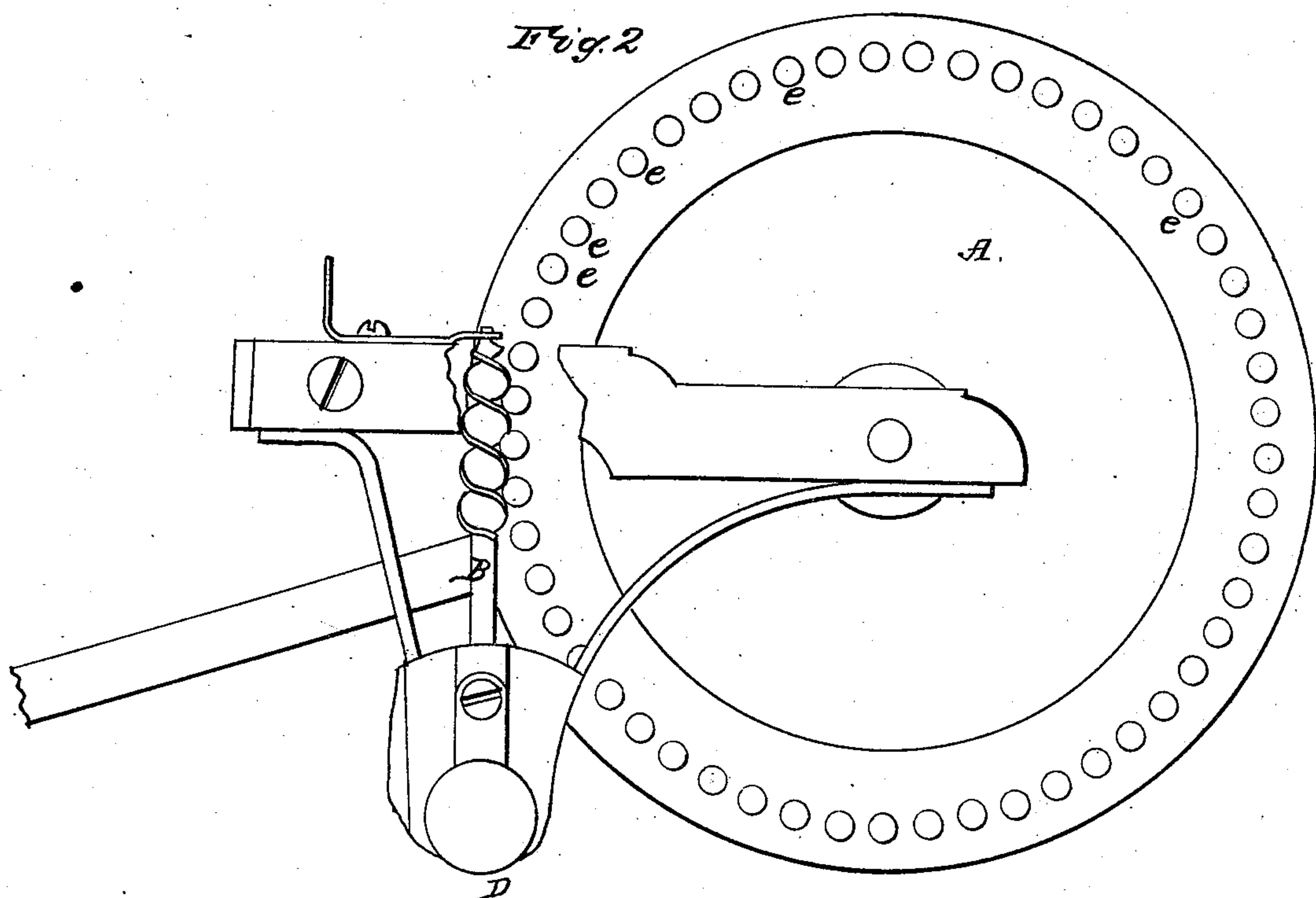
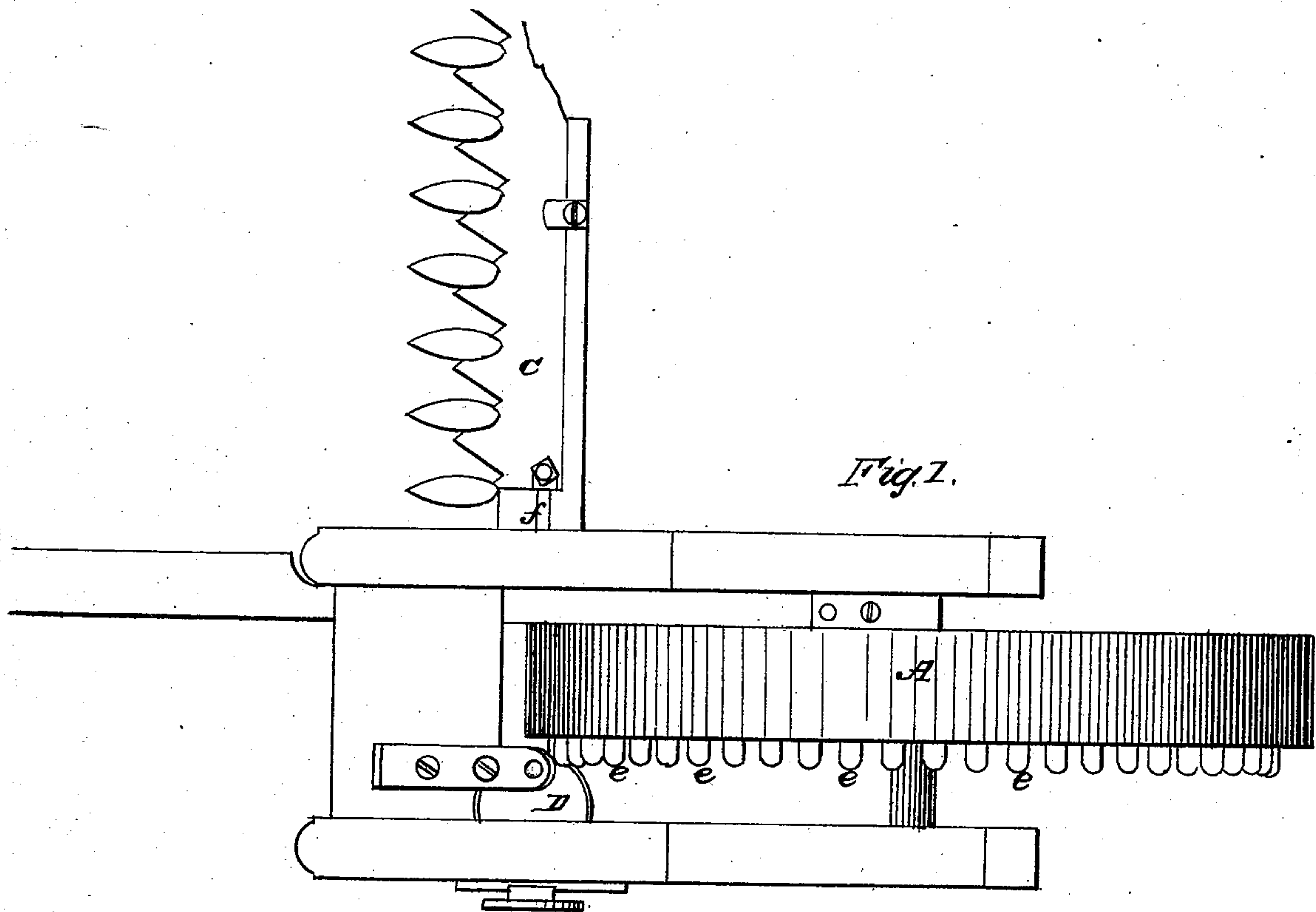


J. HAVILAND.
Mowing Machine.

No. 18,093.

Patented Sept. 1, 1857.



UNITED STATES PATENT OFFICE.

JAMES HAVILAND, OF MILTON, NEW YORK.

IMPROVED METHOD OF OPERATING THE CUTTERS OF HARVESTING-MACHINES.

Specification forming part of Letters Patent No. **18,093**, dated September 1, 1857.

To all whom it may concern:

Be it known that I, JAMES HAVILAND, of Milton, in the county of Ulster and State of New York, have invented a new and Improved Method of Operating the Cutter-Blade of Harvesting-Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification—

Figure 1 being a top view of my improved harvesting-machine, and Fig. 2 a side view of the same with a portion of the frame broken away to show the arrangement of the gearing.

Similar letters indicate the same parts in both drawings.

The frame of my improved harvesting-machine may be constructed in any manner that will best adapt it to the movements of the machine. The pitman *f* connects the inner end of the cutter-blade *C* with the eccentric wheel *D* on the vertical shaft *B*, or with a crank on said shaft, should such device be preferred. The vertical shaft *B* is sustained in suitable bearings. Motion is imparted to the vertical shaft *B*, and consequently to the cutter-blade *C*, by means of a spiral groove formed in the periphery of the said shaft, and a series of round teeth, *e e*, on the face of the main bearing-wheel *A*, whose extremities are of such an oval shape as adapts them to work in the said spiral groove. I find it expedient to place the teeth

e e at such a distance from each other that two or three of said teeth will simultaneously operate within the groove in the shaft *B*. This arrangement imparts a perfectly steady motion to the shaft *B*, and the spiral groove in said shaft may be given such a pitch that the teeth *e e* will impart any desired velocity to the cutter-blade, which is combined with the said shaft *B*.

The simplicity of this my improved arrangement for communicating motion to the cutter-blade of harvesting-machines must be readily apparent to any one who is familiar with the subject.

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

Imparting the requisite movements to the cutter-blade of a harvesting-machine by means of the spirally grooved intermediate shaft, *B*, and the series of hemispherical or oval-headed teeth *e e*, projecting from the face of the main bearing-wheel *A* and operating upon the said intermediate shaft, substantially as herein set forth.

The above specification of my new and improved method of operating the cutter-blade of harvesting-machines signed and witnessed this 1st day of August, 1857.

JAMES HAVILAND.

Witnesses:

GEORGE W. ADAMS,
Z. C. ROBBINS.