

(No Model.)

J. C. HARDING.  
HARVESTING MACHINE.

No. 437,113.

Patented Sept. 23, 1890.

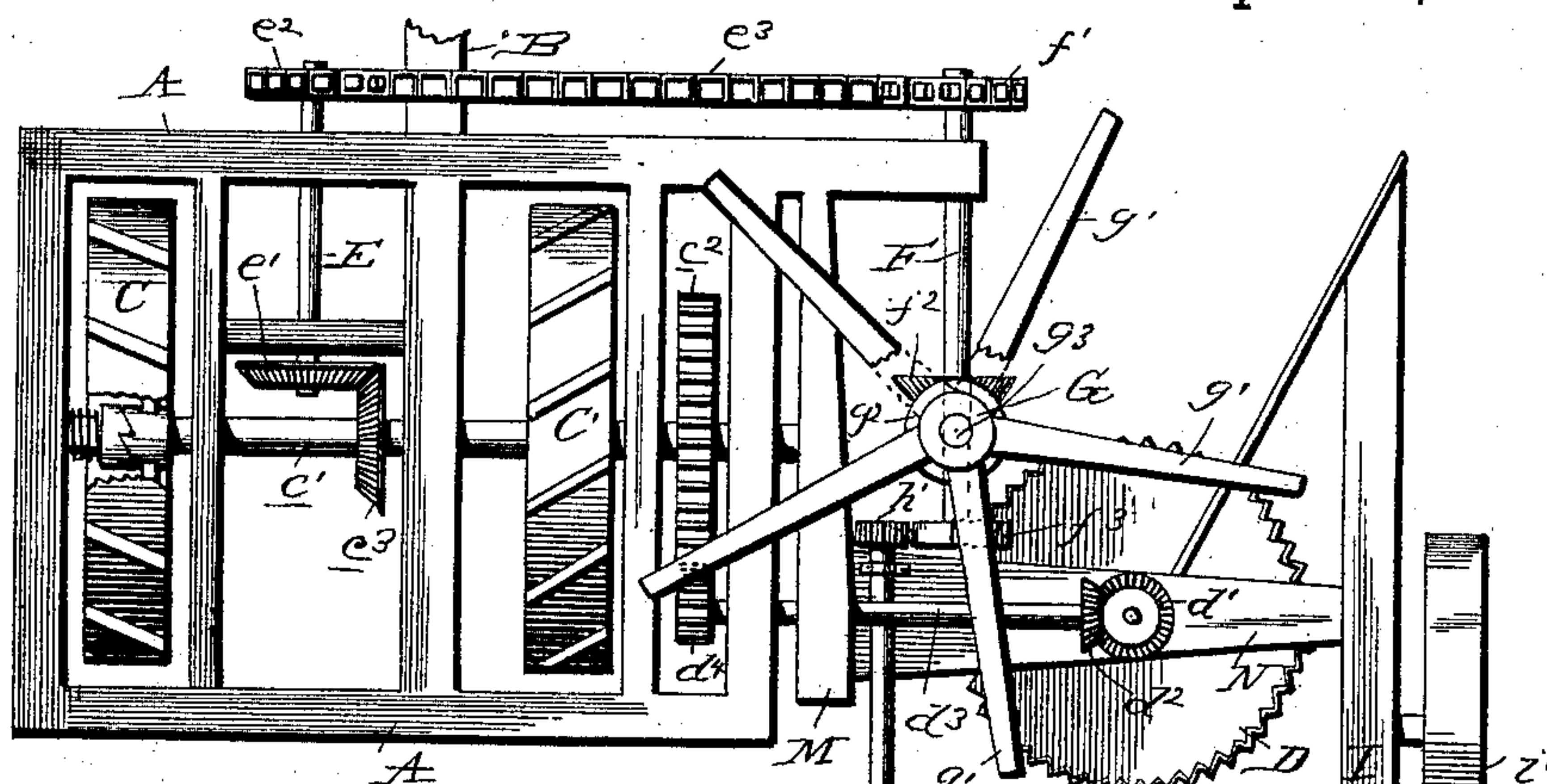
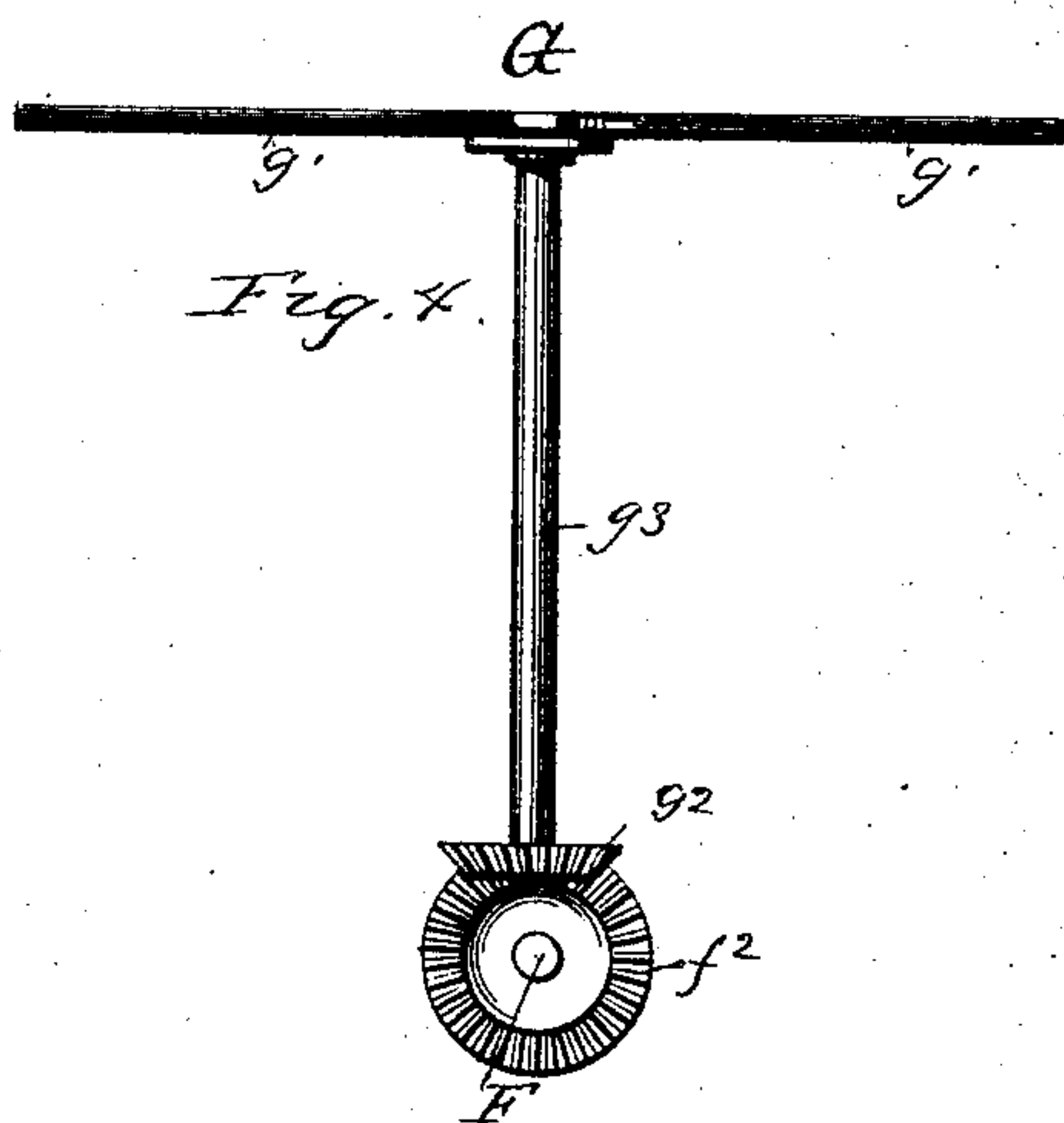
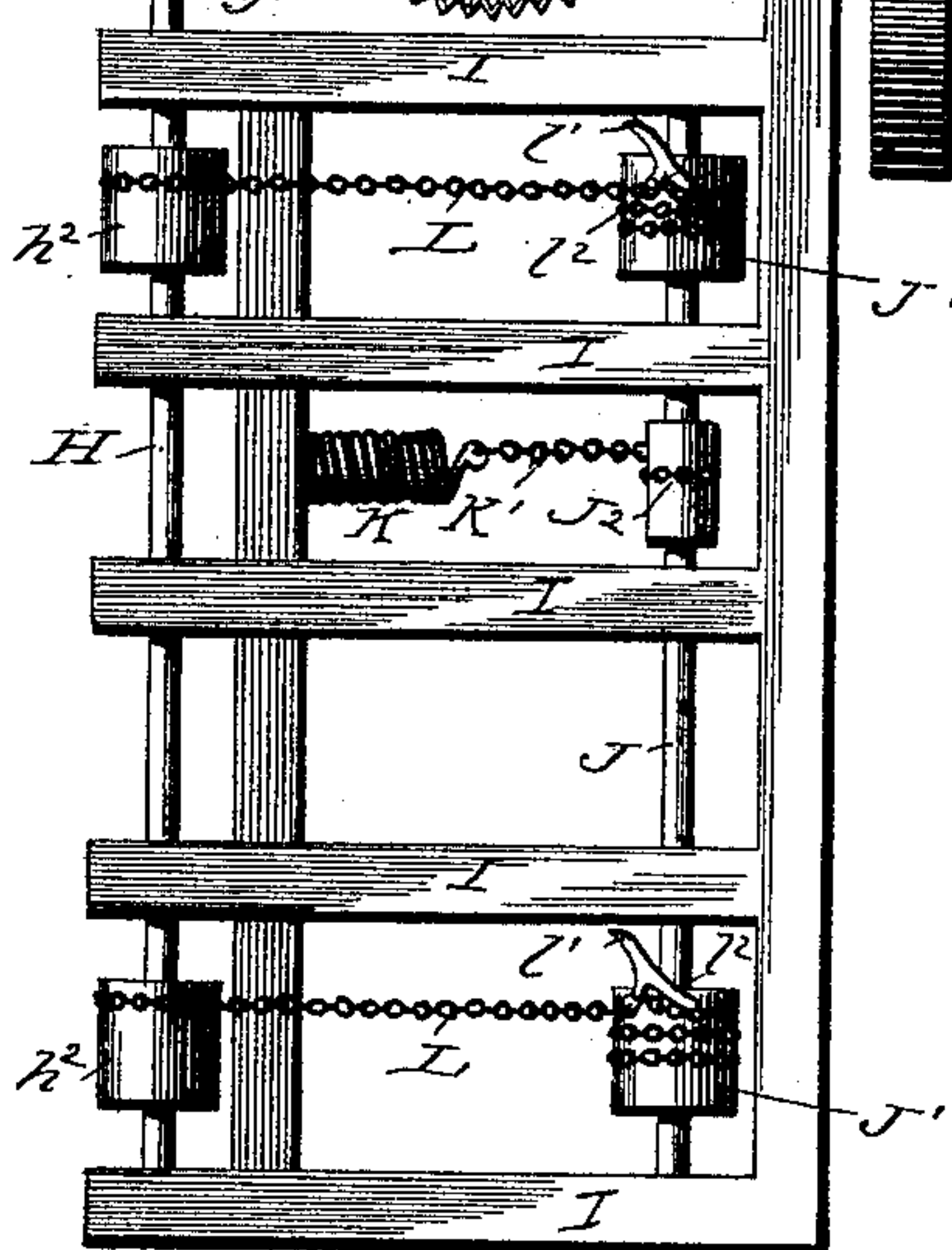
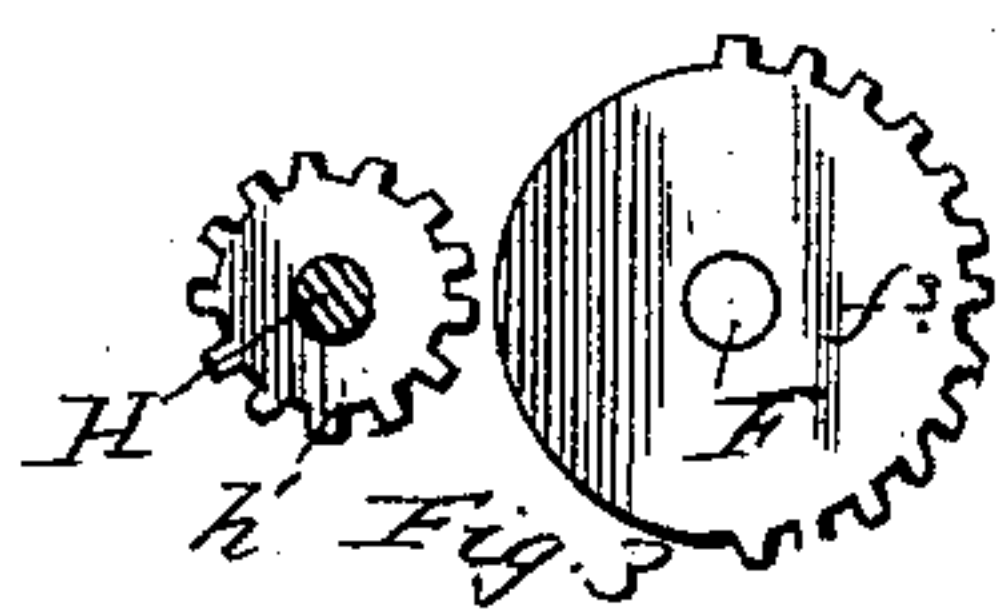
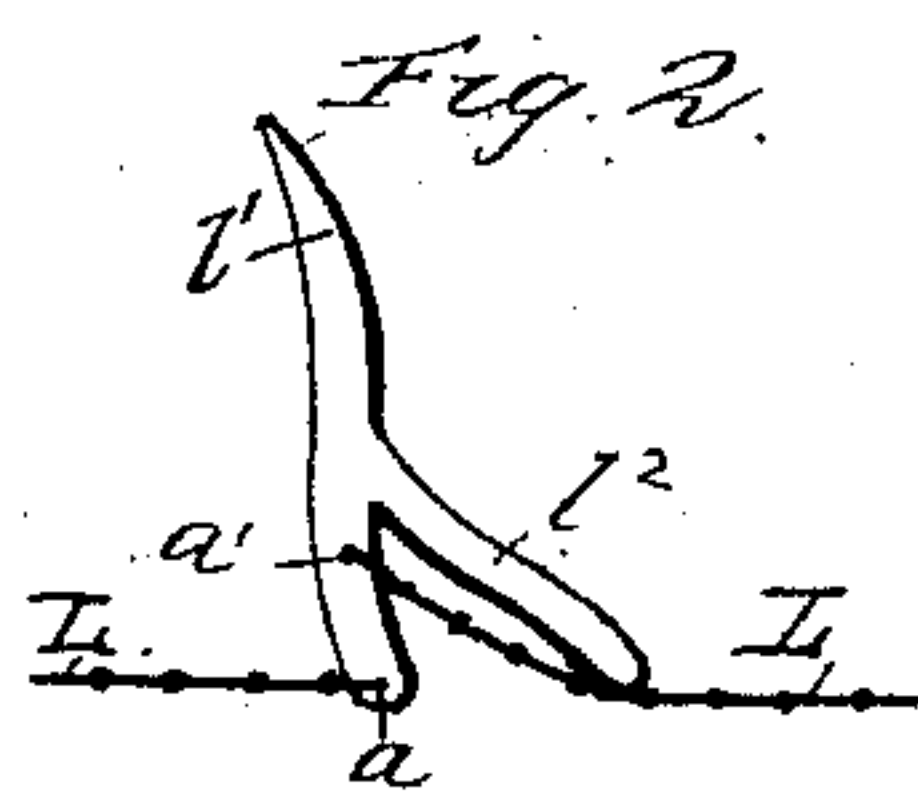


Fig. 1.



Witnesses  
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# UNITED STATES PATENT OFFICE.

JAMES C. HARDING, OF TOPEKA, KANSAS.

## HARVESTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 437,113, dated September 23, 1890.

Application filed May 27, 1889. Serial No. 312,278. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES C. HARDING, a citizen of the United States, residing at Topeka, in the county of Shawnee and State of Kansas, have invented certain new and useful Improvements in Harvesting-Machines; and I do 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 the letters of reference marked thereon, which form a part of this specification.

This invention relates to harvesting-machines for cutting up corn for fodder or sorghum-cane for sugar; and it consists, essentially, of the several parts hereinafter described.

In the drawings like letters refer to like parts in all the figures.

Figure 1 is a plan or top view of a machine embodying my invention. Fig. 2 is a detail view showing the manner of attaching the arms to the dumping-chains. Fig. 3 is a detail view of the gearing between the dumping-shaft and the driving-shaft. Fig. 4 is a side view of the reel, showing the manner of imparting motion thereto.

A A is the frame, to which is attached the tongue B, to which the team is hitched for drawing the machine over the field. In the frame A is the axle  $c'$ , on which the drive or carrying wheels C C' revolve. These wheels are fitted with the well-known device of side-gearing ratchets, by means of which they may be allowed to turn on the shaft when it is desired not to operate the various attached machinery, or by the usual method of throwing into gear the drive-wheels may be made to revolve the axle  $c'$ . To the axle  $c'$ , at its right-hand projecting end, is fixed solid the large spur-gear  $c^2$ , meshing with the spur-pinion  $d^4$ . The pinion  $d^4$  is fixed solid to the shaft  $d^3$ , which has at its outer end the bevel-wheel  $d^2$ , meshing with the bevel-pinion  $d'$ . The bevel-pinion  $d'$  is fixed solid to the vertical shaft, to which is fixed by proper collars the saw D. This saw has V-shaped teeth, which are sharp on both edges, so that when by revolving in one direction one side or cut-

ting-edge of the teeth is dull the circle may be reversed or turned the other side up and used until the other side is dull, when both sides may be ground at the same time. To the shaft  $c'$  is also fixed the bevel-wheel  $c^3$ , meshing in the bevel-wheel  $e'$ , fixed solid on the inner end of the shaft E. The shaft E has at its outer end a sprocket-wheel  $e^2$  on which the sprocket-chain  $e^3$  is carried. This chain extends to and operates the sprocket-wheel  $f'$ , which is fixed solid to the outer end of the shaft F. The shaft F at its inner end has fixed solid a mutilated gear-wheel  $f^3$ , the details of which are shown by plan view in Fig. 3. The purpose of this mutilated gear-wheel  $f^3$  is to transmit motion from shaft F to shaft H at fixed intervals in the revolution of said shaft F, whereby the chains L will be wound on the drums  $h^2 h^2$  and carry the grain from off the platform. The chain K' will be wound on drum J<sup>2</sup> as the chains L are unwound from the drums J' J' and effect a distension of spring K, and when the mutilated part of gear-wheel  $f^3$ , or the portion thereof without teeth, comes opposite pinion  $h'$  the spring K will contract and unwind the chain K' and rewind the chains L L.

The shaft H has at its front end a spur-pinion  $h'$ , fixed solid, and also at the points shown, the two drums  $h^2 h^2$ . To the drums  $h^2 h^2$  are fixed the dumping-chains L L, which should be flat, similar to sprocket-chains, to preserve the position of the upright arms  $l' l'$ .

The platform I serves the double purpose of a bearing for the shafts H and J and a receptacle for receiving the cut fodder or cane. The frame I is supported at its outer end on the wheel  $i'$ .

The upright arms  $l' l'$  are fixed to the chains L L, as shown in detail in Fig. 2, and as will be seen by a simple method, whereby when they are being carried to the right by the recoil of the spring the arms are vertical, or nearly so, and when the chains carry them to the left they will be in nearly a horizontal position, allowing them to pass freely below the fodder or cane which has been cut and fallen on the platform I while they were passing to the left, carrying with them the bunch or amount cut during their passage and dumping it at left of the platform.



The chains L are separated, one end being attached to the lower end of the arm  $l'$  at  $a$ , and the other end being connected with the arm  $l'$  at  $a'$  some distance above the point  $a$ .

5 The brace  $l^2$ , extending from the rear side of the arm  $l'$ , bears on the chain L and supports the arm  $l'$  in a vertical position when it is traveling from right to left.

The reel G is supported by the shaft  $g^3$  and  
10 revolved by bevel-wheel  $g^2$ , meshing with  $f^2$ , attached to the shaft F near the vertical axle  $g^3$  of the reel G. This reel has a suitable number of projecting arms  $g' g'$ , &c., which in the revolutions of the reel are pressed against the  
15 cornstalks above the said saw D, thus holding them against the saw while being cut, and pushing them over on the platform I after they are cut off.

At the extreme right of the frame is a traveling wheel  $i'$ , attached to the frame I to support it at its outer edge. There is also attached to the front part of the frame A a drag-bar M, the saw-carrier N being the other portion. These two parts M N are so attached as  
25 to allow the operator to raise or lower the inner end of the sickle-saw carrier, thus accommodating the cutting machinery to irregularities in the ground, or any desired difference in the height at which stalks are to be cut.

30 It will be seen that by setting the drive-wheels C C' in gear with the axle  $c'$  and causing it to revolve all the attached machinery will be operated—that is to say, the rotary saw D will cut off the stalks or canes, the reel-  
35 arms  $g'$  pressing them against the saw, and when cut off throwing them backward onto the platform I. The shaft H, revolving, will draw the arms  $l'$  toward the left, carrying the stalks into bunches and dumping them over

the side of the platform, thus accomplishing 40 the purpose designed.

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

1. The herein shown and described har- 45 vester, comprising the frame A, the platform I, the shafts  $c'$  and E, the shaft F, geared with the shaft E, the reel-shaft  $g^3$ , geared with the shaft F, the saw D, geared with the shaft  $c'$ , the shafts H and J, the mutilated gear-wheel 50  $f^3$  on shaft F, the pinion  $h'$  on shaft H, the chains L, passing around the shafts H and J, the arms  $l'$ , the closed spring K, and the chain K', substantially as described.

2. The combination, with the chain L, separated in its length, of the arm  $l'$ , having the separated parts of the chain connected with the arm  $l'$  at different points, the one above the other, and the brace  $l^2$  projecting from the said arm, substantially as described. 60

3. In a harvesting-machine, the combination, with the power-driven shaft F, and the mutilated gear-wheel  $f^3$ , mounted on shaft F, of the shaft H, having pinion  $h'$ , which is adapted to be operated by the said mutilated 65 gear-wheel, the shaft J, a spring for turning shaft J in one direction, and chains L, connected at their ends with the shafts H and J and wound on shaft J to act in opposition to the said spring, and having arms  $l'$ , substan- 70 tially as set forth.

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

JAMES C. HARDING.

Witnesses:

MAX. B. HENRY,  
JAMES B. MURRAY.