

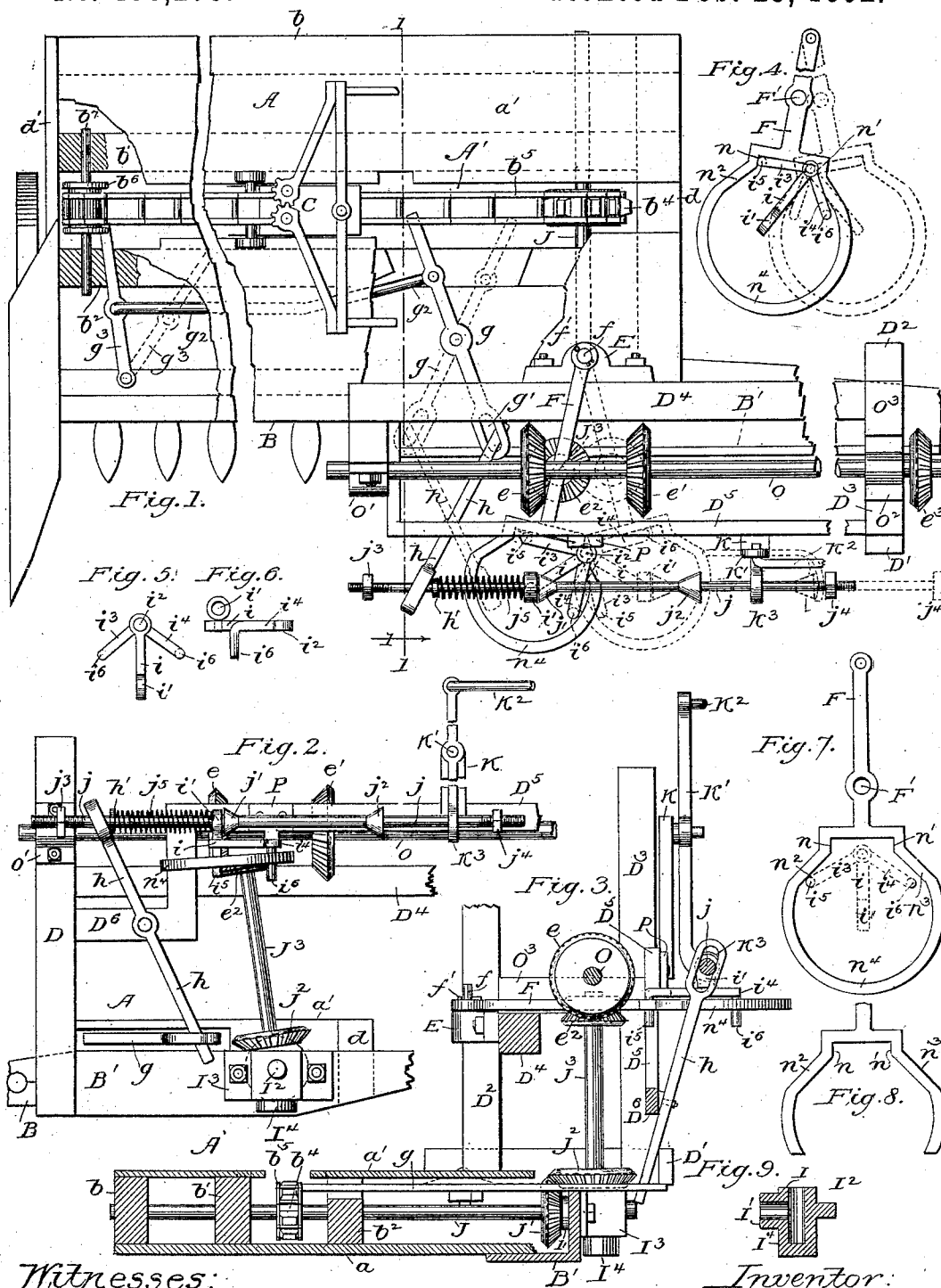
(No Model.)

G. SCHUBERT.

GEAR SHIFTING MECHANISM FOR HARVESTER CONVEYERS.

No. 469,275.

Patented Feb. 23, 1892.



Witnesses:

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UNITED STATES PATENT OFFICE.

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GEAR-SHIFTING MECHANISM FOR HARVESTER-CONVEYERS.

SPECIFICATION forming part of Letters Patent No. 469,275, dated February 23, 1892.

Application filed February 27, 1891. Serial No. 383,082. (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 Gear-Shifting Mechanism for Harvester-Conveyers; 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 improvements in gear-shifting mechanism for harvester-conveyers, and is especially adapted for the conveyer invented by myself and patented February 17, 1891, No. 446,473.

The object of my improvement is to provide a locking-lever by which the shifting-lever is shifted and locked in place after being shifted. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of part of a harvester provided with my improvement. Fig. 2 is a front view of part of Fig. 1, showing the shifting-gear in position. Fig. 3 is a sectional view taken on line 1 1, Fig. 1, looking in direction of arrow No. 1, showing parts beyond the section-line in full lines. Fig. 4 is a detail view of the shifting-lever as shown in Fig. 1, the locking-lever being shown in a locking position. Figs. 5 and 6 are detail views of the locking-lever. Figs. 7 and 8 are detail views of the shifting-lever, showing the locking-lever in dotted lines in position as when the conveyer is at rest; and Fig. 9 is a sectional view of the trunnioned step-bearing.

Similar letters refer to similar parts throughout the several views.

A designates the platform, which is formed of upper and lower floors or plates *a* and *a'*. The lower plate *a* is riveted to the lower flange of finger-bar and the upper plate is riveted to the upper face of the finger-bar B. Said plates *a* and *a'* are braced and secured to intervening strips *b*, *b'*, and *b²*, framed in the cross-sills *d* and *d'*, the rear strip *b* forming the rear sill of the platform, the strips *b'* and *b²* forming walls of the passage-way of the conveyer. Openings are made in the upper

plate *a'* for the purpose of the conveyer C and the devices carried by it.

B' designates a frame-bar secured to post D and finger-bar B and provided with a cross-bar D' near its inner or stubbleward end. To said cross-bar D' are secured the posts D² and D³.

D⁴ designates a bar secured to post D and post D². To the rear of said bar, opposite the bevel-pinions *e* and *e'*, is secured the block E, provided with a pin or stud *f*. To said stud is pivoted the shifting-lever F, secured thereto by a spring-pin *f'*.

D⁵ designates a bar secured to post D³, extending grainward and turned down at D⁶, (see Fig. 2,) and then inward and secured to post D. To the part D⁶ of bar D⁵ is pivoted near its center the lever *h*, having its upper end slotted, so as to receive the shifting-rod *j*, and its lower end trimmed, so as to operate in the slot *g'* on the front end of lever *g*. Said lever *g* is pivoted near its center to the under side of the plate *a'*, as shown in Fig. 3. The rear end of said lever *g* extends into the passage-way of the conveyer and is operated by the latter.

g² is a rod connecting lever *g* with lever *g³* for the purposes hereinafter described. The front end of lever *g³* is pivoted to the platform, and its other end extends toward the rear and into the passage-way of the conveyer.

J designates a shaft having its front end journaled in the trunnioned step-bearing I and its rear end journaled in the sill *b*, extending through the sills *b'* and *b²* and provided with a bevel-pinion J' near its front end, and a sprocket-wheel *b⁴*, located in the slot A' of the platform and provided with an endless chain *b⁵*, by which the conveyer is operated.

b⁶ is an idler, over which extends the chain *b⁵* at the grain end of the platform. Said idler rotates on a shaft *b⁷*, secured in the strips *b'* and *b²*, as seen in Fig. 1.

The lower end of a shaft J³ is journaled in the trunnioned bearing I and is provided with a bevel-pinion J² at its lower end, which is in constant mesh with bevel-pinion J'. The upper end of said shaft J³ is journaled

in the shifting-lever F, by which the upper end of said shaft is shifted into different positions.

e^2 is a bevel-pinion on the upper end of shaft J³, adapted to engage with bevel-pinion e or e' .

o designates a shaft having its bearing o' secured to the post D and its other bearing o^2 secured to the cross-bar o^3 . Said shaft is provided with a bevel-pinion e^3 near its stubbleward end, adapted to engage with any suitable driving mechanism of the harvester-gearing. (Not shown.) Bevel-pinions e and e' are secured to shaft o near the upper end of the shaft J³ and a suitable distance apart, so that the bevel-pinion e^2 can be moved into engagement with bevel-pinion e or e' or out of engagement with either.

j designates a shifting-rod supported by the lug i' and the lever K'.

j' and j^2 are collars secured to shifting-rod j . Their positions on said rod are so located that when the gear is out of engagement the collars j^2 will rest against the lever K, while the collar j' rests against the lug i' . The ends of the shifting-rod are threaded to receive the taps j^3 and j^4 .

j^5 is a spring coiled on a shifting-rod j between the lug i' and the washer h' . Said washer h' is loose on the rod j and rests against the lever h and is to prevent the spring j^5 from engaging with the slot made in the upper end of the lever h .

P designates a downwardly-projecting stud secured to bar D⁵ in line with stud f . To its lower and downward projecting end is pivoted the locking-lever i at the point i^2 . Said lever is constructed about as shown in Figs. 5 and 6. Its central arm i is perforated to receive the lug i' , which has a partial rotation therein. The lug i' is perforated so as to receive the shifting-rod j , by which the lever i is operated.

i^3 and i^4 are arms secured to the lever i in any suitable manner and provided with studs i^5 and i^6 at their ends, as shown, adapted to engage with the yoke or spanner cam-arms n^2 and n^3 , as shown, and for the purpose herein-after described.

F designates the shifting-lever, provided with a yoke or spanner formed by a cross-head on the outer end of the lever, the arms of which are bent outwardly to form right-angled offsets n and n' , and from the ends of which offsets outwardly-inclined cam-arms n^2 and n^3 extend. The outer ends of the inclined cam-arms n^2 and n^3 are curved toward each other to meet, as shown in Fig. 7, or approximately meet, as shown in Fig. 8, to form the yoke.

I designates a trunnioned step-bearing having its rear trunnion I' mounted to turn in the upright flange of the frame-bar B' and drilled out to furnish a bearing for the front end of the shaft J, with the forward trunnion journaled in the bracket I³ and having a down-

ward bearing I⁴ projecting, as shown thereby, for the vertical shaft J³, providing the same amount of side pressure from shaft J³ below the center of its trunnions, as above, thereby overcoming the binding or side pressure on shaft J³.

In Fig. 4 the shifting-lever F is shown locked in one direction by the lever i in full lines and in the other direction in dotted lines.

K designates a bracket secured to the bar D⁵ about the same distance from the stud P as the collars j' and j^2 are apart on rod j . To its upper end is secured the lever K', provided with a draw-rod K² at its upper end. Said draw-rod extends to the driver's seat (not shown in the drawings) and is operated by him. The lower end of said lever K' is somewhat flattened and curved outward and perforated, as shown at K³ in Fig. 3, to secure the shifting-rod j , as described.

The operations are as follows: When enough grain has gathered on the platform, the driver draws the draw-rod K², thereby operating the lever K', moving the lower end K³ against the shoulder j^2 on shifting-rod j and shifting the latter in position, as seen in full lines, the collar j' shifting the lever i in position as seen in full lines, and it in turn shifts lever F and locks it in place, as seen in full lines in Fig. 1, thereby engaging bevel-pinion e^2 with bevel-pinion e , thus starting the conveyer. As the conveyer nears the forward end of its movement it strikes the lever

g and moves it along in position, as seen in dotted lines in Fig. 1. The lever g in turn moves lever h , as seen in dotted lines, the lever h first compressing the spring j^5 , and after the spring is compressed the levers will act on the locking-lever i the same as a solid lever arrangement, forcing the stud i^5 out of its locking position, when the stud i^6 will come in contact with the arm n^3 , moving the shifting-lever over, thereby disengaging bevel-pinion e^2 from bevel-pinion e . The spring j^5 being compressed will move the shifting-lever F and locking-lever i in position, as seen in dotted lines in Fig. 1, and lock them in said position, thereby engaging bevel-pinion e^2 with bevel-pinion e' , which reverses the movement of the conveyer. As the conveyer nears the end of its rearward movement it strikes the lever g^3 , moving it along, thereby moving lever g back, as seen in full lines, by means of the connecting-rod g^2 . The lever g in turn moves lever h , as seen in full lines, moving the upper end of lever h against the tap j^3 , drawing the lever i out of its locking position, when the stud i^5 will shift the shifting-lever F, and thus disengage bevel-pinion e^2 from bevel-pinion e' , thus discontinuing the movement of the conveyer. The spring j^5 will expand sufficiently to prevent the engagement of bevel-pinion e^2 with bevel-pinion e until shifted by the driver, as heretofore described.

Many slight changes can be made in the

locking-lever i and the shifting-lever F without a departure from the spirit or exceeding the scope of my invention. Hence I do not wish to restrict myself to the exact forms herein shown; but,

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a gear-shifting mechanism for harvesters, the combination, with a shifting-lever F , pivoted at one end to the harvester-frame and provided with a bearing F' and with yoke cam-arms n^2 and n^3 , having offsets n and n' , of a three-armed lever pivoted at its rear to the harvester-frame and provided with downwardly-projecting studs extending from the outlet-arms of said lever, adapted to engage with the yoke cam-arms, offsets to move and lock said shifting-lever, constructed substantially as shown, a lug i' , pivoted to the three-armed lever and perforated to receive a shifting-rod j , and a lever K' , pivoted near its center to the harvester-frame, with its lower end perforated to receive the shifting-rod j and provided with a draw-rod K^2 on its opposite end, as shown, and for the purposes described.

2. In a gear-shifting mechanism for harvesters, the combination, with a shifting-lever F , pivoted at one end to the harvester-frame

and provided with a bearing F' and with yoke cam-arms n^2 and n^3 , having offsets n and n' , of a three-armed lever pivoted at its rear to the harvester-frame and provided with downwardly-projecting studs extending from the outer arms of said lever, adapted to engage with the yoke cam-arms, offsets to move and lock said shifting-lever, constructed substantially as shown, a lug i' , pivoted to the three-armed lever and perforated to receive a shifting-rod j , a lever h , provided with a slot to receive the shifting-rod j , a spring j^5 on the shifting-rod j , the lever h , pivoted near its center to the harvester-frame, a lever g , pivoted in the platform, with its front end engaging with the lever h and with its rear end projecting in the passage-way of the conveyor, a bevel-pinion J' and a sprocketed wheel b^4 on a shaft J , a chain b^5 to operate the conveyor c , bevel-pinions J^2 and e^2 on shaft J^3 , bevel-pinions e and e' on a shaft o , and a trunnioned bearing, as shown, and for the purposes described.

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

GEORGE SCHUBERT.

Witnesses:

SMITH PARR,
W. C. JONES.