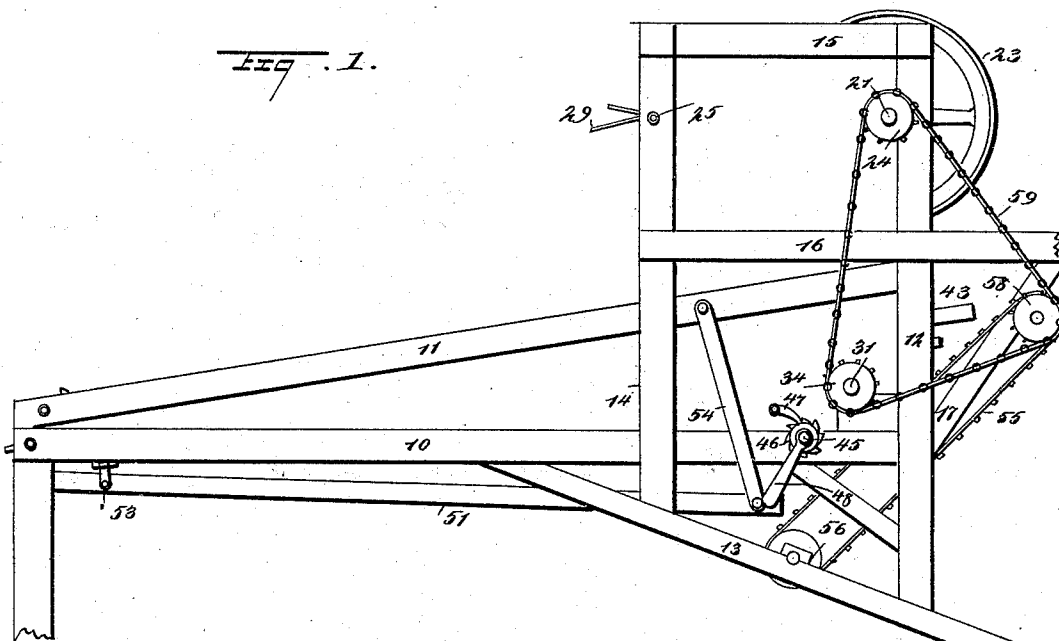


FIG. 2.

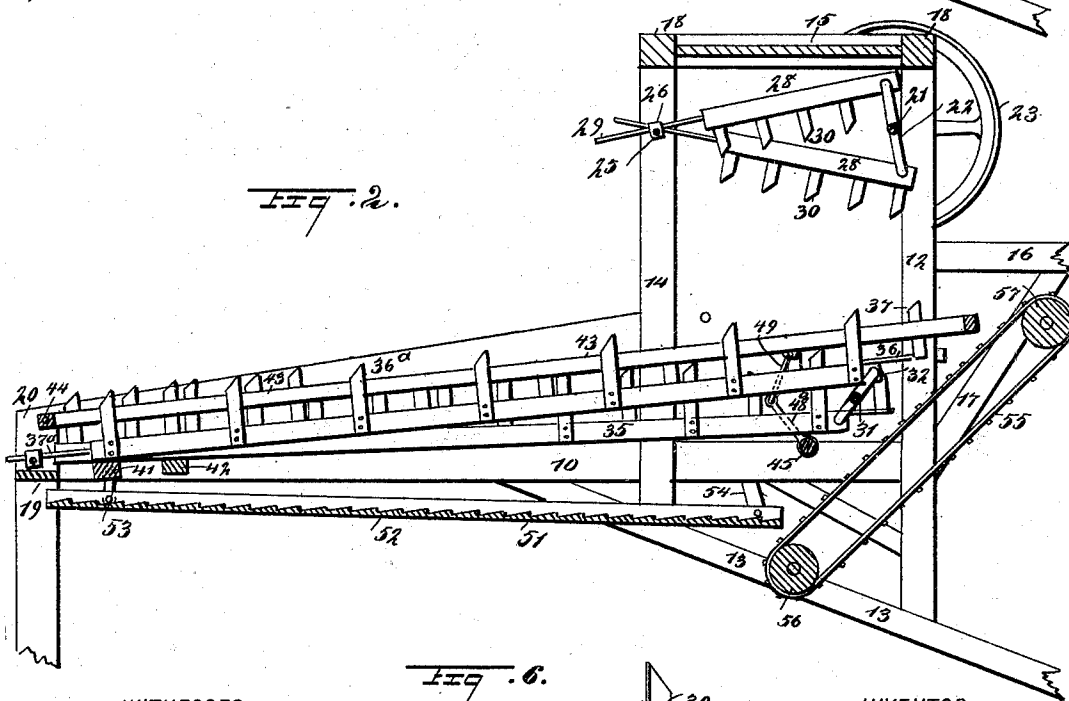
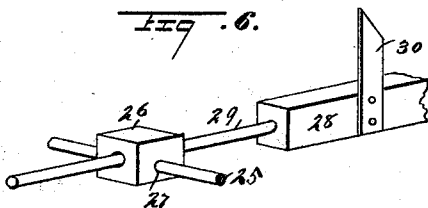


FIG. 6.



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ATTORNEYS.

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Fig. 3.

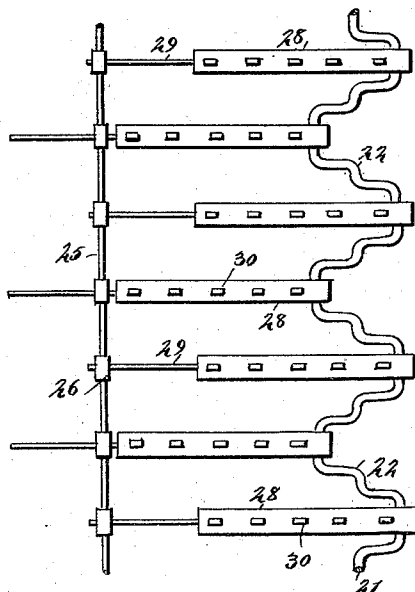
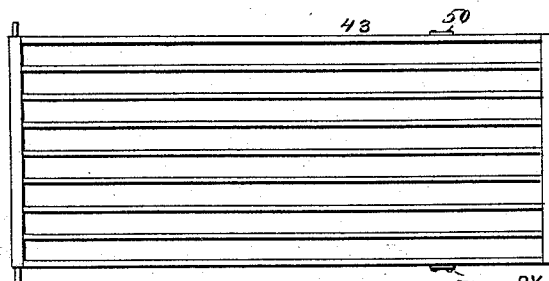
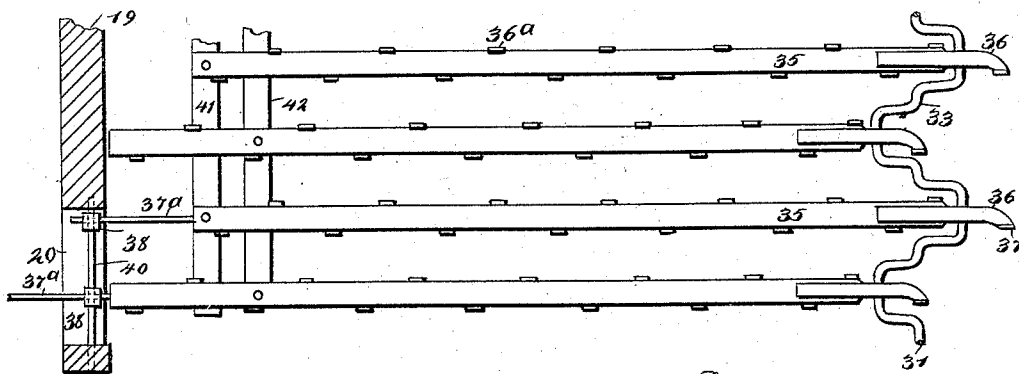


Fig. 4.



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Fig. 5.

UNITED STATES PATENT OFFICE.

HERMANN A. STOLTENBERG, OF HOLLYROOD, KANSAS.

FEEDING ATTACHMENT FOR THRASHING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 504,950, dated September 12, 1893.

Application filed April 21, 1893. Serial No. 471,276. (No model.)

To all whom it may concern:

Be it known that I, HERMANN A. STOLTENBERG, of Hollyrood, in the county of Ellsworth and State of Kansas, have invented a new and useful Improvement in Feeding Attachments for Thrashing-Machines, of which the following is a full, clear, and exact description.

My invention relates to an improvement in feeding attachments for thrashing machines, and it has for its object to provide an attachment of this character, especially adapted for feeding headed grain, which will be simple and durable and will be capable of attachment to any thrasher or like machine and of any size or capacity.

A further object of the invention is to so construct the attachment that when the bundles of grain are thrown upon the feed table they will be automatically carried in direction of the thrasher, separated, their bands cut, and the grain and straw delivered, in proper condition to be thrashed, into the thrashing machine.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth and pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the attachment. Fig. 2 is a section taken longitudinally and vertically through the attachment near one side thereof. Fig. 3 is a detail plan view of the supporting arms and knives. Fig. 4 is a detail view of a series of the feed arms and their knives. Fig. 5 is a detail plan view of the feed regulator; and Fig. 6 is a detail perspective view of the guides for the support of the feeding arms.

The frame constituting each side of the attachment consists preferably of a lower horizontal beam 10 and an upper beam 11, arranged at an angle to the lower beam 10, which latter may be termed a sill, the upper beam engaging with the sill at its front end; and it is then carried upward and rearward so that quite a space intervenes between the sill and beam 11 at their rear ends. The rear extremities of both the sill and the beam are secured

in any suitable or approved manner to an upright 12, which upright extends some distance above the upper beam and below the sill.

A lower diagonal beam 13, is attached to the sill 10 at or near its center, and extends downward and rearward therefrom, being secured to the lower end of the rear upright 12; and a second upright 14, is attached to the diagonal beam 13, and is carried upward parallel with the rear upright 12, the two uprights being connected at the top by a cross bar 15 and at the center by a like bar 16. The central bar 16 of the sides of the attachment, and likewise the lower diagonal beam 13, are usually employed to secure the attachment to the thrashing machine.

A rear diagonal brace 17, connects the rear upright with the rear projecting portion of the central cross bar 16 at each side. The uprights of each side at their tops are connected by cross bars 18, as shown in Fig. 2, and a cross bar 19, is employed to connect the front ends of the sill 10. The said cross bar extends upward preferably flush with the forward ends of the upper beams 11, but in each end of the cross bar an opening 20, is produced, as shown in both Figs. 2 and 4.

The top and sides of the framing are closed in any suitable or approved manner, and I desire it to be understood that although I have described the general formation of the frame, its shape and construction may be varied as occasion may demand.

A drive shaft 21, is journaled in suitable bearings located upon the upper portion of the rear standards 12, and the said drive shaft is provided between its ends with a series of crank arms 22, shown in detail in Fig. 3. Therefore the drive shaft is in a sense a crank shaft, and it is revolved through the medium of a driving pulley 23, located at one of its ends, it being provided at its opposite end preferably with a sprocket wheel 24.

Parallel with the drive or crank shaft 21 a shaft 25, is rigidly secured in the front uprights 14. A portion of this shaft is shown in detail in Fig. 6, and in front of each crank arm the rigid shaft 25 carries a block 26, each block is provided with an opening 27, extending through it in direction of its front and rear.

A separator arm 28, is pivotally attached

to each crank arm 22 of the crank or drive shaft, as shown in both Figs. 2 and 3, and each separator arm at its forward end is provided with an attached or integral rod 29; these rods pass through the apertures or openings 27 in the blocks 26, as shown in Figs. 2, 3 and 6. Thus when the drive or crank shaft is revolved, as the crank arms extend in opposite directions, the separator arms will be vertically reciprocated and given end movement, each alternate arm occupying a lower and the others an upper position, the action of the arms being a thrashing action, while the forward ends of the arms, through the medium of the rods 29, have guided movement in the blocks, and as the blocks are loosely mounted upon the fixed shaft 25 the blocks have rocking action upon the shaft.

The separator arms are provided with a series of downwardly-extending teeth 30, longitudinally arranged thereon, and the lower ends of the teeth are ordinarily beveled in a forwardly direction, as they are intended to cut in that direction; but both the front and rear edges of the teeth may be cutting edges if in practice it is found desirable.

A second crank shaft 31, is journaled in the frame preferably upon the rear portions of the sills 10, as shown in Figs. 1 and 2. This shaft is provided between its ends with a series of crank arms 33, and at one of its ends carries a sprocket wheel 34. Each crank arm of the crank shaft is pivotally connected with the rear end of the feed arm 35, and each feed arm is provided with an extension 36 of metal or other material, which extends rearwardly beyond the crank arm to which the feed arm is applied; and each extension at its rear extremity is provided with an upwardly-extending knife 37, technically known as "kick-ers," and each feed arm is provided along each side with a number of upwardly extending knives 36^a, the knives being preferably beveled at the top, the beveled surface facing the front; and the knives are also alternately arranged upon the arms, as is best shown in Fig. 4. Each two end arms of the set are guided by means of rods 37^a, projected from their rear ends and passed through apertures in blocks 38, which blocks are loosely mounted upon a shaft 40, located in the front recessed portions of the bar 19, as indicated in Fig. 4; and in order that the intermediate feed arms may have guided movement at their rear ends two cross bars 41 and 42, are employed for that purpose. The cross bars are parallel, and each alternate arm, commencing with the outer one, is connected, for example, with the cross bar 42, while the remaining arms are attached to the cross bar 41. Thus it will be observed that the feed arms rising in one direction are connected, while those that fall in an opposite direction at the same time are likewise connected, the two sets being disconnected at their lower ends; and by reason of the high location of the crank shaft 31, to which the rear ends of the feed arms

are attached, and the low point at which the forward ends of the arms are placed, the entire set of feed arms have an inclination from the rear downward in direction of the front.

The feed is regulated primarily through the medium of a grating 43, shown in detail in Fig. 5. This grating is pivoted, as indicated at 44 in Fig. 2, at the front portion of the framing, and the knives of the feed arms extend upward through the longitudinal spaces in the grating, the knives of the arms being separated by the bars of the grating, and according to the degree to which the grating is raised or lowered so as to expose more or less of the knives of the feed arms, will the feed be rapid or slow; and the feed grating is raised and lowered through the medium of a rock shaft 45, which is preferably journaled upon the sills 10; and this rock shaft is provided at its ends with a ratchet wheel 46, with which a pawl 47 is in constant engagement, the shaft being turned by a crank arm 48, located at one end, or the equivalent thereof may be used.

The rock shaft 45, as shown in Fig. 2, is connected with each side of the feed grating, preferably through the medium of two links 48^a and 49, ears 50 being made upon the grating to receive the upper link. Thus by turning the shaft 45 in one direction the links will be straightened out and consequently the feed grating will be elevated, and by turning the shaft in an opposite direction the links will be carried at angles to each other and the grating will be lowered.

A grain pan 51, is located beneath the bottom of the framing, and this pan is provided with a notched or toothed bottom 52, the perpendicular edges of the teeth or notches facing the rear, their inclined edges facing forwardly as shown in Fig. 2. This pan is pivotally connected at each end with the sides of the framing through the medium of links, the rear links being designated as 54 and the forward ones as 53. The rear end of the grain pan is open, and at the rear of the grain pan and likewise at the rear of the feed arms a conveyer belt 55, is located, and this belt is usually made to pass over a drum 56, journaled in the lower portion of the framing preferably in the lower diagonal beams 13, and over an upper drum 57, journaled in the upper portion of the brace 17. The upper drum is provided at one of its ends with a sprocket wheel 58, and a chain belt 59, is passed over the sprocket wheel 24 upon the main or driving crank shaft, over the sprocket wheel 34 upon the lower crank shaft, and likewise over the sprocket wheel 58 upon the drum. Thus all of these sprocket wheels are rotated when power is applied to the main pulley 23.

In the operation of the device, the bundles are thrown upon the feed arms, and as they are constantly laterally reciprocated and at the same time given end movement, as are likewise the upper separator arms, the grain is carried rearwardly along the arms, being

cut more or less and separated by the knives of the feed arms, and whatever kernels are liberated will drop down into the grain pan and be delivered to the conveyer and carried by it up into the separator; and when the bundles of grain are carried between the feed arms and the separator arms, the opposite action of the two sets of knives will be such as to thoroughly separate the grain, cutting the bands thereof, and the grain in passing over the ends of the feed arms will be struck by the kicker knives 37, and will be forced upon the conveyer, and by it will be conveyed into the thrashing machine for further treatment.

15 Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a feeding attachment for thrashing machines, the combination, with a series of reciprocating feed arms and knives secured thereto, of a feed device consisting of a grating pivoted at one end and located over the arms, a rock shaft located below the opposite end of the grating, pivotally connected links 25 connecting the shaft with the grating, and a pawl and ratchet mechanism connected with the shaft, substantially as shown and described.

2. In a feeding attachment for thrashing machines, the combination with a series of reciprocating feed arms, of a grating pivoted at one end above the feed bars, and means connected with the free end of the grating for raising and lowering the same, substantially as described.

3. In a feeding attachment for thrashing machines, the combination of a series of reciprocating feed bars, a pivoted grating above the feed bars, means for raising and lowering the grating, and a series of reciprocating separator bars above the grating, substantially as described.

4. In a feed attachment for thrashing machines, the combination of a crank shaft, a series of feed arms pivotally connected with the crank arms of the crank shaft, knives attached to the arms and extending at an angle therefrom, guide devices located at the opposite ends of the feed arms and connected therewith, a feed regulating device located above the feed arms, comprising a grating capable of being raised and lowered and lifting devices connected with the grating, a grain pan suspended below the feed arms, and an elevator adapted to receive material from the feed arms and the grain pan, as and for the purpose set forth.

5. In a feed attachment for thrashing machines, the combination, with an upper and a lower crank shaft, a fixed shaft opposite the upper crank shaft, blocks loosely mounted upon the said fixed shaft, separator arms pivotally connected at one of their ends with the crank arms of the upper crank shaft and having sliding movement at their opposite ends in the said blocks, and knives projected downward from the said separator arms, of a series of feed arms carrying upwardly-extending knives and pivotally connected at one of their ends with the crank arms of the lower crank shaft and having guided movement at their opposite ends, a feed regulating device located above the feed arms, a grain pan suspended below the feed arms, and an elevator which is adapted to receive material from both the grain pan and the separator and feed arms, as and for the purpose specified.

HERMANN A. STOLTENBERG.

Witnesses:

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