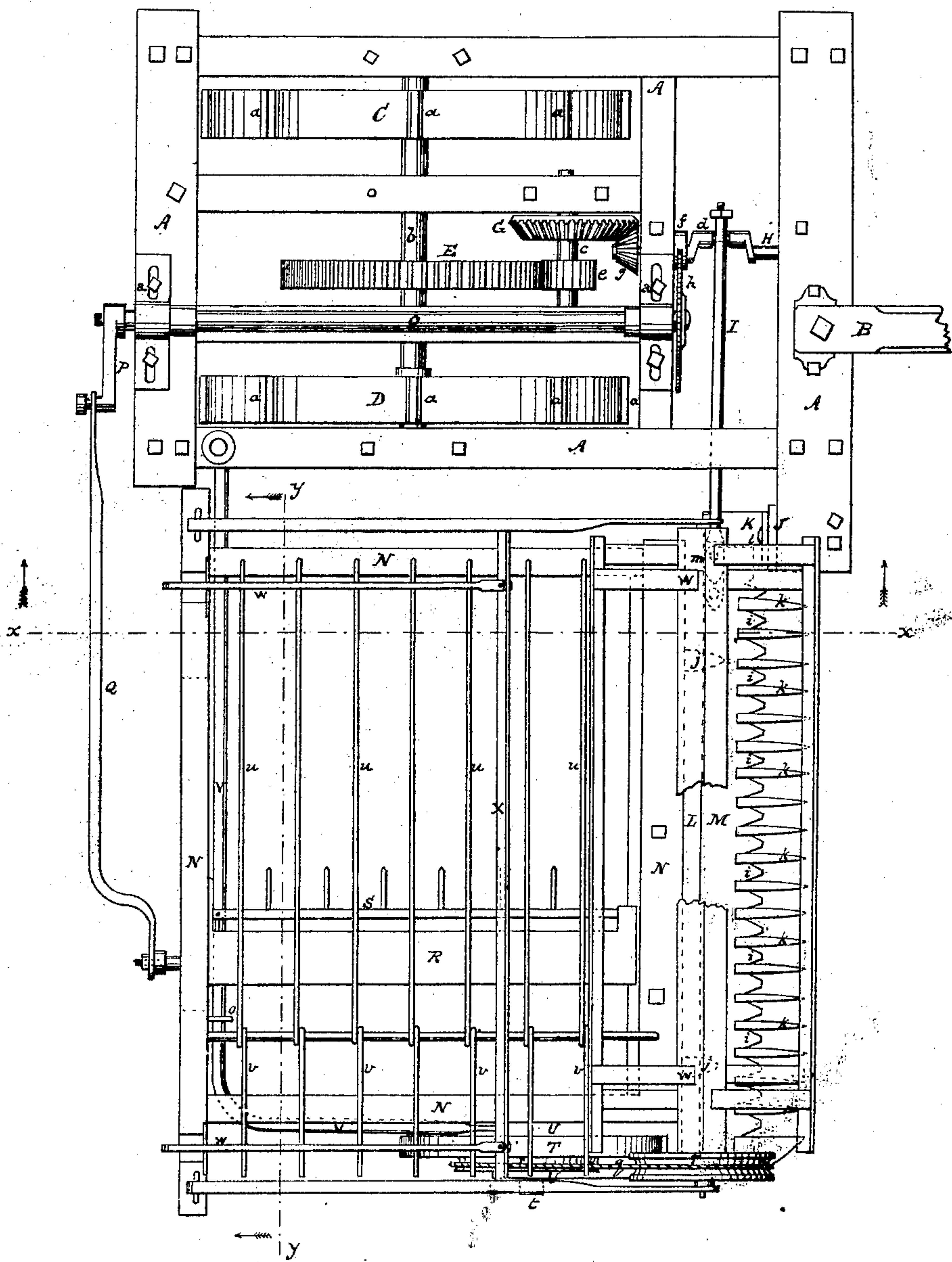


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*Harvester Rakes.*

*Nº 18.871.*

*Patented Dec. 15. 1857*

*Fig. 1.*

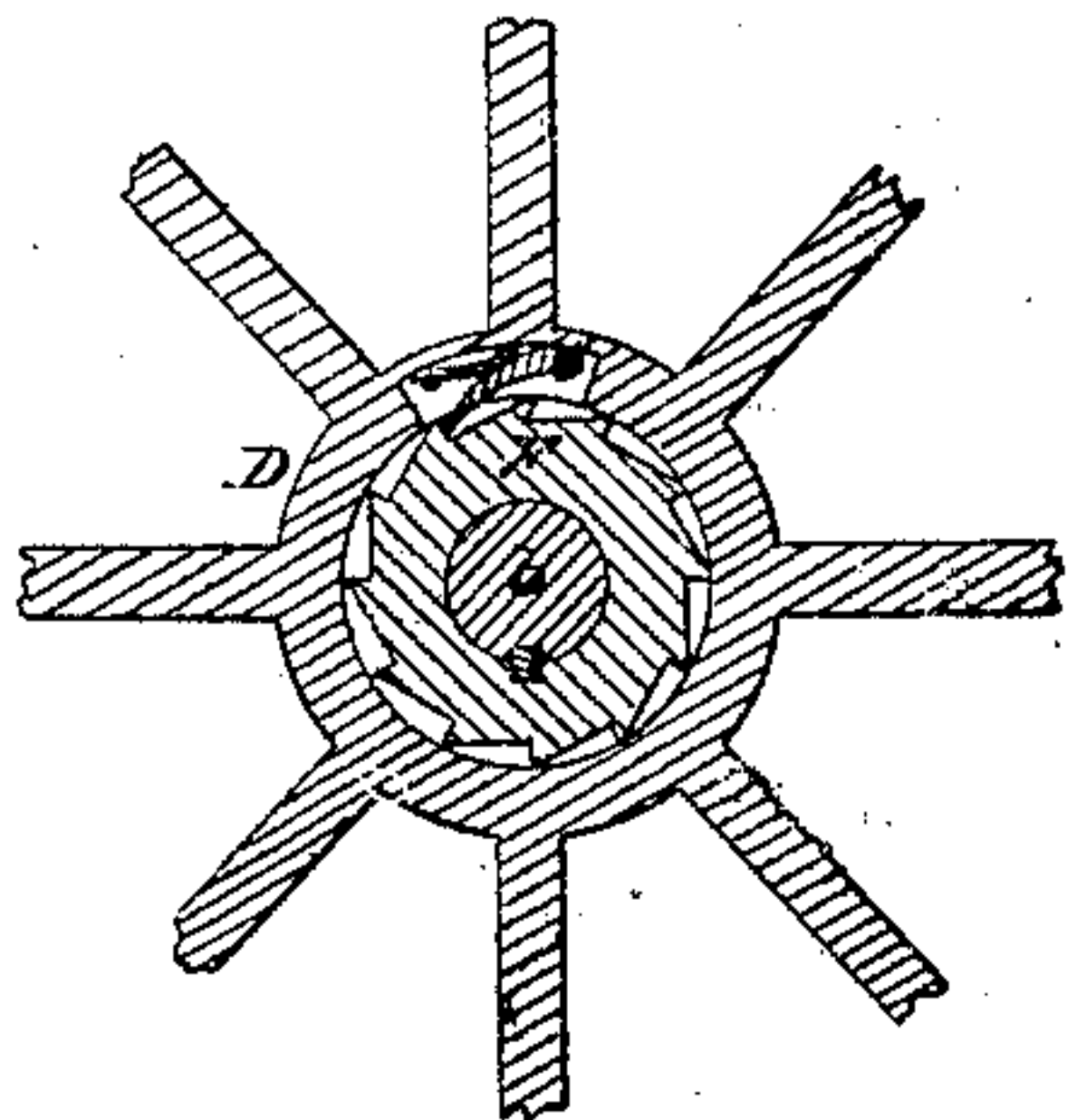


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Harvester Rakes.*

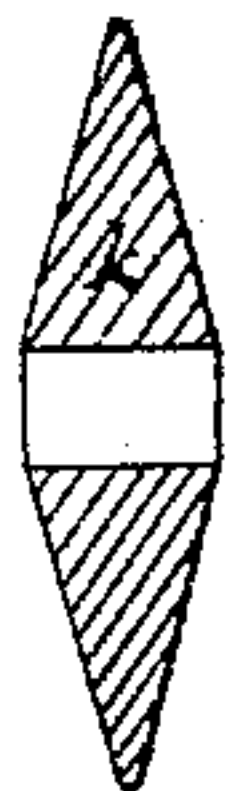
*No 18,871.*

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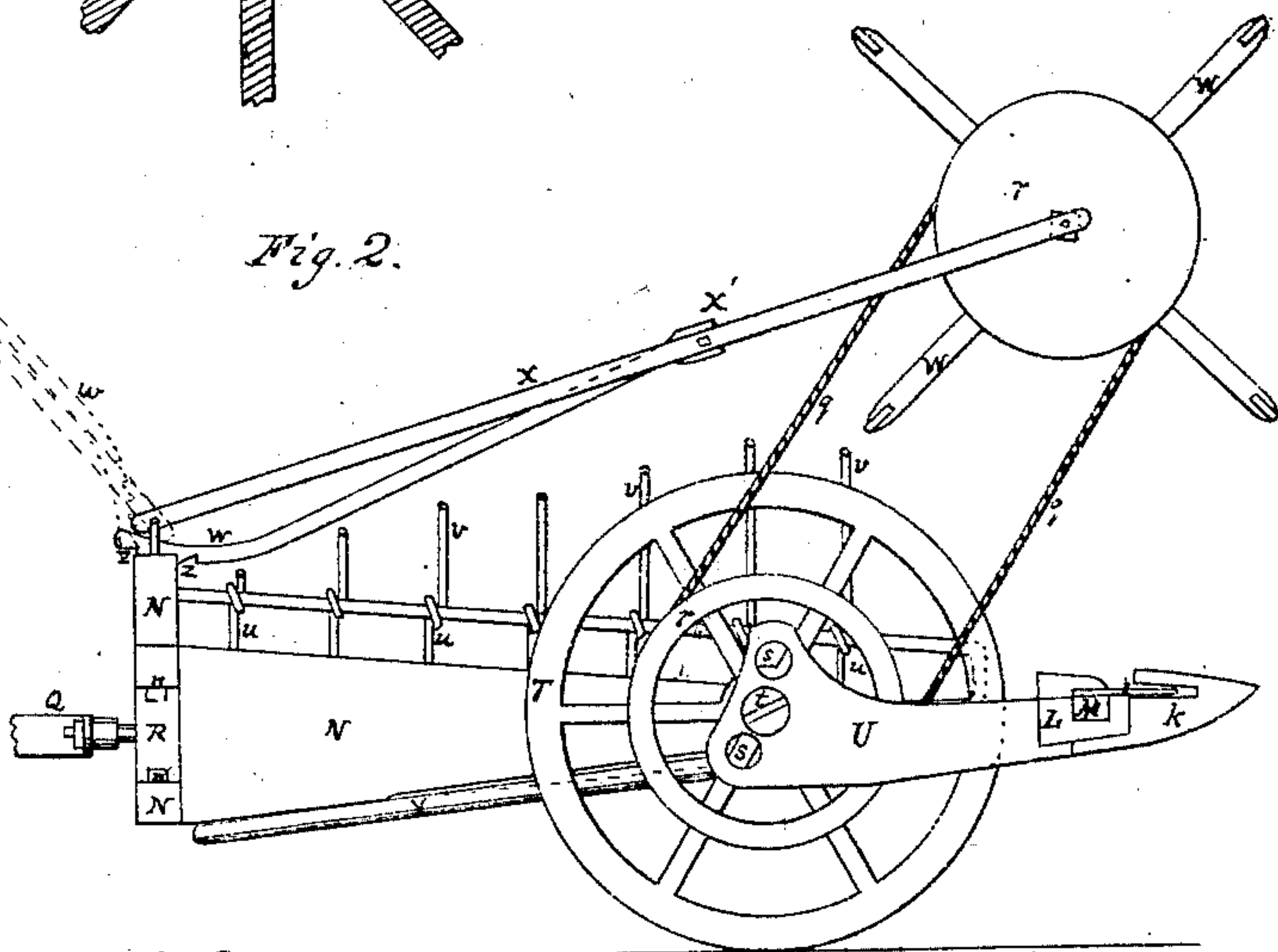
*Fig. 5.*



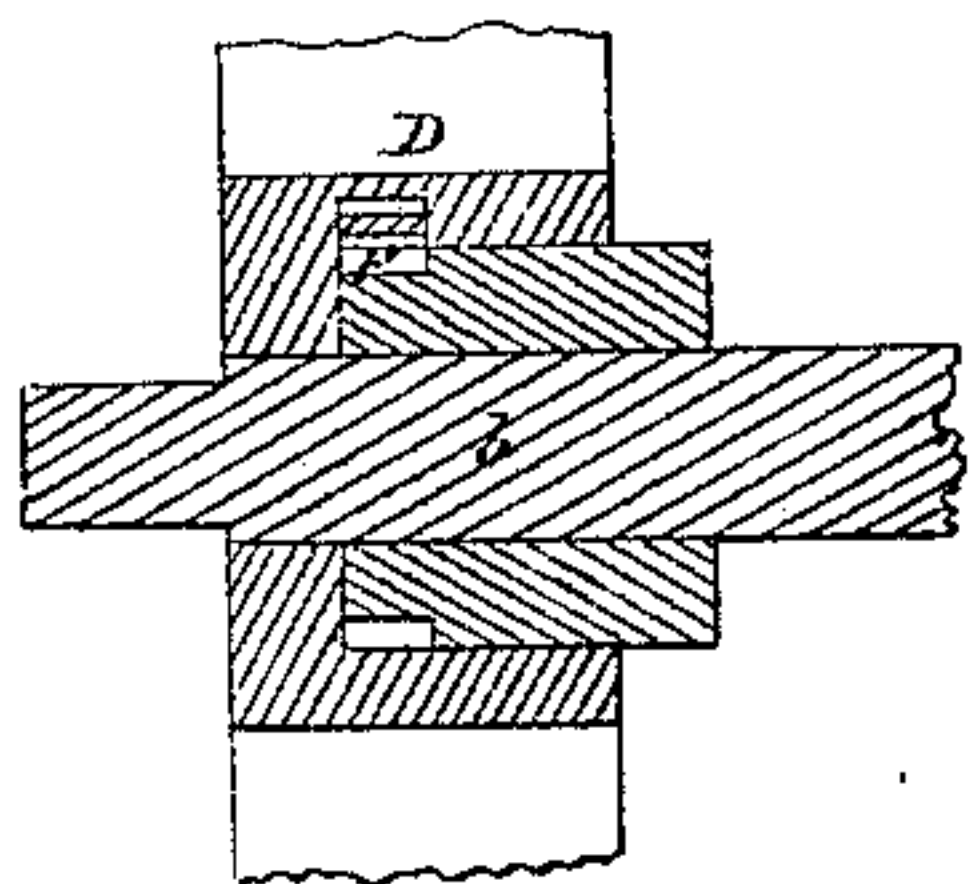
*Fig. 7.*



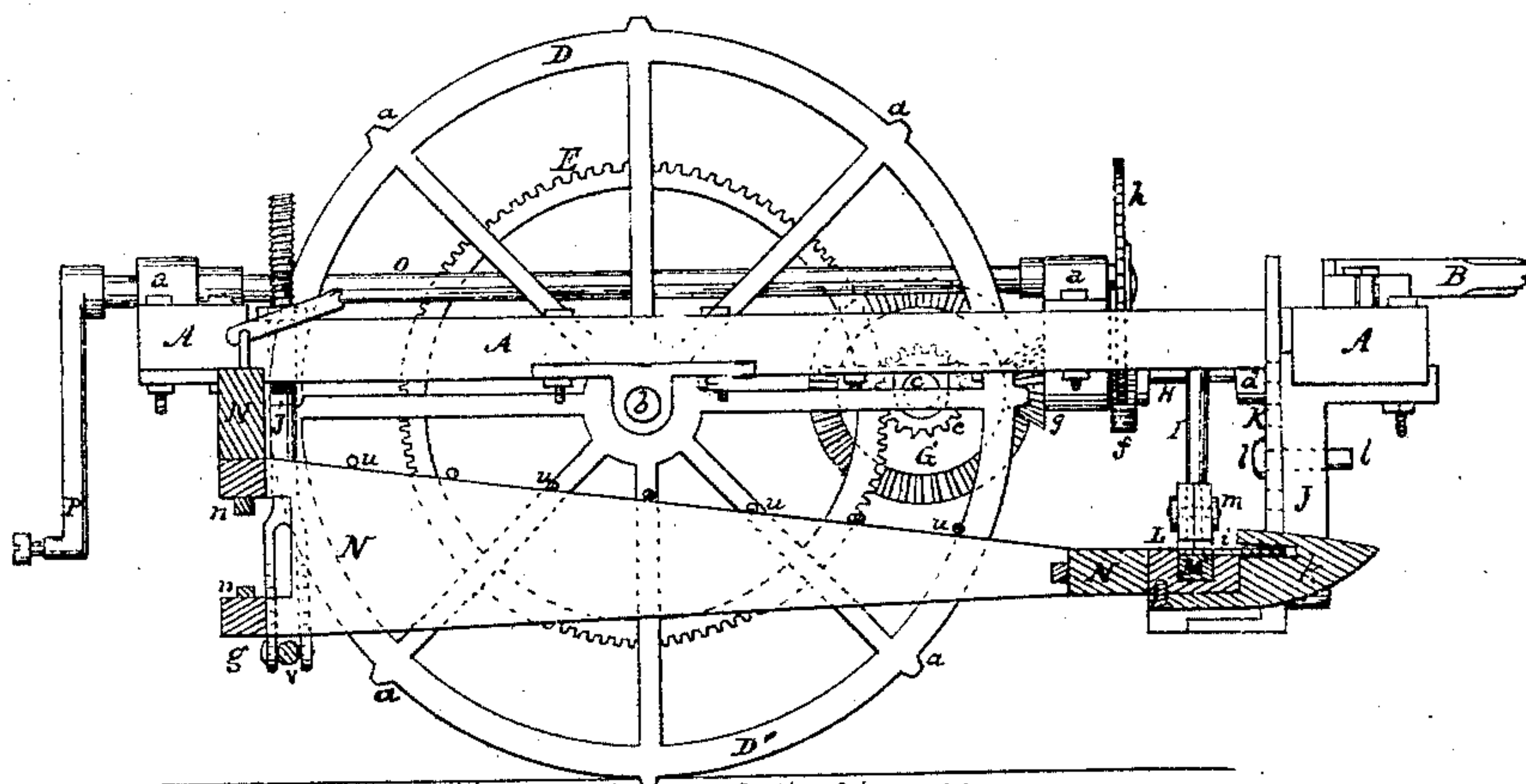
*Fig. 2.*



*Fig. 6.*

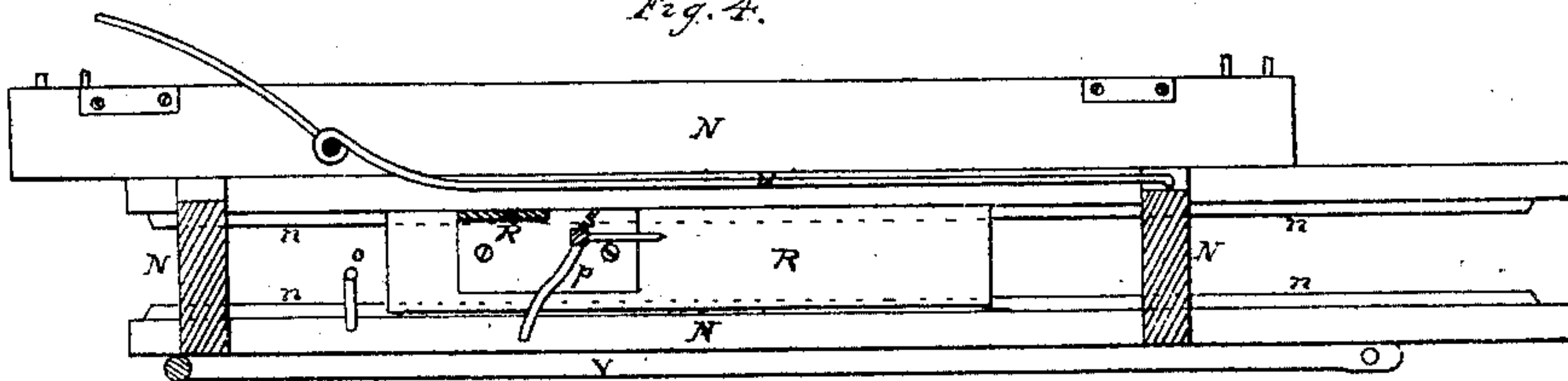


*Fig. 3.*



*Section through the line x.x.*

*Fig. 4.*



*Section through the line y.y.*



# UNITED STATES PATENT OFFICE.

THOMAS I. STEALEY, OF MIDDLEBOURNE, VIRGINIA.

## IMPROVED MODE OF SUPPORTING REELS FOR HARVESTERS.

Specification forming part of Letters Patent No. 18,871, dated December 15, 1857.

*To all whom it may concern:*

Be it known that I, THOMAS I. STEALEY, of Middlebourne, in the county of Tyler and State of Virginia, have invented a new and useful Improvement in Supporting Reels for Reapers; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification—

Figure 1 being a plan of a reaping-machine with my improvement attached; Fig. 2, an end view of the finger and cutter bars, raking-frame, and reel attached; Fig. 3, a vertical section in the plane indicated by the line *x x*, Fig. 1; Fig. 4, a vertical section in the plane indicated by the line *y y*, Fig. 1; Figs. 5, 6, and 7, views of parts detached.

Like letters designate corresponding parts in all the figures.

The driving parts of the machine are mounted in a rectangular frame, A, of suitable dimensions, and to this the pole or tongue B is secured in any usual manner. The supporting-wheels C D may properly be made of cast-iron, of sufficient weight and size, and be provided with spurs *a a* to secure a firm hold upon the ground. One of these wheels, C, being the driving-wheel, should be firmly secured to its axle *b*, while the other wheel, D, may turn freely upon the axle; or a ratchet-wheel and pawl, F, Figs. 5 and 6, may be placed within or at the side of its hub, in order to enable this wheel also to assist in driving the working parts, and at the same time adapt itself to any difference of speed which may be required of the two wheels by turning the machine.

On the axle *b* is situated a gear-wheel, E, which gears into a pinion, *e*, and on the arbor *c* of said pinion is a bevel-wheel, G, or its equivalent, which gears into a suitable pinion, *g*, on the crank-shaft H. From the crank *d* of this crank-shaft extends a pitman, I, to the cutter-bar M, with which it is connected by a universal joint, *m*. This joint allows a free motion or adjustment of the cutter-bar in any direction, and at the same time enables the joints to be made strong and close, the crank-shaft H also being firmly supported at both ends. The cutter-bar M is sunk entirely into and slides in a groove in the upper side of the finger-bar L, where it may be secured by buttons

*jj*. The cutters *i i* may be separately secured to the cutter-bar or compose a single cutter-plate to be attached thereto. The guard-fingers *k k* are secured to the under side of the finger-bar L, and the notches or grooves through which the cutters pass should be sufficiently wide to allow space enough above the cutters to prevent the clogging of grass-blades therein—say one-fourth of an inch, more or less. The lower cutting-edges of the cutters should of course move in close contact with the lower sides of the finger-notches, and the fingers have a cross-section substantially of the form shown in Fig. 7, in order that the edges thereof, together with which the cutters act in cutting, may assist more in cutting and retain their sharpness as the top surface of the metal wears off.

The finger-bar L is provided with an arm, K, projecting upward from its inner end. This arm is provided with a set of holes at regular distances apart, as shown by dotted lines in Fig. 3, through any one of which a bolt, *l*, passes, and through a corresponding hole in a bearing or hanger, J, attached to the frame A. On this bolt the finger-bar freely turns, so that it can be raised as far as desired from the ground, or adapt itself to any unevenness of the ground's surface. The outer end of the finger-bar is supported by a wheel, T, which runs in bearings U U, projecting backward from the end of said finger-bar. These bearings have a set of vertically-arranged holes, *s s s*, Fig. 2, corresponding in distance apart and height with the holes in the arm K at the inner end of the finger-bar. The axle *t* of the wheel is inserted into any of these holes, corresponding with the hole in the arm K, which receives the pivot-bolt *l*, and thus the finger-bar is adjusted to any height from the ground desired, so as to leave a shorter or longer stubble at pleasure, also leaving the hinge movement of the finger-bar free and unimpeded in all adjustable positions given to said finger-bar. This vertical adjustment and the hinge movement of the finger-bar do not in the least interfere with the motion communicated to the cutter-bar, since the employment of the crank and pitman for actuating the cutters admits such movement and adjustment without derangement, and the universal joint, which connects the pitman with



the cutter-bar, prevents the possibility of binding the motion of said cutter-bar.

The rake platform or frame N, to be used in reaping, is suitably secured at its front edge to the rear edge of the finger-bar L. At the rear edge of the frame is a strong brace or bar, V, one end of which projects from the inner corner of said frame, and is hinged by a bolt, g, Fig. 3, to a hanger, J', extending downward from the frame A. The hanger is adjustable vertically in its frame, or is provided with a series of holes at distances apart and heights corresponding with those in the arm K of the finger-bar. Thus the rake-frame is allowed the same hinge movement and vertical adjustment as the finger-bar has, to which it is attached.

Transversely over the rake-frame a set of rods, *u u*, or their equivalents, are secured, substantially as represented, to receive the falling grain, and their outer ends, *v v*, turn upward at an inclination, so as to keep the grain above the wheel T and throw it inward at the outer edge sufficiently to be reached by the rake, and also to give room for the teeth of the rake to turn up beneath. The grain is delivered over the inner edge of the rake-frame, where sufficient room should be allowed outside of the driving-wheel D for the deposit of bunches as large as desired.

The rake S is located just beneath the rods *u u*, so that its teeth, when upright, will project upward beyond them and the grain thereon. The rake-head is pivoted at its ends in a carrier, R, the rear end of which slides between ways *n n*, located transversely along the rear edge of the rake-frame. This cross end, which slides in the ways, is extended as far as the construction of the reaper will admit, in order to give a long bearing in the ways, and thereby prevent the racking of the carrier from its proper position, so as to impede its free motion. The rake-head, being pivoted in its bearings so as to turn freely forward one-fourth of a circle, or thereabout, as soon as it begins to retreat from the terminus of its inward movement after having cast off a bunch of grain, allows its teeth to fall by their own weight, or the slightest resistance offered by the grain which lies on the supporting-rods *u u*, to a horizontal position, as shown in Fig. 4. In order to raise the teeth again to a vertical position for action at the outer termination of the rake's movement, a cam projection, *p*, Fig. 4, is secured to the rake-head at one end, and a stop, *o*, is attached to the rake-frame in a proper position to act upon the cam *p* just as the rake reaches the termination of its outward movement. When once the rake-teeth are brought to a vertical position, the rake-head not being allowed to turn backward any farther, the resistance of the grain against which the teeth are drawn keeps them upright. The reciprocating motion is communicated to the rake through a pitman, Q, extend-

ing from a crank, P, to the rake-carrier R. This crank is secured to a shaft, O, which extends forward over the frame A and receives a revolving motion from a pinion, *f*, on the crank-shaft H, through a gear-wheel, *h*, on the end of said shaft O. In order to vary the speed of the rake, the gear-wheel *h* is made replaceable by others of different sizes, and in order to make the several sizes of these gear-wheels gear accurately into the pinion *f*, the bearings *a a* of the shaft O are arranged so as to be readily adjustable to various positions on the frame A, either in the manner represented in the drawings or by any other equivalent and convenient means. The employment of the crank and pitman P Q for communicating the motion to the rake allows this adjustment to be made without in the slightest degree disarranging the action of the rake, as well as allowing the vertical adjustment and hinge movement of the rake-frame without disarrangement of any part. To avoid variation of the limits of the rake's movement by the adjustment of the bearings *a a*, the pitman Q may be lengthened or shortened by using a set of holes therein to receive the wrist of the crank P.

The reel W is supported by arms X X, which are hinged to the back part of the rake-frame N, as represented in the drawings, whereby the reel may be swung over to the standing grain without interfering with the deposit of the falling grain or with the operation of the rake beneath. It is often requisite, also, to have free access to the top of the rake-frame, and this method of hinging the reel thereto enables it to be swung back out of the way in such cases. At some distance from the lower ends of the swinging arms X X braces *w w* are hinged to a bar, X', connecting the arms X X, for the double purpose of strengthening the reel-frame and furnishing a support for these braces, which extend downward a sufficient length to reach the upper edge of the platform or frame in whatever position the reel may be. The lower ends of said braces are curved and notched in the outer edges of the curved portions, substantially as shown in Fig. 2. These notches receive or bear against the corners of the upper edge of the rake-frame, which should be a few inches lower than the joints of the arms X X. The effect of this arrangement of the notched braces is to retain the reel at various heights, according to the particular notches which rest against the rake-frame, whether the reel is swung forward to the standing grain, as shown in black lines in Fig. 2, or swung back off from the rake-frame, as indicated by red lines in the same figure; and at the same time they brace or firmly hold the reel in the different positions by reason of the eccentricity of their points of support on the rake-frame from the center of the reel's swinging movement. Motion is imparted to the reel by means of pulleys *r r*, attached re-



spectively to the reel-shaft and to the wheel T or its axle *t*, and of a band, *q*, connecting said pulleys. The band is unclashed from the pulleys when the reel is to be swung back, and it may be lengthened or shortened in any convenient manner if that is rendered necessary by changing the position of the reel.

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

The reel W, supported by hinged arms X X, in combination with the notched and adjustable braces *ww*, bar X', and rake-frame N, substantially as and for the purposes set forth.

THOS. I. STEALEY.

Witnesses:

J. S. BROWN,  
R. F. OSGOOD.