

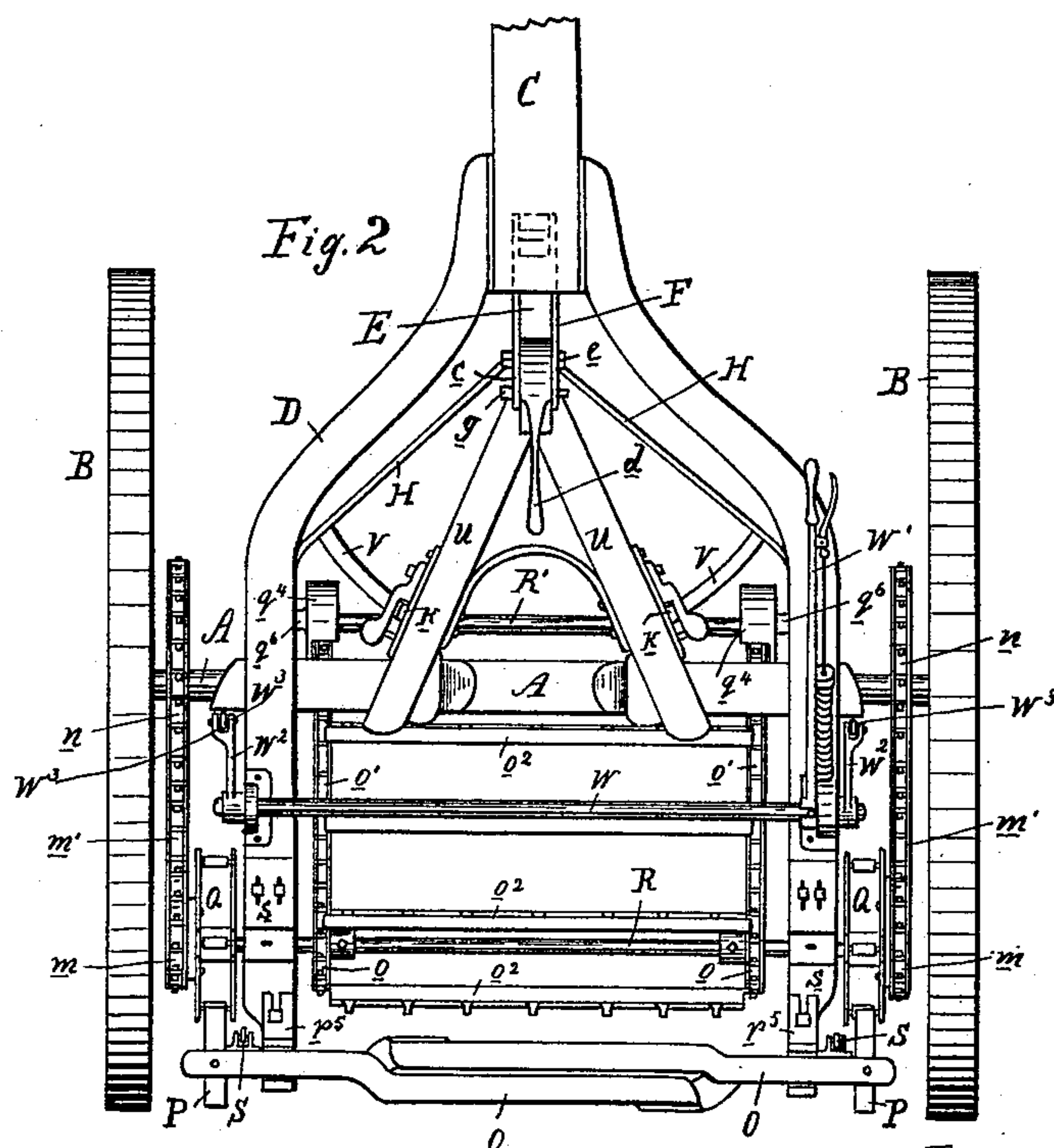
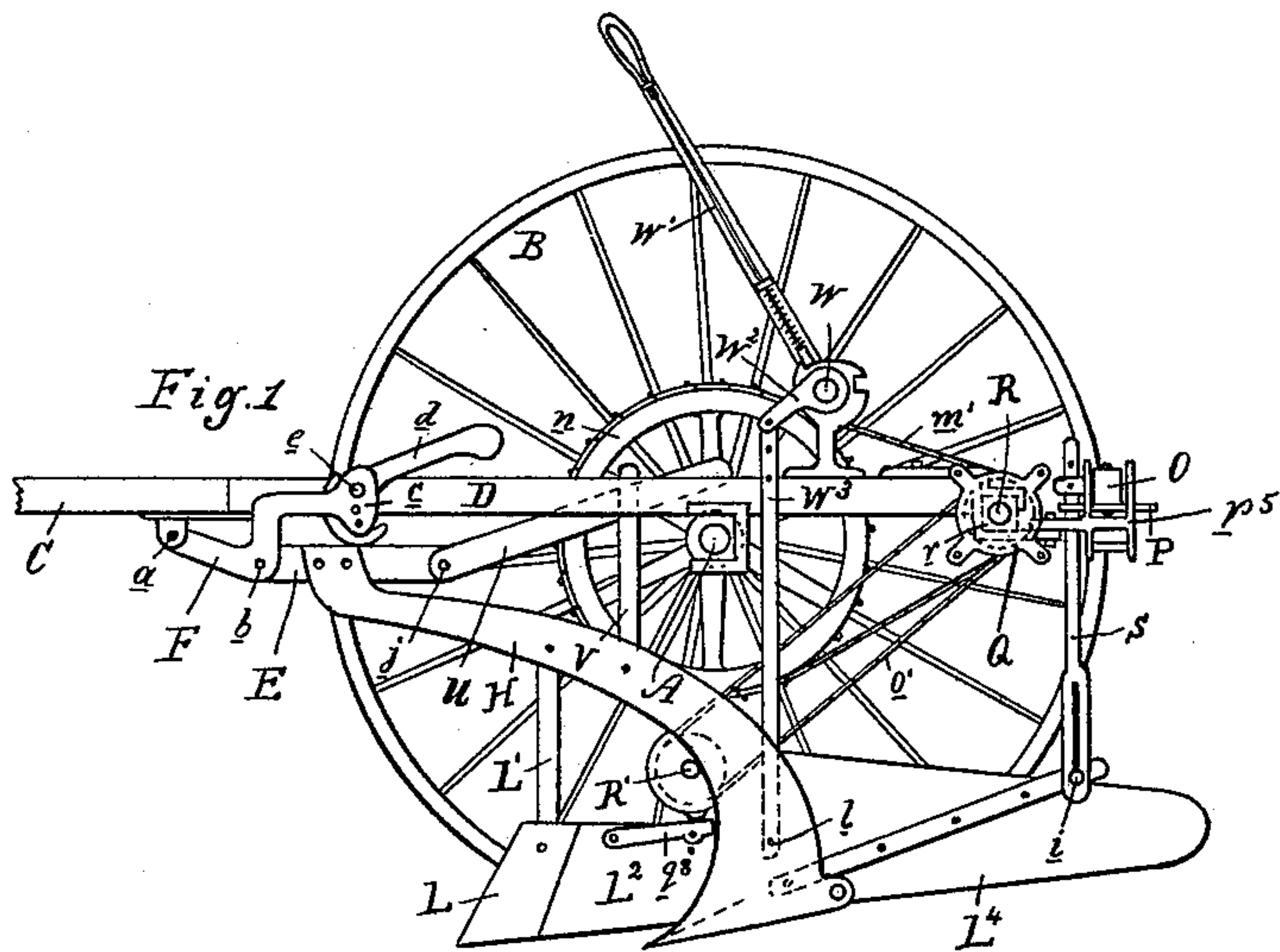
(No Model.)

3 Sheets—Sheet 1.


J. H. LEWIS.
POTATO DIGGER.

No. 403,848.

Patented May 21 1889.



Attest:
John Schuman.
P. M. Hulbert

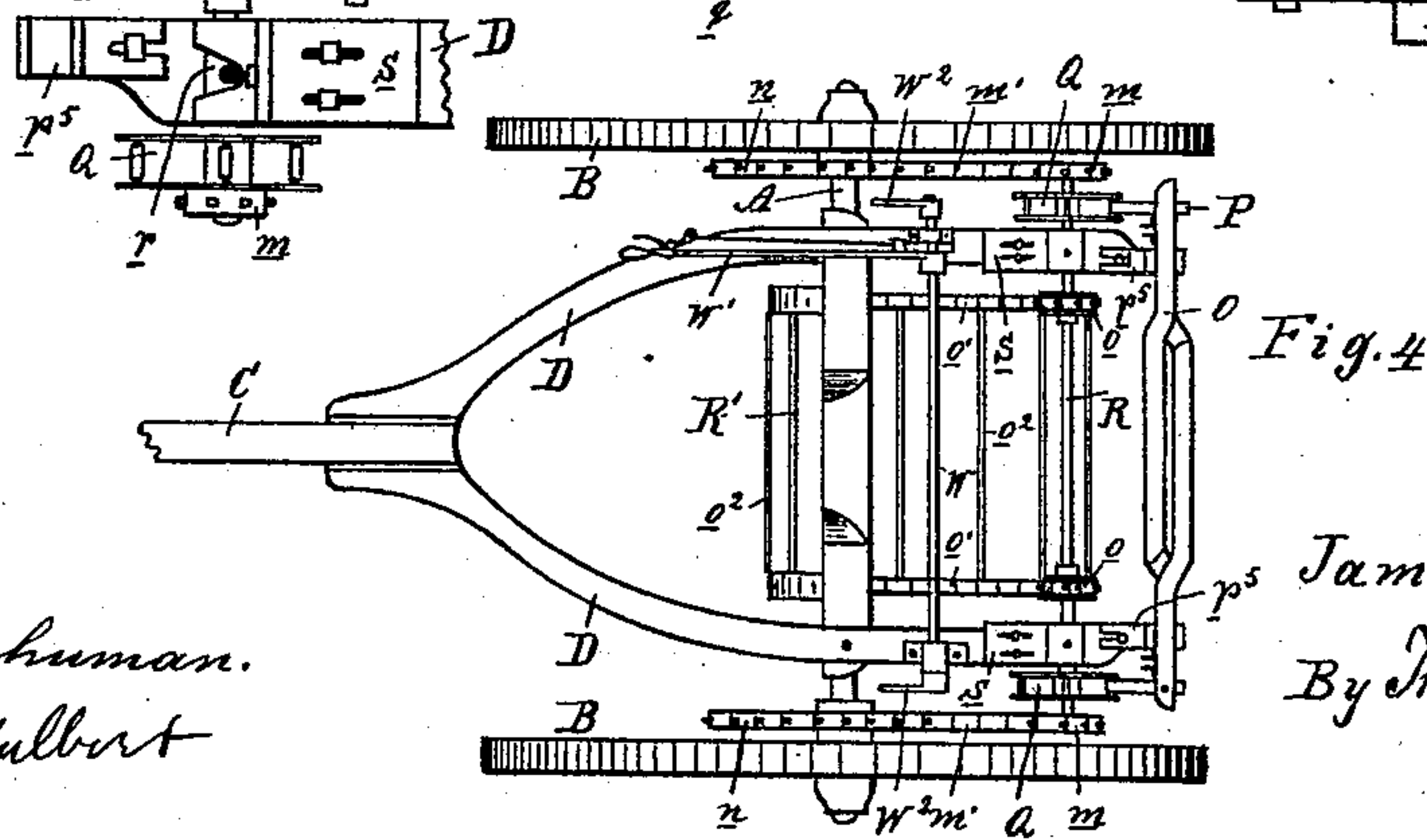
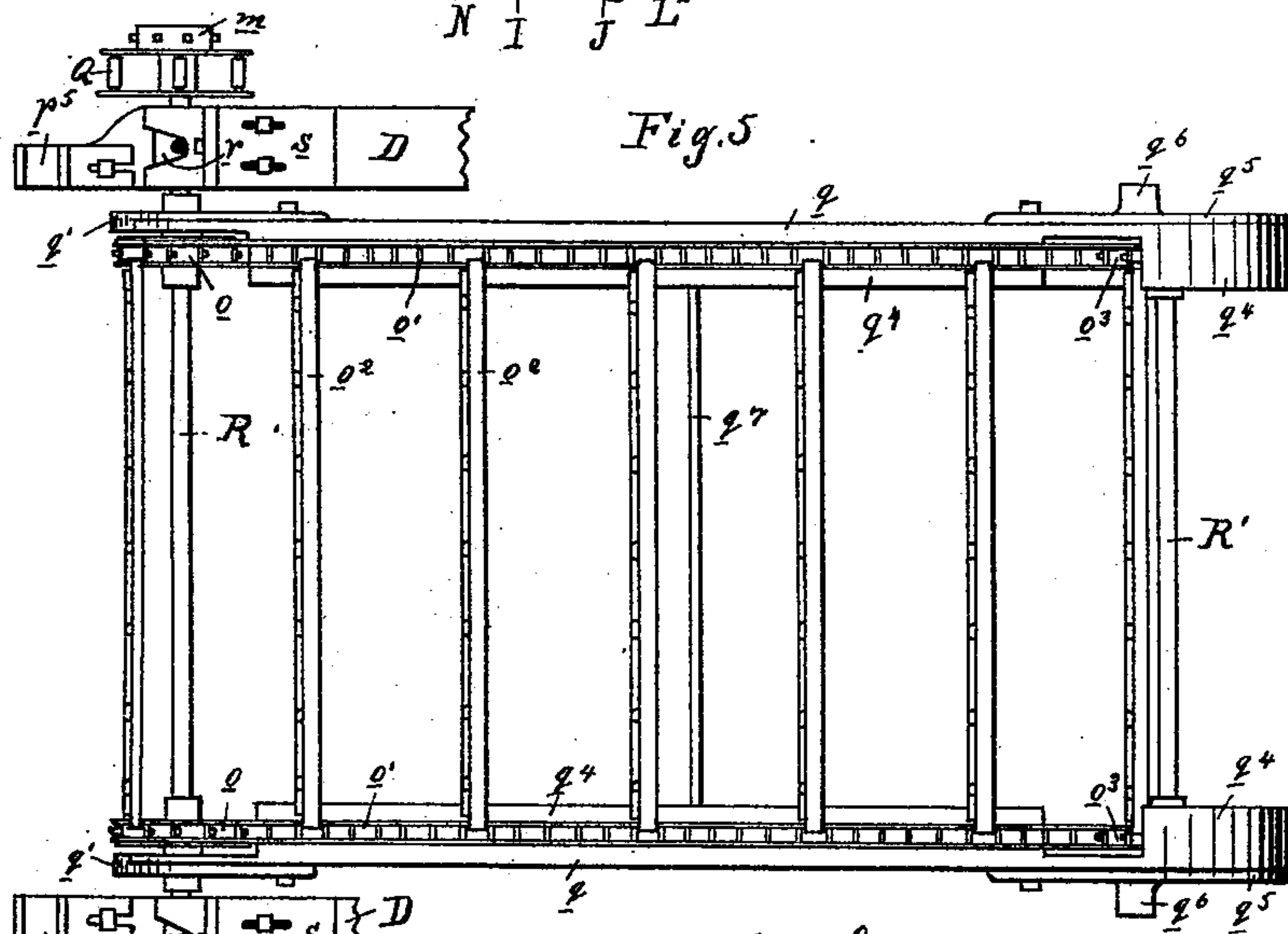
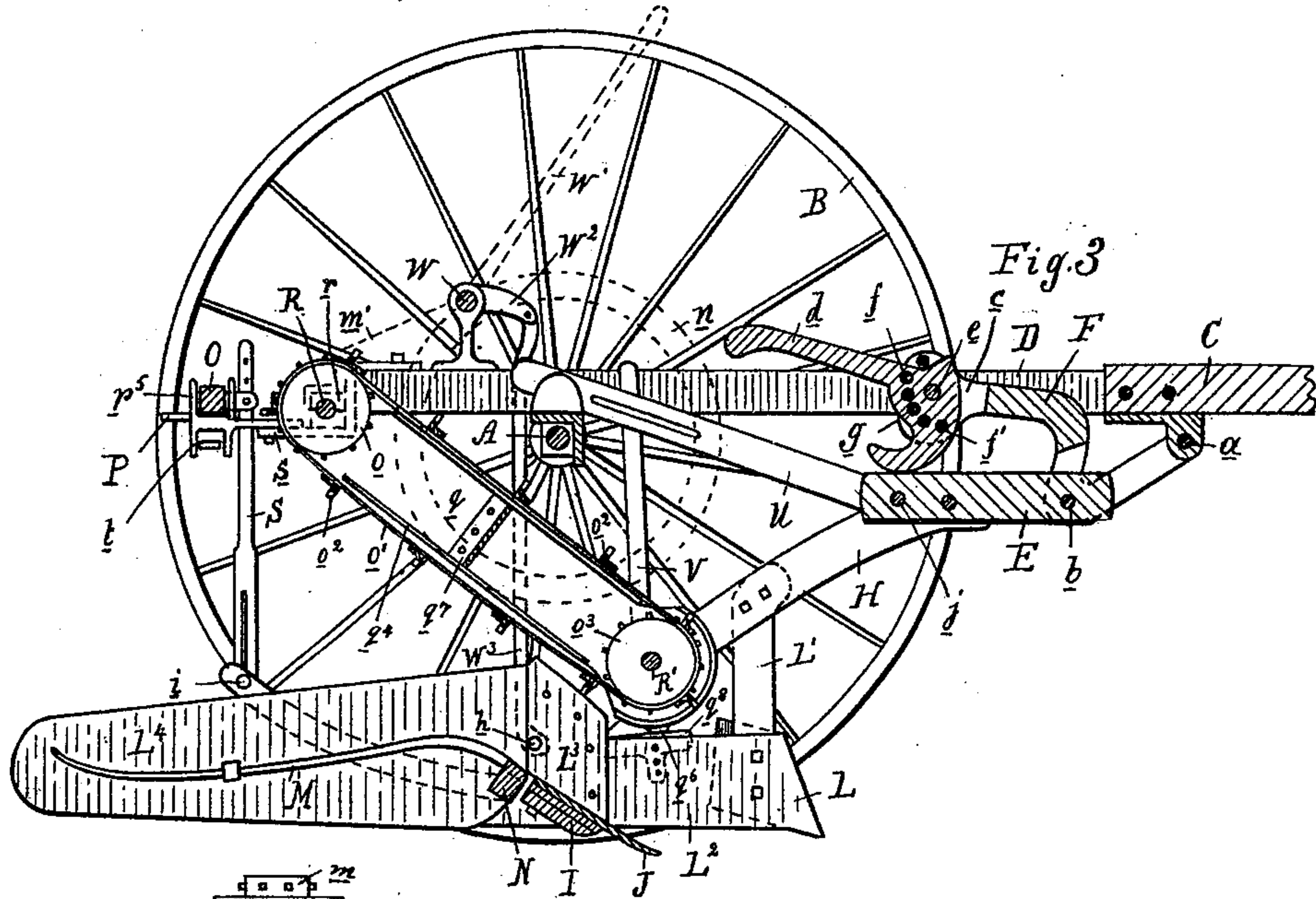
 *Inventor:*
James H. Lewis.
By Thos. S. Sprague, Son

Atty

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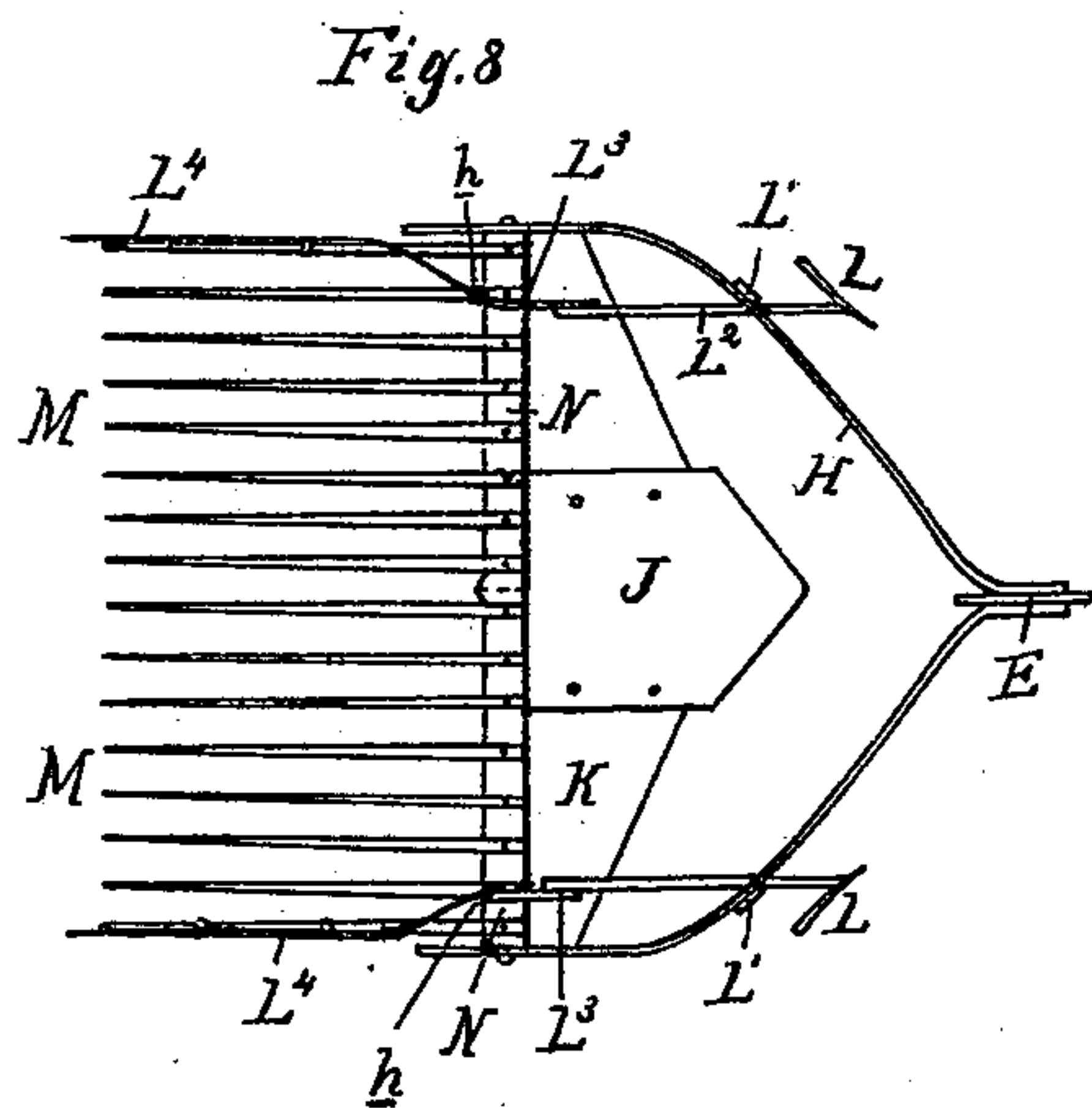
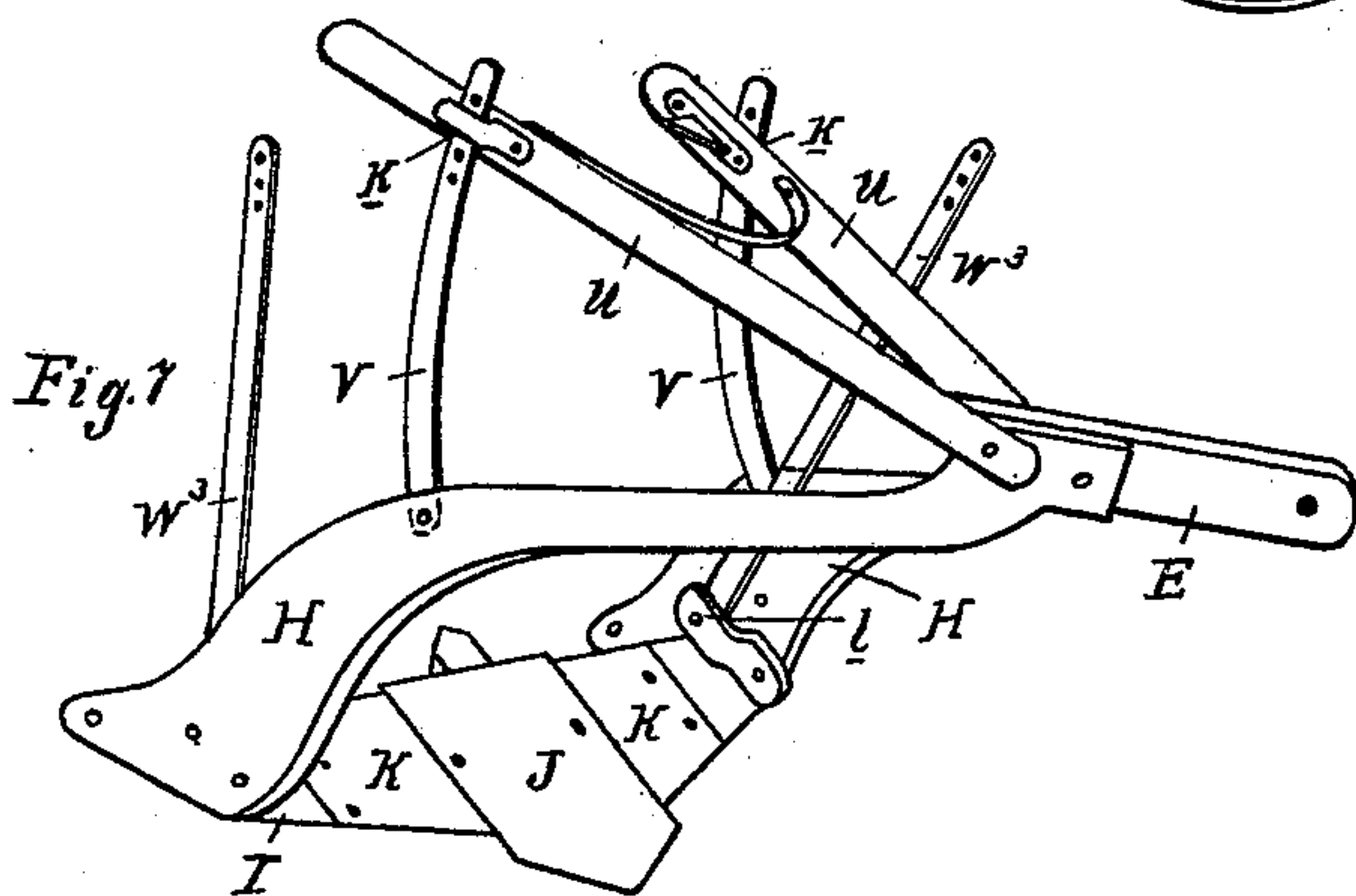
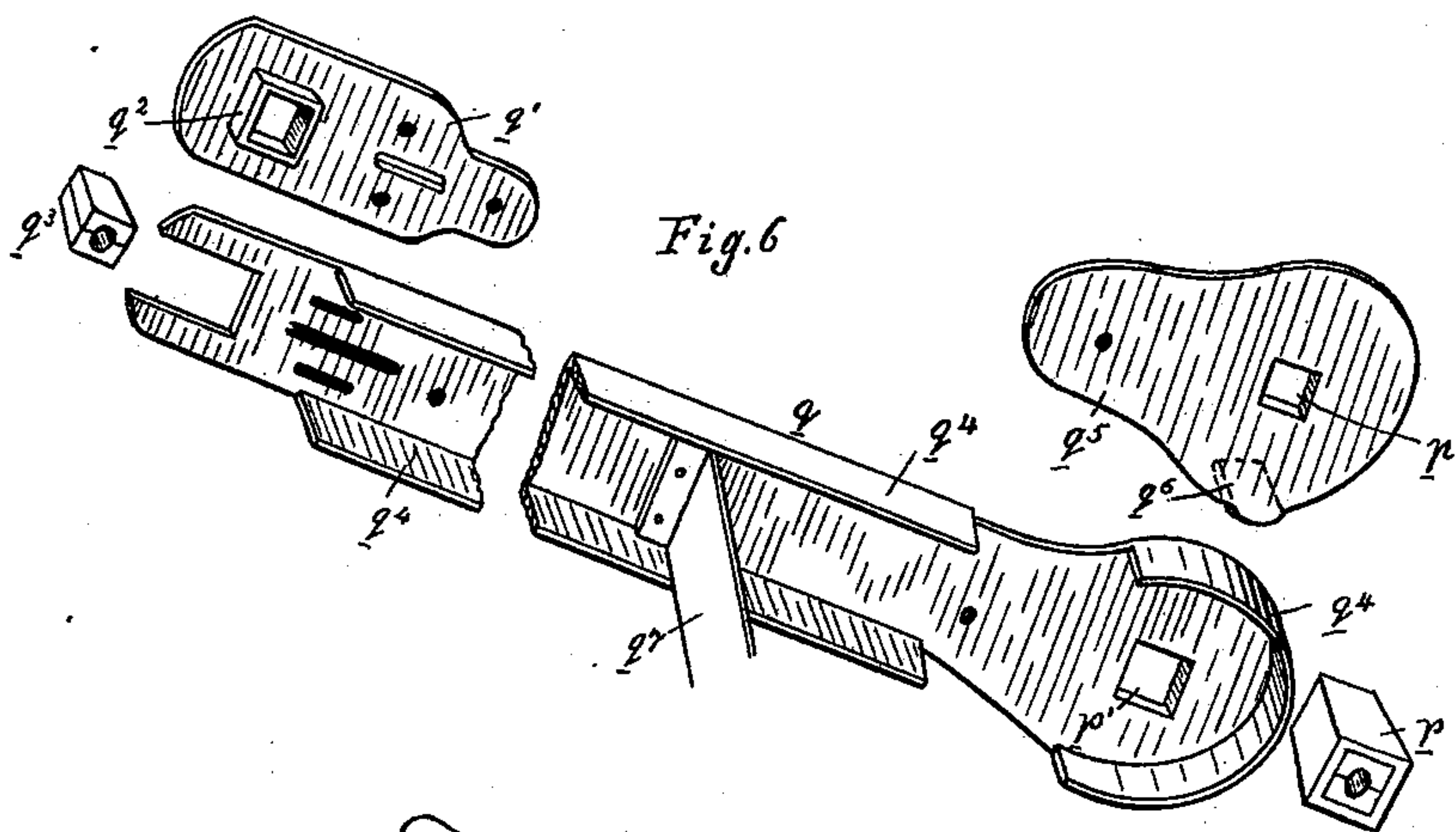
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3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

JAMES H. LEWIS, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-HALF TO
CHARLES G. HAMPTON, OF SAME PLACE.

POTATO-DIGGER.

SPECIFICATION forming part of Letters Patent No. 403,848, dated May 21, 1889.

Application filed March 6, 1888. Serial No. 266,296. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. LEWIS, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Potato - Diggers, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in potato-diggers, and the invention is designed to form an improvement on the patent granted to me March 2, 1886, and numbered 337,169.

15 The invention consists, first, in the improved construction of mechanism for changing the pitch of the plow-beam; second, in the peculiar construction and operation of my elevator or carrier, by means of which the potato-hills are delivered from the plow onto the shaking-grates; third, in the improved construction of the shaking mechanism, all as more fully hereinafter set forth.

25 In the drawings which accompany this specification, Figure 1 is an elevation in diagram. Fig. 2 is a plan of my machine. Fig. 3 is a vertical longitudinal section thereof. Fig. 4 is a plan view in diagram, showing the carrier in position and connected to the drive mechanism. Fig. 5 is a plan of the carrier detached. Fig. 6 is a detached perspective view of the parts composing the frame of the carrier. Fig. 7 is a detached perspective view of the plow. Fig. 8 is a plan of the plow detached.

35 A is the axle, supported on the ground-wheels B, both of which are drive-wheels.

C is the draft-pole, centrally secured between the curved hounds D, which at their rear ends are secured to the axle, these parts together forming the plow-truck.

40 E is the plow-beam, the forward end of which is adjustably secured to the under side of the draft-pole by means of the bifurcated lever F, which is fulcrumed at *a* at the under side of the draft-pole and pivotally secured to the forward end of the plow-beam at *b*. The rear end of this lever is clevised, and the eccentric-lever *d* is pivotally secured at *e* in the fork *c* of the clevis by means of a series of adjusting-holes, *f f'*, in the eccentric part

of the lever and in the clevis, respectively. The cam-lever *d* may be adjusted into different positions and held therein by a pin, *g*, which engages into one set of adjusting-holes.

55 By means of the construction described the plow-beam is firmly but adjustably secured to the draft-pole, and by changing the position of the cam-lever *d* the forward end of the plow-beam may be raised or lowered, as desired, for the proper adjustment of the plow. At the same time the plow-beam is free to rise should the plow pass over stones or other obstructions.

60 To the plow-beam are rigidly secured or integrally formed therewith the curved arms or standards H, which project sidewardly, rearwardly, and downwardly, from the plow-beam, and have their lower ends connected by a horizontal bearing plate or shoe, I, to which the plow is secured. This plow consists of the central shovel-plow, J, and the scraper-plate K, which are secured to the shoe I, and of the side plows, L, which are secured to the arms H by means of the standards L'. The side plows are provided with the landsides L'', which extend rearwardly to connect with the vertical guards L''', which are secured upon the shoe I near the outer ends of the scraper-plates, and to these guards L''' are hinged at *h* the rear extensions, L⁴, all so arranged that the parts L' L'' L''' L⁴ form parallel sides, or nearly so, between which the potato-hills are passed over the plow.

85 M are two shaking-grates, the cross-heads N of which are pivotally secured in the rear of the shoe I. Each of the shaking-grates is secured to that one of the hinged guards L⁴ which adjoins it, so that the vertical motion, imparted to the guards L⁴, in the manner hereinafter described, agitates the grates M, for the purpose of separating the ground from the potatoes, the latter being prevented from falling through the interstices of the grates while the ground falls through.

95 The vertical motion or shaking of the grates M is produced in the following manner: O are two shaker-arms, respectively hinged at one end to the rear extension of the hounds, and provided with the strikers P, which interfere, in the operation of the device, with the cocks or arms of the revolving wheels Q, which are

mounted upon the transverse shaft R, near the rear end of the plow-frame. The free end of each shaker-arm is secured to a connecting-rod, S, the lower end of which is slotted and engages with said slot on a pin, i , which is secured to the guards L^4 . By this means the alternate raising and dropping of the shaker-arms agitates the grates.

U are plow-handles, pivotally secured at j to the rear end of the plow-beam, and resting with their rear ends upon the axle supporting the plow, by means of the connecting-rods V, which are pivotally secured at their lower ends to the arms or standards H of the plow-frame, respectively, and at their upper ends adjustably secured at k to the plow-handles. Thus, by lengthening or shortening the connections V, the plow may be adjusted to dig more or less deep in the ground.

W is a transverse shaft journaled in suitable bearings on top of the frame, and provided with the hand-lever W' and the cranks W^2 , to the ends of which are pivotally secured the connecting-rods W^3 , which extend vertically downward and are pivotally secured at l to the plow, all so arranged that by the operation of the hand-lever W' (which has a suitable locking device) the plow may be raised out of the ground.

To prevent the potato-hills from choking the plow and by the accumulation increase the draft, I provide a carrier device provided with rakes or their equivalents, whereby the material is carried from the plow onto the shaking-grates, and this carrier is constructed as follows:

The shaft R, before described, is provided on its outer ends with the sprocket-pinions m , which, by means of chains m' , receive motion from the sprocket-wheels n , which are journaled upon the axle, and receive motion from the ground-wheels by means of intervening clutches, as in the usual manner. Upon the shaft R is also secured the carrier-sprocket pinion o , which imparts motion to the carrier-chains o' , to which the cross heads or rakes o^2 are secured. The lower end of the carrier passes around the sprocket-pinions o^3 , which are secured upon a shaft, R' . This shaft is journaled in bearings p , detachably secured in the apertures p' , formed in the lower ends of the side frames, q , the upper ends of which are sleeved upon the shaft R. The upper ends of these side frames, q , are provided with the extension-plates q' , adjustably secured to the frame q and provided with the apertures q^2 , in which the boxes q^3 are inserted, and through which the shaft R passes. The frames q are provided with suitable guide-flanges, q^4 , for the carrier-chains, and a plate, q^5 , is detachably secured by any suitable means to the lower end of each frame q . These plates q^5 are apertured to receive the lower boxes, p , of the carrier-shaft, and are also provided with the outwardly-projecting stops q^6 , by means of which the lower end of the carrier rests upon a stop, q^8 , secured to the landside

L^2 of the side plows, but is free to rise up from that position to ride on top of the material which accumulates on top of the plow to a greater or less height. The boxes p and q^3 are made tapering, as shown in Fig. 6, and the slides in which they rest are correspondingly tapered to prevent the endwise displacement of the boxes and provide a greater facility to renew them without dismounting the whole carrier by loosening the set-screws which hold the sprocket-pinions of the carrier in place. The shaft R is journaled in boxes r , which are secured upon the extension-brackets s , adjustably secured to the rear ends of the hounds. By this means the whole carrier may be adjusted forward or backward, carrying with it at the same time the shaker-arms O, which are hinged to the brackets p^5 , secured to the rear end of the brackets s .

The extension-joint of the side frames, q , permits adjustment of the carrier-chains, and a cross-bar, q^7 , secured between the side frames, secures such side bars firmly together and acts at the same time as a scraper to prevent the carrier rakes and chains from carrying any material upwardly.

What I claim as my invention is—

1. The combination, with a plow and supporting-frame of a potato-digger, substantially as described, of a carrier mounted on a frame pivotally secured at its rear end in bearings longitudinally adjustably secured to the frame and free to rise and fall at its front end, and a stop on the side plow to support said front end, substantially as described.

2. In a potato-digger, substantially as described, the combination of the supporting frame or hounds D, the transverse shaft R, the boxes r , in which said shaft is journaled, the supporting-brackets s , adjustably secured to the hounds, the sprocket-wheels m , secured upon said shaft and provided with drive-connection from the ground-wheel, the frame q of the carrier pivotally sleeved upon the shaft R, the shaft R' , journaled in the lower ends of the frame q , and the carrier mounted upon the shafts R R' , substantially as described.

3. In a potato-digger, substantially as described, the combination of the supporting frame or hounds D, the transverse shaft R, the boxes r , in which said shaft is journaled, the brackets s , supporting said boxes, adjustably secured to the hounds, the sprocket-wheels m , secured upon said shaft and provided with drive-connections from the ground-wheels, the carrier-frames q , sleeved upon the shaft R at their rear ends and loosely journaled upon their front ends, the extension-joints in said carrier-frames, the shaft R' , journaled in the front ends of the carrier-frames, the sprocket-wheels mounted upon the shafts R R' , and the carrier-chains o' and rakes o^2 , substantially as described.

4. In a potato-digger, substantially as described, the combination, with the shaking-grates M, mounted in the rear of the plow, of

the vibrating shaker-arms O, mounted upon the rear end of the frame transversely thereof and hinged to the rear extension of the hounds, the striker-arms P, transverse shaft 5 R and its drive-connection with the ground-wheels, and the wheels Q, mounted upon the shaft R and provided with striker-arms or cocks, substantially as described.

10 5. In a potato-digger, the combination, with the supporting-frame mounted upon the axle, of the plow-beam E, the lever F, pivotally secured to the plow-beam and fulcrumed at its forward end to the plow-frame, substantially

as described, the clevised rear end, c, of the lever F, the eccentric cam-lever d, mounted 15 therein, and adjusting-holes f f', the parts being arranged to operate substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 26th day of 20 September, 1887.

JAMES H. LEWIS.

Witnesses:

P. M. HULBERT,
JOHN SCHUMAN.