

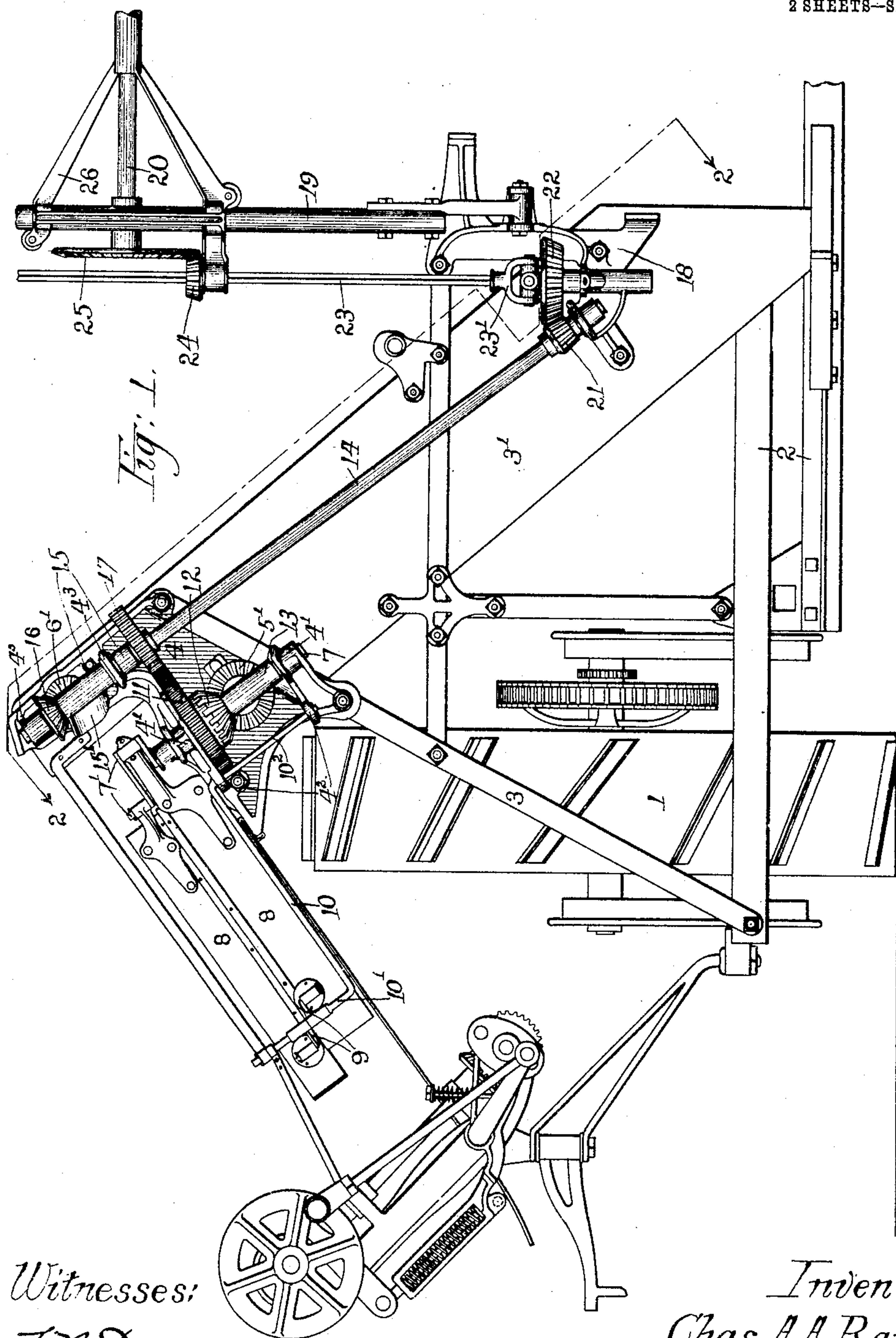
No. 785,761.

PATENTED MAR. 28, 1905.

C. A. A. RAND.  
HARVESTER.

APPLICATION FILED FEB. 4, 1905.

2 SHEETS—SHEET 1.



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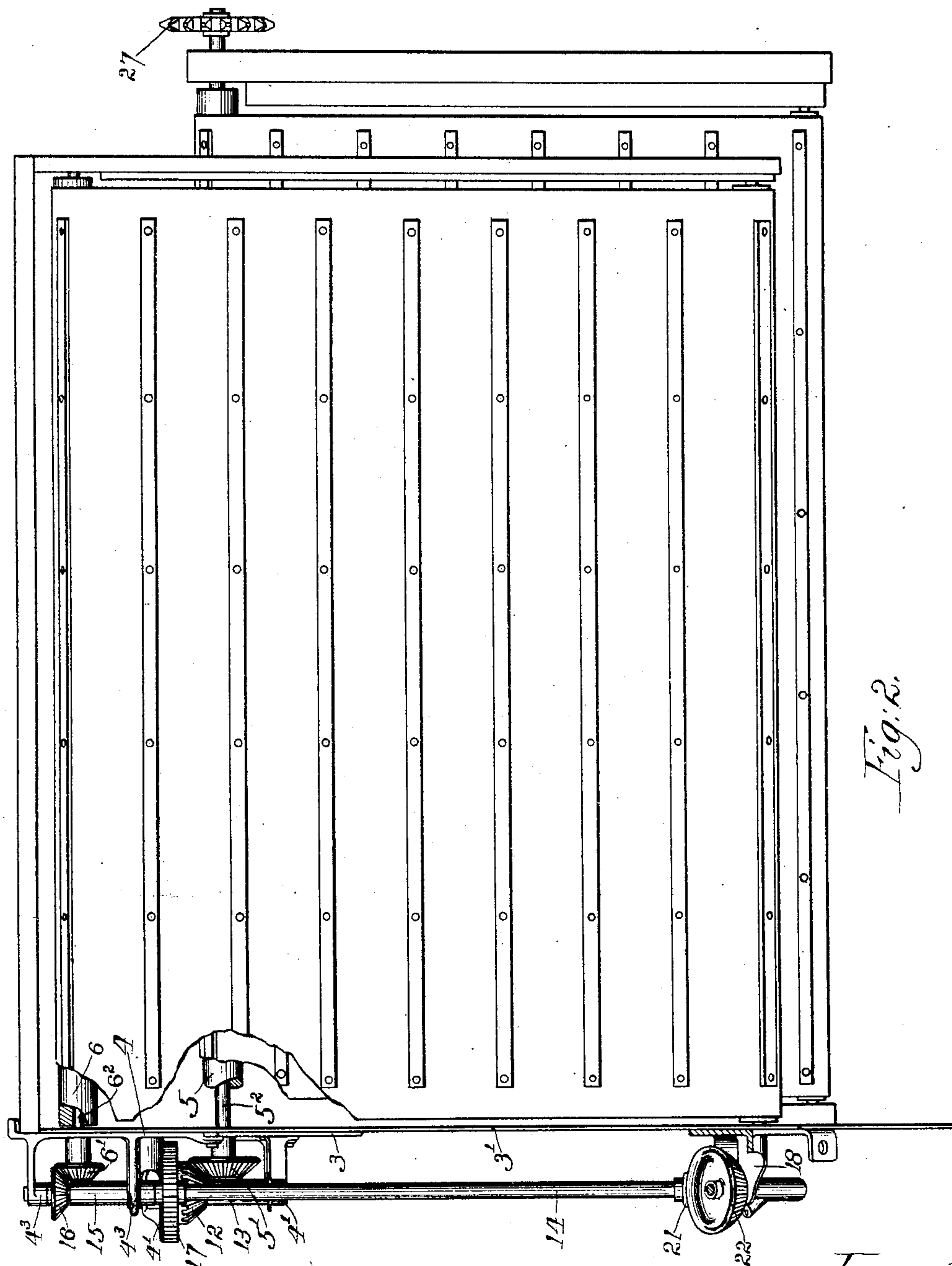


Fig. 2.

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# UNITED STATES PATENT OFFICE.

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## HARVESTER.

SPECIFICATION forming part of Letters Patent No. 785,761, dated March 28, 1905.

Application filed February 4, 1905. Serial No. 244,086.

*To all whom it may concern:*

Be it known that I, CHARLES A. ANDERSON RAND, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Harvesters, of which the following is a complete specification.

This invention relates to the reel, elevator, and adjuster driving mechanism for harvesters, and has for its object to produce a simple and compact gear-drive, all parts of which are operated from a single driving element.

The improvement is set forth in the accompanying drawings, in which—

Figure 1 is a front view of the principal parts of a harvester in which is embodied my invention; and Fig. 2 represents a plan view of the elevator canvases and an improved driving mechanism in connection therewith, the view being taken as indicated by the line 2 2 in Fig. 1.

Referring to the drawings, 1 designates the main supporting and driving wheel of a harvester, 2 a portion of the main frame, and 3 and 3' the bar and elevator frame, respectively, which constitute the front A-frame of the machine. To the upper end of the A-frame is secured the casting 4, which affords journal-bearings for the shafts on the front end of the upper rollers of the elevator-canvas, these rollers being designated by the numerals 5 and 6, respectively, 5 designating the upper roller of the lower elevator, while 6 designates the upper roller of the upper elevator. Hereinafter in the specification and claims where reference is made to these members they will for convenience be termed the "lower" and "upper" elevator rollers, respectively.

5' designates the bevel-gear secured to the forwardly-projecting end of the shaft 5<sup>2</sup> of the lower elevator-roller 5, and is situated in front of the casting 4, while 6' designates a correspondingly-situated bevel-gear secured to the front end of the gudgeon 6<sup>2</sup> in the upper elevator-roller 6.

Projecting forwardly from the casting 4 are the bearing-forming brackets 4', in which journals the adjuster-shaft 7, the upper end thereof being provided with the double crank 7'. On the double crank 7' is mounted the

double adjuster-board 8, the lower end of which is controlled by the links 9, pivotally supported upon the upturned end 10' of the swinging arm 10, the upper end of this arm having a transversely and downwardly extending portion 10<sup>2</sup>, which bears in the lugs 4<sup>2</sup> of the casting 4. As the controlling-lever for the adjuster is not material to the disclosure of this invention, it is not shown in the drawings.

Rigidly secured to the adjuster-shaft 7, intermediate of the brackets 4' and immediately below the upper one thereof, is the spur-gear 11, adjacent to which and preferably integral therewith is the bevel-pinion 12, meshing with and driven by the bevel-pinion 5', in this manner imparting motion to the adjuster. A sleeve 13 is placed upon the adjuster-shaft 7 below the bevel-gear 12 and above the bracket-bearing 4', thus holding the spur-gear 12 and adjuster-shaft in proper relation with respect to the other parts.

On the upper portion of the casting 4 are the forwardly-projecting brackets 4<sup>3</sup>. In these brackets 4<sup>3</sup> journals the upper end of the reel-driving shaft 14, the bearing surface of the lower bracket thereof being extended by means of the sleeve 15.

Near the upper end of the shaft 14 is secured the bevel-pinion 16, which imparts motion to the upper elevator-roller 6 through the bevel-pinion 6' on the forward end thereof. Secured also to the reel-driving shaft 14, adjacent to the lower end of the sleeve 15, is the spur-gear 17, which meshes with and is driven by the spur-gear 11 on the adjuster-shaft 7. The sleeve 15 is provided with a shield 15', which projects stubbleward and prevents the straw being drawn between the gears 6' and 16.

The reel-driving and adjuster shafts 14 and 7, respectively, are preferably arranged parallel, the spur-gears 17 and 11 constituting a gear connection therebetween. The lower end of the reel-driving shaft 14 journals in a suitable bearing in the casting 18, which is secured to the A-frame, as shown. On this casting 18 is supported the reel-post 19, upon which is mounted in a manner to be longitudinally slidable thereon the casting 26, in which journals the reel-shaft 20. Motion is imparted to this



reel-shaft by means of the bevel-pinion 21, which meshes with a bevel-gear 22 on the vertically-disposed shaft 23. The vertical shaft 23 is provided with a universal coupling 23', and on the upper end of said shaft, which is preferably square, fits the bevel-pinion 24. This bevel-pinion 24 communicates motion to the reel-shaft 20 through the bevel-gear 25. The casting 26, which supports the reel-shaft 20, is longitudinally slidable upon the reel-post 19, as above stated, while the bevel-gear 24 is longitudinally slidable upon the square shaft 23, the said casting 26 being controlled in position by suitable levers in a manner well understood and not shown, as it does not constitute a part of this invention. The reel-driving shaft 14 and the vertically-disposed shaft 23, in connection with their connecting-gears, may properly be regarded as a single means for operatively connecting and imparting motion to the upper elevator-roller and the reel-shaft.

On the rear end of the shaft 5<sup>2</sup> of the lower elevator-roller 5 is secured the sprocket-wheel 27, which receives motion from a sprocket-chain in connection with other moving parts of the machine in a manner well understood in this class of machines.

The operation of the device is apparent. The roller 5 may be regarded as the prime mover which imparts motion to the adjuster-shaft through the bevel-gears 5' and 12. The connection between the adjuster-shaft and the reel-driving shaft formed by the gears 11 and 17 will impart movement to the upper roller 6 of the upper elevator and also to the reel-shaft 20 by the mechanism heretofore described.

What I claim as my invention, and desire to secure by Letters Patent, is--

1. In a harvester, in combination, a lower elevator-roller acting as a driving member for the coöperating parts, an upper elevator-roller, a reel-shaft, a driving connection interposed between said upper elevator-roller and reel-shaft, an adjuster-shaft having a gear connection with said lower elevator-roller, an adjuster mounted thereon and operated thereby, and a gear connection between the said adjuster-shaft and the said driving connection which is interposed between the upper elevator-roller and reel-shaft.

2. In a harvester, in combination, a lower elevator-roller acting as a driving member for the coöperating parts, an upper elevator-roller, a reel-shaft, an adjuster-shaft, an adjuster mounted thereon and operated thereby, and single means driven from said adjuster-shaft for imparting motion to said upper elevator-roller and reel-shaft.

3. In a harvester, in combination, an upper and a lower elevator-roller, an adjuster-shaft

journaled in suitable bearings and having a bevel-gear connection with one of said elevator-rollers, a reel-driving shaft having a bevel-gear connection with the other one of said elevator-rollers, an adjuster mounted upon the upper end of and operated by the adjuster-shaft, a spur-gear connection interposed between the said adjuster-shaft and reel-driving shaft, and suitable means for operatively connecting the lower end of the reel-driving shaft with the reel-shaft, all arranged substantially as described.

4. In a harvester, in combination, an upper and a lower elevator-roller, an adjuster-shaft journaled in suitable bearings and having a bevel-gear connection with the lower elevator-roller, a reel-driving shaft having a bevel-gear connection with the upper elevator-roller, an adjuster mounted upon the upper end of and operated by the adjuster-shaft, a spur-gear connection interposed between the said adjuster-shaft and reel-driving shaft, and suitable means for operatively connecting the lower end of the reel-driving shaft with the reel-shaft, all arranged substantially as described.

5. In a harvester, in combination, an upper and a lower elevator-roller, an adjuster-shaft journaled in suitable bearings and having a bevel-gear connection with the lower elevator-roller, a reel-driving shaft having a bevel-gear connection with the upper elevator-roller, a single casting secured to the frame of the harvester, said casting forming bearing-supports for the said elevator-rollers, the adjuster-shaft, and the reel-driving shaft, an adjuster mounted upon the upper end of and operated by the adjuster-shaft, a spur-gear connection interposed between the said adjuster-shaft and reel-driving shaft, and suitable means for operatively connecting the lower end of the reel-driving shaft with the reel-shaft, all arranged substantially as described.

6. In a harvester, in combination, an upper and a lower elevator-roller, an adjuster-shaft journaled in suitable bearings and having a bevel-gear connection with the lower elevator-roller, a reel-driving shaft arranged parallel with the said adjuster-shaft and having a bevel-gear connection with the upper elevator-roller, an adjuster mounted upon the upper end of and operated by the adjuster-shaft, a spur-gear connection interposed between the said adjuster-shaft and reel-driving shaft, and suitable means operatively connecting the lower end of the reel-driving shaft with the reel-shaft, all arranged substantially as described.

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