

(No Model.)

3 Sheets—Sheet 1.

L. MILLER & A. E. ELLINWOOD.

GRAIN BINDING HARVESTER.

No. 329,932.

Patented Nov. 10, 1885.

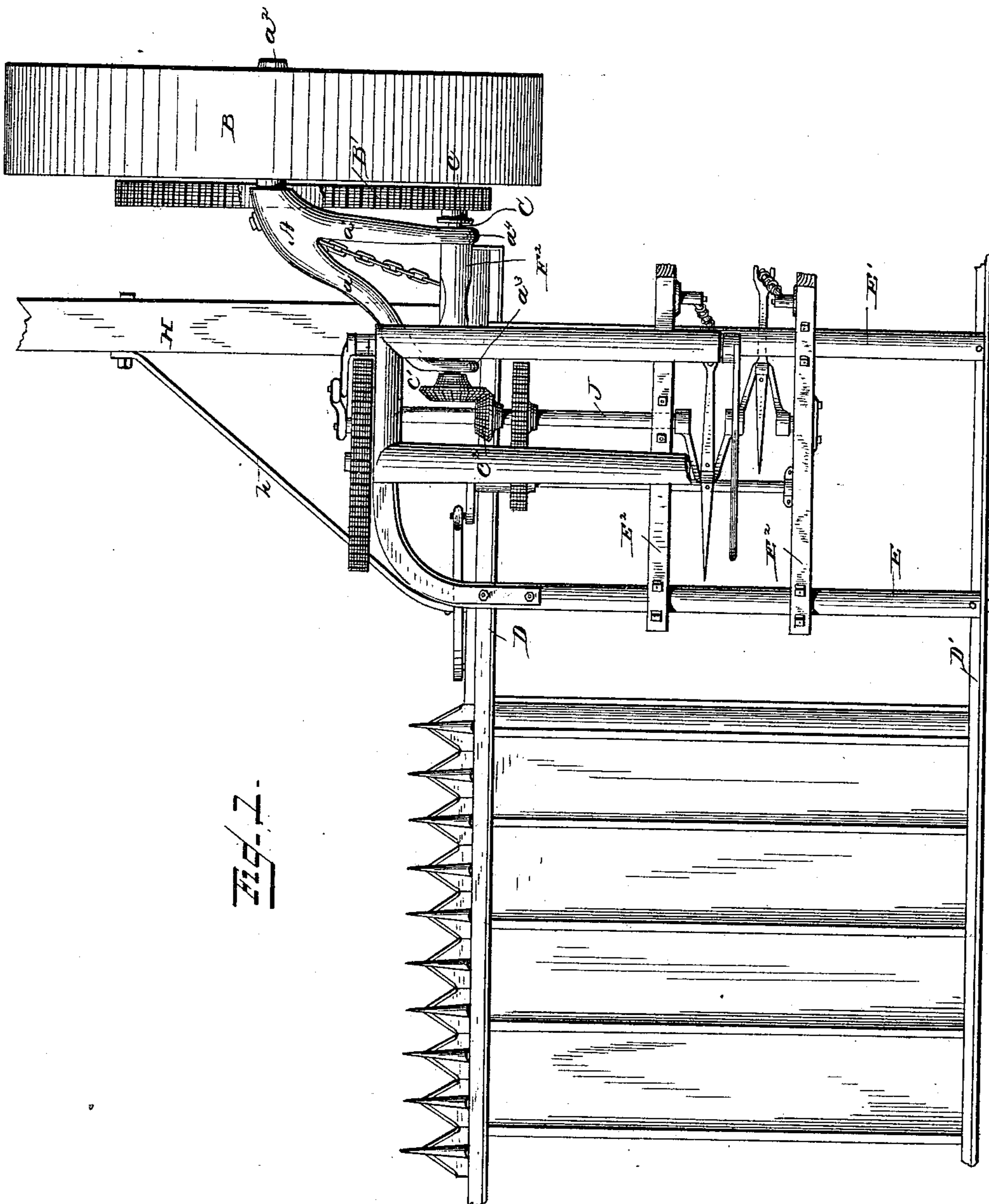


Fig. 2.

WITNESSES

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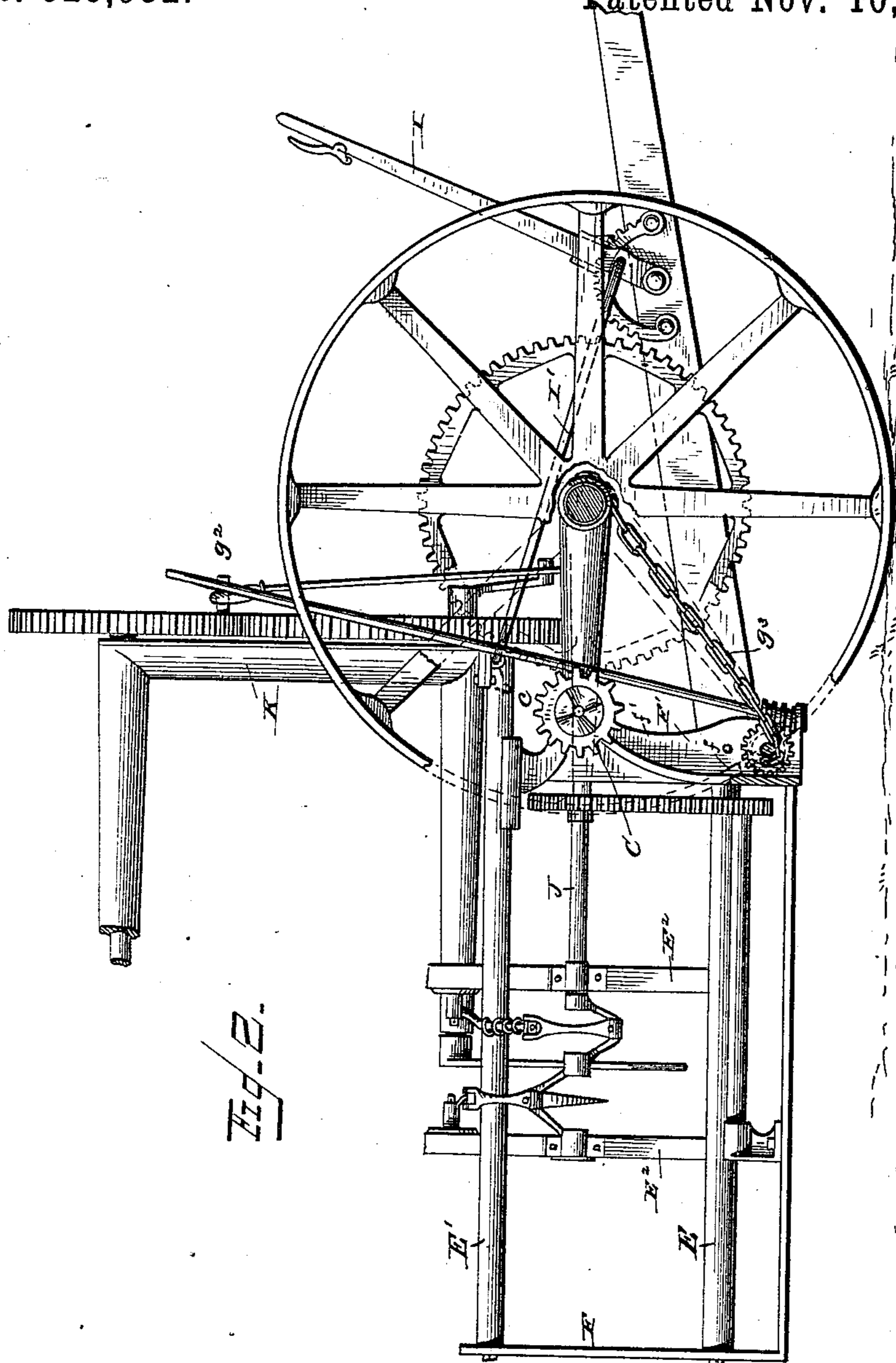


Fig. 2.

WITNESSES

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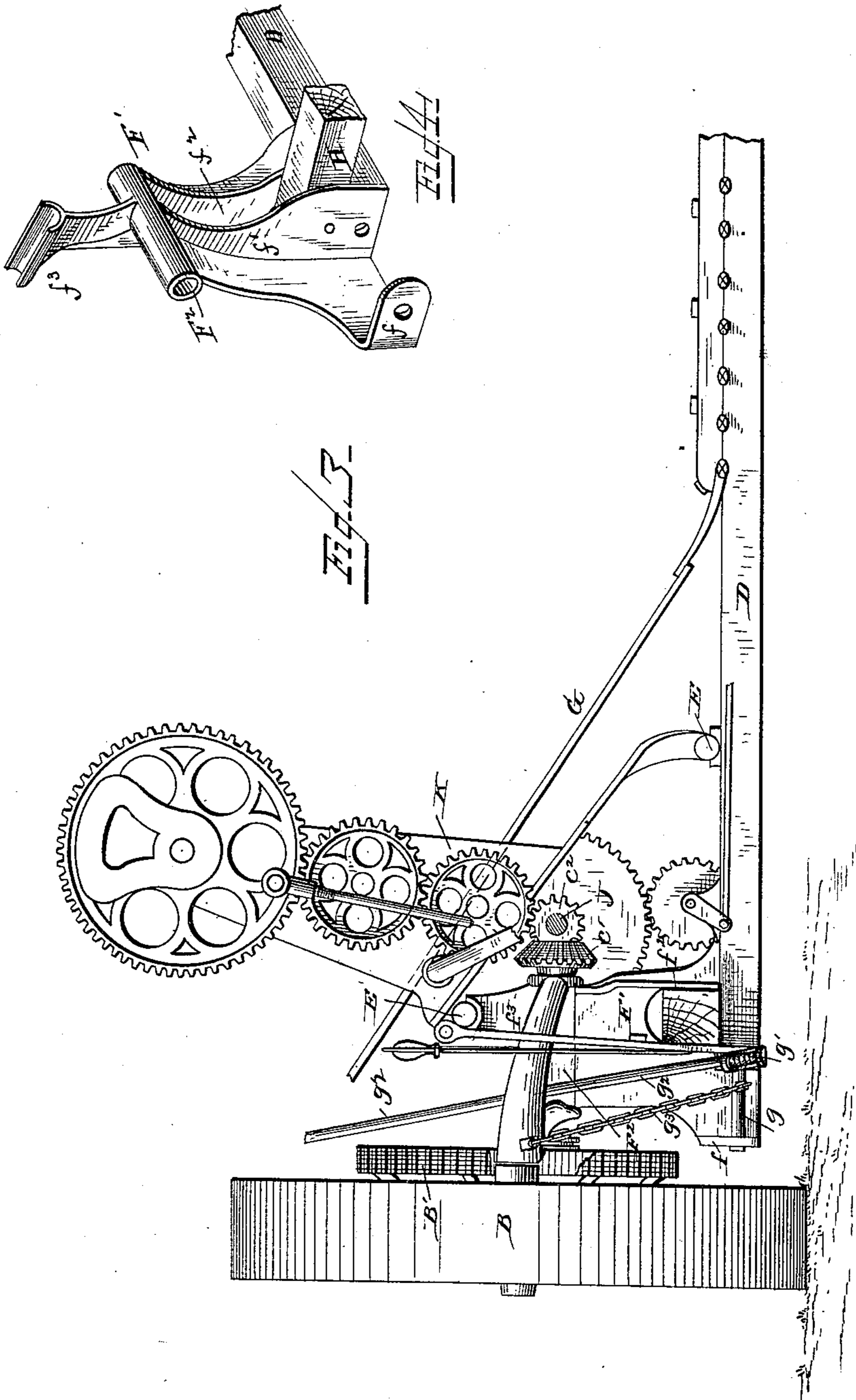
L. MILLER & A. E. ELLINWOOD.

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WITNESSES

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UNITED STATES PATENT OFFICE.

LEWIS MILLER AND AUGUSTUS E. ELLINWOOD, OF AKRON, OHIO.

GRAIN-BINDING HARVESTER.

SPECIFICATION forming part of Letters Patent No. 329,932, dated November 10, 1885.

Application filed April 7, 1884. Serial No. 136,945. (No model.)

To all whom it may concern:

Be it known that we, LEWIS MILLER and AUGUSTUS E. ELLINWOOD, both of Akron, county of Summit, and State of Ohio, have invented a new and useful Improvement in Grain-Binding Harvesters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

Our invention relates to a novel construction of the frame or arm through which the platform-frame carrying the binder frame and mechanism is connected with and supported by the single drive-wheel; to the manner of connecting the platform-frame with the drive-wheel frame or arm for adapting said platform-frame to be adjusted in height and to be rocked or tilted upon its pivotal connection with the wheel frame or arm; to the manner of combining the draft attachment and the wheel frame or arm with the platform-frame, whereby the draft is applied to the latter, and the wheel-frame is propelled through its connection with said platform-frame, and to the means for effecting the adjustment of the latter, all as hereinafter described.

In the accompanying drawings, Figure 1 is a plan view of so much of a harvesting-machine as is necessary to show our improvements, with the inclined binder table removed to show the arrangement of the gearing, packers, and needle. Fig. 2 is a side elevation with parts broken away of the same looking from the stubble side of the machine. Fig. 3 is a front elevation of the same, with the inclined binder-table added, to show its relation to the other parts of the machine; and Fig. 4 is a perspective view of the forward outer binder-frame standard.

A represents what we designate as the "main drive-wheel frame or arm," consisting of a bifurcated bar or casting, the arms a and a' of which converge and unite at one end in a laterally-projecting axle, a^2 , upon which the main drive-wheel B is mounted. The other ends of the arms a and a' terminate in sleeve or eye bearings a^3 and a^4 , in which the secondary or pinion shaft C has its bearings, said shaft being provided on its outer end with a pinion, c , which engages with and is driven by a spur-gear, B' , formed upon or secured to the driving-wheel. By this arrangement it will be

seen that any movement or adjustment of the bifurcated end of the frame A will be upon the axle as a center, and the pinion c will always be in mesh with the driving-gear B' .

D represents the forward sill of the platform-frame, and D' the rear sill thereof, said sills being united by suitable longitudinal bars in any usual manner, and upon the inner ends of the sills or of the platform-frame, in suitable standards, are secured tubular bars E and E' , of the binder-frame, the standards F and F' supporting the bar E' , being taller than those supporting the bar E, in such manner as to give to the transverse bars E^2 , connecting said bars E and E' , and to the binding-table G, supported thereon, an upward inclination from its inner end adjacent to the platform-carrier outward toward the stubble side of the machine, as shown in Fig. 3. The forward standard, F' , is of peculiar formation, being provided at its lower end with flanges or feet, adapting it to be firmly secured to the inner end of the forward sill, D, and with forwardly-projecting vertical ribs f , f' , and f^2 , f and f' being provided with bearings for a short transverse shaft, g , having at one end a worm-wheel with which a worm or screw, g' , on an upright shaft, g^2 , engages for actuating the shaft g for wrapping upon it or unwrapping one end of a chain, g^3 , which, at its other end, is connected with the axle end of the arm of frame A. The flanges f' and f^2 form the side walls of a socket, in which the rear end of the tongue H is pivoted, and extend above said socket to a transverse sleeve, F^2 , formed in the standard, and of a length to snugly fill in between the sleeve-bearings a^3 and a^4 on the ends of the arms a and a' of the frame or forked arm A. The pinion-shaft is mounted in said bearings, as explained, passing through the sleeve F^2 , uniting and serving as a pivotal connection between the platform-frame and the drive-wheel frame or arm A. The standard F' extends above the sleeve F^2 and terminates in a socket at f^3 for the reception and support of the tubular bar E' of the binder-frame, and which is bolted or otherwise rigidly secured therein.

The tongue, as stated, is pivoted at its rear end in the socket in standard F' , and at a point in advance thereof has the forward end of a brace-rod, h , secured to it on its grain side, said

brace extending back obliquely to the path of the machine, and being pivoted to the forward sill, D, of the platform-frame at or near the inner end of the cutting apparatus, and in or
 5 nearly in the same transverse line with the pivotal connection of the tongue with the standard F', for stiffening the connection of the tongue with the platform against side draft without interfering with the tilting or
 10 adjusting of the platform-frame to any desired angle.

To the tongue H is pivoted a lever, I, from which a rod, I', extends backward and upward, its rear end being pivoted to the forward end
 15 of the longitudinal binder-frame bar E' at i, or to the binder gear-standard K, at or near its lower end, if preferred. The gear-standard is similar in form or construction and arrangement to that described in Letters Patent granted
 20 ed to me April 24, 1883, No. 276,448, and serves to support the driver's foot plank and seat, as therein described, or in other suitable manner.

The pinion-shaft C has upon its inner end a
 25 bevel-gear, c', from which motion is imparted to a bevel-pinion, c'', on the main binder gear-shaft J, and thence to the binder mechanism, platform-carrier, and other operative parts of the machine, in any suitable manner. In practice the upright shaft g² is provided with a
 30 hand-wheel on its upper end, arranged within convenient reach of the driver in his seat for enabling him to actuate the shaft g for causing it to wind up or unwind the chain g³,
 35 in a manner that will be readily understood.

By the construction described it will be seen that the platform-frame, with the binder-frame mechanism and inclined elevating binder-table secured upon its inner or stubble end, is
 40 hinged at one end of the wheel-frame through the medium of the transverse pinion-shaft, and is adapted to be rocked upon said shaft for giving it the desired angle of inclination by the adjustment of the lever I and chain g³; also, that as the lever I is connected with the
 45 platform-frame through link I' and the standard F', or binder-gear standard, at a point above the plane of the axle, when said lever is held locked in position by a thumb-latch
 50 and notched or toothed segment, as shown, or other suitable means, the winding up of the chain g³ will tend to draw the lower end of the standard F' up toward the axle, and as it can approach the axle only by swinging forward on
 55 its pivotal connection with the frame A it will be seen that, in order to permit such swinging movement, the swinging end of the frame or arm A must rise, and with it the platform-frame secured thereto, thus effecting the ad-
 60 justment of the latter as desired.

It will be seen that the drive-wheel is held in its upright operative position, and is propelled through said pivotal connection of the wheel with the platform-frame, the draft being applied directly to the platform-frame, as explained.

The arrangement of the frame or arm A shown brings the platform-frame and the binder-table and mechanism mounted thereon
 70 practically in rear of the driving-wheel, and so obviates the necessity of elevating the grain as high as in machines in which the bundles have to be carried over the wheel to be discharged, it being necessary in the arrangement
 75 shown only to raise the grain high enough to accommodate the movements of that portion of the gathering, compressing, and binding mechanism operating from beneath the binder-table, and which may be of any suitable or preferred form.

Having now described our invention, we claim as new—

1. The combination of the platform-frame, the inclined binder-frame on the inner end thereof, the binder-frame standard connecting
 85 the forward inner corner of said frames, and the drive-wheel frame hinged to said standard, substantially as described.

2. The combination of the platform-frame, the binder-frame, the interposed binder-frame
 90 standard, and the wheel-frame hinged at one end to said standard, and having the drive-wheel axle on its other end, substantially as described.

3. The drive-wheel frame provided at one
 95 end with the drive-wheel axle, and having its opposite end forked to receive and in combination with the binder-frame standard hinged thereto, substantially as described.

4. The drive-wheel frame having the drive-
 100 wheel axle on one end and the binder-frame standard hinged to its opposite swinging end, in combination with the cord or chain for adjusting the platform and binder frames secured to the axle end of the drive-wheel frame, sub-
 105 stantially as described.

5. The combination of the platform-frame, the binder-frame, the interposed binder-frame-supporting standard, the wheel-frame, the cord or chain connecting said wheel-frame
 110 and platform-frames, and means for adjusting said chain, substantially as described.

6. The combination of the drive-wheel frame, the platform-frame carrying the binder-frame and binder mechanism and hinged to
 115 the wheel-frame, the draft attachment acting through the platform-frame to propel the wheel-frame, the worm-wheel shaft and chain connecting the platform-frame and drive-wheel axle, means for actuating said worm-
 120 wheel shaft, and the lever and link connecting the pole through the binder-frame with the platform-frame, for the purpose and substantially as described.

In testimony whereof we have hereunto set
 125 our hands this 29th day of March, A. D. 1884.

LEWIS MILLER.

AUGUSTUS E. ELLINWOOD.

Witnesses:

O. L. SADLER,

L. H. HANSCOM.