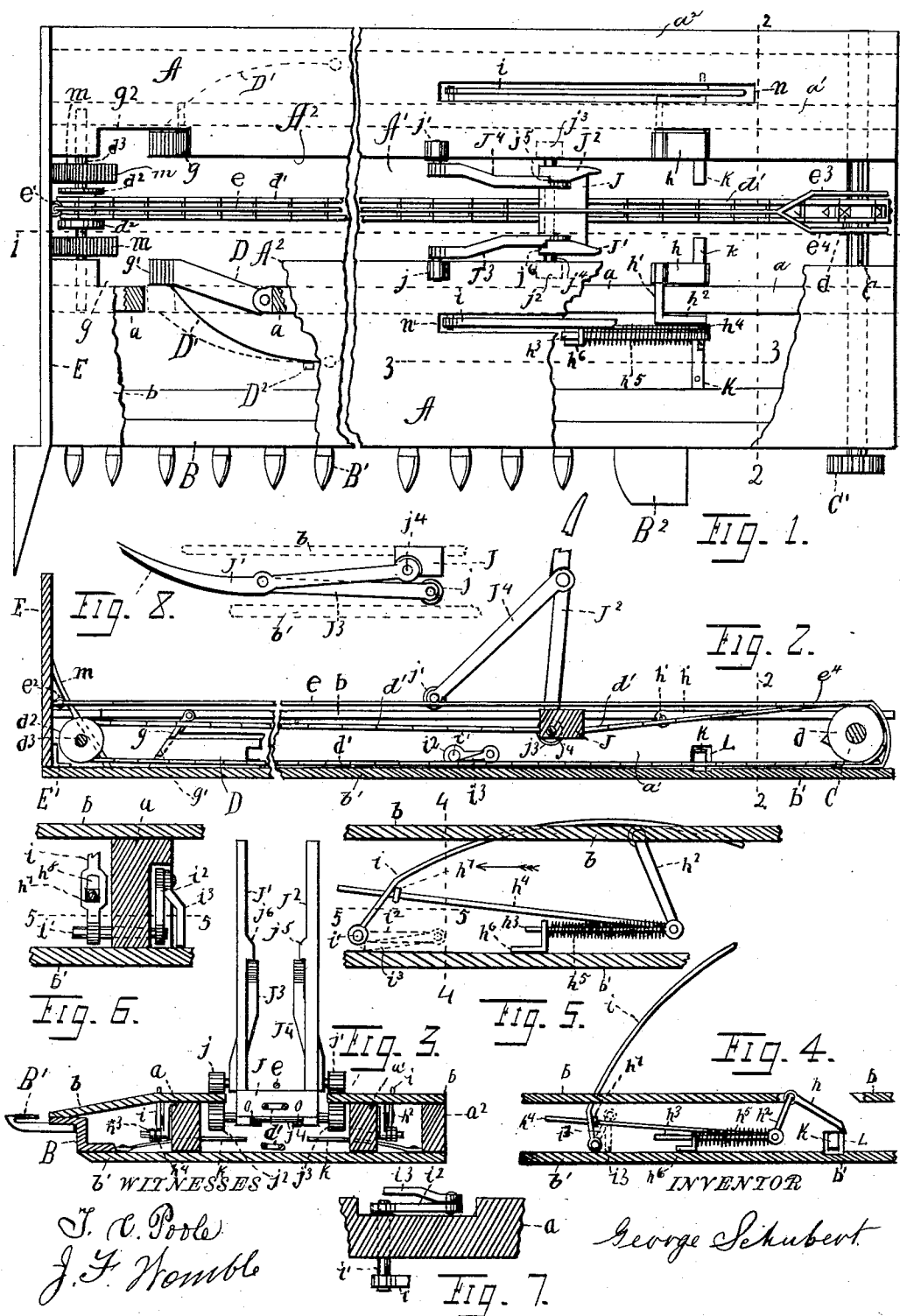


(No Model.)

G. SCHUBERT.
GRAIN CONVEYER FOR BINDERS, &c.

No. 475,423.

Patented May 24, 1892.



UNITED STATES PATENT OFFICE.

GEORGE SCHUBERT, OF WALNUT, TEXAS.

GRAIN-CONVEYER FOR BINDERS, &c.

SPECIFICATION forming part of Letters Patent No. 475,423, dated May 24, 1892.

Application filed March 6, 1891. Serial No. 384,019. (No model.)

To all whom it may concern:

Be it known that I, GEORGE SCHUBERT, a citizen of the United States, residing at Walnut, in the county of Bosque and State of Texas, have invented certain new and useful Improvements in Grain-Conveyers for Binders, &c.; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to that class of grain-conveyers for binders and harvesters, &c., in which arms unfold when started from the outer end of its travel on its forward movement and in that position shift the grain in front of it, and thus shift the grain off the inner end of the platform or deliver such grain to suitable compressors, (not shown or described in this specification,) and such arms fold back at the beginning of its rearward movement and pass back underneath the grain on the platform, as more fully described in Letters Patent of the United States granted to myself, No. 446,473, dated February 17, 1891.

The objects of my present invention are, first, to construct the arm or arms so that they will fold back to a narrow space to retreat to the far end of the platform underneath the grain on the platform and be folded so that they can rise at the far end of the platform without any clear space on the platform; second, to provide a track suitable for the operation of such conveyer; third, to provide means by which clearance is obtained on the inner end of the platform for the arms of the conveyer to fold back without extending the platform too far beyond the inner cutting-point of the finger-bar; fourth, to provide means by which the grain is prevented from swaying down in the slot in which the conveyer operates, and fifth to construct all such parts so as to be simple of construction and low in cost of production.

Referring to the drawings, Figure 1 is a plan view of a harvester provided with my improvement. Fig. 2 is a side view of the conveyer, partly in section, taken on line 1 1, Fig. 1. Fig. 3 is a sectional view on line 2 2, Fig. 1, showing the conveyer and other parts beyond the section-line in full lines. Fig. 4 is a partly-sectional view on line 3 3, Fig. 1, looking to the rear and showing the trap depressed and

the wire elevated. Fig. 5 is the same view as Fig. 4 and by the trap is elevated in position and the wire is folded down, said view being somewhat enlarged. Fig. 6 is a sectional view on line 4 4, Fig. 5, looking as indicated by arrow. Fig. 7 is a sectional view on line 5 5, Fig. 5; and Fig. 8 is a side view of the conveyer arms and blocks shown in a folded position. The upper and lower plates of the platform are shown in dotted lines.

Similar letters refer to similar parts throughout the several views.

A designates the platform, which is formed of upper and lower floors or plates of sheet iron *b* and *b'*, braced by and secured to intervening strips *a*, *a'*, and *a*². Two of such strips *a* and *a'* form walls *o o* for the slot *A'*. The slot *A'* is made in the upper plate *b* of the platform *A*, for the purposes hereinafter described.

B designates the finger-bar provided with the usual guard-fingers *B'* and a shoe *B*² at its inner end.

E is a grain-board of ordinary construction.

In the construction of the platform the lower plate *b'* is secured to the lower face of the finger-bar and the upper plate *b* is secured to the upper face of the finger-bar *B*, the strip *a*² forming the rear sill of the platform.

C designates a shaft extending through the strips *a* and *a'* and having its rear bearing in the strip *a*² and its front bearing secured to the finger-bar *B* and provided with a pinion *C'* on its forward-projecting end and a sprocket-wheel *d*, located in the slot *A'*, provided with an endless chain *d'* or its equivalent to operate the conveyer, as hereinafter stated. *d*² is an idler over which said chain *d'* extends at the grainward end of the platform *A*. Said idler is secured to shaft *d*³, which has its bearings in the strips *a* and *a'*. (Seen in dotted lines in Fig. 1.)

The grain-board *E* can be secured to the plates *b* and *b'* by corner-irons *F*, one of which is seen in Fig. 2, or in any other suitable manner.

e designates a rod or wire extending over above the conveyer, secured to the grain-board *E* and extending to the stubbleward end of the platform, as seen in Fig. 1. Said wire is placed about an inch or more above the platform *A* at each end and should be lo-

cated nearly over the center of the slot A', where there is only one conveyer employed, and divided at its stubbleward end to pass down on each side of the sprocket-wheel *d* and secured to the plate *b'*, or said wire may be secured to the plate *b* instead of to the plate *b'*. Said wire is for the purpose of preventing the grain from swaying or dropping down in the passage-way of the conveyer and any suitable number of such wires may be employed. The lower halves of the bars *a* and *a'* are cut out at near their grain end for about ten or twelve inches in length to receive the guides D D. Said guides are hinged with their stubbleward end to the bars *a* and *a'*, respectively, projecting with their free ends grainward to within three or four inches of the lower end of the guides *m m*. The free ends *g'* of said guides are cut slanting, as shown in Fig. 2, and passed over into the passage-way of the conveyer, as shown in full lines in Fig. 1 by the springs D' D', which are preferably secured to the plate *b'*, as shown in Fig. 1, and resting against the stud D².

*g*² designates notches formed in the inward-projecting edges of the plate *b* near the grain end of the platform.

g is a trap hinged with its stubbleward end to the stubbleward edge of the notches *g*² and made of proper length to rest with its free end on the guide D, as seen in Fig. 2, or it can be made longer, so as to lap over the free end of said guide D, as shown in dotted lines in Fig. 2. The guide on the rear side of the slot A' is formed and operated the same as the one described and shown. Said guides D and trap *g* form a guide to guide the rollers *j* and *j'* to the top of plate *b*.

m m designate guides secured to the plate *b'* and the grain-board E, as seen in Fig. 2. Said guides are to start the arms J' and J² to an elevated position, as hereinafter stated. The plate *b* projects beyond the strips *a* and *a'* one or two inches, as seen in Fig. 3. Said projections form the track A² A² for the conveyer. The trap *g* is a part of such projecting track.

h designates a trap secured to a shaft *h'*, and is the full width of the overbearing plate *b* and long enough to admit the roller *j* to pass down when said trap is depressed. Said trap is located at the grainward end of the platform near the point where the movement of the conveyer is reversed. The shaft *h'* finds its bearing in the strip or bar *a*, and is provided with a crank *h*², carrying rods *h*³ and *h*⁴. The rod *h*⁴ extends through a bracket *h*⁶, and is provided with a spring *h*⁵, said spring bearing against the bracket *h*⁶ and the crank *h*², thus holding the trap *h* in a closed position. Said spring is light enough to yield to any pressure applied to the trap *h*. The rod *h*⁴ projects through an eye *h*⁸ of the rod or wire *i* and is provided with a collar *h*⁷, resting against said wire, as seen in Figs. 4 and 5. The wire *i* is secured to a shaft *i'*, having its bearing in the strip or bar

a, and is provided with a crank *i*² on its other end, said crank *i*² having a dog *i*³ pivoted to its free end. (Seen in Fig. 2 and in dotted lines in Figs. 4 and 5.) The crank *i*² does not project beyond the strip *a*, and only the lower part of the dog *i*³ projects beyond said strip *a*, as seen in Figs. 7 and 6. It will be seen that when the trap *h* is depressed the crank *h*² is shifted to the rear, as seen in Fig. 4, thus elevating the wire *i* by the shoulder *h*⁷ on the rod *h*⁴ being in contact with said wire *i*, and said wire *i*, being secured to the shaft *i'*, will in turn raise the free end of crank *i*², and thus raise the dog *i*³ to a vertical position, as seen in dotted lines in Fig. 4, allowing the lower end of said dog *i*³ to rest on the plate *b'* and thus retain the wire *i* in an elevated position, as seen in Fig. 4, until the dog *i*³ is tripped by the conveyer, as hereinafter described.

K designates a spring secured to plate *b'* and extending into the passage-way of the conveyer, the strip *a* being notched, as seen at L, through which said spring extends and forming a guide for same. Said spring K is located far enough to the rear so that the free end of the trap *h* will meet with the spring when the former is depressed. The elevation of the spring K at its free end should be about one-third of the space from *b* to the plate *b'*, as seen in Fig. 3.

J designates the conveyer-block provided with one or more arms J' and J² (two in the present instance) and anti-friction rollers *j*² and *j*³. Said rollers rotate on the shaft *j*⁴, which has a rotary movement in the block J. To said shaft *j*⁴ are secured the arms J' and J², formed about as shown in Figs. 1, 2, and 3, provided with the shoulder *j*⁵ and *j*⁶. Beneath said shoulders are pivoted the rods J³ and J⁴, which are provided with anti-friction rollers *j* and *j'*, as seen in Figs. 1 and 2. Said rods J³ and J⁴ are prevented from opening any farther to the rear than seen in Fig. 2 by the shoulders *j*⁵ and *j*⁶. The length of the rods J³ and J⁴ is proportioned so that when folded the roller *j* will rest on the plate *b'*, while the roller *j*² rests against the plate *b*. The chain *d'* can be extended through the block J and secured by a pin or bolt. The bearings *o' o'* for shaft *j*⁴ are secured to the lower side of the block J.

The operation is as follows: The pinion C' receives its rotation from gearing of the harvester. By said pinion movement is imparted to the conveyer by the sprocket-wheel *d* and chain *d'*. The conveyer is moved forward, as seen in Fig. 2, pushing the grain in front of it until the rollers *j* and *j'* reach the traps *h h*, when the pressure of the grain will cause the trap to descend or open and admit the said rollers underneath the plate *b* and in front of the springs K, when the traps will rise again, as described. At this time the movement of the conveyer is reversed, and as the rollers *j* and *j'* are in front of the springs K K they will at first be detained, and thus

the rods J^3 and J^4 are folded back against the arms J' and J^2 , respectively, and said arms are then drawn back by reason of the leverage of the rods J^3 and J^4 , projecting below the block J and folded, as seen in Fig. 8, and as the arms are thus folded down the rods J^3 and J^4 will come to bear on the springs $K K$, depressing said springs until the rollers will readily roll over same. The wires $i i$ are raised by the depressing of the traps $h h$, as heretofore stated. Said wires are to prevent the grain from falling in rear of the conveyer. While the arms of said conveyer are folding, the said wires are again folded down, (as seen in Fig. 5,) as the conveyer moves to the rear, by the rollers j and j' coming in contact with the lower end of the dogs $i^3 i^3$, tripping said dogs, when they will assume the position as seen in Figs. 2 and 5, thus allowing the wires $i i$ to fold, as seen in Fig. 5, and as the conveyer, folded as seen in Fig. 2, moving underneath the grain on the platform to the grain end of the platform, near said end the arms J' and J^2 will come in contact with the guides $m m$, by which said arms are raised to an elevated position, and the rollers $j j'$ will press the guides D , as seen in dotted lines, and pass said guides, when the said guides will be moved back again by the spring D' . The traps g are elevated to a level of the plate b by the anti-friction rollers j^2 and j^3 and is to prevent said rollers from accidentally disengaging from beneath said plate b . As soon as the rollers j and j' have passed the free end of the guides D the grainward movement of the conveyer ceases, and as the conveyer is started on its stubbleward movement the traps g will again drop down to form a continuous track, as heretofore stated, for the rollers j and j' to ascend to the top of plate b , and thus complete the elevation of the arms J' and J^2 as the conveyer is started on its forward movement. The constructions and operations of the track on the other side of that just described are the same as that just described.

Having thus described my invention, what I claim is—

1. In a grain-conveyer for self-binding harvesters, the combination of a conveyer head or block J , having a shaft J^4 , provided with anti-friction rollers j^2 and j^3 on its projecting ends, arm or arms J' and J^2 , secured to said shaft J^4 and provided with shoulders or projections j^5 and j^6 , arms or rods J^3 and J^4 , pivoted to said arms J' and J^2 beneath the shoulders j^5 and j^6 , anti-friction rollers j and j' on the lower or free ends of the arms J^3 and J^4 , as shown, a platform provided with a slot A' , having inwardly-projecting edges $A^2 A^2$, hav-

ing traps formed in said inwardly-projecting edges, springs $K K$ in said platform, and means to operate said conveyer, substantially as shown and described.

2. In a grain-conveyer for self-binding harvesters, the combination of a platform provided with a slot A' , having inwardly-projecting edges $A^2 A^2$, a conveyer-block provided with an arm or arms and anti-friction rollers, as shown, a trap or traps $h h$, formed in the inwardly-projecting edges $A^2 A^2$ and secured to a shaft or shafts $h' h'$, having cranks $h^2 h^2$ provided with rod or rods $h^3 h^3$, springs on said rods, as shown, the free ends of the rods $h^3 h^3$, extending through brackets secured in the platform-springs $K K$, as shown, and switches and guides near the grain end of the platform, as shown, and for the purposes described.

3. In a grain-conveyer for self-binding harvesters, the combination of a platform provided with a slot A' , having inwardly-projecting edges $A^2 A^2$, a conveyer-block provided with an arm or arms and anti-friction rollers, as shown, a trap or traps $h h$, formed in the inwardly-projecting edges $A^2 A^2$ and secured to a shaft or shafts $h' h'$, having cranks $h^2 h^2$ provided with rods h^4 , shoulders or projections h^7 on said rods, as shown, and projecting with their free ends through eyes in the rods $i i$, said rods or wires $i i$ secured to shafts $i' i'$, dogs pivoted to the free ends of the cranks on the shafts $i' i'$ and projecting in the passage-way of the conveyer, rods $h^3 h^3$ on the cranks $h^2 h^2$, springs on said rods, as shown, springs $K K$, as shown, and switches and guides near the grain end of the platform, as shown, and for the purpose described.

4. In a grain-conveyer for self-binding harvesters, the combination of a platform provided with a slot A' , having inwardly-projecting edges $A^2 A^2$, a conveyer-block J , provided with arms and anti-friction rollers, as shown and described, guides hinged to the strips a and a' and pressed in the passage-way of the conveyer by suitable springs, as shown, guides $m m$, secured in the platform, as shown, and for the purposes described, traps $g g$, hinged to the plate b and resting with their free ends on or against the free ends of the guides $D D$, traps $h h$ in the tracks or inwardly-projecting edges $A^2 A^2$, and means to operate said conveyer, substantially as described.

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

GEORGE SCHUBERT.

Witnesses:

J. GRACE,

WM. P. GUISE.