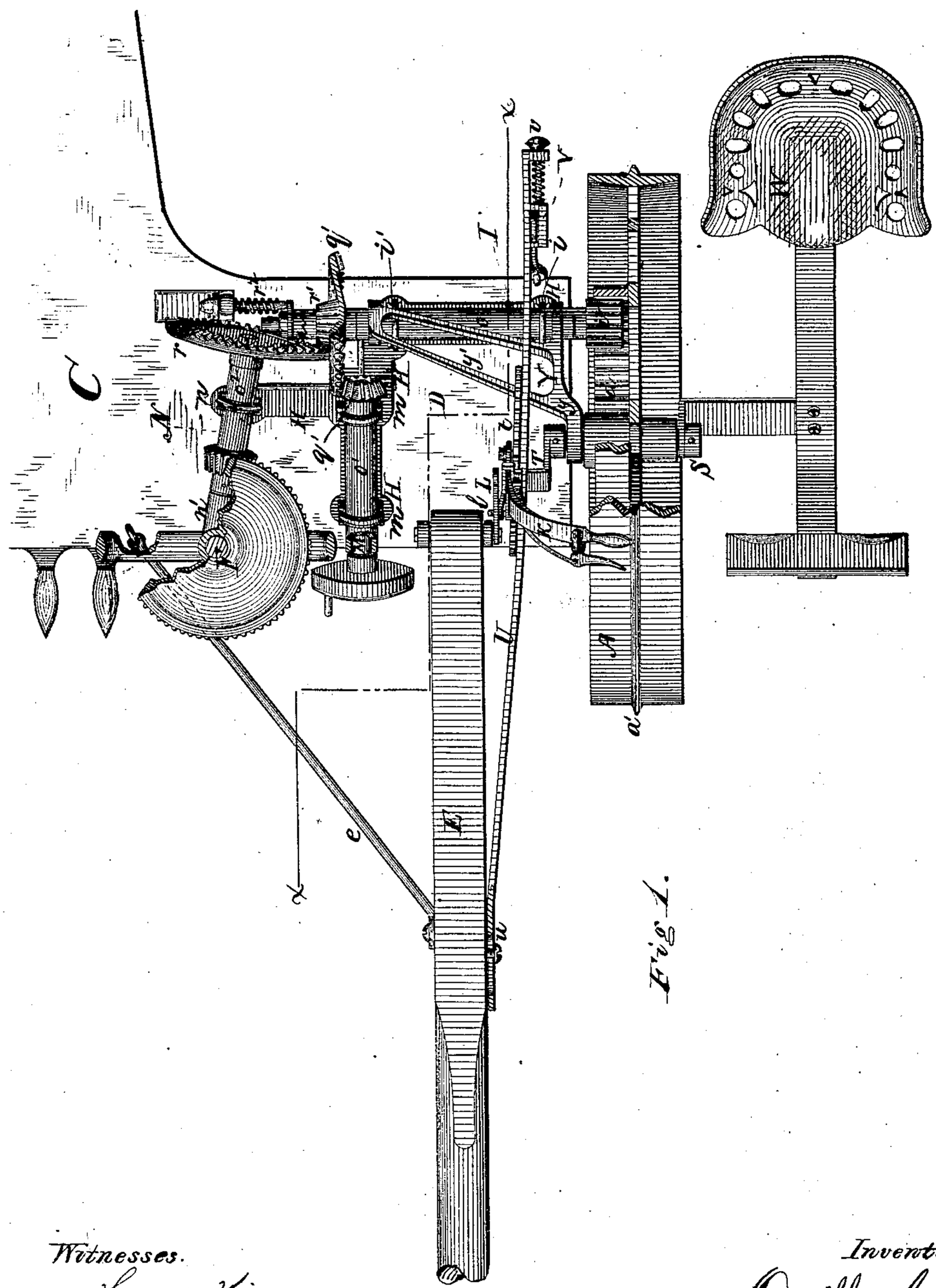
2 Sheets—Sheet 1.

O. COOLEY, M. M. OLIVER & S. E. SHERWOOD.

Harvesters.

No. 206,425. **Patented July 30, 1878.**



Witnesses.

Harry King del.

C. Schmeck.

Inventor.

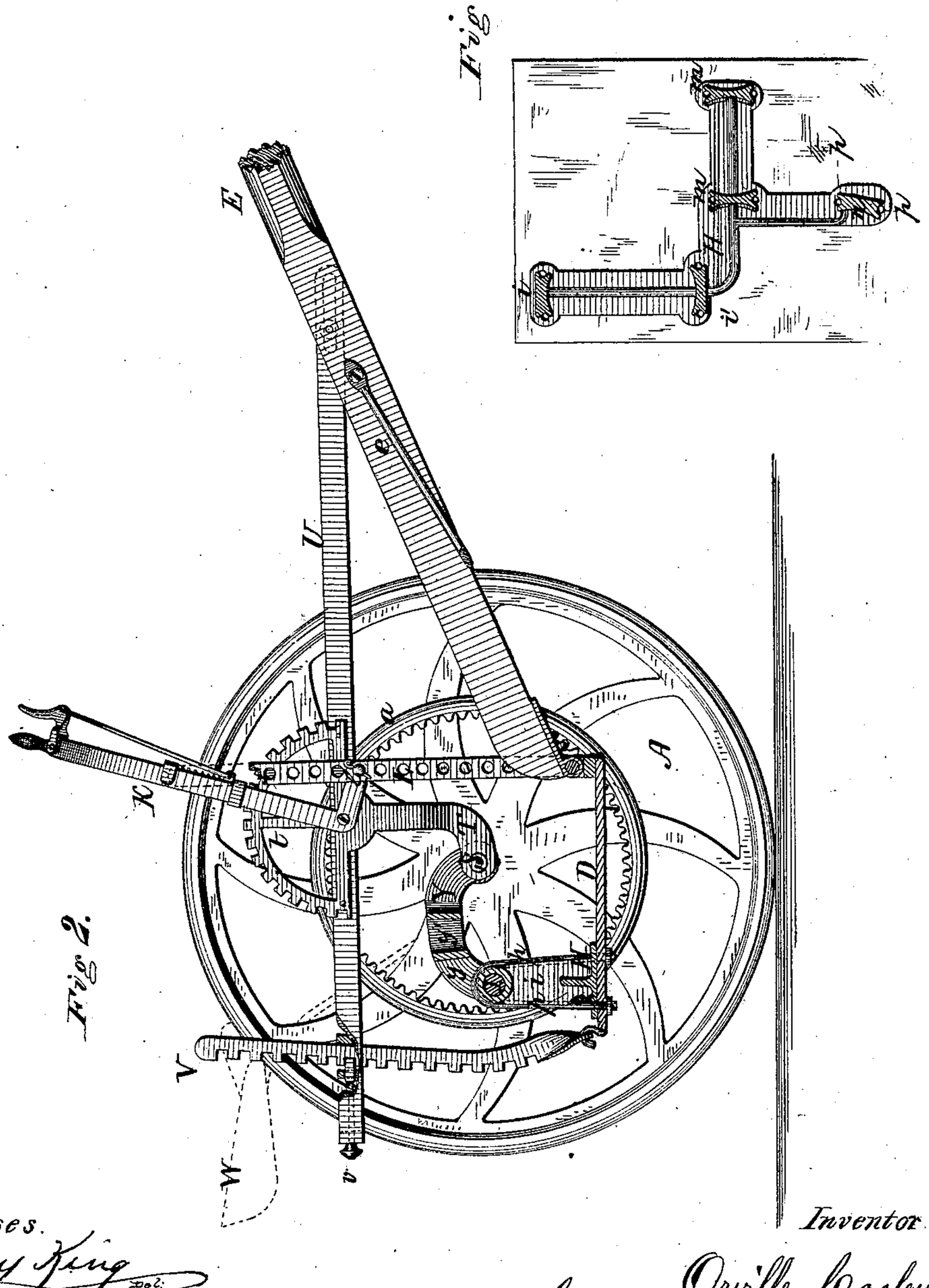
Orville Cooley,
Stephen E. Sherwood &
Myron M. Oliver

2 Sheets—Sheet 2.

O. COOLEY, M. M. OLIVER & S. E. SHERWOOD.

Harvesters.

No. 206,425. **Patented July 30, 1878.**



Witnesses.
Harry King
M. Church

Inventor
Orville. Cooley
Stephen. E. Sherwood
Myron M. Oliver

UNITED STATES PATENT OFFICE.

ORVILLE COOLEY AND MYRON M. OLIVER, OF BROCKPORT, AND STEPHEN E. SHERWOOD, OF CONESUS, ASSIGNORS TO JOHNSTON HARVESTER COMPANY, OF BROCKPORT, NEW YORK.

IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. **206,425**, dated July 30, 1878; application filed May 17, 1877.

To all whom it may concern:

Be it known that we, ORVILLE COOLEY and MYRON M. OLIVER, of Brockport, in the county of Monroe, and STEPHEN E. SHERWOOD, of Conesus, in the county of Livingston, both in the State of New York, have invented a new and Improved Harvesting-Machine; and we do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan of the inner end of the machine, showing certain parts in section. Fig. 2 is a vertical section of the same, taken in line *x x* of Fig. 1; and Fig. 3 is a horizontal section of the frame-casting, showing the arrangement of the several pinion-shaft standards.

Similar letters of reference in the accompanying drawings denote the same parts.

The object of this invention is to improve the construction of grain-harvesters, so as to attain, to as great an extent as possible in one machine, extreme simplicity, lightness, and strength, an equal balancing of the machine, and a complete adjustability of all the parts with relation to each other and with reference to the work to be done.

To this end the invention consists, first, in the construction of the main frame; secondly, in the mode of supporting the pinion-shafts; thirdly, in the combination of the main pinion-shaft with the driving-shaft of the cutter and the driving-shaft of the rake, in such a manner that a single backing-ratchet shall prevent the reverse movement of the main pinion-shaft from being communicated to either of said other shafts; fourthly, in the mode of yoking the main pinion-shaft to the main drive-wheel; and, fifthly, in the mode of supporting and adjusting the main frame, all substantially as we will now proceed to set forth.

In the drawings, A is the main drive-wheel, having an internal gear-rim, *a*, cast upon or attached to its grain side, and having a circumferential flange, *a'*, projecting from the middle of its tread, in order to hold it in place on side hills. C is the platform, bolted or otherwise secured to the floor-plate D of the main frame and on a level therewith. E is the tongue connected to the inside corner of the main frame or platform, and having a diagonal brace-rod, *e*, extending to the outer corner of said frame; and F is the rake-standard, carrying raking and reeling mechanism of the character employed on the well-known "Johnston Harvester," and therefore not necessary to be here shown or described.

Upon the floor-plate D of the main frame we arrange a casting, H, of the plan outline shown in Fig. 3, and having two vertical standards, *i i*^{1}, for the support of the main pinion-shaft I, two similar standards, *m m*, for the support of the crank-shaft M, and one similar standard, *n*, for the support of the driving-shaft N, which operates the rake-shaft. The upper ends of the standards are made concave in the line of their respective shafting, and tubular shaft bearings or boxes *o o*^{1} *o*^{2}, respectively, are mounted upon them, and strapped firmly down by staples *p*, which, countersunk in recesses on the outer side of the standards, extend down through the bases of the standards and through the floor plate or platform, and are provided with screw-nuts beneath the frame, by which they can be tightened up, loosened, or removed, whenever desirable. The front end of the shaft N also bears in a socket or box, *n'*, attached to the rake-standard below the bevel-gear wheel. The main pinion-shaft receives motion from the gear-rim *a* through a small pinion, *i*^{2}, and communicates it to the crank-shaft by means of gear-wheels *q q'*, and to the rake-shaft by means of gear-wheels *r r*^{1}, the wheels *q' r*^{1} being cast in one piece in order that they may be thrown out of action simultaneously by a single backing-ratchet, *r*^{2}, as will be clearly understood from Fig. 1.

The tubular bearing of the main pinion-shaft forms part of a yoke, Y, one arm of which extends to and is supported loosely upon the axle of the wheel A; or the axle of wheel A may be cast in tubular form as a part of the yoke. This holds the pinion always in gear, and at the same time permits the main frame to be raised and lowered or tilted to any required position. The arm *y* thus connected

to the driving-wheel extends directly to the inner end of the tubular bearing O, and is connected to the outer end of said bearing by a diagonal brace or braces, y', cast in one piece—a mode of construction which secures great rigidity and strength, prevents any cramping or bending of the pinion-shaft, and yet involves no great weight of metal.

The axle of the main driving-wheel A is a short shaft or stud, which does not turn with the wheel. The driver's seat W is mounted upon and rigidly attached to the projecting end of the stud, as shown in Fig. 1, on the side of the wheel opposite to the frame, while on the inner or frame side of the wheel a curved bracket, T, is rigidly secured to the opposite end of the stud and extends upward, terminating in a notched segment, t, which is bolted to the side of the lifting-bar U; or the wheel A may be mounted on a hollow stud forming part of the yoke, and the driver's seat may then be attached to the projecting end of an arm of the bracket T, which extends through the hollow axle. The forward end of the lifting-bar is connected by a slot and pin, u, to the side of the tongue, and its rear end is adjustably connected, by a curved rack-bar, V, and spring-catch v, to the rear edge of the main frame or platform. A perforated bar, L, articulated to the front edge of the main frame or platform, extends upward, and is adjustably connected, by a pin, l, to the short arm of a right-angled spring-catch lever, K, which is pivoted at the center of the segment t, and engages with the peripheral notches thereof, as will be understood by reference to Fig. 2.

By suitable adjustments of the two supporting-bars V L the frame can be set at any required elevation and inclination, while the pitch of the cutter can be instantly changed and adjusted at any time by a movement of the spring-catch lever K.

With this construction the weight of the whole machine can be reduced without impairing its strength or durability. The machine can be easily taken apart by any ordinary unskilled workman for storage, transportation, or repairs, and can be as easily put together again. It is well balanced and is completely adjustable for all purposes.

We claim as our invention—

1. The main frame consisting of the parts D H Y, constructed in the form substantially as described.

2. The casting H, constructed with the vertical standards i i^1, for the support of the main pinion-shaft I, the vertical standards m m, for the support of crank-shaft M, and the vertical standard n, for the support of the rake-operating shaft N, substantially as described.

3. The casting H, constructed, as described, with the standards i i^1, m m, and n, in combination with the tubular bearings o o^1 o^2 and the floor-plate D, substantially as described.

4. The automatic backing-ratchet r^2, in combination with the main pinion-shaft I, the crank-shaft M, and the rake-shaft N, substantially as described, for the purpose specified.

5. The combination of the lifting-bar U, the tongue, the bracket T, and a front and rear connection between the lifting-bar and the main frame or platform in front and rear of the axle, substantially as described, for the purpose specified.

6. The combination of the lifting-bar U, the tongue, the bracket T, the supporting-bar L, and a connection between the lifting-bar and the main frame in rear of the axle, substantially as described.

7. The combination of the two adjustable supporting-bars, or their equivalents, with the lifting-bar, the bracket and tongue, and the main frame, substantially as described.

8. The combination of the yoke Y, the bracket T, the tongue, the lifting-bar U, and the front and rear supporting-bars, or their equivalents, with the main frame, substantially as described.

9. The driver's seat, mounted upon the axle outside the main driving-wheel, in combination with the adjusting and supporting bracket T upon the inside of the wheel, substantially as described, for the purpose specified.

10. In a harvester, an inclined bar mounted upon the tongue and an arm of the driving-wheel axle, and having the weight of the main frame adjustably suspended from it by connection at the front and rear inward corners of the main frame or platform, substantially as described.

11. In a harvester, the yoke Y, by which the main frame is adapted to oscillate around the axle of the driving-wheel as a center, combined with the supporting-arm T, attached to said axle independently of the yoke and adjusting-lever carried thereby, whereby the frame is supported, raised, and lowered upon the arm and held to the center by the yoke, substantially as described.

ORVILLE COOLEY.
STEPHEN E. SHERWOOD.
MYRON M. OLIVER.

Witnesses:
E. J. MOCKFORD,
C. D. DEWEY.