

(No Model.)

3 Sheets—Sheet 1.

L. MILLER & A. E. ELLINWOOD.

HARVESTER REEL DRIVING AND ADJUSTING MECHANISM.

No. 420,627.

Patented Feb. 4, 1890.

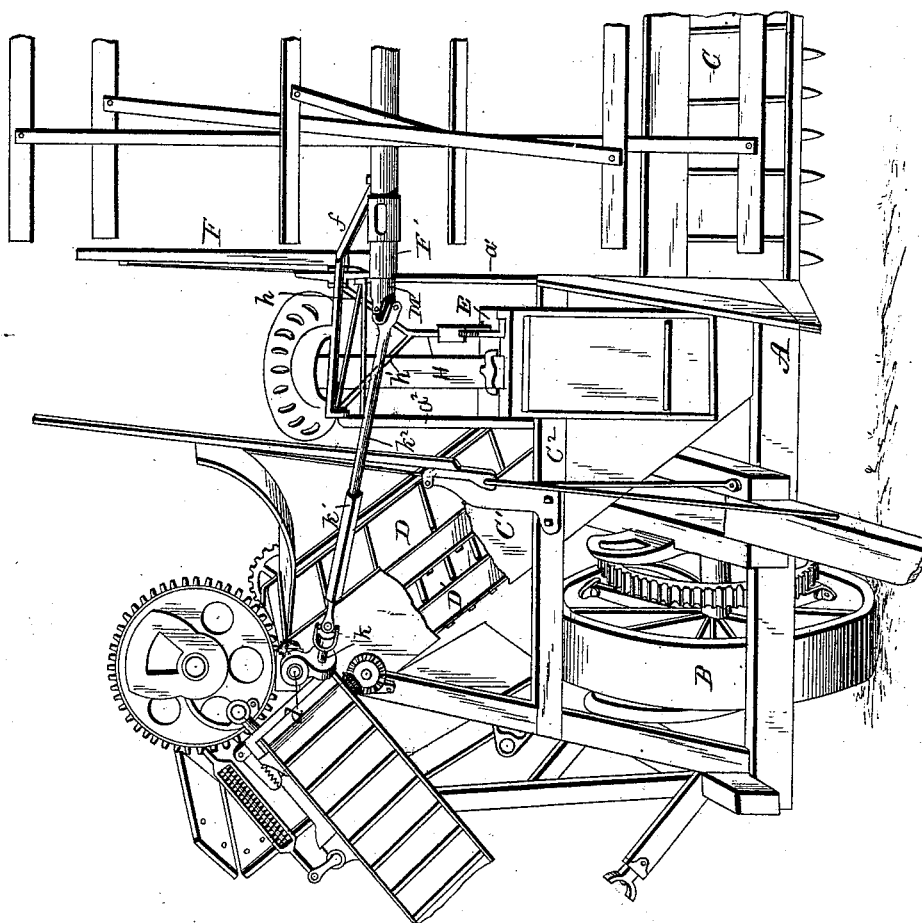


Fig. 1

WITNESSES

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Attorney

(No Model.)

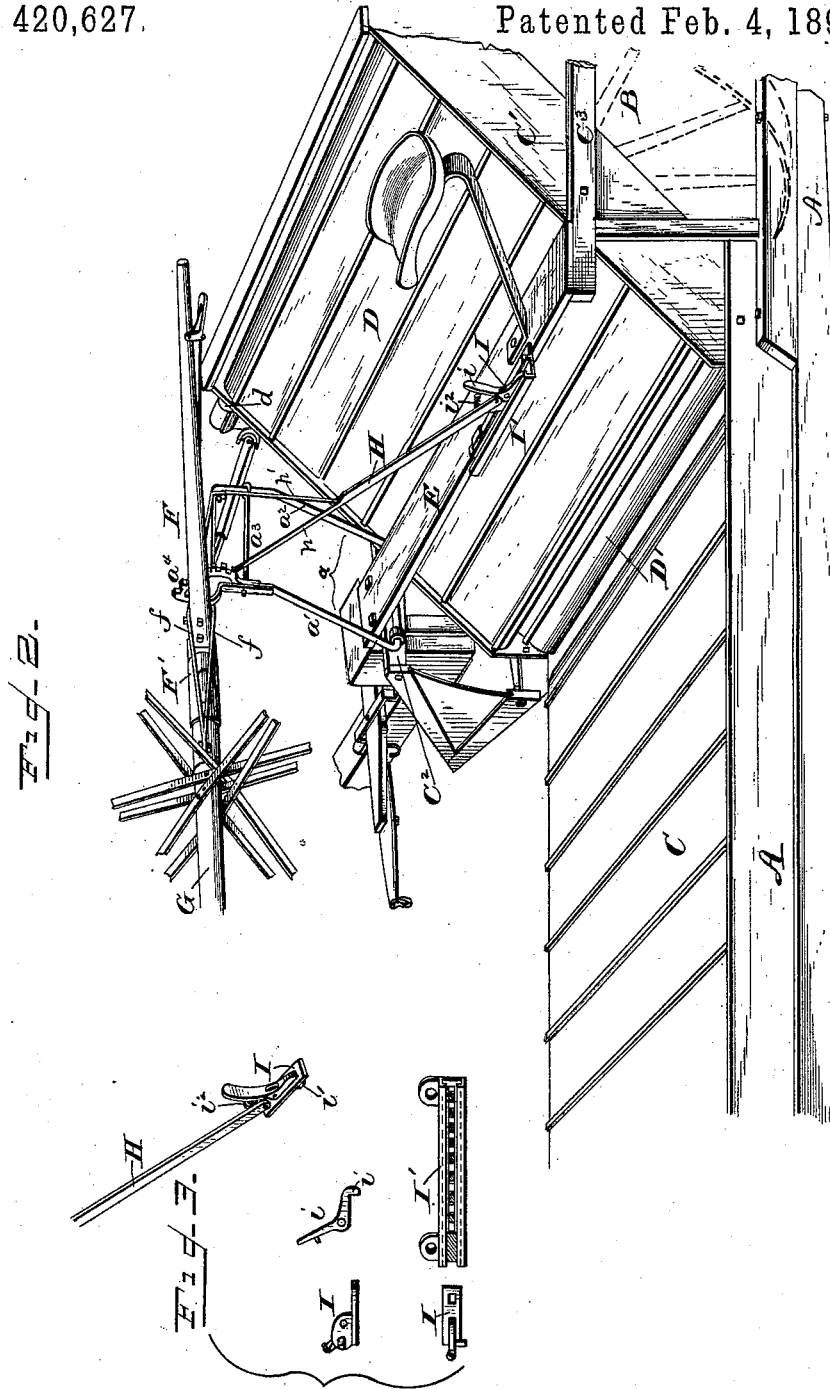
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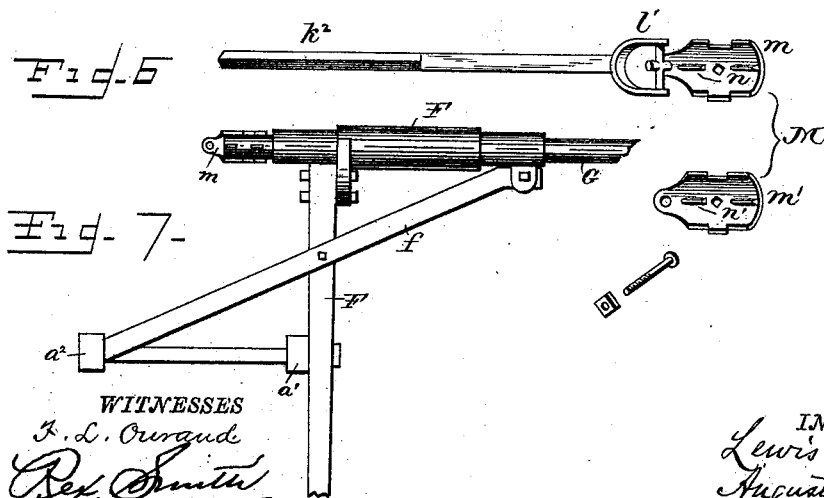
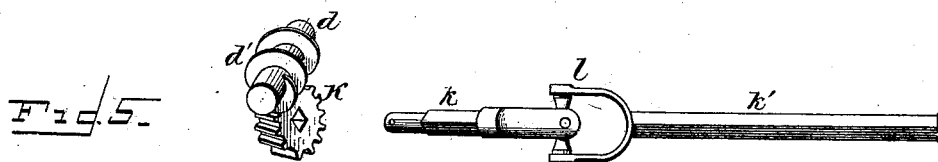
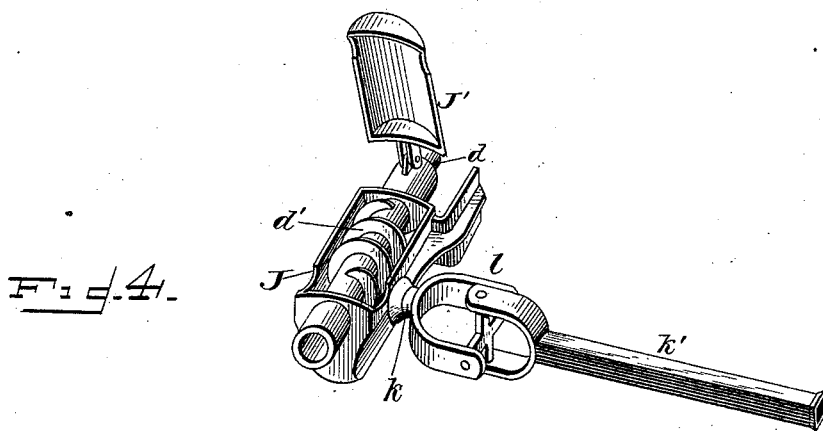
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UNITED STATES PATENT OFFICE.

LEWIS MILLER AND AUGUSTUS E. ELLINWOOD, OF AKRON, OHIO; SAID
ELLINWOOD ASSIGNOR TO SAID MILLER.

HARVESTER-REEL DRIVING AND ADJUSTING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 420,627, dated February 4, 1890.

Application filed December 24, 1885. Serial No. 186,627. (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 Harvester-Reel Driving and Adjusting Mechanisms, 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 that class of grain-binding harvesters employing an elevator between the platform-carrier and the binder mechanism, and more particularly to the arrangement of the means for actuating and for supporting and effecting the adjustment of the reel, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a front elevation, partly broken away, of so much of a harvesting-machine as is necessary to show our improvements; Fig. 2, a perspective view looking from the rear of the machine; Fig. 3, detail views of the reel-adjusting devices; and Figs. 4, 5, and 6, detail views of the connection between the reel-shaft and the upper shaft of the upper elevator canvas or apron. Fig. 7 is a plan view of the reel-shaft and its supporting-sleeve, adjusting-lever, &c.

The machine in its construction and arrangement of main frame, platform-carrier, elevator-frame, binding mechanism, &c., may be similar to those now in use, and will therefore not be described in detail further than is necessary to an understanding of our present improvements.

A represents the main or platform frame; B, the driving-wheel; C, the platform-carrier, and C' the elevator-frame, in which the shafts for the upper and lower elevator aprons or carriers D and D' are journaled in any usual or suitable manner.

E is a seat-plank extending lengthwise of the machine over the lower end of the elevator and supported at its ends on suitable transverse bars C² and C³ of the elevator-supporting frame, as shown. The plank E has the driver's seat standard connected with it, and to its forward end or to the supporting-

bar C² is pivoted the U-shaped or rectangular reel-supporting standard *a*, the upright arms *a'* and *a''* of which are connected near their ends by a cross-rod *a'''*. Suitable diagonal braces may also be used between the arms *a'* and *a''* for stiffening and preventing lateral deflection thereof.

In a suitable arm or ear on the outer arm *a'* is pivoted a lever F, the short forward arm of which has rigidly secured to it a transverse sleeve F', in which the inner end of the shaft G of the overhanging reel is journaled. This sleeve is made of sufficient length to give a long bearing to the reel-shaft, and for stiffening its connection with the lever F from the outer end of this sleeve, or the end adjacent to the reel, a brace *f* extends inward and backward, crossing the lever F obliquely and terminating in a pivotal connection with the upper end of the reel-standard arm *a''* in line with the pivotal connection of lever F with the standard-arm *a'*.

The brace *f* is composed of two straps or bars united at the ends, where they connect with the reel-bearing sleeves and the reel-supporting standard, but diverging thence to pass on opposite sides of lever F, to which they are secured by a single through-bolt—an arrangement which, in connection with the construction of the reel-standard, is found effective in preventing sagging of the outer end of the reel. The standard-arm *a'* has a rack-segment *a⁴* formed upon or secured to it, with which engages a latch or pawl on the hand-lever F, actuated by a spring and thumb lever in any suitable manner for holding said lever F at any desired adjustment. By vibrating the lever F up or down on its pivotal connection with the standard *a'* the reel may be adjusted up or down, as desired.

H is a link brace or rod pivoted at its rear end to a sliding shoe-piece or adjustable plate I and forked at its forward end, the diverging arms *h* and *h'* of the fork being pivoted, the former to the arm *a'* and the other to the arm *a''* of the reel-standard, preferably in line with the pivotal connection of the lever F and brace *f* with said standard. The shoe or plate I fits and is adapted to slide longitudinally in a groove in a rack bar or plate I',

secured to the seat-plank E, and having in its lower face a series of notches or perforations, with any one of which a pendent spur i' , formed on the end of the horizontal arm 5 of an angular or bell-crank-shaped lever i , pivoted on the shoe I, engages for holding said shoe at the desired adjustment, the spur i' passing through a perforation in the shoe I for that purpose. The rear end of the link 10 H is pivoted to a lug or ear on the shoe I, and between said lug and the upright arm of lever i is arranged a spring i^2 of any suitable construction, the tension of which is exerted to hold the spur i' engaged with the rack 15 plate or bar I'. The driver, by pressing with his foot on the upright arm of lever i , can overcome the tension of the spring i^2 and release the spur i' from the rack-plate I', after which he can allow the weight of the reel 20 upon the backwardly-inclined reel-supporting standard a to thrust the shoe I backward in its grooved rack-plate, or by increasing the pressure of his foot on the lever i he can crowd the shoe I, and with it the reel, forward 25 for giving it the desired horizontal adjustment, the removal of pressure from the lever i causing the spur i' to engage the rack-bar for holding the shoe and reel at such adjustment.

30 The shaft of the upper roller d of the upper elevator apron or canvas D is provided on its forward end in advance of its bearing in the elevator-frame C' with a worm or screw d' , which in practice is inclosed within a divided 35 case or shell J J', the lower fixed portion J of which is rigidly secured in any suitable manner to the elevator-frame, the hinged cover J' closing over it. The fixed portion J is of sufficient depth below the worm d' to accommodate a worm-wheel K, engaging and driven 40 by the worm d' and having a central perforation of square or other suitable form adapting it to receive and turn with it a short shaft k , journaled in the sides of the shell J. This 45 shaft has a perforation in its outer end to receive a pin for preventing its displacement or withdrawal, and at its opposite end is provided with a fork forming part of a tumbling or universal joint l of any suitable construction, 50 connecting with the shaft k a tumbling-extension k' , which is made hollow and square or polygonal in cross-section to adapt it to receive and drive a part k^2 , conforming in shape at one end to and adapted to slide in the part 55 k' of the shaft. The outer end of this sliding part k^2 of the extensible tumbling-shaft is connected by a second tumbling or universal joint with a short divided sleeve M on the end of the reel-shaft G. The sleeve M is composed of two parts or semi-cylinders m and 60 m' , having ribs or spurs n and n' , which enter

grooves in the ends of the reel-shaft, a through-bolt serving to unite them to each other, to the interposed cross-head or gimbal-ring of the joint, and to the reel-shaft for insuring 65 the rotation of the reel-shaft with them.

By driving the reel-shaft through the long and extensible tumbling-shaft geared to the upper shaft of the upper elevator-canvas, as explained, the tumbling-shaft is brought as 70 nearly as practicable into line with the reel-shaft for ordinary use, and its length permits the free adjustment of the reel up and down and backward and forward within the limits required to adapt it to the varying conditions of the grain to be operated upon with- 75 out endangering the binding or cramping of the tumbling-shaft or its connections with the reel-shaft.

Having now described our invention, we 80 claim as new—

1. The combination, with one of the upper roller-shafts of the elevator, of the worm or screw on its end, the worm-wheel and the extensible tumbling-shaft connected to the reel-shaft for actuating the reel, and an adjustable 85 standard for said reel-shaft, substantially as described.

2. The combination, with the upper shaft of the elevator-roller, of the worm or screw 90 thereon, the worm-wheel on an extensible tumbling-shaft connected with and actuating the reel-shaft, and the case or shell inclosing said screw and worm wheel, substantially as described. 95

3. The combination, with the overhung reel, its actuating shaft, and the bearing-sleeve for the reel-shaft, of the adjusting-lever for said reel-shaft, the pivoted supporting-standard, an obliquely-arranged brace connecting 100 said sleeve, lever, and standard, and the link-rod and shoe for adjusting said standard, substantially as described.

4. The combination, with the pivoted reel-carrying standard and the pivoted and bifurcated link-brace connecting said standard 105 with the driver's foot-board, of the grooved rack-plate on said foot-board, the perforated shoe pivoted to the link-brace and traveling in said rack-plate, and the pawl for locking 110 said shoe at the desired adjustment, provided with a foot-lever for releasing and permitting the adjustment of the shoe, substantially as described.

In testimony whereof we have hereunto set 115 our hands this 21st day of December, A. D. 1885.

LEWIS MILLER.

AUGUSTUS E. ELLINWOOD.

Witnesses:

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