

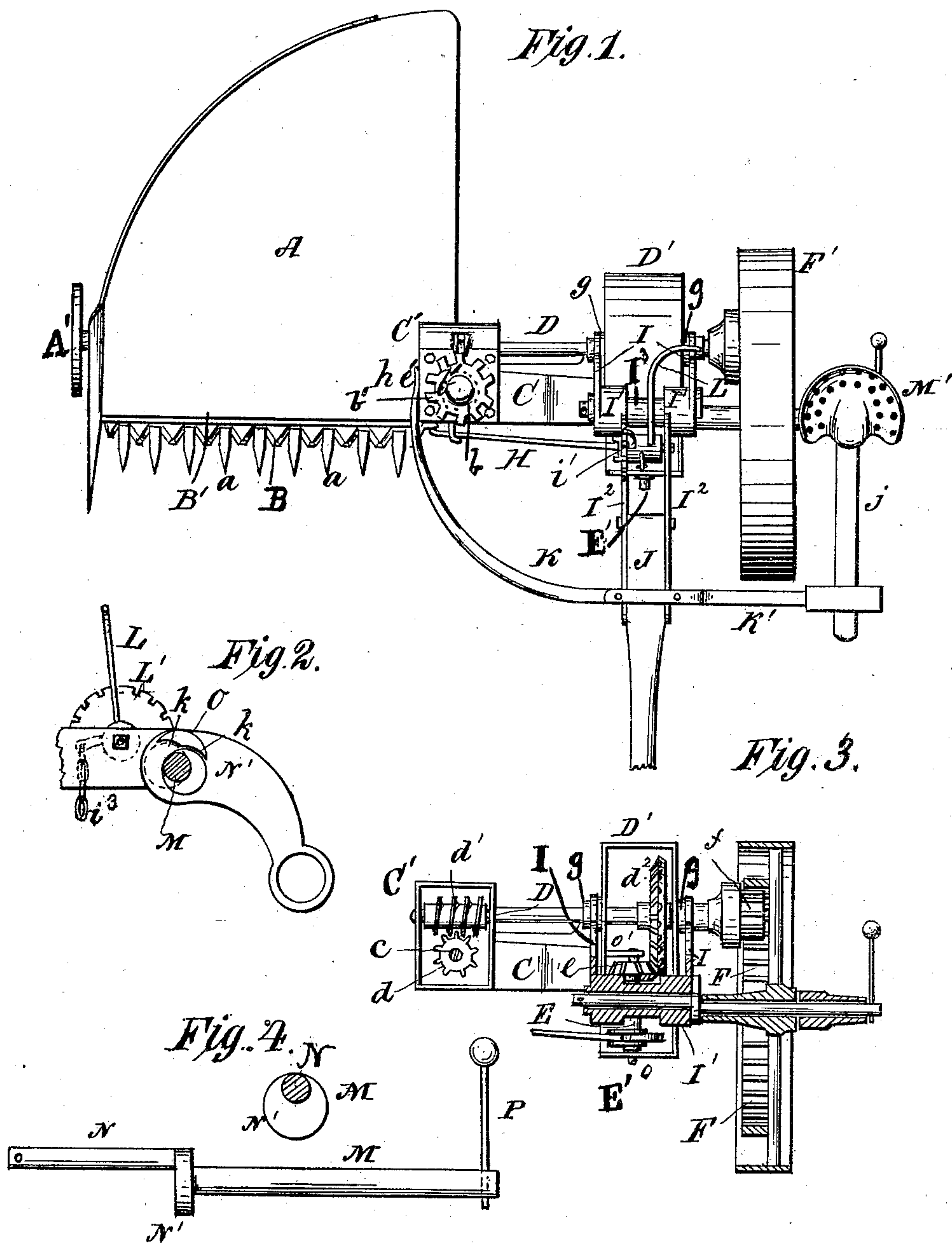
(Model.)

2 Sheets—Sheet 1.

B. F. STEWART.  
HARVESTING MACHINE.

No. 257,406.

Patented May 2, 1882.



Witnesses:  
R. B. Surpin  
J. W. Wheat

Inventor:  
Benjamin F. Stewart  
By R. S. H. Lacey  
Attys

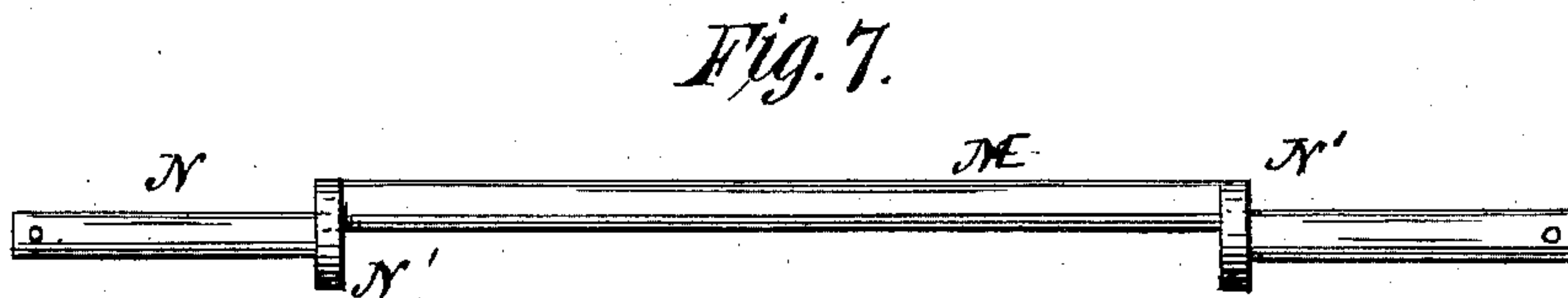
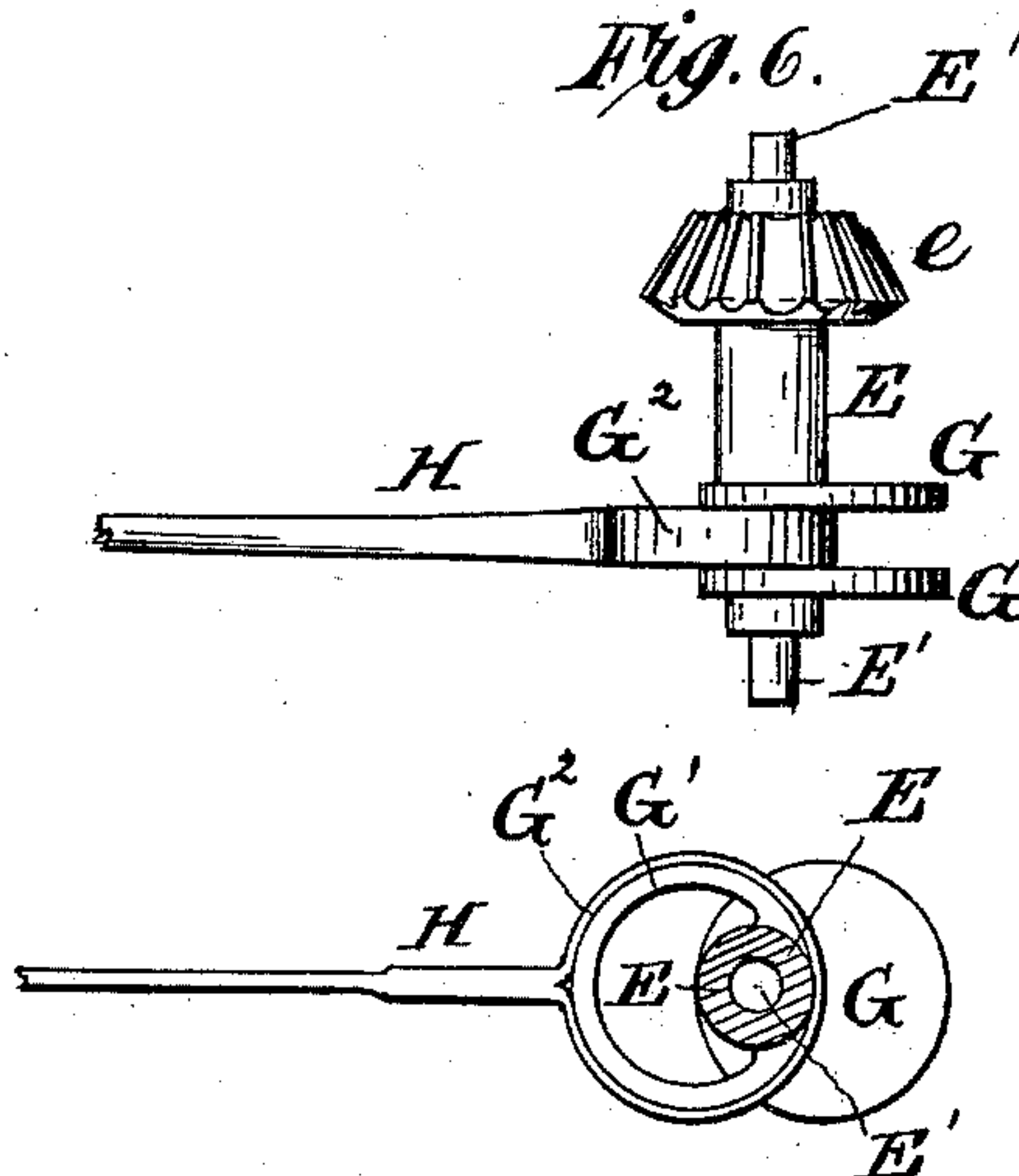
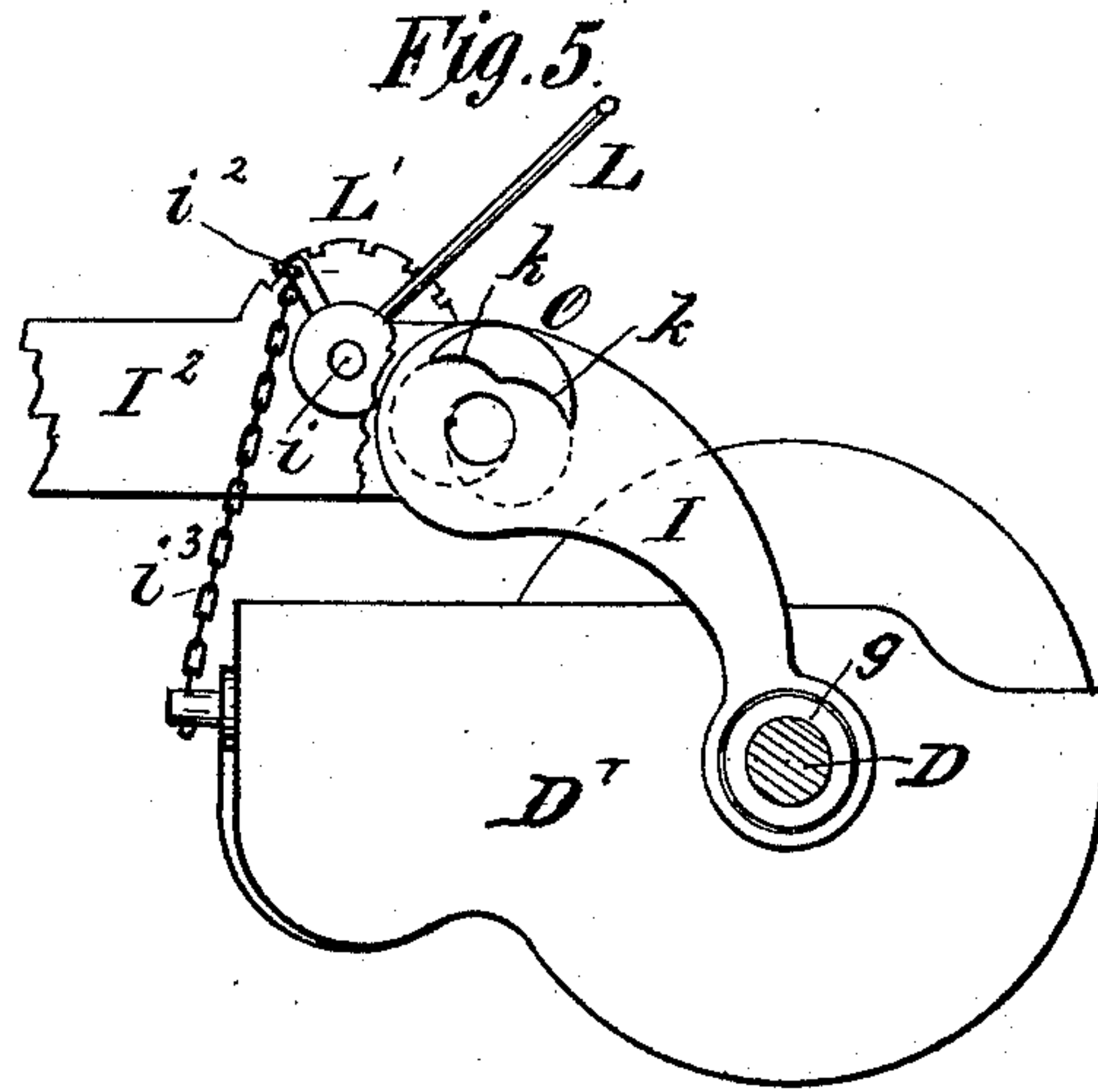
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# UNITED STATES PATENT OFFICE.

BENJAMIN F. STEWART, OF NEW PHILADELPHIA, OHIO.

## HARVESTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 257,406, dated May 2, 1882.

Application filed December 5, 1881. (Model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN F. STEWART, a citizen of the United States, residing at New Philadelphia, in the county of Tuscarawas and State of Ohio, have invented certain new and useful Improvements in Harvesting-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

In the drawings, Figure 1 is a plan of a harvesting-machine embodying my improvements. Fig. 2 is a detail side view of the main axle and counter-shaft bearings. Fig. 3 is a horizontal section of a part of the machine, showing the operating gearing. Fig. 4 is a transverse section and a plan of main axle, on which the driving-wheel is mounted. Fig. 5 is a partial side elevation of the mechanism for raising and lowering the finger-bar and grain-platform. Fig. 6 shows a plan and side elevation of the eccentric attachment by which the pitman is operated, and Fig. 7 shows the main axle provided with two eccentrics.

One great object aimed at in this invention is to furnish a machine which will do efficient work and at the same time be composed of very few parts.

The invention consists in an eccentric ring and balancing-disks, the ring and disks being arranged on the same shaft and diametrically opposite to each other, so that the weight of the disks balances the ring and serves to carry the latter over the dead-center.

It consists, further, in the manner of supporting the driving-wheel on a spindle journaled eccentrically to its bearing, a frame extended laterally from the tongue in front of the driving-wheel, the driver's seat fixed to the outer end of said frame and arranged over the outer end of the spindle, and a lever fixed in the end of the spindle and under control of the driver.

It consists, further, in the peculiar manner of arranging the platform and the coupling-irons of the tongue, whereby the draft is thrown in rear of the operating mechanism, and into or near to the horizontal plane of the resistance

presented by the cutter-bar when cutting grain; and it consists, further, in the combination and arrangement of the several parts hereinafter described, and pointed out in the claims.

A is the grain-platform, on the forward edge of which is the finger-bar B'.

C is a coupling-arm which extends laterally from the platform and in line with the finger-bar, as shown. On the outer end of the arm C there is fixed a substantial casing or box, D', within which is placed part of the operating gears. The box D' is provided with journal-bearings *g g* for the shaft D, on the outer end of which is fixed the spur-pinion *f*, which meshes with the internal gear, F, arranged in the driving-wheel F'.

*d*<sup>2</sup> is a bevel-gear, placed in the box D' and fixed on the shaft D, and arranged to mesh with the bevel-pinion *e*, formed on the end of a hollow shaft, E. The pinion *e* and its sleeve or hollow shaft E revolve on a shaft, E', having its ends fixed in a partition, *o'*, and the end *o* of the box D'. At the inner end of the arm C, next the platform A, there is constructed a box or casing, C', on the top of which there is placed a hollow post, *b*, having a height sufficient to carry and permit the proper sweep of the rakes.

The end of the shaft D passes through the box C', and is provided with a worm-wheel, *d'*, which meshes with a pinion, *d*, on the lower end of the vertical shaft *c*, which extends upward through the hollow post *b*, and has the rake-head *b'* fixed on its upper end. The shaft D is arranged in rear of the arm C very nearly in the same plane with the platform A. To the axle D the draft is applied, as hereinafter explained.

G G are two disks formed on or suitably affixed to the end of the sleeve E, and are arranged eccentrically to the said sleeve, and are just wide enough apart to admit the pitman-head between them.

It will be seen that the peripheries of the disks are almost coincident with or touch the periphery of the sleeve at one side, while on the opposite side the disks project a considerable distance beyond the periphery of the sleeve and become a balancing-weight, for purposes hereinafter stated. It will be seen, further, that the disks extend above and below



the sleeve, as arranged in the second part of Fig. 6, and thus, in addition to being a balancing-weight, serve as guides to give steadiness to the movement of the pitman-head.

5  $G'$  is an eccentric journal-ring, which is placed on the sleeve  $E$ , and between the disks  $G$   $G$ . The point of coincidence of its periphery with the periphery of the sleeves, and the points of coincidence of the peripheries of the disks  $G$  10 with said sleeve, are diametrically opposite, thus bringing the disks and ring diametrically opposite, so that the weight of the latter will act to carry the pitman over the dead-center. The head  $G^2$  of the pitman  $H$  is a ring, which 15 fits over the bearing-ring  $G'$ .

$I$   $I$  are irons, which have their rear ends journaled on short sleeves  $g$   $g$ , projecting from the sides of the box  $D'$ . The shaft  $D$  passes through the sleeves  $g$   $g$ . The irons or brackets 20  $I$   $I$  are provided immediately between their ends with bearings  $I' I'$ , connected rigidly together by an intermediate sleeve,  $I^3$ . The bearings  $I'$  and the sleeve  $I^3$  support the end of the axle, which carries a driving-wheel,  $F'$ . 25 The forward ends  $I^2 I^2$  of the irons or brackets  $I$   $I$  are extended parallel to each other, and far enough to provide the necessary facilities for holding the tongue  $J$ .

To the tongue is attached a frame or bar,  $K$  30  $K'$ , one end of which extends outward in front of the driving-wheel and has the drivers' seat affixed thereto, while the other end is curved backward, and is extended to and pivoted or hinged on the side of the box or framing  $C'$ .

35 The irons or brackets  $I$   $I$  pass over the top of the arm  $C$  and its box  $D'$ , and are journaled on the sleeves  $g$   $g$  around the shaft  $D$ , thus throwing the point of draft low down and to the rear of the line of the cutter-bar and to the 40 rear of the axle of the driving-wheel. The platform  $A$  is supported so that it tilts upon the shaft  $D$  and the grain or caster wheel  $A'$ . The caster-wheel  $A'$  at the outer end of the platform is arranged about in line with the 45 shaft  $D$ , and thus greatly facilitates the tilting movement. The draft being applied almost in the same plane and to the rear of the point of resistance relieves the machine from great strain, to which it would be subject if the draft 50 were applied at a point above and flush with or in advance of the cutter-bar.

$L$  is a lever sleeved upon a bar or axle,  $i$ , secured to the plates  $I^2$ , and having a right-angled arm,  $i'$ , (see Fig. 1,) and preferably a sec- 55 ond arm,  $i^2$ , to which a chain,  $i^3$ , or its equivalent is attached, also connected to the box  $D'$ . By moving the lever  $L$  rearwardly it will be observed that the box with its inclosed mechanism and the forward end of the plat- 60 form with the cutter-bar will be raised, and be thus held by the entrance of the right angled or hooked arm  $i'$  into the coincident notch of a serially-notched segment,  $L'$ , cast or formed with one of the plates  $I^2$ . By moving it in a 65 forward direction the opposite result will follow, thus permitting of the ready raising and

lowering of the aforesaid mechanism, more particularly the cutter-bar, without affecting the relation of the several parts with each other.

$M$  is the driving-axle, upon which is loosely 70 mounted the driving-wheel  $F'$ . The driver's seat  $M'$  is mounted upon a spring,  $j$ , secured upon the projecting portion of the axle outside of the wheel, and to the bar  $K'$  of the frame  $K$   $K'$ . The axle  $M$  has an eccentric arm 75 or crank,  $N$ , which works or bears in the box  $I'$  of the tongue-brackets  $I$ , and an eccentric,  $N'$ , which, it will be observed, bears against either of two concaved surfaces or points,  $k$   $k$ , of a bearing-shoulder,  $O$ , cast or formed upon 80 the outside of one of the tongue-brackets  $I$ , as the axle is operated by its lever  $P$ . As the axle is thus operated the driving-pinion  $f$  is thrown into or out of gear with the driving-wheel toothed ring, either one or the other of 85 the concaved bearing-surfaces  $k$  serving as a bearing for and to hold the axle according to its adjustment. It will be noticed that the eccentricity of the arm  $N$  of the axle  $M$  will have the effect as it is operated, as aforesaid, to ad- 90 just the pinion  $f$  either toward or from the driving-wheel teeth. The pinion  $f$  is connected with its shaft  $D$ , as is usual, so as to permit it to revolve independently of its shaft 95 when backing or turning the machine to prevent the operation of the cutter-bar and rake-head at those intervals.

It will be remarked that the pinion  $e$ , its shaft  $E$ , and the balances or eccentrics  $G^2$  are all cast or made in one piece. 100

Having thus fully described my invention, I claim and desire to secure by Letters Patent—

1. The combination, with the shaft  $E$  and the pitman  $H$ , having the ring  $G^2$ , of the eccentric ring or crank  $G'$ , fixed on the shaft  $E$ , and 105 the parallel disks  $G$   $G$ , fixed eccentrically on the shaft  $E$ , abutted against the sides of and arranged diametrically opposite to the eccentric ring or crank  $G'$ , the pitman-yoke  $G^2$  being placed on the ring  $G'$  and held in place by the 110 disks  $G$   $G$ , as and for the purposes set forth.

2. The combination of the tongue  $J$ , the brackets or iron  $I$   $I$ , journaled on sleeves  $g$   $g$ , surrounding the shaft  $D$ , and provided with journal-bearings  $I' I'$ , the cranked axle  $N$   $M$ , 115 supported in the bearings  $I' I'$ , and the driving-wheel  $F'$ , substantially as set forth.

3. The combination, with the axle-bracket  $I$ , having the shoulder or stop  $o$ , having the concavities  $k$ , of the driving-axle having an eccentric 120 arm,  $N$ , an eccentric,  $N'$ , and the lever  $P$ , substantially as and for the purpose specified.

4. The combination of the grain-platform, the finger-bar  $B'$ , the cutter-bar, the pitman having the ring  $G^2$ , the shaft  $E$ , having the 125 eccentric ring, the counterbalancing-disks, and the pinion  $e$ , the shaft  $D$ , having the worm-gear, the bevel-gear  $d^2$ , and pinion  $f$ , the reel-post shaft having a pinion, and the driving-wheel having the internal gear, substantially 130 as set forth.

5. The combination with the shaft  $D$ , provid-



ed with the spur-pinion *f*, and the driving-wheel  
F', having the gear F, of the platform A, con-  
nected to and tilting upon the shaft D, and the  
coupling-arm C, having one end made fast to  
5 the front edge of the platform A, and its other  
end extended in front of the shaft D toward  
the driving-wheel and coupled adjustably to  
the framing, substantially as set forth.

In testimony whereof I affix my signature  
in presence of two witnesses.

BENJAMIN F. STEWART.

Witnesses:

DANIEL KORNS,  
J. H. BOOTH.