(No Model.)

2 Sheets—Sheet 1.

C. COLAHAN.

HARVESTER.

No. 285,464.

Patented Sept. 25, 1883.

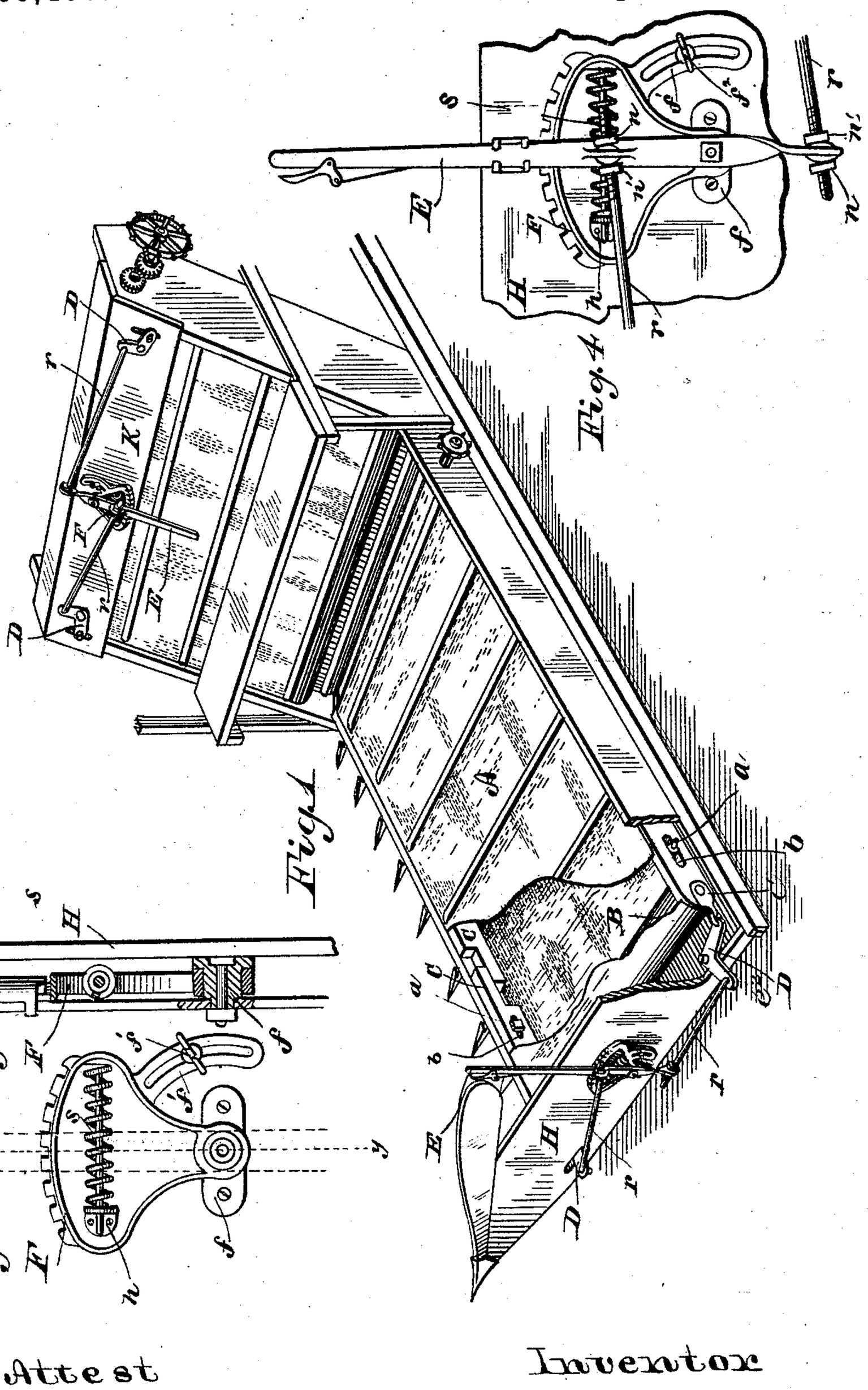

Fig. 4.

Fig. 8.

Fig. 7.

Witnesses

Attest

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William S. Granger

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Chas. Colahan

(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

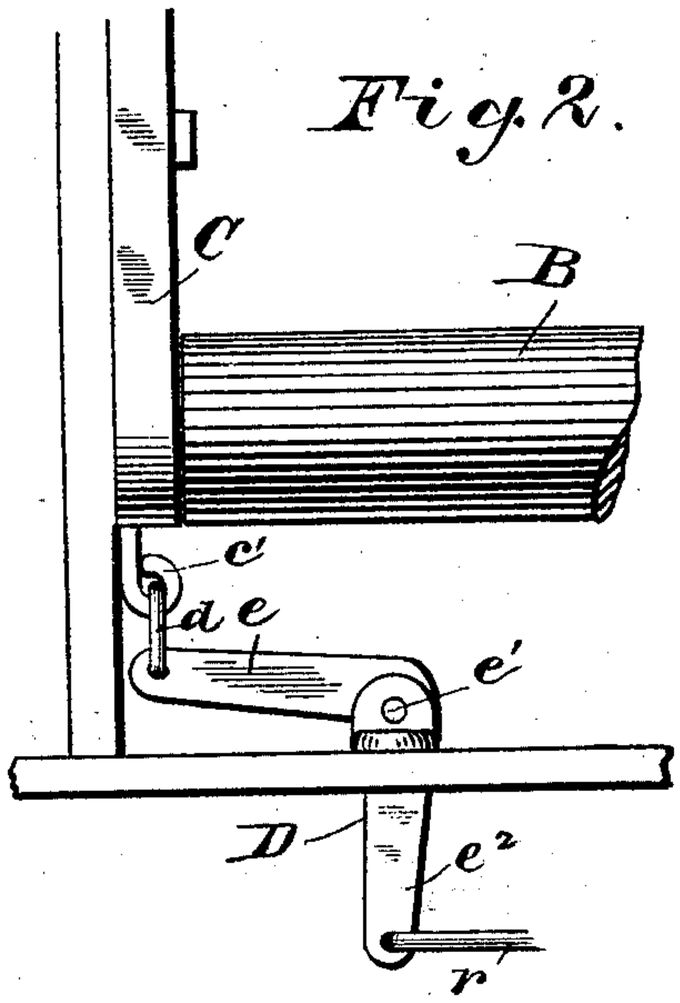

Fig. 3

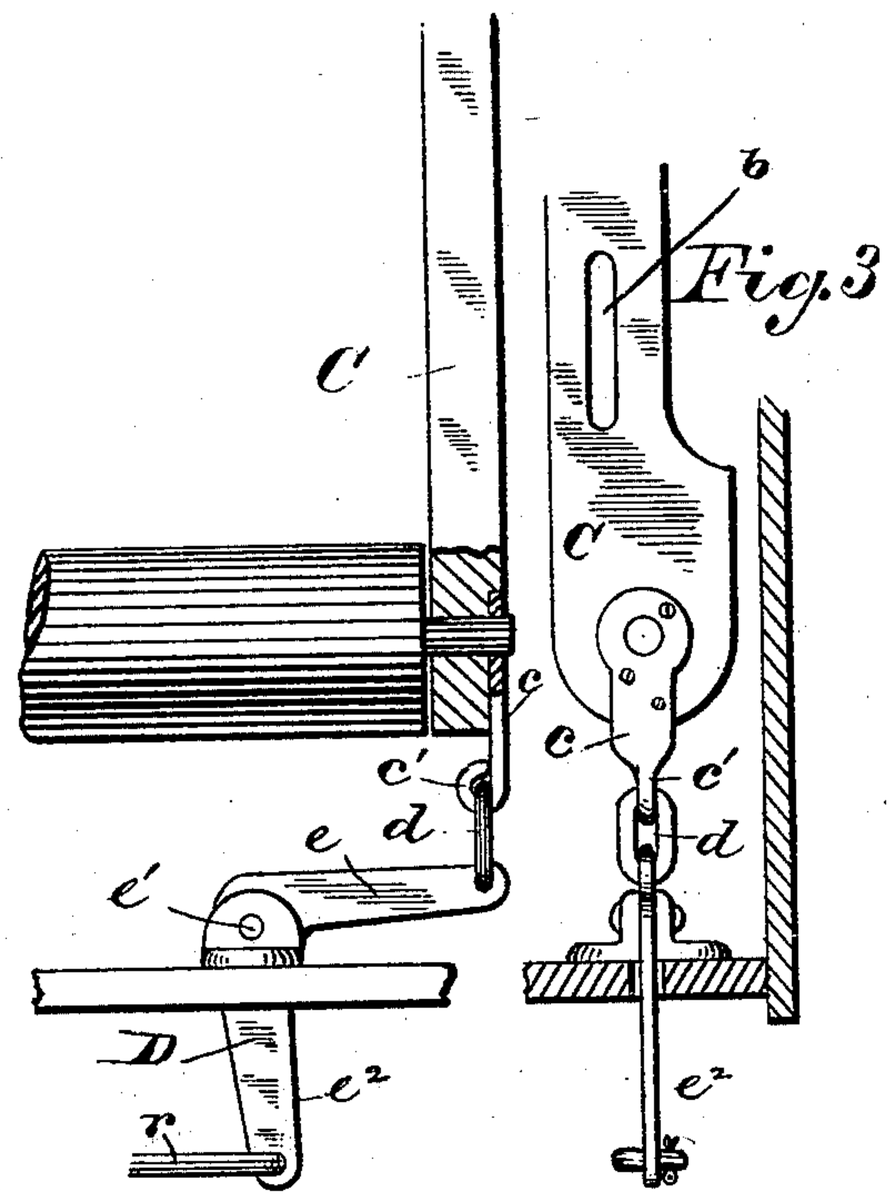

Fig. 5

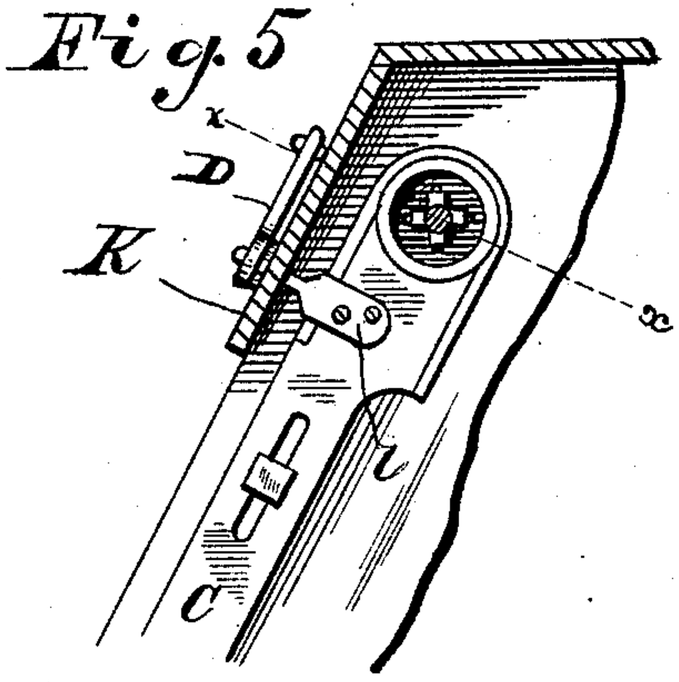

Fig. 6

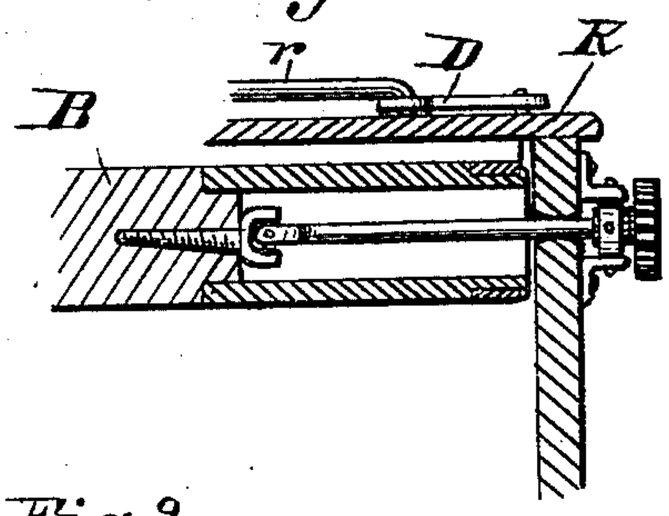

Fig. 9

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UNITED STATES PATENT OFFICE.

CHARLES COLAHAN, OF CLEVELAND, OHIO.

HARVESTER.

SPECIFICATION forming part of Letters Patent No. 285,464, dated September 25, 1883.

Application filed May 16, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHARLES COLAHAN, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Harvesters, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to improvements in grain-carriers for harvesters, and is particularly adapted to that class of grain-carriers which consist of an endless apron or belt, of canvas or similar material, adapted to run over rollers placed at each end of the platform or elevator of a harvester.

As is well known, grain-carriers of this class are very sensitive to hygrometric changes in the atmosphere, and stretch or shrink to such an extent as to require the belt to be frequently tightened or loosened.

The object of my invention is to provide simple and readily-operated mechanism for tightening or loosening the endless carrier, which mechanism may also be adapted to tighten the said carrier by a yielding pressure, whereby slight variations in the length of the belt, caused by the stretching and shrinkage of the canvas, will be compensated for.

My invention consists in novel organizations of mechanism and combinations of parts, as hereinafter described and claimed.

In the accompanying drawings, which are illustrative of my invention, Figure 1 is a perspective view of a harvester platform and elevator to which my invention has been applied, a portion of the platform and carrier being broken away to show the carrier supporting and adjusting mechanism. Fig. 2 is a plan view of a portion of the outer end of the platform, showing the movable roller and the manner of connecting and supporting the same. Fig. 3 is a side elevation of the same. Fig. 4 is a view of the adjusting-lever and the yielding pressure mechanism. Fig. 5 is a vertical section of the upper portion of the elevator, showing the adjusting mechanism applied to the elevator-aprons. Fig. 6 is a transverse sectional view on the line *x x* in Fig. 5, showing the arrangement of the mechanism for revolving the upper movable roller. Fig. 7 is a view in detail of the yielding mechanism, the adjusting-lever being shown in dotted lines. Fig. 8 is a sectional view of the same, taken on line *y y* in Fig. 7. Fig. 9 is a detailed view of one of the bell-cranks used for adjusting the elevator-roller.

Like parts are indicated by similar letters of reference throughout the several views.

The endless carrier A, which consists in this case of a single piece of canvas, is mounted, as usual, on rollers which extend across the platform at its inner and outer ends. The inner roller is supported in rigid bearings, and is adapted to be revolved through the agency of suitable mechanism from the master-wheel in any of the well-known ways. The outer roller, B, is journaled at each end in sliding supports C C, which are secured on each side of the platform-frame in such a manner that they are free to move longitudinally in said frame. This is preferably done by bolting the sliding pieces or supports C C to the inside of the platform by bolts *a*, which pass through slotted holes *b* in said pieces.

The outer end of each of the sliding pieces C is connected, by suitable means, to one arm, *e*, of a bell-crank lever, D, which bell-crank is pivoted at *e'* on the end of the platform.

The connection between the end of the sliding piece C and the bell-crank lever D consists of a link, *d*, which passes through the end of the bell-crank arm *e*, and through an eye, *c'*, in the end of a plate or strap, *c*, which is secured to the sliding piece C. By this arrangement the sliding pieces are permitted to move longitudinally, while the end of the bell-crank arm *e* describes the arc of a circle.

The straps *c* are preferably let into the sliding pieces C, so that they stand flush with the surface of said pieces, thus permitting the sliding pieces to come up snug against the sides of the platform.

The outer end of the arm e^2 of each bell-crank D is connected by a rod, *r*, to an adjusting-lever, E, which is pivoted on the outside of the end board, H. These rods *r r* are connected to the lever E on each side of its center of oscillation and at an equal distance therefrom, so that a movement of the lever in either direction produces a corresponding

movement of each of the sliding pieces C C through the medium of the bell-cranks D and connections, thus moving the movable roller B.

The connections between the bell-cranks and the adjusting-lever are made adjustable, so that each of the bell-cranks may be independently adjusted in relation to the adjusting-lever, thus furnishing the means for lining up the roller B, so as to bring the tension evenly on each edge of the carrier. This adjustment is preferably accomplished by screw-threading the end of each of the rods *r* where it connects with the adjusting-lever, and providing it with nuts *n n'*, as shown.

To prevent the rods *r r*, where they pass through the lever E, from being strained or cramped by the vibratory movement of the said lever, the holes through which the rods pass should be slightly enlarged, and the connections so made that the rods will have a slight amount of play therein. If desired, the rods might be rigidly connected to studs or lugs adapted to turn in the lever.

The lever E is provided with a spring-bolt or other suitable mechanism adapted to engage with a segmental rack or yoke, F, whereby the said lever may be held in any of its various positions of adjustment. To compensate for any variations in the carrier-belt caused by the stretching and shrinkage due to atmospheric changes, the yoke F is adapted to yield when the lever E is connected thereto. This yielding movement is preferably accomplished by pivoting the yoke F concentric with the lever E and providing a spring which, pressing against a fixed lug on the board H, acts against the yoke F when the lever is engaged therewith. I have shown the yoke and lever both journaled on a stud-plate, *f*, rigidly secured to the end board, H. The part of the stud on which the lever turns is preferably reduced in size, so as to form a shoulder between the lever and yoke, which permits each to turn freely and independent of the other. The spring *s* is placed on the inside of the yoke, with one end resting against a fixed stop, *h*, secured to the end board, H.

It will be understood that by this arrangement the lever E will be adapted to yield in any position of adjustment in which it is placed, and the yielding movement will be distributed evenly at each end of the movable roller B.

To prevent the yoke from springing back when the lever is disengaged therefrom for the purpose of increasing the tension upon the carrier, I provide a stop adapted to hold the yoke in a fixed position when it is so desired. This stop I have shown in the form of a slotted arm, *f'*, cast on the side of the yoke concentric therewith, and provided with a thumb-screw, f^2, adapted to hold it in any desired position. When it is desired to increase the tension on the carrier, the thumb-screw is tightened, holding the yoke in a fixed position, while the lever is drawn back, after which the thumb-screw is again loosened and the yoke left free to turn on the stud *f* to compensate for slight variations in the carrier.

In applying the adjusting mechanism to the elevator for the purpose of adjusting the elevator-apron I have shown the bell-cranks placed on the outside of the elevator-frame and lying parallel with the elevator-board K, the connection being made between the bell-cranks and the sliding pieces by stud-plates *l*, which are secured to the sliding pieces and project through the board K, and also through the arm *e* of the bell-crank. The hole in the bell-crank arm through which the stud passes should be slotted, as shown in Fig. 9, to permit of the slight longitudinal movement of the bell-crank on the said stud caused by the vibratory movement of the bell-crank arm.

The movable supporting-roller may be placed either at the top or bottom of the elevator-frame. If placed at the top, in the present form of harvesters, the means provided for revolving the roller must be adapted to permit of the adjustment of the roller. In the drawings, Fig. 6, I have shown this accomplished by a tumbling-shaft connection, similar to the device described in my Letters Patent No. 215,322, dated May 13, 1879, which admits of the lateral adjustment of said upper roller without interfering with its operating-gear.

Having thus described my invention, I claim—

1. The combination, with a harvester-platform and an endless carrier having a movable supporting-roller, of a lever pivoted to the end of the platform, and means for connecting the ends of the said movable roller to the said lever on opposite sides of its fulcrum, substantially as set forth.

2. The combination of an endless carrier having a movable supporting-roller, a lever, and means for connecting the respective ends of said roller to the lever on opposite sides of its fulcrum, substantially as and for the purpose set forth.

3. The combination, with the movable roller of an endless carrier, of a lever connected at opposite sides of its fulcrum to the ends of said roller, and means whereby said lever may be yieldingly secured in any position of adjustment, substantially as and for the purpose specified.

4. The combination, with the movable roller of an endless carrier, of a lever connected at opposite sides of its fulcrum to the respective ends of the said roller, and means for adjusting the respective connections between the ends of the said roller and the lever, substantially as and for the purpose set forth.

5. The combination, with an endless carrier, of a movable roller journaled at each end in a sliding bearing, an adjusting-lever connected by suitable means to the respective sliding bearings at opposite sides of its fulcrum, and means for yieldingly securing said lever in its adjusted positions, whereby a yielding press-

ure may be exerted equally on both edges of said carrier, substantially as specified.

6. The combination, with a movable roller of a grain-elevator, of an adjusting-lever adapted to move both ends of said roller simultaneously, and the shaft for driving said roller flexibly connected therewith, to admit of the lateral movement of said roller to adjust the carrier, substantially as set forth.

7. The combination, with the movable supporting-roller of an endless carrier, of bell-cranks connected with the bearings of said roller, one bell-crank at each end of said roller, an adjusting-lever, and means for connecting said bell-cranks to the lever on opposite sides of its fulcrum, substantially as set forth.

8. The combination of the movable roller of an endless carrier, a bell-crank connected to each end of said roller, an adjusting-lever, means for connecting said bell-cranks to said lever on opposite sides of its fulcrum, and means for adjusting independently each bell-crank in relation to said lever, substantially as specified.

9. The combination, with a harvester-platform, of an endless carrier having a movable roller, bell-cranks, one connected to each end of said roller, an adjusting-lever, means for connecting said bell-cranks to said lever on opposite sides of its fulcrum, and means for yieldingly securing said lever in different positions of adjustment, substantially as and for the purpose set forth.

10. The combination of the movable roller of an endless carrier, bell-cranks connected with the ends of said roller, an adjusting-lever, adjustable rods connecting said bell-cranks to said lever at opposite sides of its fulcrum, and a yielding mechanism for holding said lever in different positions of adjustment, substantially as set forth.

11. The combination, with an endless carrier, of the sliding supports, the roller journaled at each end therein, the adjusting-lever connected at opposite sides of its fulcrum to the respective bearings, and the yielding yoke, substantially as and for the purpose set forth.

In witness whereof I hereunto subscribe my name this 14th day of May, A. D. 1883.

CHAS. COLAHAN.

Witnesses:
PAUL A. STALEY,
WILLIAM S. GRANGER.