(No Model.)

W. H. KNAPP.

ELEVATOR FOR HARVESTERS.

No. 410,527. Patented Sept. 3, 1889.

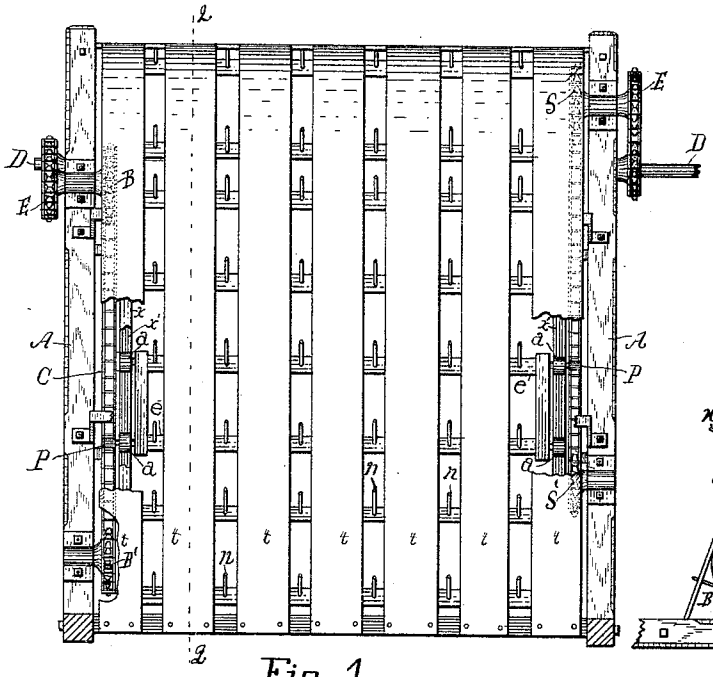


Fig. 1

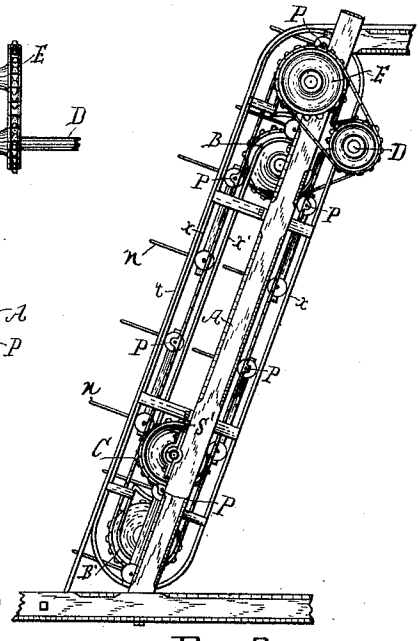


Fig. 2

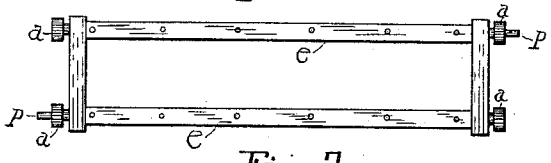


Fig. 3

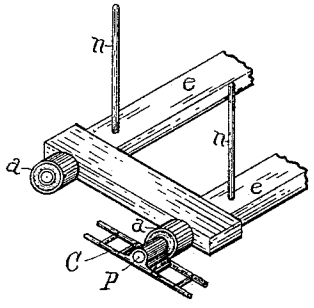


Fig. 4

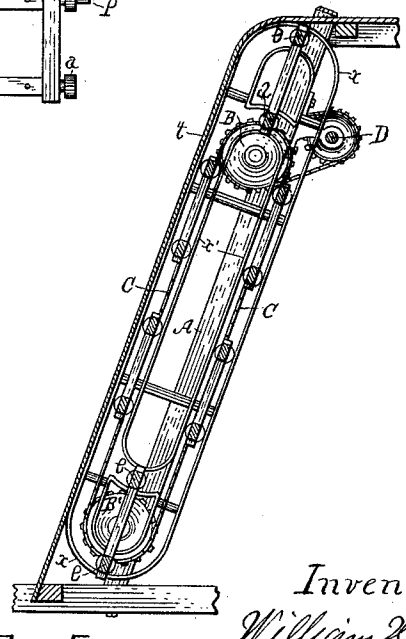


Fig. 5

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UNITED STATES PATENT OFFICE.

WILLIAM H. KNAPP, OF GALESBURG, MICHIGAN.

ELEVATOR FOR HARVESTERS.

SPECIFICATION forming part of Letters Patent No. 410,527, dated September 3, 1889.

Application filed March 26, 1889. Serial No. 304,813. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. KNAPP, a citizen of the United States, residing at Galesburg, county of Kalamazoo, State of Michigan, have invented a new and useful Elevator for Harvesters, of which the following is a specification.

This invention especially relates to devices for elevating grain from the platform in the rear of the cutter-bar of harvesting-machines to the binding-table above; but the elevator may be used for other purposes aside from grain.

The object of the invention is to so construct an elevator, consisting of sprocket-wheels, chains, and fingers attached to said chains, that the fingers will always be at the same angle during their transit or revolution around the sprocket-wheels. In other words, the fingers, which elevate the grain or whatever is being elevated, are presented at the lower end of the elevator and at the front side thereof at right angles to said front side, and are carried up at said angle to the top of the elevator, and are drawn directly back at the same angle from beneath the burden being elevated.

In the drawings forming a part of this specification, Figure 1 is a front elevation of the elevator, looking against Fig. 2 from a point at the left hand; Fig. 2, a view looking against Fig. 1 from a point at the right; Fig. 3, lettered details from Fig. 1; Fig. 4, enlarged broken perspective of the same; and Fig. 5 is a section on line 2 2 in Fig. 1, looking from a point at the right hand.

Referring to the lettered parts of the drawings, A is the elevator-frame, situated at about the ordinary oblique angle as in harvesting-machines for elevating the grain. The front of the elevator-frame has separated slats *t t* attached to it. The fingers *n*, which elevate the grain, are carried up in these spaces between the slats *t*.

In Fig. 1 a lower sprocket-wheel B′ and an upper sprocket-wheel B have bearing in the frame A at the left-hand side of the elevator. These wheels carry a sprocket-chain C. At the right-hand side are an upper and lower sprocket-wheel S S′. This set of sprocket-wheels S S′ are like the set B B′ and carry a like chain C; but one set is higher than the other, as plainly appears in Fig. 2, so that the two lower wheels B′ S′ are diagonally opposite each other, and likewise the upper wheels B S.

At D is a power-shaft having a sprocket-wheel at each end, and these sprocket-wheels and the wheels E on the end of the shaft of the wheels B S carry a sprocket-chain, and thus motion is imparted to the elevator; but any other plan of operating the elevator may be adopted.

The fingers *n* are attached to a rectangular frame *e*. At each corner of the frame *e* is a friction-roller *d*, which traverse the guideway *x′*. These rollers are not necessary; but the elevator runs easier with them. Neither is the outer guideway *x*, separated a little from the guideway *x′*, necessary; but in some instances the chains C will run steadier or be prevented from whipping if there is a guideway on both sides of the rollers *d*.

A series of the frames *e e*, having fingers *n n* at right angles thereto, are employed, and two of the diagonally-opposite corners of these frames are pivotally attached to the chains C at P, Fig. 4. As here shown in Fig. 3, the upper right-hand corner and the lower left-hand corner at P would be attached to the chains C. By this means the frames are carried up the front side of the elevator with their fingers projecting at right angles thereto, as in Fig. 2, said frames being kept at the same angle of the elevator-frame without the need of any guideways whatever, and are drawn back, as in Fig. 5, at the upper end at the same angle, thus drawing the fingers *n* directly from beneath the burden they are elevating, and in the case of grain the binding mechanism receives it at this point, said mechanism not being here shown. The frames with their fingers are carried down the back side of the elevator always at the same angle, Figs. 2 and 5, and are carried forward at the same angle at the lower end of the elevator, thrusting the fingers beneath the grain or other burden to be elevated, and thus the operation continues.

It will appear obvious that the guideways *x x′* simply steady the moving parts, and that the frames are kept from tilting because the upper corner of one end is attached to one

chain and the lower corner of the other end is attached to the other chain, thus counterbalancing or equalizing the leverage of the moving chains on the frames *e*.

I have described the frames *e* as being rectangular in form. This is not necessary so long as the end pieces are employed to form the diagonally-opposite corners for pivoting to the chains—that is, the frame may have only one bar bearing the fingers *n*, or it may have any suitable number of said bars, and in case of using the elevator for elevating other articles only one bar bearing a finger or fingers or arms operating in the manner herein described may be employed; but in a grain-elevator, of course, a series of them are necessary.

This elevator may be arranged by locating it horizontally in the rear of the cutter-bar for moving the grain across the platform, thus serving as a grain-carrier.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. An elevator or carrier comprising a frame, the set of sprocket-wheels on each side of said frame, and sprocket-chains on said wheels, one set of said wheels and chains being placed at a suitable distance above the other set, and a frame or frames bearing fingers and being pivoted at diagonally-opposite corners to said chains, substantially as set forth.

2. In an elevator or carrier, the combination of the two sets of sprocket wheels and chains, one set being placed a suitable distance above the other set, the frame bearing fingers, said frame being pivoted at diagonally-opposite corners to the chains, and guideways to steady the moving chains and frame, substantially as set forth.

3. In an elevator or carrier, the combination of two sets of sprocket wheels and chains, one set being a suitable distance above the other set, the frame bearing fingers and having a friction-roller at each of the four corners of said frame, said frame being pivoted at the two diagonal corners to the chains, and the guideways for the rollers to traverse, substantially as set forth.

In testimony of the foregoing I have hereunto subscribed my name in presence of two witnesses.

WILLIAM H. KNAPP.

Witnesses:
ARTHUR M. RANSOM,
FRANK MCGRAW.