

(No Model.)

M. A. SPAFFORD.

CORN PLANTER.

No. 380,298.

Patented Mar. 27, 1888.

Fig. 1.

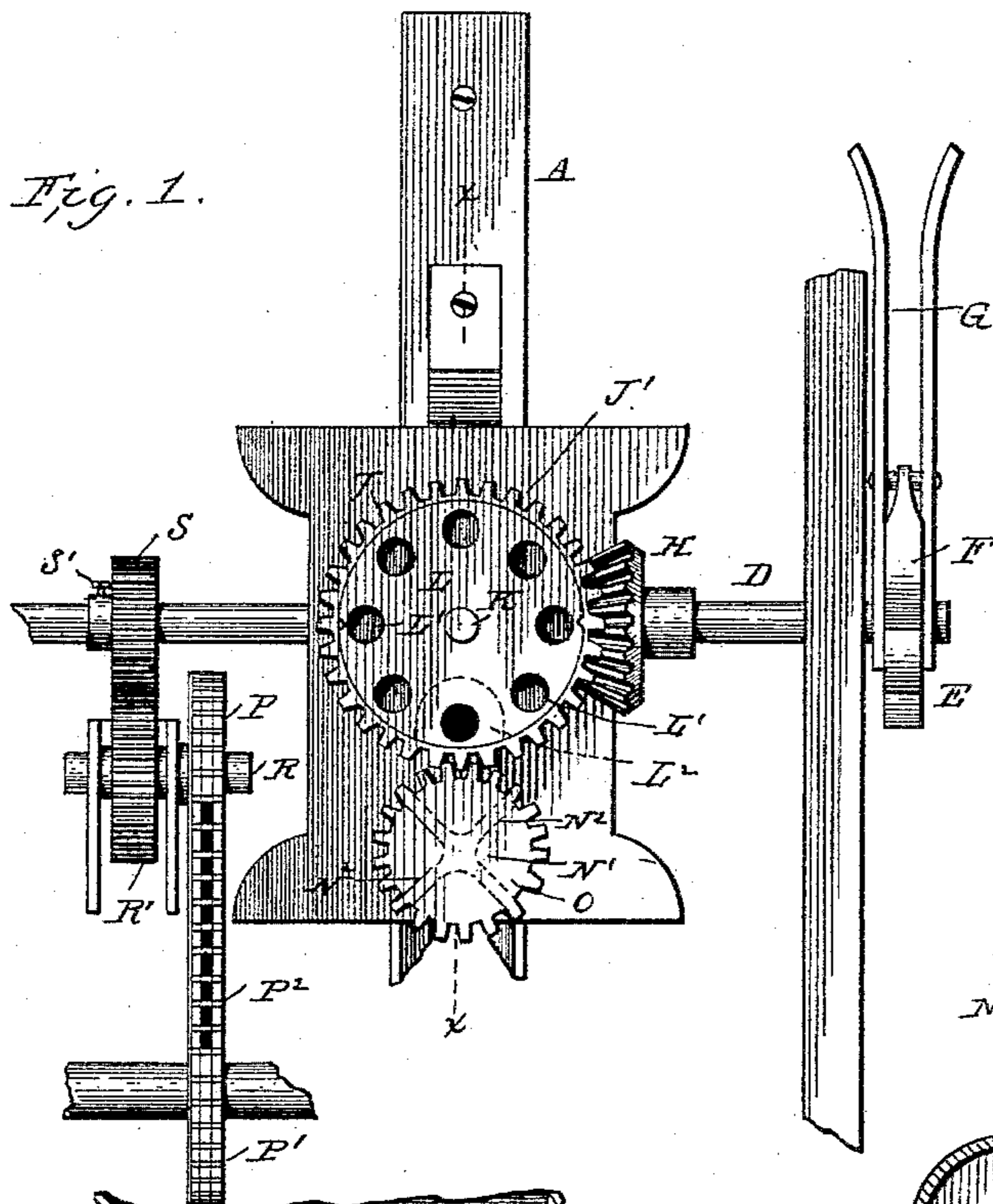


Fig. 2.

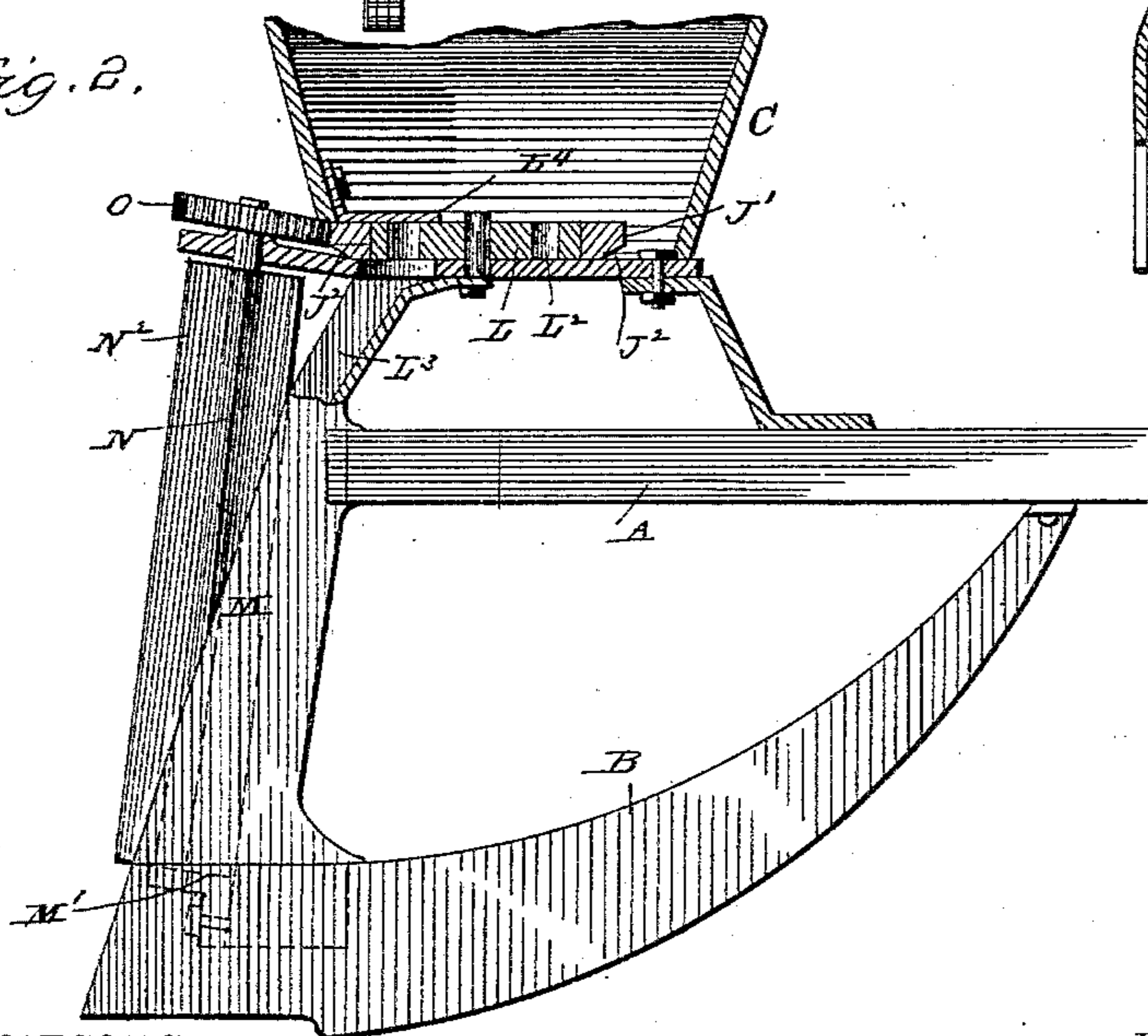
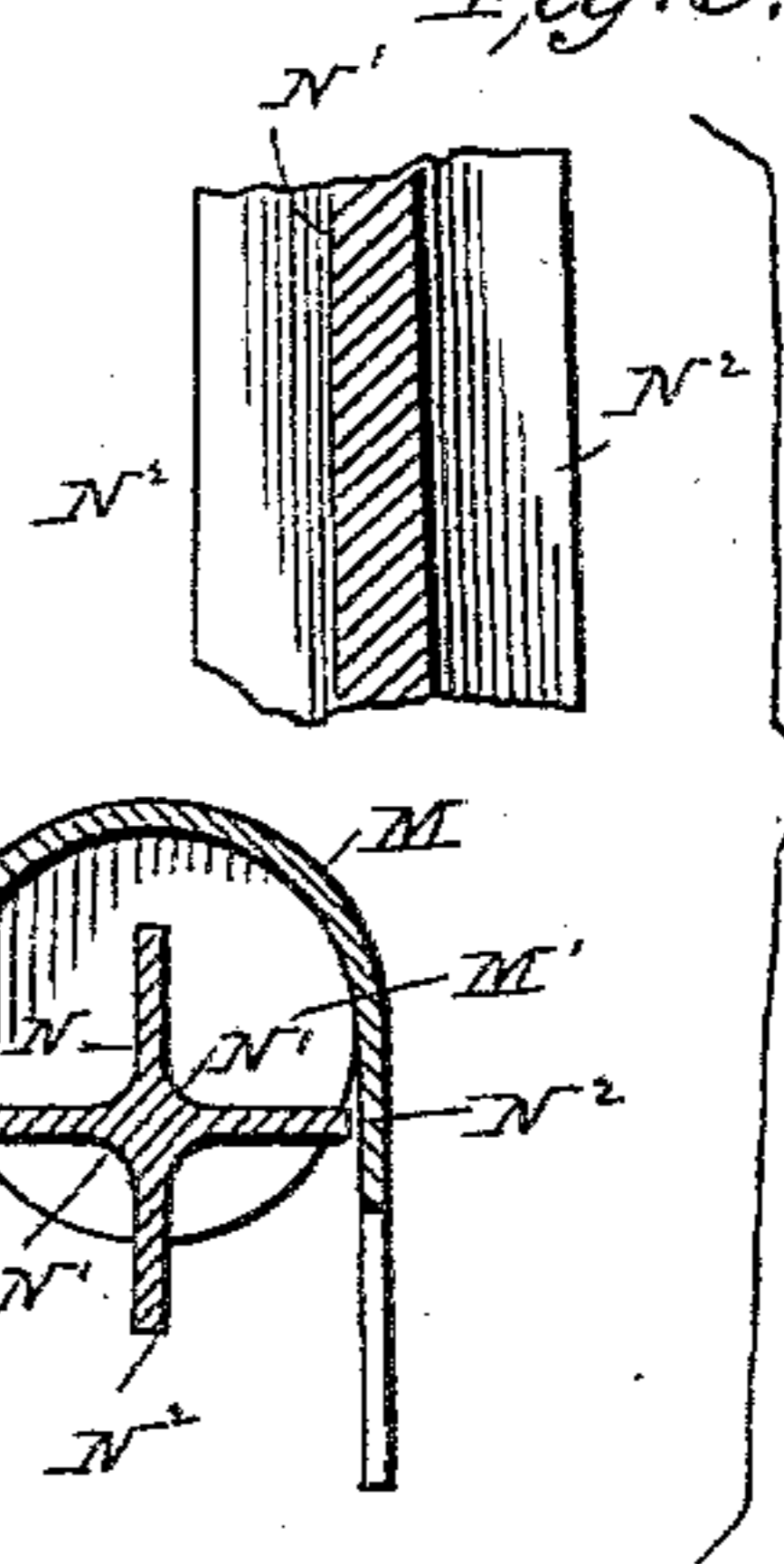


Fig. 3.



WITNESSES

Edwin L. Yewell  
Chas. Helm.

INVENTOR,

Mark A. Spafford  
By Manahan & Ward,  
Attorneys.

# UNITED STATES PATENT OFFICE.

MARK A. SPAFFORD, OF ROCK FALLS, ASSIGNOR TO THE KEYSTONE MANUFACTURING COMPANY, OF STERLING, ILLINOIS.

## CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 380,298, dated March 27, 1888.

Application filed December 1, 1887. Serial No. 256,704. (No model.)

*To all whom it may concern:*

Be it known that I, MARK A. SPAFFORD, a citizen of the United States, residing at Rock Falls, in the county of Whiteside and State of Illinois, have invented certain new and useful Improvements in Corn - Planters; 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.

My invention has reference to corn-planters, and pertains especially to mechanism for operating the dropping or seeding parts of the machine.

My invention consists more particularly in simple and effective means of communicating intermittent action from the arm and shaft, which are actuated by the usual knotted rope of a check-rower to both the measuring-plate in the seed-hopper, and also, and coincidentally, to the discharging valve or tube in the heel of the furrow opener or runner.

As my invention pertains exclusively to the construction and operation of the parts in and about the seed-hopper, and is equally applicable to any species of corn-planters, the general construction of which is well known, I do not deem it necessary to show or describe any more of the machine than is requisite to make clear the application and operation of the parts involving my invention.

While my invention is applicable to a one-row planter, its most advantageous and general application will be to the ordinary two-horse corn-planter, in which two rows of corn are planted at the same time; but as the apparatus for dropping one row is precisely the same in construction as that for dropping the other, the mechanism at each side of the machine being duplicates, I shall restrict the drawings and description to the mechanism located and operated at one side of the machine.

In the drawings, Figure 1 is a plan of one of the seed-hoppers and the adjacent mechanism involving my invention. In this figure the usual parts of the seed-hopper above the meas-

uring-plate are removed. Fig. 2 is a vertical longitudinal section, partially in perspective, in the line  $xx$  of Fig. 1, with the cut-off plate and hopper added. Fig. 3 is transverse and vertical sections of the shaft N.

A is a part of the general frame of the machine.

B is the usual furrow opener or runner, and C the seed-hopper thereon.

D is a shaft suitably journaled transversely of the machine directly under the seed-hopper, and provided at one end with the ratchet E, seated rigidly thereon and adapted to be intermittently rotated by the usual pawl, F, pivotally seated in the actuating-arm G, adapted to be engaged and oscillated, in the usual way, by the knotted rope extended across the field at one side of the machine parallel with the line of movement.

H is a bevel-pinion rigidly seated on the shaft D, with its face adapted to engage and intermittently rotate the double-faced horizontal gear J, journaled centrally on the short vertical stud K, directly under the seed-hopper. The gear J is provided with the peripheral gear J' and the underlying bevel-gear J<sup>2</sup>, the latter of which is engaged by the pinion H as a means of communicating intermittent rotation to the gear J from the shaft D.

L is the usual seed-plate provided with the seed cells or cups L', and seated in any suitable manner in the upper surface of the gear J, so as to be carried and rotated thereby.

L<sup>2</sup> is the usual exit under the seed-plate L, (shown in dotted lines in Fig. 1,) and communicating, through the diagonal tube L<sup>3</sup>, with the vertical recess or boot M, formed in the rear of the furrow-opener B.

L<sup>4</sup> is the usual cut-off, (shown in section in Fig. 2,) seated over the exit L<sup>2</sup>, and between the exit and cut-off is interposed, in the usual way, the seed-plate L, which in its intermittent rotation passes one of its cells L' under said cut-off at each impulse from the pinion H and discharges the seed, in the usual way, down through the channel L<sup>3</sup> into the recess M in the heel of the furrow opener or runner B.

N is a substantially vertical shaft, journaled in such relation to the recess M that its lower

portion intermittently rotates horizontally in the lower portion of the recess M and alternately holds the seed in and discharges the same from said recess, as hereinafter described.

5 The periphery of the shaft N is formed into four vertical concave faces, N', between each of which is interposed the wings or longitudinal ribs N<sup>2</sup>. In the lower end of the recess M is formed the usual shelf or platform, M', upon  
10 which the seed discharged intermittently down through the channel L<sup>3</sup> temporarily rests until swept therefrom by the rotation of the next wing N<sup>2</sup> of the rotating shaft N, the lower end of the shaft N being journaled in the shelf M'  
15 and in such relation to the latter that the wings N<sup>2</sup> successively sweep over the seed-shelf and cast the corn therefrom, through the open bottom of the recess M, into the furrow made by the opener B. The concavities N'  
20 between the wings N<sup>2</sup> furnish successively at all times a back wall to the recess M and prevent the escape of the seed therefrom, except as it is swept as aforesaid from the shelf M' by the intermittent rotation of the shaft N. Co-  
25 incidently with the intermittent rotation of the gear J and seed-plate L like rotation is communicated to the shaft N by means of the pinion O, rigidly seated on the upper end of the shaft N and engaged and operated by the  
30 peripheral gear J' on the gear J.

The pinion H is in such proportion to the gear J as to require two revolutions of the former to effect one revolution of the latter, and the ratchet E has four engaging recesses, so  
35 that each full oscillation of the arm G causes a quarter-revolution of the pinion H, whereby the gear J and seed-cup L are rotated one-eighth of a revolution, a sufficient distance to bring one filled seed-cup over the exit L<sup>2</sup> and  
40 discharge the measured quantity of seed for one hill of corn down the channel L<sup>3</sup> and recess M upon the shelf M', from whence it is precipitated, as aforesaid, by the adjacent wing N<sup>2</sup> at the next impulse of the shaft N.  
45 The latter shaft casts from the shelf M' successively the quantity of seed discharged

thereon at the last previous impulse of the seed-plate L. The cogs on the pinion O are one-half the number of the peripheral cogs J' on the gear J, and consequently a quarter-  
50 revolution is imparted to the shaft N at each impulse of the gear J.

The size of the parts last described may be varied, but the proportion mentioned will have to be observed in the construction shown. The  
55 wings N<sup>2</sup> on the shaft N may be of a greater or less number than those shown, and if so varied then the proportions above mentioned would have to be varied accordingly.

It will be understood that the shaft D ex-  
60 tends across the planter, and is provided at its opposite end with the second pinion H, which engages and operates parts similar to those described, and analogous seeding apparatus.

My invention also retains the advantage of  
65 casting the corn out of the heel of the runner in sight of the operator and somewhat scattering the seed in the hill. The seed-plate L is made removable, so as to provide means of varying the number of grains discharged at a  
70 time.

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

In a corn-planter, the combination of a gear, 75 J, provided with peripheral cogs J' and bevel-cogs J<sup>2</sup>, and adapted to support and carry the seed-plate L, the shaft D, and means, substantially as shown, for imparting intermittent rotation to said shaft, pinion H, seated on shaft  
80 D, runner B, provided with recess M, and shelf M' therein, and shaft N, provided with the pinion O, adapted to be engaged and intermittently rotated by the peripheral cogs J', substantially as shown, and for the purpose de-  
85 scribed.

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

MARK A. SPAFFORD.

Witnesses:

GEORGE S. TRACY,  
J. F. BARRETT.