A. HIGDON.

DRAG CONVEYER AND ELEVATOR.

APPLICATION FILED DEC. 7, 1918.

1,388,860. Patented Aug. 30, 1921.

2 SHEETS—SHEET 1.

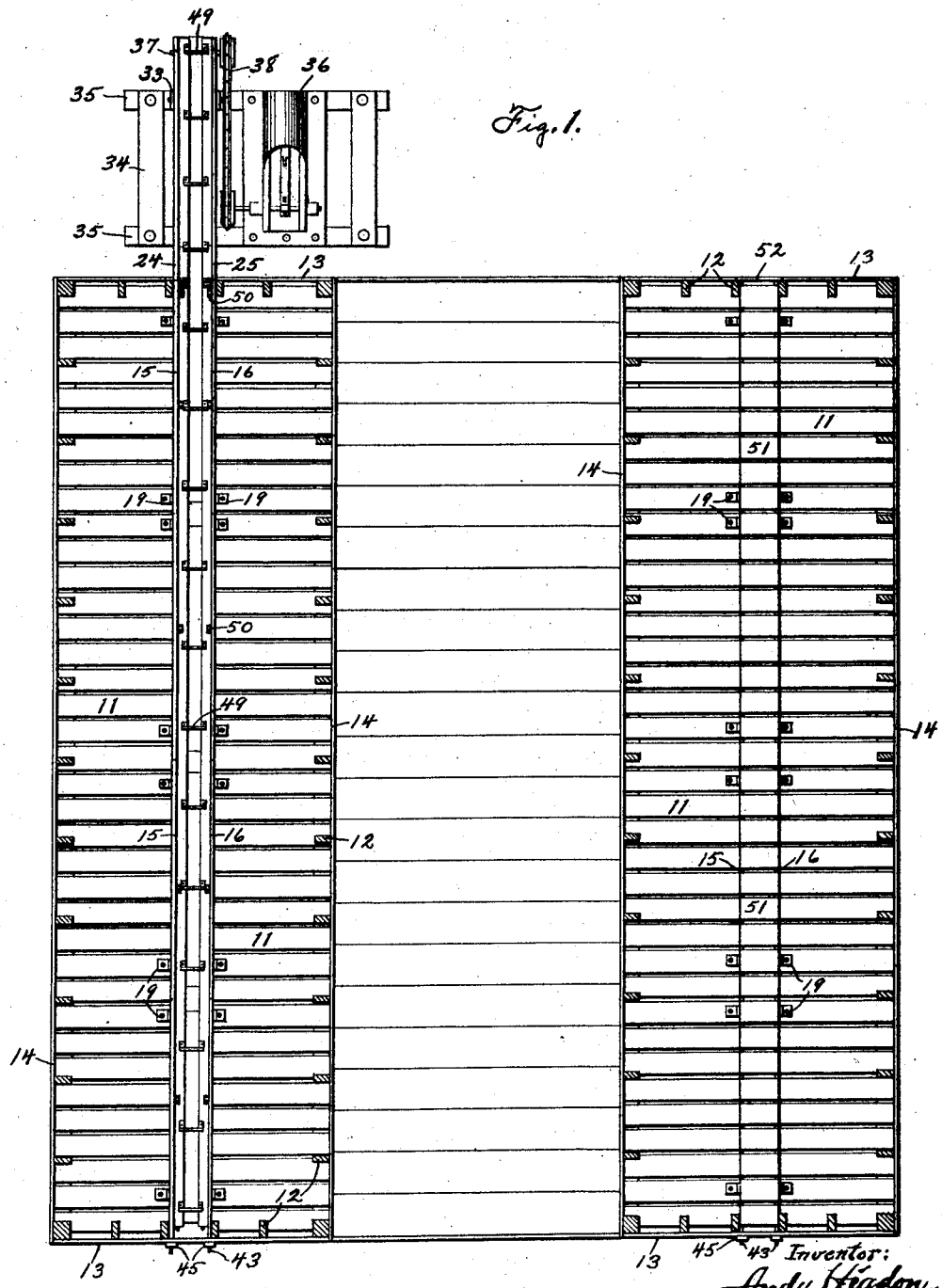


Fig. 1.

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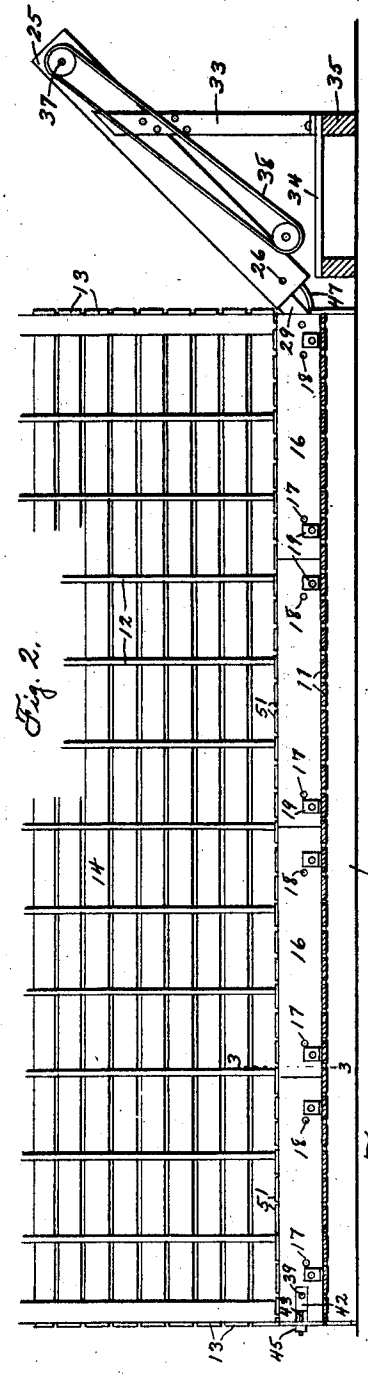


Fig. 2.

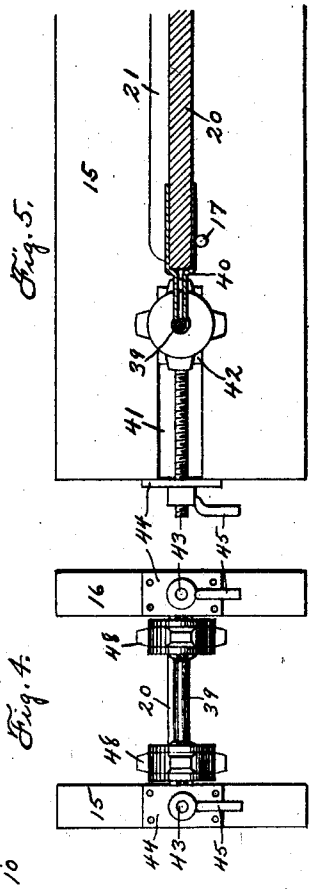


Fig. 5.

Fig. 4.

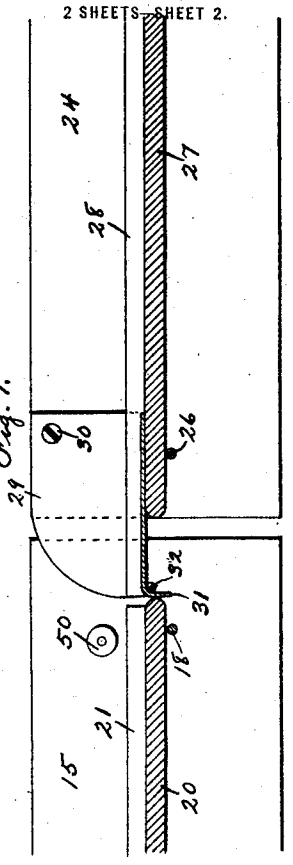


Fig. 7.

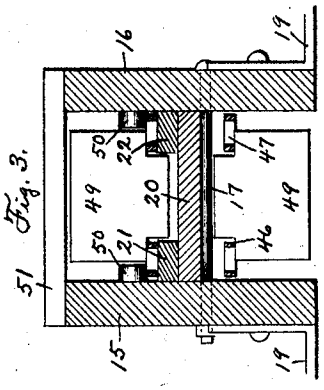


Fig. 3.

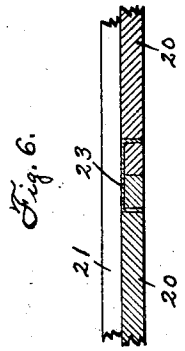


Fig. 6.

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UNITED STATES PATENT OFFICE.

ANDY HIGDON, OF NEVADA, IOWA.

DRAG CONVEYER AND ELEVATOR.

1,388,860. Specification of Letters Patent. Patented Aug. 30, 1921.

Application filed December 7, 1918. Serial No. 265,677.

To all whom it may concern:

Be it known that I, ANDY HIGDON, a citizen of the United States of America, and resident of Nevada, Story county, Iowa, have invented a new and useful Drag Conveyer and Elevator, of which the following is a specification.

The object of this invention is to provide an improved drag conveyer and elevator for removing corn from a crib and delivering it to a vehicle for transportation, or to the feeding board of a shelling machine.

A further object of this invention is to provide an improved drag conveyer and elevator of sectional construction, and improved means for connecting the sections thereof.

A further object of this invention is to provide an improved conveyer and elevator adapted to be installed permanently in a crib and to be utilized as a part of the ventilating system for ventilating stored ear corn, means being provided to close the top of the conveyer and elevator when not in use as such.

A further object of this invention is to provide improved means for adjusting the flexible conveying and elevating devices.

My invention consists in the construction, arrangement and combination of elements hereinafter set forth, pointed out in my claim and illustrated by the accompanying drawing, in which—

Figure 1 is a horizontal sectional elevation illustrating a double corn crib equipped with my improved conveying and elevating means, the conveyer in one member of the crib being shown in position for use in connection with the elevating section and a prime mover, and the conveyer in the other crib member being shown covered as when not in use as a conveyer. Fig. 2 is a longitudinal section through a crib, showing conveyer and elevating sections installed in position for use. Fig. 3 is a cross-section through one of the conveyer sections, a cover board being shown in place thereon. Fig. 4 is an end elevation of one of the conveyer sections, the flexible conveying devices being omitted. Fig. 5 is a side elevation of the devices shown in Fig. 4. Fig. 6 is a longitudinal detail section illustrating means for connecting adjacent track plates end to end. Fig. 7 is a longitudinal detail section illustrating the means for removably and pivotally connecting the elevator section to a conveyer section. Figs. 3 to 7 inclusive are on a scale enlarged relative to Figs. 1 and 2.

In the construction of the device as shown I have illustrated a corn crib of double type, each member thereof having sills 10, spaced floor boards 11 thereon, joists 12, and spaced end boards 13 and side boards 14 carried by said joists. The conveyer itself is made in sections and each section is composed primarily of spaced parallel frame boards 15, 16 connected by transverse bolts or rods 17, 18 passing therethrough below their transverse median lines. Angle plates 19 are fixed to the outer faces and adjacent the lower margins of the frame boards 15, 16 and are adapted to be secured to some of the spaced floor boards 11 of the crib to hold the sections in place. Track boards 20 are arranged horizontally and fitted snugly between the frame boards 15, 16 and supported by the rods 17, 18. Track bars 21, 22 are spaced apart on and fixed to the upper surfaces of the track boards 20 and are spaced apart and on side margins of said boards. I prefer to employ one of the track boards for each conveyer section, of the same length as the frame boards 15, 16, and to make the track bars 21, 22 extend throughout two adjacent sections, thus connecting two of the track boards 20. Further connection for adjacent ends of the two track boards 20 common to a set of track bars is provided as illustrated in Fig. 6 and consists of a sheet 23 of metal having its ends turned downwardly at right angles and embedded in and transversely of end portions of the boards 20, the body of the plate 23 covering the joint between said boards.

An elevator section is separately formed and is adapted to be used with a set of the conveyer sections constructed as above described, or interchangeably with any of a number of such conveyer devices. The elevator section comprises primarily frame boards 24, 25 spaced apart similarly to the frame boards 15, 16 of the conveyer device, and connected by transverse rods or bolts 26. A track board 27 is mounted between the frame boards 24, 25 and rests on the rods 26, and track bars 28 are mounted on marginal portions of said track board. An apron 29 is formed of sheet metal and is fixed to and within the inner end of the elevator section as by screws 30 (Fig. 7), said apron being of channel shape in cross section to conform to the shape of the end of

the section formed by the frame boards and track board, and said apron projects beyond the end of the section and is formed with a downturned hook or flange 31 on its end. The outer end of the outermost conveyer section has its frame boards 15, 16 extended beyond the track board and track bars and through the end of the crib, and a rod 32 is mounted transversely of said extended portions of the frame boards, at substantially the level of the track boards 20 and 27, and is adapted to receive engagement of the downturned hook or flange 31 of the elevator section, by which means said elevator section is held in place. The opposite end of the elevator section may be supported in any suitable manner and in elevated position, as shown in Fig. 2, to communicate with a vehicle, receptacle, or other device to which it is desired to deliver the corn. In this instance I have illustrated vertical supports 33 carrying the outer end portion of the elevator section, which supports rise from a frame 34 mounted on skids 35. The skids 35 may also carry a prime mover 36 of any suitable form, by which the conveying and elevating devices may be driven. A shaft 37 is journaled in the outer end portion of the elevator section and may be connected by suitable means, such as sprocket gearing 38, to the prime mover 36.

A shaft 39 (particularly see Figs. 4 and 5) is mounted in the opposite end portion of the conveyer frame from the position of the elevator section, and the bearings 40 of said shaft are elongated and slidably engage the end portion of the track board 20. The shaft 39 extends loosely through longitudinal slots 41 in the frame boards 15, 16, and boxings 42 on said shaft are movable longitudinally in said slots and have threaded stems 43 extending through said slots and through wear plates 44 on end portions of the frame boards, and handle nuts 45 are screwed on end portions of said threaded stems and bear against outer faces of said wear plates. By turning the handle nuts 45 the position of the shaft 39, relative to the end of the section, may be adjusted as desired, the bearings 40 sliding on the end of the track board 20.

A flexible endless conveyer is mounted in and adapted for travel through the several conveyer sections and the connected elevator section, and said conveyer comprises chains 46, 47 adapted to travel on sprocket wheels 48 carried by the shafts 37 and 39, and spaced drag plates 49 fixed to said chains. The chains 46, 47, in their upper lengths, are adapted to travel on the track bars 21, 22 of the conveyer sections and 28 of the elevator section. The drag plates 49 are of such length as to extend substantially the distance between the frame boards 15, 16 of the conveyer sections, and 24, 25 of the elevator section; but at their margins adjacent the chains 46, 47 are of less length and are adapted to travel between the track bars of said sections, as clearly shown in Fig. 3. Idler rollers 50 are journaled at intervals on inner faces of the frame boards 15, 16 and prevent upward movement of the conveyer chains 46, 47, one set of said rollers being located adjacent the outer end of the outermost conveyer section, that is to say near the point of attachment of the elevator section, to prevent said chains riding up on account of the inclination within the elevator section.

Spaced cover boards 51 are provided and are adapted to extend transversely of the conveyer sections and rest loosely on the upper margins of the frame boards 15, 16 thereof at times. It is the function of the cover boards to prevent corn falling into the conveyer sections when it is placed in the crib for storage.

In use the device is attached within and longitudinally of a crib or bin substantially as shown and described, and when it is desired to place grain, such as corn on the cob, in the crib or bin for storage, the cover boards 51 are first placed in position upon the frame boards 15, 16 to prevent entrance of such grain to the conveyer frames. At the end of the conveyer frames to which the elevator device is adapted to be attached, a removable end board 52 is provided to close the end of the conveyer frames while the grain is in storage. When it is desired to remove the grain from the crib the end board 52 is removed and the elevator device placed in position and attached as described. The flexible conveyer devices, consisting of the chains and drag plates, are then placed in position within the conveyer frames and the elevator frame in any desired manner and are connected in endless form around the sprocket wheels 48. The flexible conveyer devices are operated by means of the prime mover 36 and sprocket gearing 38. The cover boards 52 may be removed in turn, beginning at the end nearest the elevator devices, thus permitting the grain to fall within the conveyer frames and within the influence of the drag plates 49, which carry the grain lengthwise of the conveyer sections, up the elevator section, and deposit it in the vehicle or receptacle provided at the outer end of the latter section.

One elevator section, prime mover and set of flexible conveying devices may be employed for a number of sets of the conveyer devices, either in the relation shown, in a double crib, or entirely independent of each other, and may be readily removed and attached relative thereto.

When the cover plates 51 are in position and the grain is placed in the crib for stor-

age, ventilation is provided by currents of air passing longitudinally of the conveyer frames and upwardly between said cover boards.

I claim as my invention:

A device of the class described, comprising a horizontally arranged conveyer frame having spaced side frame boards, an elevator frame having side boards spaced to correspond to the side boards of the conveyer, means for supporting the outer end portion of the elevator frame, said elevator frame being formed with an apron projecting from its inner end portion and adapted to extend between the side frame boards of the conveyer frame, said apron being formed with a downturned flange at its free end, said conveyer frame being formed with a transverse rod adapted to be engaged by said flange, and a flexible conveyer adapted for travel in and longitudinally of said conveyer and elevator frames.

Signed at Nevada, in the county of Story and State of Iowa, this 22nd day of June, 1918.

ANDY HIGDON.