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GRAIN BINDER

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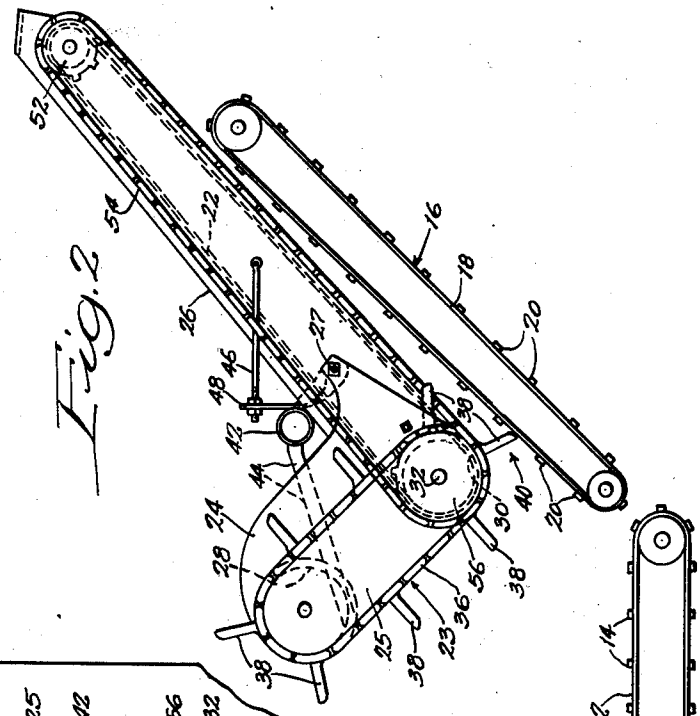


Fig. 2

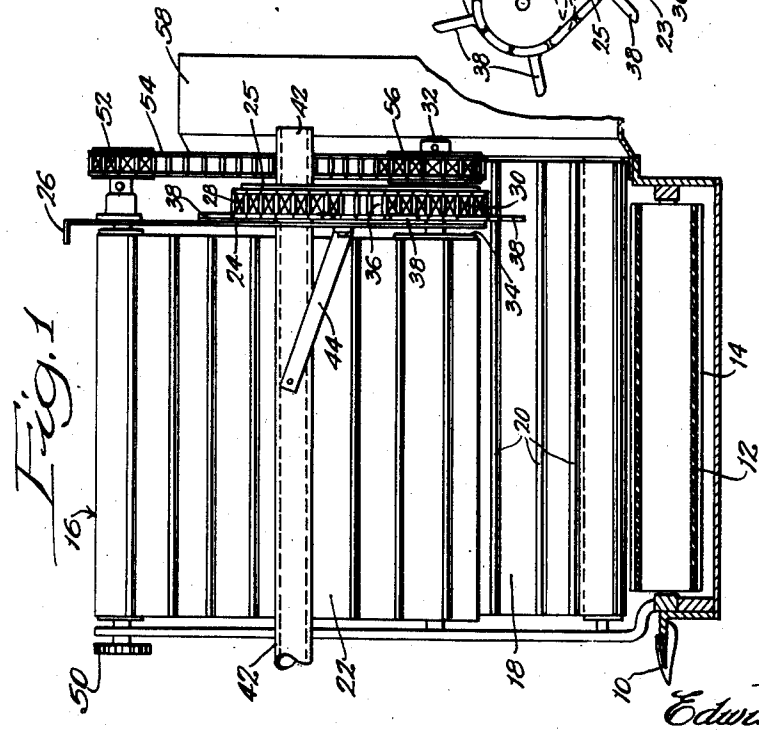


Fig. 1

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GRAIN BINDER

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5 Claims. (Cl. 198—162)

This invention relates to a new and improved grain binder and has for one of its principal objects the provision of an attachment for compressing the bushy ends of the grain to thereby enable the grain to be fed evenly to an elevator.

Grain binders perform the function of cutting the standing grain in the field and elevating the cut grain to an upper platform whereupon it is tied in bundles. Difficulty has been encountered in feeding the cut grain to the elevator for the reason that the bushy headed portions of the grain are so thick that the mouth of the elevator is unable to adequately receive these bushy ends, stopping the flow of material at the elevator, or they thereupon are repelled so that rather than the grain traveling up the elevator perpendicularly to the length of the elevator, the grain is twisted around and tends to travel parallel to the length of the elevator causing great confusion on the binding platform.

It is, therefore, an important object of this invention to provide a compressing attachment for the bushy heads of the grain, positioned at the mouth of the elevator and performing a dual function of beating down the bushy tops of the grain and increasing the receiving capacity of the elevator mouth.

Other and further important objects of this invention will become apparent from the disclosures in the following specification and accompanying drawing, in which:

Figure 1 is a side view of a part of a grain binder, portions thereof being in section; and

Figure 2 is a side elevation of the grain binder elevator incorporating the compressor attachment of this invention.

As shown in the drawing, the reference numeral 10 indicates generally a sickle or cutting attachment which is mounted forwardly of the grain binder and which acts to cut standing grain, and with the aid of a reel paddle, not shown, drops the cut grain stalks onto a transverse canvas conveyor 12 so that the bushy heads are at the rear thereof with respect to the cutter element 10. The transverse conveyor 12, as best shown in Figure 2, has cross slats 14 at intervals along its length to cause more positive feeding to an elevator 16. The elevator 16 is composed of a lower conveyor 18, having transverse slats 20 thereon to enable the grain to be more securely held when traveling upwardly, and an upper conveyor 22. The lower and upper conveyors, generally of the endless canvas type, act as a unit to elevate the cut grain to the binding platform, not shown.

Heretofore, grain binders have been equipped as just described, and as it is necessary to have the conveyors 18 and 22 relatively close together so that grain elevation is assured, the top bushy portions of the grain were so thick that the elevator 16 rather than accept these thick bushy portions actually repelled them and pulled the grain in by its butt ends so that the grain traveled parallel to the longitudinal axis of the elevator 16 rather than at right angles thereto. The binding and knotting mechanisms (not shown) are set to accommodate grain fed only perpendicular to the line of elevator travel. In order to overcome this difficulty, a compressing attachment 23 is provided which comprises a pair of brackets 24 and 25, the inner bracket 24 being rigidly attached to a binder frame 26 at 27 and the pair of brackets 24 and 25 housing a sprocket 28 at a point above the upper conveyor 22 and a lower sprocket 30 positioned on an axis 32 of a lower pulley 34 of the upper conveyor 22. A chain 36 extends around the sprockets 28 and 30 and has elongated fingers 38 at intervals around the chain for the purpose of compressing the bushy heads of the grain stalks so that they are fed to the elevator 16 evenly with the butt ends of the grain stalks. The chain 36 is positioned substantially perpendicular to the upper conveyor 22 and acts to increase the capacity of the mouth of the elevator 16 as defined by the spread between the lower and upper conveyors 18 and 22 and as designated by the numeral 40. It is essential that this compressing attachment 24 be positioned at the point where the bushy ends fall, and it is not necessary to have the compressing attachment extend across the width of the elevator conveyors 18 and 22.

The bracket 25 is additionally supported by a tube member 42, which is in turn supported by the frame 26 and acts to reenforce the bracket 25 by an arm 44. An adjustable support 46 extends between the upper conveyor 22 and an extension 48 of the tube 42.

A sprocket 50, preferably driven by a power take-off from the tractor, in turn drives a sprocket 52 at the opposite side of the elevator 16, and by means of a chain 54 drives a sprocket 56 on the shaft 32 outside of and to the rear of the bracket housed compressor chain 36 with its integral fingers 38. It is, of course, understood that the elevator drive through the shaft 32 gives rotative motion to the sprocket 30.

Grain binders are used for many types of grain, some of which grow much taller than others, and when such is the case, the bushy ends extend out

beyond the rear of the elevator 16, and after being forced into the elevator mouth 40, the extending bushy tops ride on an extended side 58. The use of this compressor attachment creates an aggressive feeding of the bushy ends of the grain to the elevator and further enables a narrow mouthed elevator to receive large quantities of grain and their accompanying bushy ends, for the reason that the compressing attachment extends upwardly from the upper conveyor of the elevator.

The compressing attachment of this invention is relatively simple in its construction and is readily adapted for use on present grain binding machines.

Various modifications may be employed without departing from the principles disclosed herein, and I, therefore, do not propose limiting the patent granted hereon otherwise than as necessitated by the appended claims.

What is claimed is:

1. A grain elevator comprising a pair of inclined superposed upper and lower endless conveyors extended around spaced apart pulleys, shafts for said pulleys, a bracket at the lower end of one side of said conveyors extending upwardly therefrom, a pair of sprockets journaled on said bracket, one of said sprockets being on the lower of the upper conveyor pulley shafts, the other of said sprockets placed near the top of said bracket, a chain draped around said sprockets, and fingers extending outwardly from the chain and adapted to penetrate the bushy ends of the grain being elevated.

2. A grain elevator comprising a pair of superposed upper and lower endless conveyors extended around spaced apart pulleys, shafts for said pulleys, drive means for said pulley shafts at one side thereof, a pair of brackets at one side of said conveyors extending upwardly therefrom, a pair of sprockets housed within said brackets, one of said sprockets being on the upper conveyor pulley shaft, the other of said sprockets placed near the top of said brackets, a chain draped around said sprockets, and fingers extending outwardly from the chain and adapted to penetrate the bushy ends of the grain being elevated.

3. A grain elevator comprising a pair of superposed upper and lower endless conveyors extended around spaced apart pulleys, shafts for said pulleys, drive means for said pulley shafts at one side thereof, a pair of brackets intermediate said conveyors and said drive means and extending upwardly from said conveyors, a pair of sprockets housed within said brackets, one of said sprockets being on the upper conveyor pulley shaft, the other of said sprockets placed near the top of said brackets, a chain draped around said sprockets, and fingers extending outwardly from the chain and adapted to penetrate the bushy ends of the grain being elevated.

4. In a grain binder having a relatively wide inclined elevator, means for feeding grain to said elevator perpendicular to the line of elevation and in a horizontal position, said means being a relatively narrow feeder placed at one side of said wide elevator, said narrow feeder comprising an endless chain having projecting fingers, said chain positioned at the base of the elevator and extending substantially at right angles upwardly from said inclined elevator, whereby the receptive grain capacity of the elevator is materially increased.

5. A grain elevator comprising a pair of opposed inclined conveyors receiving grain in a horizontal position, means for moving the grain stalks including their bushy ends uniformly upwardly and rearwardly between said conveyors, parallel to the upper and lower ends of the conveyors, and said means comprising a relatively narrow chain extending upwardly and forwardly from said conveyors and having outwardly extending fingers compressing the bushy ends of the grain.

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