No. 645,559. Patented Mar. 20, 1900.

F. FELDMANN.

STRAW STACKER.

(Application filed Nov. 18, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

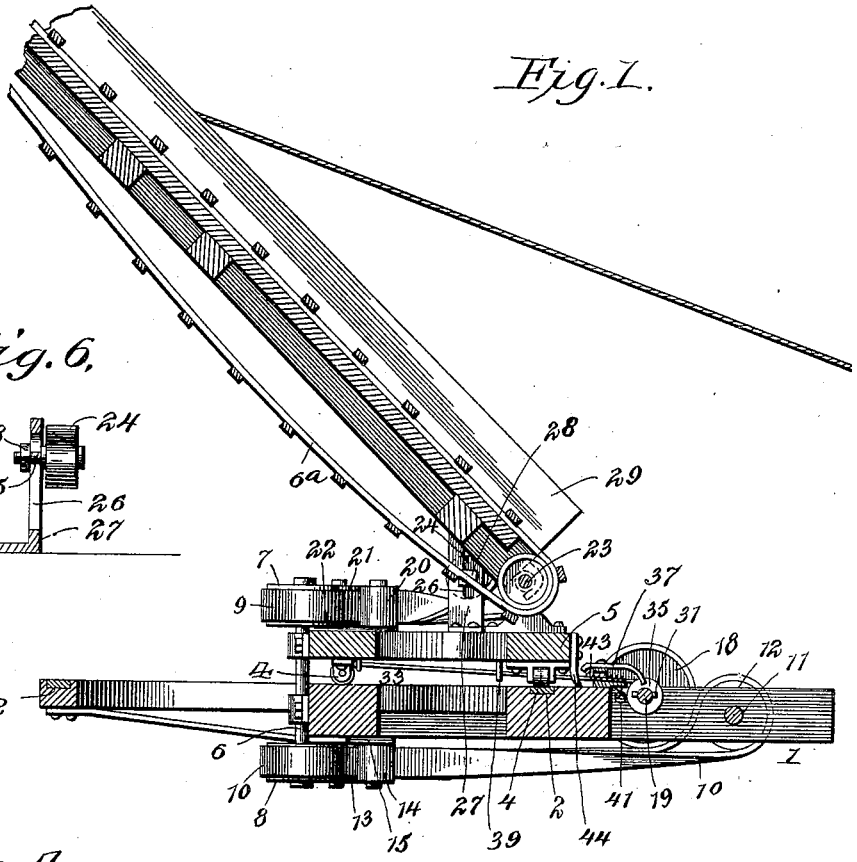


Fig. 6.

Fig. 4.

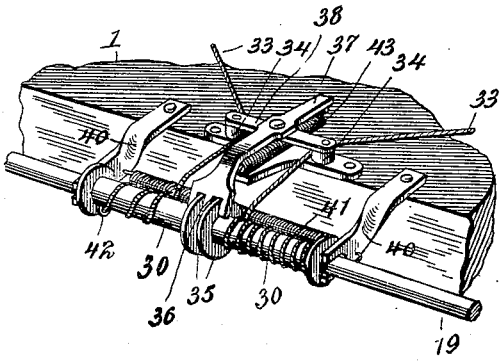
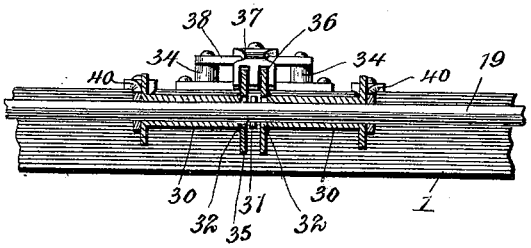


Fig. 5.



Witnesses
Howard D. Orr.
T. J. Riley

Friederich Feldmann, Inventor,
By his Attorneys,
C. A. Snow & Co.

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Fig. 2.

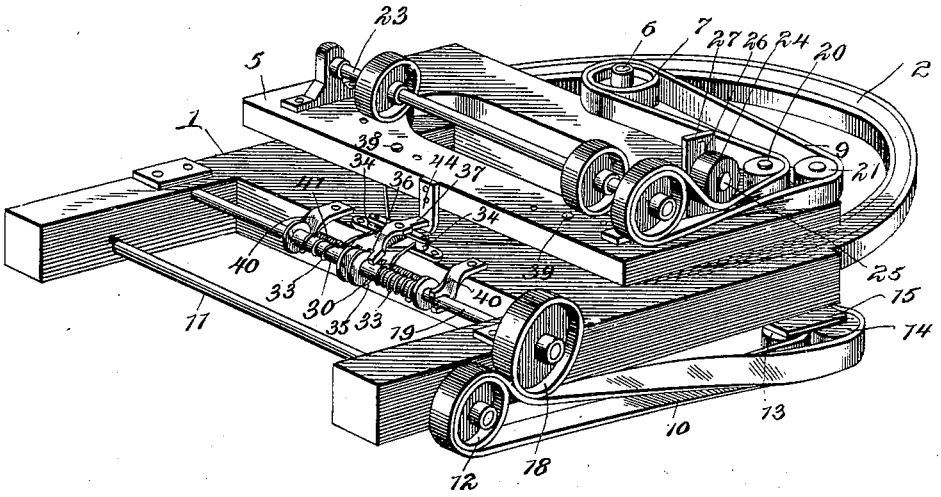
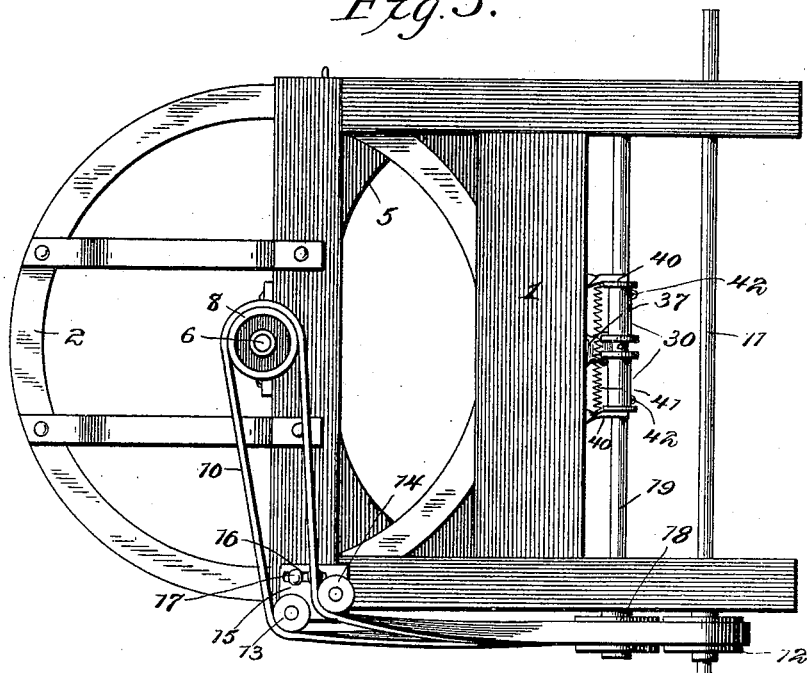


Fig. 3.



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C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

FRIEDERICH FELDMANN, OF GEORGE, IOWA.

STRAW-STACKER.

SPECIFICATION forming part of Letters Patent No. 645,559, dated March 20, 1900.

Application filed November 18, 1899. Serial No. 737,473. (No model.)

To all whom it may concern:

Be it known that I, FRIEDERICH FELDMANN, a citizen of the United States, residing at George, in the county of Lyon and State of Iowa, have invented a new and useful Straw-Stacker, of which the following is a specification.

The invention relates to improvements in straw-stackers.

One object of the present invention is to improve the construction of straw-stackers and to provide a simple and comparatively-inexpensive one possessing great strength and durability and adapted to dispense with cog-wheels, whereby it may be operated with less power.

A further object of the invention is to improve the construction, whereby the straw-stacker is automatically oscillated to distribute the straw uniformly on a stack.

The invention consists in the construction and novel combination and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a longitudinal sectional view of a straw-stacker constructed in accordance with this invention. Fig. 2 is a perspective view, the carrier-frame being removed. Fig. 3 is a reverse plan view of the same. Figs. 4 and 5 are detail views illustrating the construction of the shifting mechanism for reversing the movement of the oscillating frame. Fig. 6 is a detail sectional view illustrating the manner of mounting the vertically-adjustable pulley.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a supporting-frame designed to be mounted either at the rear of a threshing-machine or to be arranged on a suitable truck, and it is provided with an annular track 2, receiving rollers 4 of an oscillating frame 5, to which a carrier-frame 6^a is hinged by means hereinafter described. The oscillating frame, which is approximately rectangular, is pivoted at its outer or rear edge by a vertical shaft 6, journaled in suitable bearings of the supporting-frame and arranged centrally of the annular track, as clearly shown in Fig. 3 of the accompanying drawings. The supporting-frame may be of any suitable construction, and the annular track is preferably provided with a metal bearing-face to receive the supporting-rollers of the oscillating frame.

The vertical shaft 6 carries upper and lower pulleys 7 and 8, receiving upper and lower belts 9 and 10, by means of which motion is conveyed from a drive-shaft 11 to the mechanism for oscillating the frame 5 and for actuating the endless carrier 6^a. The drive-shaft 11, which is journaled in suitable bearings of the supporting-frame, is provided in practice with a suitable drive-pulley designed to be connected with the threshing-machine and adapted to be arranged at either side of the straw-stacker to accommodate the latter to the threshing-machine with which it is to be operated.

The lower belt 10 passes around a pulley 12 at one end of the shaft 11, and it extends along one side of the supporting-frame to the end of the body portion thereof, as clearly shown in Fig. 3, and its direction is changed at that point by a pair of guide-pulleys 13 and 14, mounted on a plate 15 or other suitable support, which is adjustable, whereby the tension of the belt may be increased to the desired extent. The plate or support 15 is shown in the accompanying drawings with a longitudinal slot 16, and it is secured at the desired adjustment by suitable fastening devices 17; but this construction may be varied, as will be readily understood.

The upper flight of the lower belt engages the lower side of a pulley 18, mounted on a transverse clutch-shaft 19, journaled in suitable bearings of the supporting-frame and located adjacent to the front end thereof, as clearly shown in Fig. 2 of the accompanying drawings. By adjusting the guide-pulleys 13 and 14 the lower belt may be made to engage the pulley 18 with the desired pressure, so that the necessary power will be transmitted to the transverse clutch-shaft 19, whereby the frame 5 will be automatically oscillated, as hereinafter described.

The upper belt 9 passes around the upper pulley 7 of the vertical shaft, and it extends therefrom transversely of the oscillating frame to one side thereof, where its direction is changed by a pair of guide-pulleys 20 and

21, mounted on an adjustable support or plate 22, similar to that heretofore described. The upper belt extends along the adjacent side of the oscillating frame to a transverse shaft 23, which drives the endless carrier 6^a, and it is held on the horizontal pulley 20 by an adjustable pulley 24, mounted on a stub-shaft 25, which extends through a vertical slot 26 of an L-shaped bracket 27. The bracket 27 is mounted on the oscillating frame, and it extends above the upper flight of the upper belt, and by adjusting the stub-shaft vertically the belt may be strained to the proper tension. The stub-shaft is provided with a suitable adjusting device, such as a nut 28, but any other suitable means may be employed for effecting this result. The pulleys, although shown in the accompanying drawings with smooth peripheries, may, if desired, be provided with grooves to receive the belts and to form flanges for preventing the belts from becoming accidentally displaced.

The carrier-frame 29 is hinged to the transverse shaft 23, which is provided with suitable wheels or pulleys for the belts of the endless carrier 6^a, which will be actuated, as will be readily understood. The hinged carrier-frame, which may consist of any number of sections, is designed to be raised and lowered by any suitable hoisting mechanism.

The transverse shaft 19 carries a pair of drums 30, provided at their inner and outer ends with flanges and located at opposite sides of a central key or pin 31 and provided with recesses 32 for the reception of the same, whereby the drums are interlocked with the transverse clutch-shaft. The drums are adapted to engage the shaft alternately and are shifted automatically by the means hereinafter described to cause a pair of chains or cables 33 or other suitable flexible connections to be wound on one and unwound from the other, whereby the oscillating frame is actuated. The outer ends of the cables 33 are suitably attached to opposite sides of the oscillating frame, and their inner portions pass between a pair of guide-pulleys 34 and are wound around the drums 30. The inner flanges 35 of the drums are received in slots or bifurcations 36 of a shifting lever 37, fulcrumed between its ends on a bracket 38, in which the central guide-pulleys 34 are mounted. The front end or arm of the shifting lever is connected with the drums, and the rear or inner end is arranged in the path of a pair of pins 39, carried by the oscillating frame and adapted to engage and shift the lever 37 alternately, whereby the direction of the oscillating frame is changed. The oscillating frame is provided at opposite sides with a curved series of perforations arranged at intervals for the reception of the pins, and by arranging the pins in different perforations the length of the oscillation of the frame 5 may be changed to suit the size of the stack.

The cable is wound upon the drum, which is interlocked with the clutch-shaft, and when one of the drums is fast with the said clutch-shaft the other is free and permits the cable to be unwound from it. The unwinding of the cable from the loose drum is limited by a brake consisting of a pair of arms or bars 40, pivoted at their inner ends to the supporting-frame and having their outer ends bifurcated and receiving the shaft and held in engagement with the outer flanges of the drums by a coiled spring 41, located at a point between the ends of the arms 40 and adapted to create sufficient friction to prevent the cable from being unwound too fast from the loose drum. The arms 40, which are provided between their ends with quarter-bends to arrange their terminals in planes at right angles to each other, support the shaft in addition to operating as a brake for the drums. The drums are provided with eyes 42 for the reception of the adjacent ends of the cables, but any other suitable flexible connection may be employed.

A coiled spring 43 is connected with the inner end of the shifting lever and with the bracket in line with the center thereof and is adapted when the lever is swung beyond the center by one of the pins of the oscillating frame to complete the movement of the shifting lever and hold the same in such position, so that the proper drum will be held in engagement with the central pin or key of the shaft. The spring is arranged within the bracket and is located beneath the lever, which has its outer portion bent downward, as clearly illustrated in Fig. 4 of the accompanying drawings. The oscillating frame is provided with a central depending arm 44, located between the flexible connections and adapted to space the same and prevent them from becoming entangled with each other. This arm also forms a guide for the cable of the loose pulley, and its lower end is provided with a slight outward bend to form a foot portion, as shown.

It will be seen that the straw-stacker is exceedingly simple and inexpensive in construction, that it dispenses with cog-wheels, and it thereby decreases the friction and provides a construction requiring less power and less attention than would be the case were various forms of spur-gearing employed in place of the upper and lower belts. It will also be apparent that the shifting mechanism is exceedingly simple in its construction, that it is positive and reliable in operation, and that the brake mechanism besides preventing the loose drum from rotating too rapidly also operates to brace the clutch-shaft. Furthermore, it will be apparent that the tension of the belts may be regulated and that the lower belt communicates motion from the drive-shaft to the central vertical shaft and also actuates the transverse clutch-shaft, which automatically oscillates the frame upon which the endless carrier is mounted.

Changes in the form, proportion, size, and the minor details of construction within the

scope of the appended claims may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

What is claimed is—

1. In a straw-stacker, the combination of a supporting-frame, an oscillating frame, a vertical shaft pivotally connecting the said frames, a drive-shaft mounted on the supporting-frame, a carrier-frame, a transverse shaft hinging the carrier-frame to the oscillating frame, an upper belt connecting the transverse shaft with the upper end of the vertical shaft, a lower belt connecting the lower end of the vertical shaft with the drive-shaft, and adjustable pulleys for regulating the tension of the belts, substantially as described.

2. In a straw-stacker, the combination of a supporting-frame, an oscillating frame, a vertical shaft forming a pivot for the oscillating frame, a drive-shaft journaled on the supporting-frame, a transverse shaft arranged on the oscillating frame, pulleys mounted on the said shafts, upper and lower belts supported by the oscillating and supporting frames and disposed longitudinally and transversely thereof, and guide-pulleys arranged in pairs at the angles of the belts and receiving the flights of the same, and capable of adjustment to regulate the tension, substantially as described.

3. In a straw-stacker, the combination of a supporting-frame, an oscillating frame, a vertical shaft forming the pivot of the oscillating frame, a drive-shaft mounted on the supporting-frame, a transverse shaft journaled in suitable bearings of the oscillating frame, pulleys mounted on the said shafts, the upper and lower belts arranged on the said pulleys and disposed transversely and longitudinally of the frames, guide-pulleys supporting the belts and capable of adjustment to regulate the tension of the same, a clutch-shaft mounted on the supporting-frame and provided with a pulley engaging one of the flights of the lower belt, and means for connecting the clutch-shaft with the oscillating frame, substantially as described.

4. In a straw-stacker, the combination of the supporting-frame, an oscillating frame, a vertical shaft forming a pivot for the oscillating frame, and provided at its upper end with a pulley, a transverse shaft mounted on the oscillating frame and having a pulley, an upper belt disposed transversely and longitudinally of the oscillating frame and arranged on the said pulleys, a pair of guide-pulleys arranged at the angle of the belt and receiving the flights of the same, and a vertically-adjustable pulley engaging the upper flight of the belt, substantially as described.

5. In a straw-stacker, the combination of a supporting-frame, an oscillating frame, a clutch-shaft having a fixed clutch member, a pair of drums slidingly mounted on the clutch-shaft and adapted to engage the fixed clutch member alternately, flexible connections wound around the drums and attached to the oscillating frame, a shifting lever connected with the adjacent ends of the drums, and means for operating the lever, substantially as described.

6. In a straw-stacker, the combination of a supporting-frame, an oscillating frame, a clutch-shaft, a pair of drums adapted to engage the shaft alternately, flexible connections wound around the drums and attached to the oscillating frame, arms engaging the drums, a spring connecting the arms, and means for operating the drums, substantially as described.

7. The combination of a supporting-frame, an oscillating frame, a clutch-shaft, drums mounted on the clutch-shaft and adapted to alternately engage the same, flexible connections wound around the drum and attached to the oscillating frame, means for operating the drums, a pair of arms pivoted to the frame and provided with slots or bifurcations receiving the shaft and supporting the same, and means for yieldingly connecting the arms, whereby the same are held in engagement with the drums to form a brake, substantially as described.

8. In a straw-stacker, the combination of a supporting-frame, an oscillating frame, a clutch-shaft, drums mounted on the clutch-shaft and adapted to engage the same alternately, flexible connections wound around the drums and attached to the oscillating frame, guide-pulleys arranged at the center of the supporting-frame and receiving the flexible connections, an arm depending from the oscillating frame and located between the flexible connections, and means for operating the drums, substantially as described.

9. In a straw-stacker, the combination of a supporting-frame, an oscillating frame, a clutch-shaft mounted on the supporting-frame, and having a key, a pair of drums located at opposite sides of the key and provided with recesses for the reception of the same, a shifting lever having slots or bifurcations receiving the inner ends of the drums, flexible connections wound around the drums and attached to the oscillating frame, a spring connected with the lever, spring-actuated arms supporting the shaft and engaging the outer ends of the drums, and means for operating the lever, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

FRIEDERICH FELDMANN.

Witnesses:

M. O. PAGE,

C. T. TUPPER.