

(No Model.)

3 Sheets—Sheet 1.

A. J. JACQUES.

BAND CUTTING AND GRAIN FEEDING MACHINE.

No. 509,380.

Patented Nov. 28, 1893.

Fig. 1.

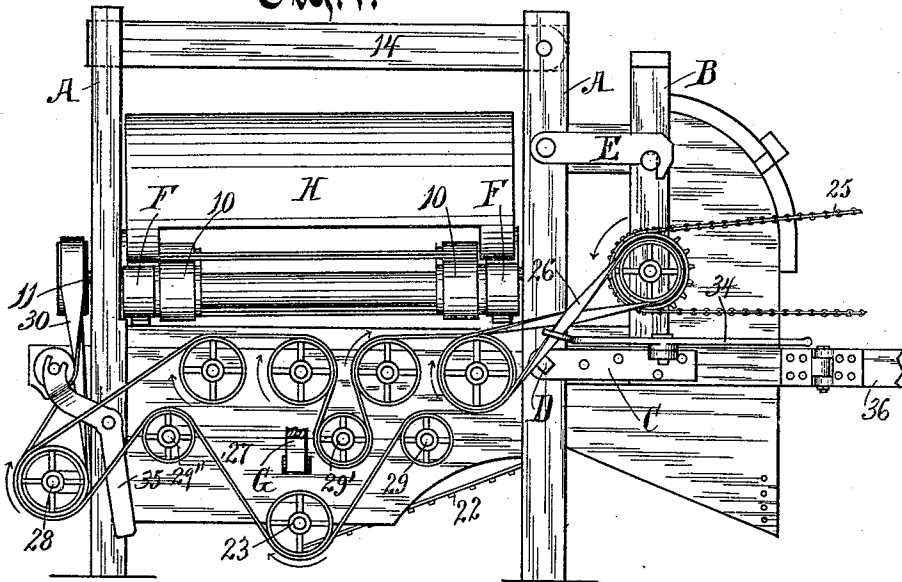
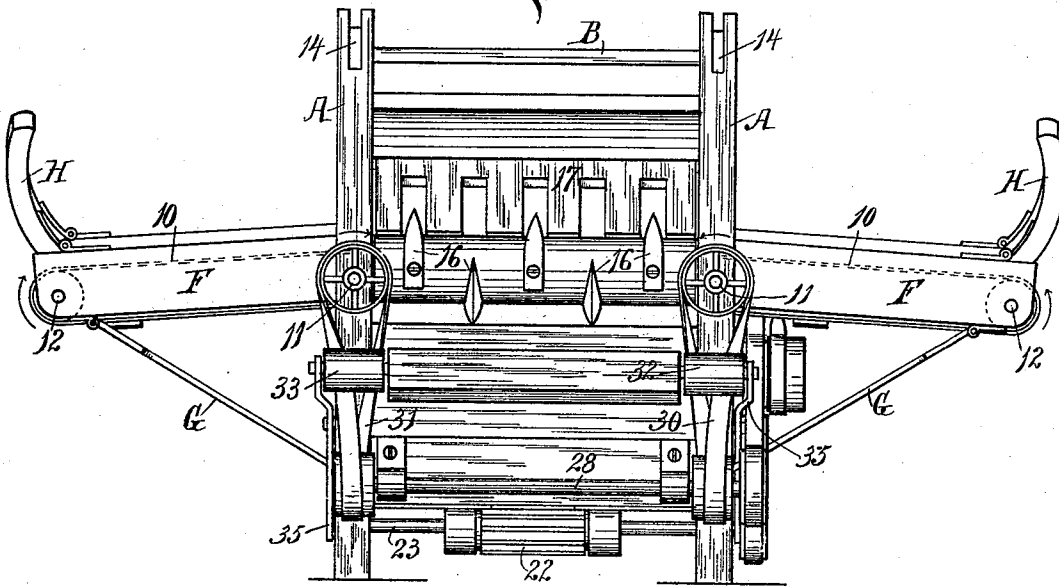


Fig. 2.



Witnesses.

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(No Model.)

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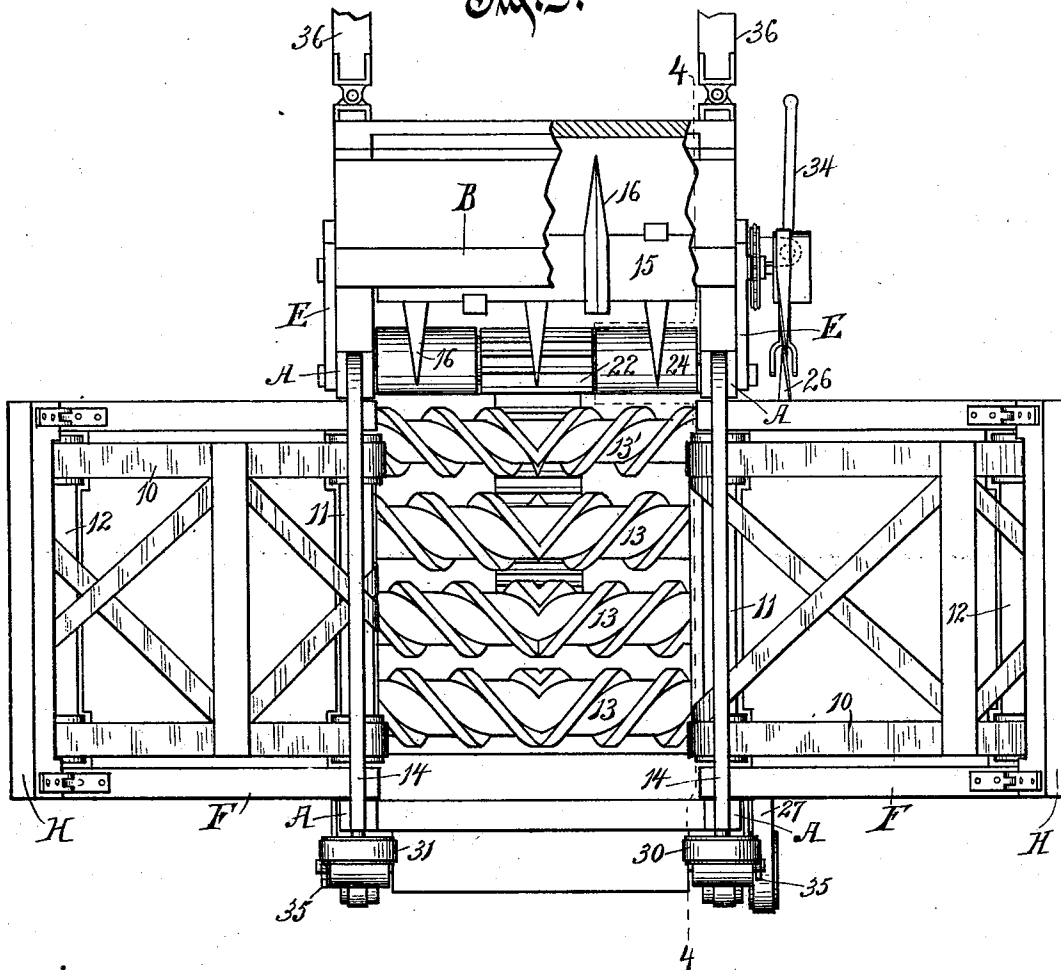
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Fig. 3.



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Fig. 4.

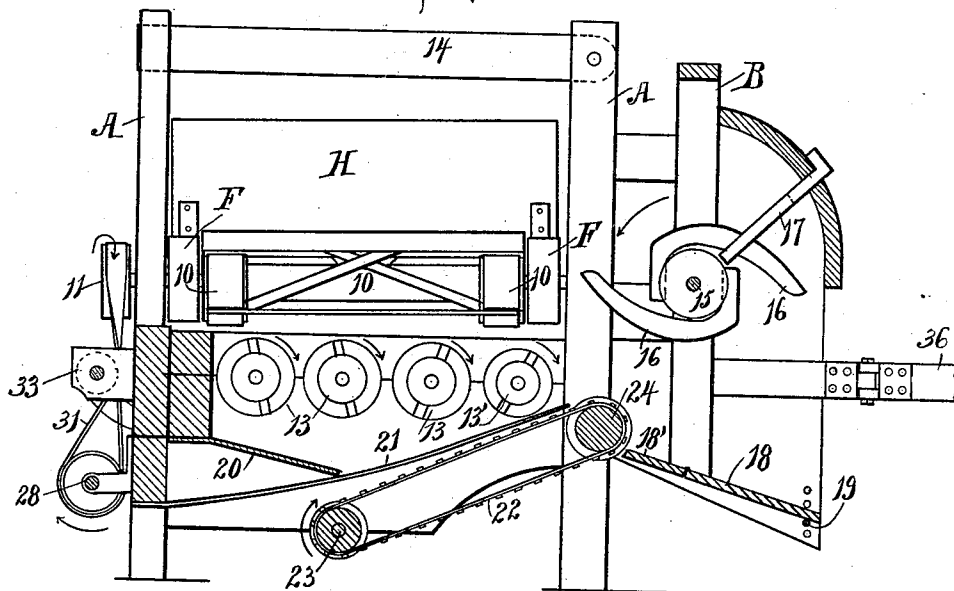
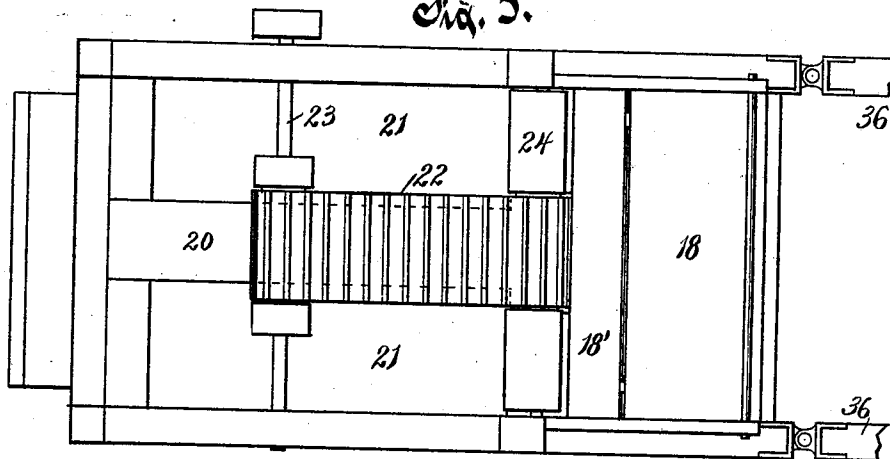


Fig. 5.



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UNITED STATES PATENT OFFICE.

ALFRED J. JACQUES, OF LA CROSSE, WISCONSIN.

BAND-CUTTING AND GRAIN-FEEDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 509,380, dated November 28, 1893.

Application filed April 22, 1893. Serial No. 471,415. (No model.)

To all whom it may concern:

Be it known that I, ALFRED J. JACQUES, of La Crosse, in the county of La Crosse and State of Wisconsin, have invented a new and useful Improvement in Band-Cutting and Grain-Feeding Machines, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

The object of my invention is to provide a better machine for the purpose of cutting bands and feeding grain in the straw to a thrashing machine than has heretofore been in use.

The invention consists in the machine and its parts or their equivalents hereinafter described and claimed.

In the drawings Figure 1 is a side elevation of the improved machine. Fig. 2 is a front end elevation of the complete machine. Fig. 3, is a top plan view of the machine, parts being broken away to show interior construction. Fig. 4, is a longitudinal vertical section on line 4—4 of Fig. 3. Fig. 5, is a plan of the bottom of the main portion of the machine inverted.

In the drawings A is the main frame, on which auxiliary frames and the operative mechanism are supported.

B is an auxiliary frame, known as the knife frame, which is secured detachably to the rear end of the main frame by straps C provided with removable bolts D and the swinging latches E.

Grain table frames F F are hinged one at each side to the main frame. The grain table frames are supported in a slightly oblique position, the outer extremities being lowest, by bracing legs G G hinged thereto and footed removably in the sides of the main frame. Swinging guards H H are hinged to and are adapted to be folded when not in use on the grain table frames. These guards are adapted to prevent grain from falling off the tables as will be understood from the description of the machine hereinafter.

Endless conveyers I, I of suitable construction are mounted and carried on driving rollers 11, 11 at the junction of the table frames with the main frame and on the idle rollers 12, 12 at the outer extremities of the table frames. These conveyers in the grain

tables are adapted to receive bundles of grain at both sides of the machine and to carry them on to the corrugated rollers 13, 13 arranged transversely of and mounted parallel to each other in the same horizontal plane in the bed of the machine. These rollers 13 are each corrugated spirally from the center outwardly in reverse directions, and are journaled in the main frame. The corrugated roller 13' nearest the knives is slightly less in diameter than the other corrugated rollers, which are of equal diameter.

Swinging guards 14, 14 each pivoted at one extremity to a post of the machine are arranged normally at a little distance above the grain tables, to prevent more than one bundle at a time passing under it on to the corrugated rollers. The free ends of the guards rest in suitable sockets therefor in other posts of the main frame and are arranged to be swung upwardly when desired. The frames of the grain tables are pivoted on the journals of the rollers 11, 11, to the main frame.

For cutting the bands on the sheaves of grain, a cylinder 15 journaled in the knife frame B, carries a plurality of curved tangential knives 16, 16. The blades of these knives are arranged in planes at right angles to the axis of the cylinder, the knives being of sufficient length to reach the bundles as they pass beneath the knives. The knives are so arranged and rotated that their edges are sure to engage and cut the bands of the bundles, the knife moving rapidly across the band in the direction of the movement of the bundle which, however, is moved at a slower rate of speed. A series of fingers 17, 17, secured to the knife frame removably projects inwardly therefrom between the knives terminating near the surface of the cylinder 15. These fingers are adapted to prevent any straw from the bundles, being carried by the knives upwardly over the cylinder and may be withdrawn from the frame for cleaning them of straw when necessary. The bundles when delivered on the corrugated rollers 13, 13, are carried forward by them under the knives 16, and fall on the inclined apron 18, from which, (by gravity, and the push of following grain,) the straw and grain of which they are composed, are forced forward into

the cylinder of the thrashing machine, which is intended to be attached directly at the rear of this machine, so that the grain is delivered from the apron 18, directly to the cylinder of the thrashing machine. The front part 18' of this apron is permanently secured to the frame, while the rear and principal part 18 is hinged to the front part so as to swing and be adjustable vertically at its rear by a rod 19 inserted in apertures in the frame therefor. By this means the apron is adapted to be adjusted at a greater or less inclination for discharging grain on to the tables of thrashing machines of different heights.

Below the corrugated rollers 13 a rigid downwardly inclined apron 20, and longitudinal side aprons 21, 21 also inclined downwardly toward the front and slightly inwardly, are adapted to receive grain (kernels and heads) falling between the corrugated rollers thereon, and, by gravity and the shake of the machine, to deliver this loose grain onto the endless apron or conveyer 22, which is adapted to carry this loose grain toward the rear and deliver it onto the apron 18 to be carried thereby with the straw and other grain to the cylinder of the thrashing machine. The endless apron 22 is mounted on a driving shaft 23, and an idle shaft 24.

The knife cylinder 15 is driven by power communicated directly thereto through the sprocket chain 25 running from any suitable source of power, conveniently and preferably from a shaft in the separator of the thrashing machine, whereby the motion communicated to this machine is regulated by the motion in the thrashing machine. Motion is communicated from the cylinder 15 to the first corrugated roller 13' by the belt 26 running on suitable pulleys fixed on the journals thereof. Motion is further communicated by the belt 27 from the corrugated roller 13', to the other corrugated rollers, to the driving shaft 23, and to the shaft 28 journaled in the front part of the main frame. The belt 27 runs over idle and tightening pulleys 29, 29' 29'', which pulleys have arbors fixed in the frame. A belt 30 running on the shaft 28, transmits motion to one of the rollers 11 and another belt 31 also running on the shaft 28 communicates motion to the other roller 11 whereby the endless conveyers 10 are operated. The belts 30 and 31 run respectively over the idle and guiding pulleys 32, 33.

A belt shifter 34 pivoted medially on the knife frame B, is adapted for shifting the belt 26.

Lever 35 pivoted on the main frame serve as guides and tighteners for the belts 30 and 31.

The arms 36, 36 hinged to and projecting from the knife frame serve as a means for connecting this machine to the cylinder frame of a thrashing machine.

In use this machine is located in front of the cylinder of a thrashing machine, and is adapted as herein before stated, for cutting

the bands of grain bundles and delivering the grain in the straw to the thrashing machine. The bundles are fed to this machine at one or both sides by persons who place the bundles on the conveyers 10, by which they are moved laterally and discharged on to the rollers 13, 13' by which they are carried forward toward and under the knives 16, by which knives the bands are cut as the bundles pass them. The straw thus released from the bundles passes onward down the the apron 18 to the cylinder of the thrashing machine. The reversely spiral corrugations of the rollers 13, 13' serve not only to force the bundles ahead endwise but also to move them laterally toward the center of the machine longitudinally thereby obviating the bundles of straw bearing against the sides of the machine or getting into journal bearings. When the straw is dry and brittle more or less of the heads of the grain are liable to be broken off when the bundles are on the rollers 13, and these heads falling between the rollers lodge on the aprons 20 and 21 down which they slide on to the conveyer 22 by which they are carried up and discharged on to the apron 18, 18' and thereon are pushed forward by the moving straw and discharged into the cylinder of the thrashing machine.

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

1. In a machine of the character described, the combination of a frame, a series of parallel horizontal rollers adapted to support and carry grain bundles forward, peripheral corrugations on the rollers reversely spiral from the outer ends inwardly adapted to carry the bundles laterally toward the middle of the rollers as they are moved forward, a cylinder at the rear of the rollers mounted revolubly in the frame transversely thereof, knives secured in and projecting tangentially from the cylinder adapted by the revolution thereof to cut the bands of bundles passing under the cylinder, and supporting devices in the frame below the knife-cylinder adapted to support the forwardly moving grain near the knife cylinder, substantially as described.

2. In a machine of the character described, the combination with a main frame supported independently on its own feet and having grain feeding devices, of an auxiliary frame detachably secured thereto, and supported wholly thereon which auxiliary frame is provided with revolving band-cutting knives and a grain-supporting apron, supplemental to the grain-carrying devices in the main frame substantially as described.

3. In a machine of the character described, the combination with a main frame and bundle-carrying rollers therein, of an auxiliary frame hinged on the main frame, an endless conveyer mounted in the auxiliary frame and arranged to travel at a substantially right angle to the line of motion of the bundle-carrying rollers in the main frame, the outer extremities of the auxiliary frame and of the

conveyer therein being somewhat lower than the inner and grain discharging ends of said auxiliary frame and conveyer, and a grain guard H at the outer extremity of the auxiliary frame adapted to prevent the grain from falling from the auxiliary frame, substantially as described.

4. In an organized band-cutting machine, the combination of a main frame, a series of transverse parallel horizontal rollers adapted to carry grain bundles forward, peripheral corrugations on the rollers reversely spiral from the outer ends inwardly adapted to carry the bundles laterally from both sides of the machine toward the middle of the rollers as they are moved forward, a plurality of auxiliary frames one at least on each side of the main frame, an endless conveyer mounted in each auxiliary frame arranged to travel and carry bundles to the corrugated rollers, sub-

stantially at right angles to the motion of the rollers, fixed aprons inclined downwardly and inwardly arranged about the sides and front end of the frame below the corrugated rollers, a centrally disposed endless conveyer below and adapted to receive grain falling between the rollers and from the fixed aprons and discharge such grain centrally of the frame at the tail of the machine in the path of the bundles discharged from the rollers, and revolving band-cutting knives at the tail of the machine adapted to cut the bands of the bundles discharged from the rollers, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ALFRED J. JACQUES.

Witnesses:

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GEORGE C. WACHSMUTH.