

C. WHEELER, Jr.
Harvester-Droppers.

No. 148,790.

Patented March 17, 1874.

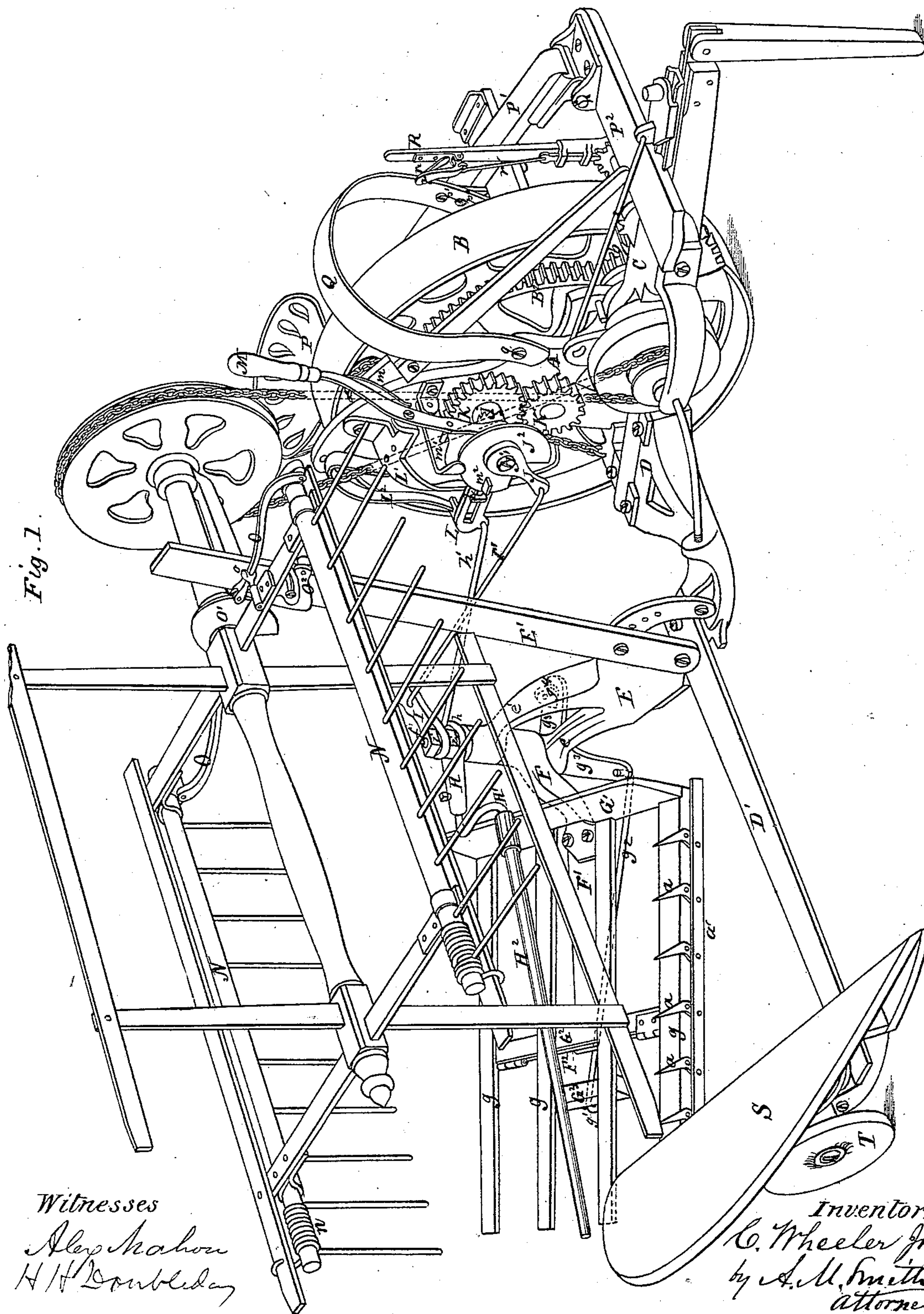


Fig. 7

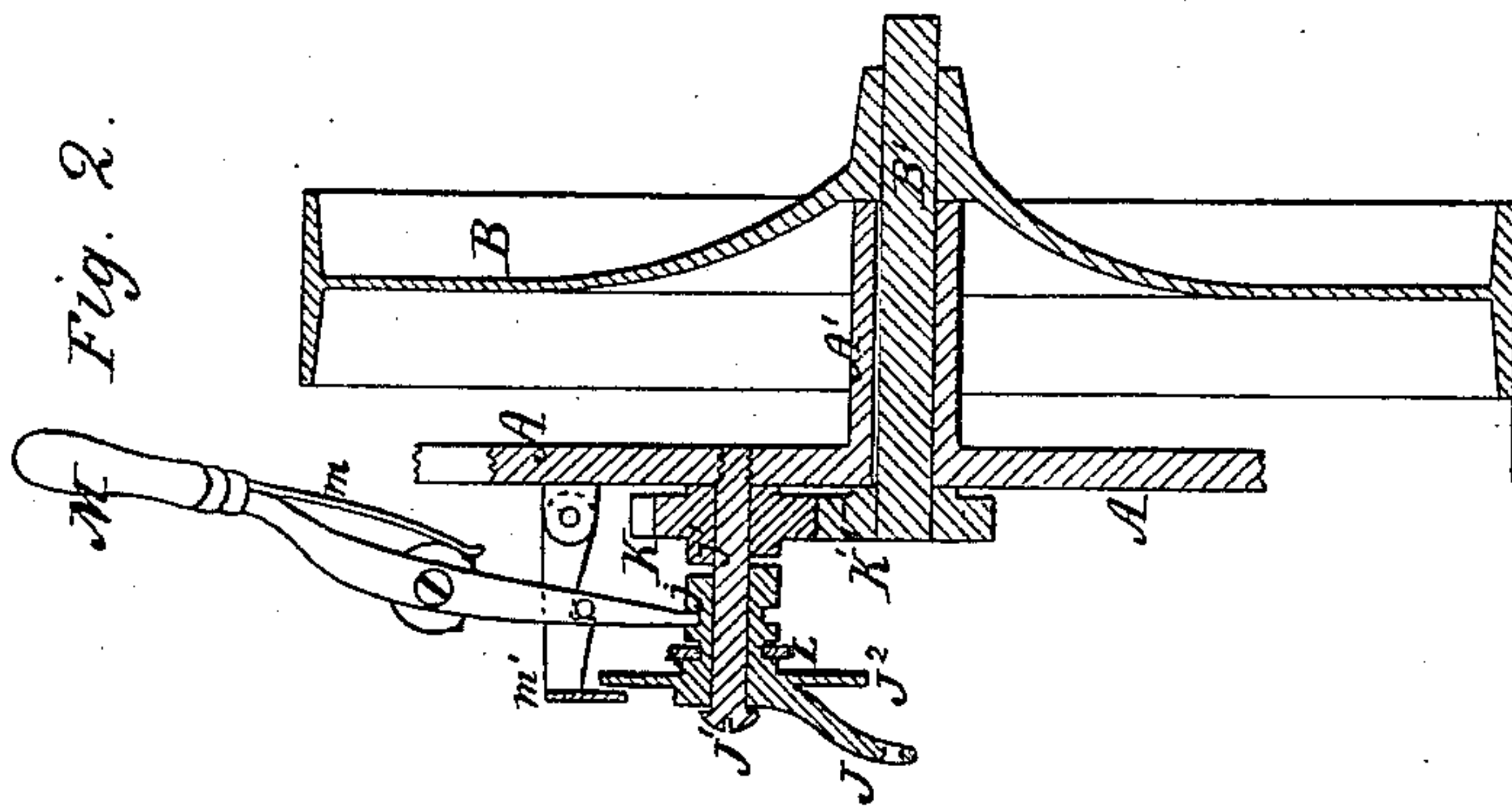
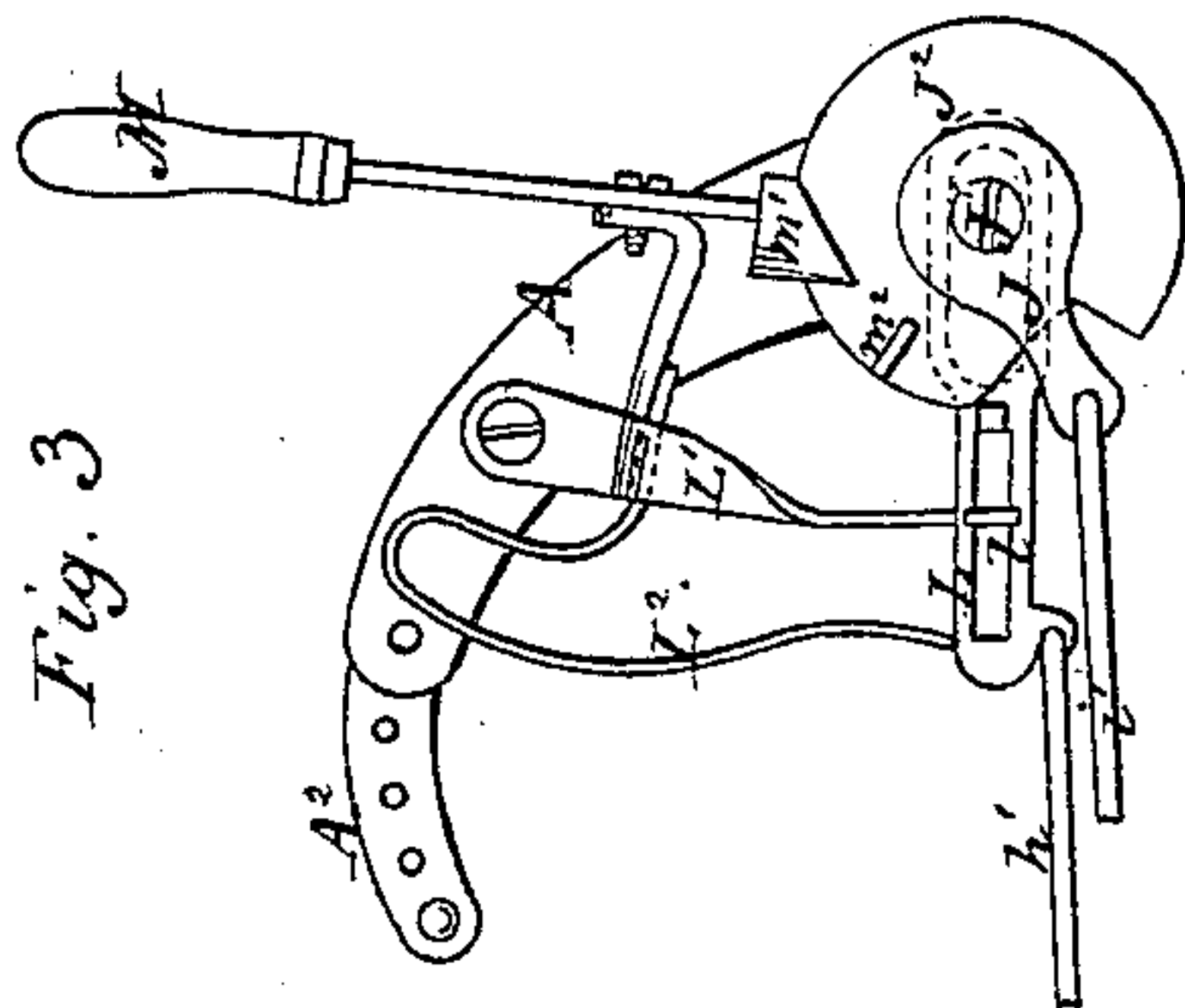
Witnesses
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Inventor.
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UNITED STATES PATENT OFFICE.

CYRENUS WHEELER, JR., OF AUBURN, NEW YORK.

IMPROVEMENT IN HARVESTER-DROPPERS.

Specification forming part of Letters Patent No. 148,796, dated March 17, 1874; application filed September 6, 1872.

To all whom it may concern:

Be it known that I, CYRENUS WHEELER, Jr., of Auburn, county of Cayuga, State of New York, have invented a new and useful Improvement in Droppers for Harvesters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 represents a perspective view of a harvesting-machine embracing my improvements. Fig. 2 is a vertical transverse section through the drive-wheel and axle and main frame, and Fig. 3 is a side elevation of some of the devices for actuating the platform and cut-off detached.

Similar letters of reference denote corresponding parts in all figures.

My invention consists in certain improvements in dumping or tilting platforms to effect the delivery of the grain at the main-frame side of the machine out of the way of the team and machine on the succeeding round, in such manner as to obviate either the trampling down of the cut grain or the necessity for binding it as it is cut. It also consists in a novel construction of the overhung reel, to adapt it more fully to pick up tangled and fallen grain, to present it to the action of the cutters, and to deposit it upon the platform in good shape to be discharged in gavels upon the ground by the latter.

The construction and arrangement of devices for carrying out these objects and the improvements made therein, and in certain other details of construction of the machine, will be best understood from the following description with reference to the drawing, in which—

A represents the main frame, provided on its outer face with a tubular arm or pipe-box, A¹, either cast with or bolted to and made adjustable on the frame A, in which box is mounted the main drive-wheel axle B¹ of drive-wheel B, which is keyed to and turns with the axle B¹. The sleeve A¹, instead of affording a direct bearing for the axle B¹, may be provided with a removable "babbitted" pipe-box. A second tubular arm or pipe-box, similar to A¹, is arranged on the inner or grain side of the frame A, and affords a bearing for the

bevel-wheel and pinion-shaft, the pinion *b* on the outer end of which engages with and is driven by a spur-rim, B², on the drive-wheel B. This second sleeve of frame A forms a pivotal support for a tongue-frame, C, and vibrating cutter-frame D. Frame D is made "drooping," and constitutes the shoe or support for the inner or heel end of the finger-bar D', secured thereto in any usual manner. On the drooping end or shoe part of the frame D is mounted a standard, E, which forms a support for the reel-post E', and, extending rearward, is provided at its rear end with bearings for an upright shaft or spindle, *f*, on which, between arms *e e'* of stand E, is mounted a vibrating arm, F, secured to and made adjustable on the spindle by a set-screw. The swinging end of arm F has a bar, F¹, rigidly secured to it, on the outer or swinging end of which is a cross-head or arm, F², arranged at right angles, or thereabout, to bar and arm F F¹; or, if preferred, the cross-head and bar and arm may be made or cast in one piece with the arm F. G is a platform, composed, in this instance, of a number of parallel slats, *g*, which, when the platform is in position to receive the falling grain, lie parallel with the finger-bar. Said slats are fastened at their inner end to a board or guard, G¹, arranged at right angles to slats *g*, and serving as a fender to prevent the grain from falling off at the inner end of the platform. Underneath the slats *g*, and about midway of their length, is a second bar, G², crossing the slats of the platform and rigidly secured thereto. The bar G² is hinged or pivoted to the cross-head F² of the vibrating carrying-arm F, in such manner as to permit the platform to be tilted for the purpose of discharging the grain therefrom. On the same shaft or spindle *f* is arranged a second vibrating arm, H, which turns loosely on, or independently of, said shaft, and is provided at one end with a tubular socket, in which is fitted an angular or crank arm, H¹, made adjustable in its socket, and retained at the desired point of adjustment by a set-screw, or, if preferred, by a polygonal form of socket and shank. The swinging or outer end of the crank-arm H¹ has also a socket to receive a cut-off or separator rod, H²; or said rod may be made, if preferred, in one piece with the

arm H^1 . The rod H^2 is of a length corresponding to the length of the platform, and when the platform is operated to discharge the grain accumulated thereon, said rod serves to receive and hold the falling grain until the platform resumes a proper position to receive such grain. The upper end of the spindle or shaft f has rigidly attached to it by jam-nuts i i , or in other suitable manner, a crank-arm, I , which is connected by a rod, I' , with a crank-arm, J , mounted loosely on a fixed shaft, J^1 , supported by the main frame A , as shown in Fig. 2. A sleeve formed with or attached to the crank-arm J has, at its inner end, a clutch or saw-tooth face, j , which matches with a corresponding face, j' , on the hub of a spur wheel or pinion, K , also mounted loosely on the same shaft J^1 . The wheel K engages with and is driven by a similar wheel, K' , keyed to the inner end of and turning with the rotating drive-wheel axle.

By the arrangement of gears and connecting devices described, it will be seen that during the forward movement of the machine, and while the clutch-faces j j' are engaged, a horizontal, or nearly horizontal, vibratory movement will be imparted to the platform, moving it on shaft f through the arc of about ninety degrees of a circle, or from a position with the slats parallel with the finger-bar to one at about right angles thereto.

Underneath the platform, and just outside the cross-bar G^2 , is a support, G^3 , for a pendent lug or eye, g^1 , to which is attached one end of a link or rod, g^2 , the other end of which is connected with one end of a bell-crank lever, g^3 , mounted loosely on the lower end of shaft f . The other arm of lever g^3 has a lug or stop, g^4 , which may be provided with a set-screw for regulating the throw of the lever. The lever vibrates or turns with the platform until it is arrested by the stop g^4 striking against the support E , when, from the eccentric relation of the attachment of link g^2 thereto, the further movement of the platform causes the link or rod g^2 to act upon said platform as it approaches a position at right angles to that in which it receives the grain, thereby tilting it to discharge its load at a point behind the machine, and out of the way of the team and machine on the next round. The heel end h of the cut-off arm H has one end of a rod, h' , connected with it, the other end of said rod being connected with a slotted slide, L , which embraces and slides back and forth upon the sleeve or hub of crank J . A pendant or bracket, L^1 , attached to the main frame, and provided with a horizontal stud at l , passing through the slot in slide L , assists the sleeve of crank-arm J in supporting and guiding the slide. L^2 is a spring attached to the main frame, or to bracket L^1 at one end, and connected at its other end with slide L , in such manner as that the tension of the spring will act to force the slide L , and with it rod h' and arm or heel h , forward, and thereby to hold the cut-off H^2 back out of the way of the fall-

ing grain. J^2 is a cam mounted on the hub of the clutch-sleeve of the crank-arm J , and, turning therewith, said cam acts upon a pin or stud on the slide L , forcing the slide backward, and bringing the cut-off into position to receive and hold the grain while the platform is operated to discharge its load, and until said platform has returned to a proper position to receive the grain, when the pin or stud on the slide escapes from the cam, and the spring L^2 acts upon the slide, causing the latter to withdraw the cut-off, thereby permitting the grain accumulated thereon to fall upon the platform until the operation is repeated. A lever, M , placed within convenient reach of the attendant, enables him to control the frequency of movement of the platform by engaging or disengaging the clutch-faces j j' . A spring, m , serves to hold the lever with the clutch-faces disengaged until a sufficient quantity has accumulated to form a sheaf, when the driver, by pressing upon said lever, causes the clutch-faces j j' to engage and to operate the platform and cut-off. A pivoted latch, m^1 , drops over the cam J^2 when the clutch-sleeve on which it is mounted is forced inward by the lever M , and serves to hold the clutch engaged until the crank-arm and cam have completed their revolution, and the platform is again in position to receive the grain, when a pin, m^2 , on the outer face of the cam acts upon an inclined face of the latch to release it from the cam, when the clutch-sleeve is forced outward by spring m , and is disengaged from its driving-wheel until again thrown in by the attendant. When the condition of the crop requires it, the lever M may be so fastened that the latch m^1 will not release it, and the platform and cut-off will, consequently, be operated automatically at regular intervals, and with greater or less frequency, according to the relative size or diameters of pinions K and K' , and which may be varied, as required. The platform has pivoted to its forward edge a number of teeth, a , the lower or heel ends of which are connected with a horizontal bar, a' , lying parallel with slats g . These teeth are forced into an upright position, as the platform approaches a position to receive the grain, by the bar a' , the heel end of which strikes stand E , thereby forcing the bar outward, and are thereby caused to hold the grain properly upon the platform, and to prevent the scattering or dragging of the same when the platform is moved outward to discharge its load. The weight of the grain is sufficient to depress the teeth when the platform is tilted. The platform may, however, be used without the teeth a , if preferred.

The reel employed for gathering the grain into the cutters, and depositing it upon the platform, is of the class usually denominated an "overhung" reel—that is, one rotating about a horizontal axis or shaft mounted in bearings at its inner or main-frame end only. The bearings of the reel-shaft in this instance are made in an adjustable bracket mounted

on the single reel-post E'; and the reel itself may be of any usual construction, except that where the grain is fallen and tangled, or its condition otherwise is such as to require it, I attach to the beaters hinged rake-heads N, provided with teeth, which serve to pick up the grain, present it to the action of the cutters, and deposit it upon the platform. The inner ends of these rake-heads are provided with short crank-arms connected to slides O, working in guides o on the reel-arms, and provided at their inner end, near the reel-shaft, with friction-rollers, which traverse a cam or cam-ring, O¹, surrounding the reel-shaft, and supported by a bracket or arm, O², attached to the reel-post E'. This cam is made adjustable to release the rake-heads at any desired point during their passage over the cutters or platform, and serves by its action on the slide O to cause the rake-teeth to assume a vertical position while picking up the grain, and until the grain is properly deposited upon the platform, when the rollers in the ends of slides O escape from cam O¹, and permit the rake-heads to roll backward, actuated by the resistance of the grain on the platform, and by springs n, thereby causing the teeth to rise out of the grain, and to assume a horizontal position while passing over the grain on the platform. P is the driver's seat, mounted on a seat-bar or support, P¹, outside the drive-wheel B. Said seat-bar P¹ is hinged at its forward end to a transverse bar, P², attached to the tongue-frame C, and at its rear end is adjustably connected with main frame by means of an adjustable brace rod or link, and an adjustable perforated plate or arm, A². (See Fig. 3.) An additional support to bar P¹ is obtained through a bent spring-plate, Q, attached at one end to the main frame A, at q, and at its other end to said bar P¹. The spring-plate is perforated, as shown at p', to permit the adjustment of the bar P¹ for varying the height of the seat or its relation to the main frame.

The operation of the several parts of the machine will be understood from the foregoing description. The platform lies with the slats parallel to the finger-bar, and immediately behind said bar, to receive the falling grain until a sufficient quantity has accumulated to form a sheaf, when the cut-off is interposed to receive the grain, and the platform is swung rearward and outward upon the shaft or spindle f at its inner end to a position at right angles to said finger-bar, and is there tilted upon a pivot at right angles to the slats of the platform, in such manner as to dump the grain upon the ground behind the machine, outside of the line of cut, out of the way of the team and machine on the suc-

ceeding round, and with the stalks of grain lying at right angles to the path of the machine, in the desired relation to the binders following the same.

Parts of the machine not particularly described may be made in any usual manner.

What I claim as new, and desire to secure by Letters Patent, is—

1. A swinging and tilting or dumping platform, in combination with a cut-off vibrating upon a vertical pivot or axis at the inner end of said cut-off, substantially as described.

2. A swinging and tilting or dumping platform and a vibrating cut-off mounted and turning upon a common axis or pivotal support, substantially as described.

3. A swinging and dumping platform supported centrally or midway of its length and width, substantially as described.

4. The lever which imparts the dumping movement to the platform, mounted on the same vertical shaft or center on which the platform vibrates.

5. The stand or support for the platform, constructed substantially as described, to support the vibrating cut-off and reel-post.

6. The crank-arm and cam which operates the platform and cut-off, when mounted on a stationary stud or shaft on the main frame.

7. A rake-head turning on a horizontal hinge or pivot connected to the arms or beaters of a reel rotating on a horizontal axis.

8. Horizontally-pivoted rake-head, in combination with the adjustable cam, substantially as described, for varying the point of their release in their passage over the cutters or platform, and around a horizontal axis, for the purpose set forth.

9. The combination of rakes pivoted to the reel-arms with a dropping or tilting platform.

10. The seat-bar arranged outside of the drive-wheel, in combination with a yielding or spring support connecting said seat-bar with the main frame on the inside of the drive-wheel, substantially as described.

11. The driver's seat supported outside of the drive-wheel by devices connecting it with the main and draft frames on the inside of said drive-wheel, substantially as described.

12. A series of fingers pivoted to the front edge of the platform, and made to project and be held above its surface when in position to receive the falling grain, and left free to vibrate on their pivots to discharge the grain in dumping.

In testimony whereof I have hereunto set my hand this 26th day of April, A. D. 1872.

C. WHEELER, JR.

Witnesses:

R. A. HYDE,

ALEX. MAHON.