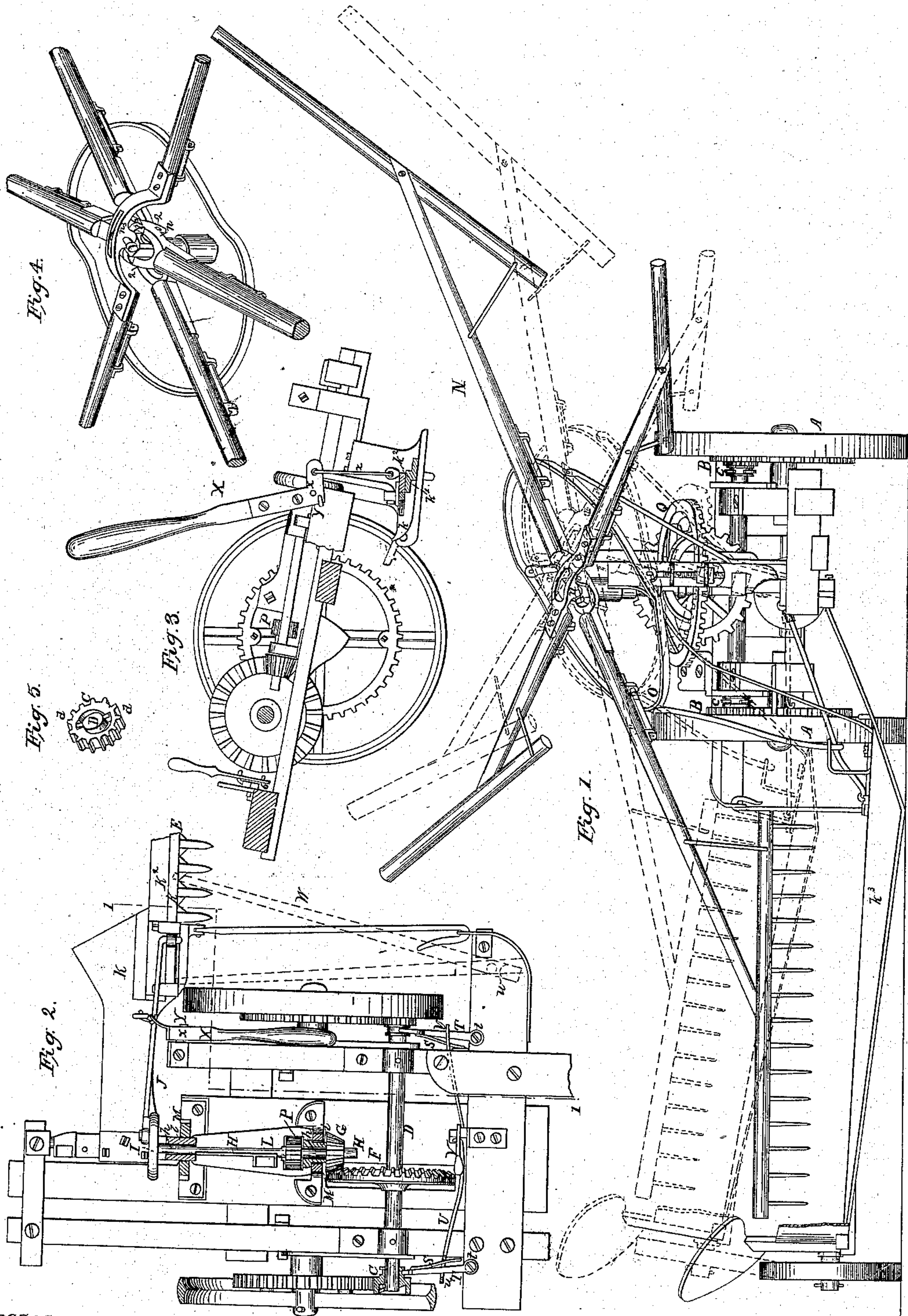


R. BROWN.

Harvester.

No. 32,556.

Patented June 18, 1861.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

ROBERT BROWN, OF FREDERICK, MARYLAND.

## IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. 32,556, dated June 18, 1861.

*To all whom it may concern:*

Be it known that I, ROBERT BROWN, of Frederick, in the county of Frederick and State of Maryland, have invented certain new and useful Improvements in Harvesting-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a rear view of a grain-harvester embodying my improvements. Fig. 2 is a plan of the machine as adapted for mowing. Fig. 3 is a section at 1 1, Fig. 2. Fig. 4 is a perspective view exhibiting the manner of attaching an additional number of reel-arms. Fig. 5 is a perspective view of one of the pinions hereinafter described.

Similar letters of reference indicate corresponding parts in the several figures.

The nature of my invention consists, first, in an improved manner of mounting and attaching the rake and finger-bar; second, in an improved combination of devices for attaching the reel or rake to adapt it for any desired number of arms.

A A are the driving-wheels, carrying cogged rings B, which gear with pinions C journaled loosely upon the shaft D, so as to impart motion thereto only when the machine is moving forward and when placed in gear, as hereinafter explained. Reciprocating motion is thence communicated to the cutter E through the medium of bevel-gears F G, shaft H, crank-wheel I, and connecting-rod J, in customary manner.

The finger-bar K is mounted upon a hollow or divided shaft, L, the journals *l* of which surround the journals *h* of the shaft H and work in boxes M, secured to the main frame of the machine. The vertical shaft of the reel is journaled in a frame, N', bolted to flanges *l'*, projecting upward from the shaft L. The arms N of the reel, which rest upon a ring, O, are rotated through the medium of pinion P, crown-wheel Q, and shaft R in customary manner. By this means the reel is made to follow the rising and falling of the finger-bar, and both may assume any position required by inequalities in the surface of the ground without interfering with the working of the cutter.

When a four-armed reel is employed, one

arm is provided with a rake-head, as shown in Fig. 1. In this arrangement each pair of arms is mounted upon a metal ring, *n*, encircling the shaft R, and secured thereto by a bolt, as represented. When six arms are required, the ring *n'* of the center pair is constructed with bolt-holes 2 2, set obliquely to the arms, and a bridge, *n''*, perforated for the attachment of an arched yoke, *n'''*, to which the upper pair of arms is secured, as shown clearly in Fig. 4. By this means a reel of either two, four, or six arms may be used, the arms in either case being equidistant and adapted to revolve in one plane. In a six-armed reel two are usually provided with rake-heads.

The pinions C have a limited play longitudinally upon the shaft D, and are, while the machine is in operation, pressed outward by springs S S, acting through the medium of clutch-levers T T, fulcrumed at *t t* to the main frame of the machine. In this position the pinions rotate the shaft during the forward motion of the machine by means of ratchet-teeth or grooves on their outer faces engaging with pins *d* on the shaft; but in backing the machine the oblique backs of the teeth, slipping past the pins *d*, impart no motion to the shaft.

U U are clutch-rods operated by a lever, V, to throw the cutting mechanism out of gear, when desired, by withdrawing the pinions C from contact with the pins *d*. To permit this action without preventing the automatic motion of the pinions upon the shaft, as previously explained, the rods U connect with the levers T by elongated slots, as seen at *u* in Fig. 2, thus enabling the levers to move independently of the rods.

The construction of the finger-bar is exhibited in Fig. 3. *k'* is a rabbet in front on the under side of the bar, to afford secure attachment and support for the fingers *k*. *k''* is a rabbet at back on the upper side of the bar, to receive the platform *k'''* without causing it to project above the top of the bar, and (when the platform is removed for mowing) to allow the grass to fall with greater freedom.

W is the gatherer. (Represented by red lines in Fig. 2.) It consists of a bar pivoted at *w* to the frame of the machine and adjustable at any desired angle, to deflect the grain toward the cutter.



X is a lever fulcrumed at  $x$  to the frame of the machine, and connected with the finger-bar by a link, Z. Y is a stop against which the lever rests when not held by the operator.

The operation of the machine may be understood from the foregoing description of its construction.

Parts not specifically described may be constructed in any suitable manner.

I am aware that it is common to journal shafts within sleeves for various purposes, and also that the finger-bar in harvesting-machines has been hung upon the crank-shaft. In my machine the finger-bar is not hung upon the crank-shaft, but secured to an independent hollow shaft which is journaled in stationary bearings on the main frame of the machine, and to which shaft the frame supporting the reel is also rigidly secured. The crank-shaft is journaled within the journals of the said hollow shaft, so that a strain upon the latter occurring through the finger-bar will not affect the crank-shaft. By securing the reel-standards upon the shaft of the finger-bar without

any connection directly with the main frame, and transmitting motion in the manner hereinbefore explained, the reel is made to work equally well and at equal speed in any position of the bar, and may be removed with great facility to change the machine from a reaper to a mower.

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

1. Securing both the finger-bar and the rake-frame to a hollow shaft, L, the journals  $l$  of which run in bearings M in the main frame, and themselves constitute bearings for the journals  $h$  of the crank-shaft, all as herein shown and explained, and for the purposes set forth.

2. The reel attachments  $n\ n'\ n^2\ n^3$ , constructed, combined, and arranged in the manner specified, to enable the attachment of any desired number of arms.

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Witnessss:

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