

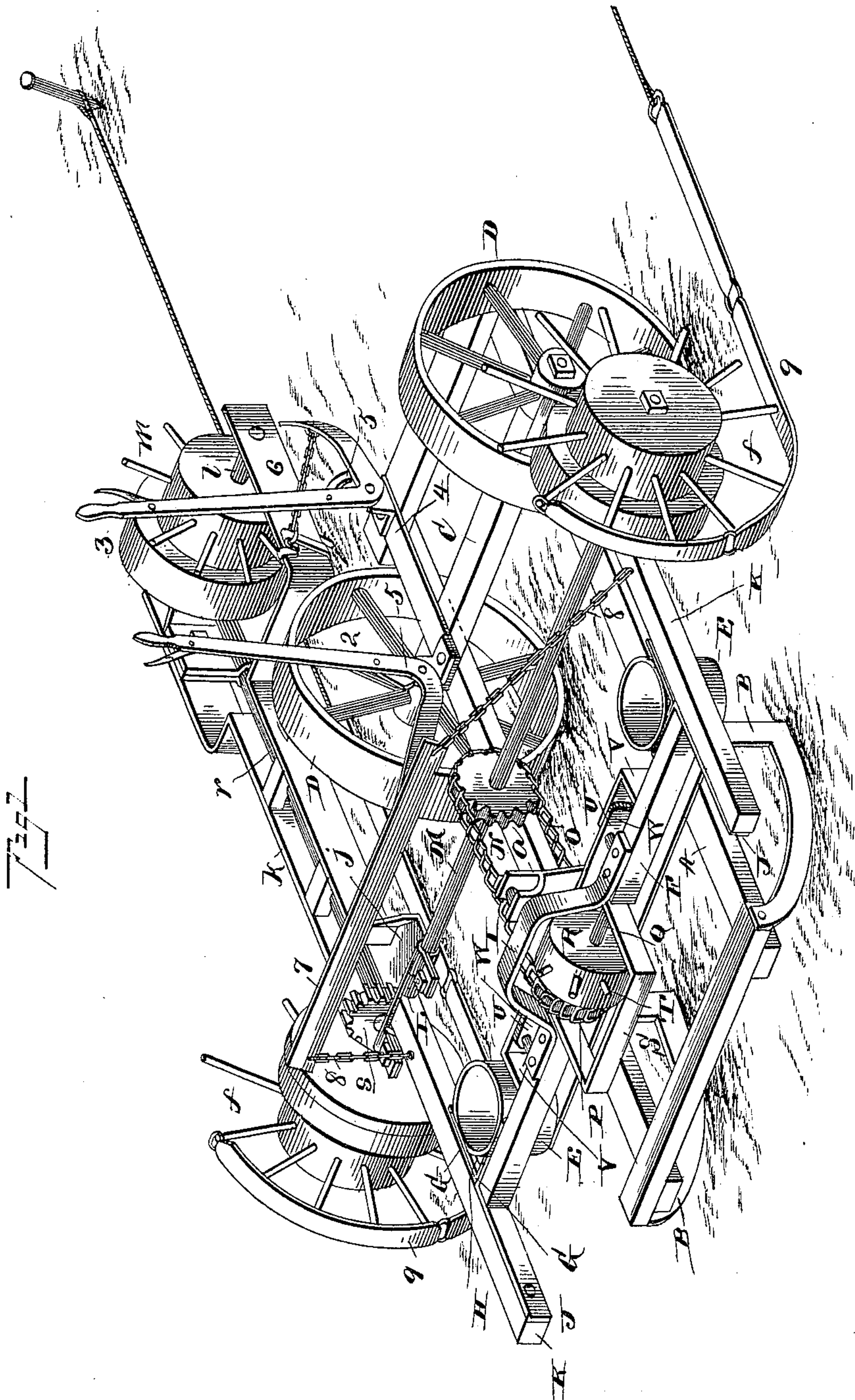
(No Model.)

3 Sheets—Sheet 1.

A. CHARLES.  
PLANTER.

No. 403,516.

Patented May 21, 1889.



Witnesses,

*John Imirie*  
*R. W. Bishop.*

Inventor,

*Albert Charles*

By his Attorneys

*Chas. Snowdon*

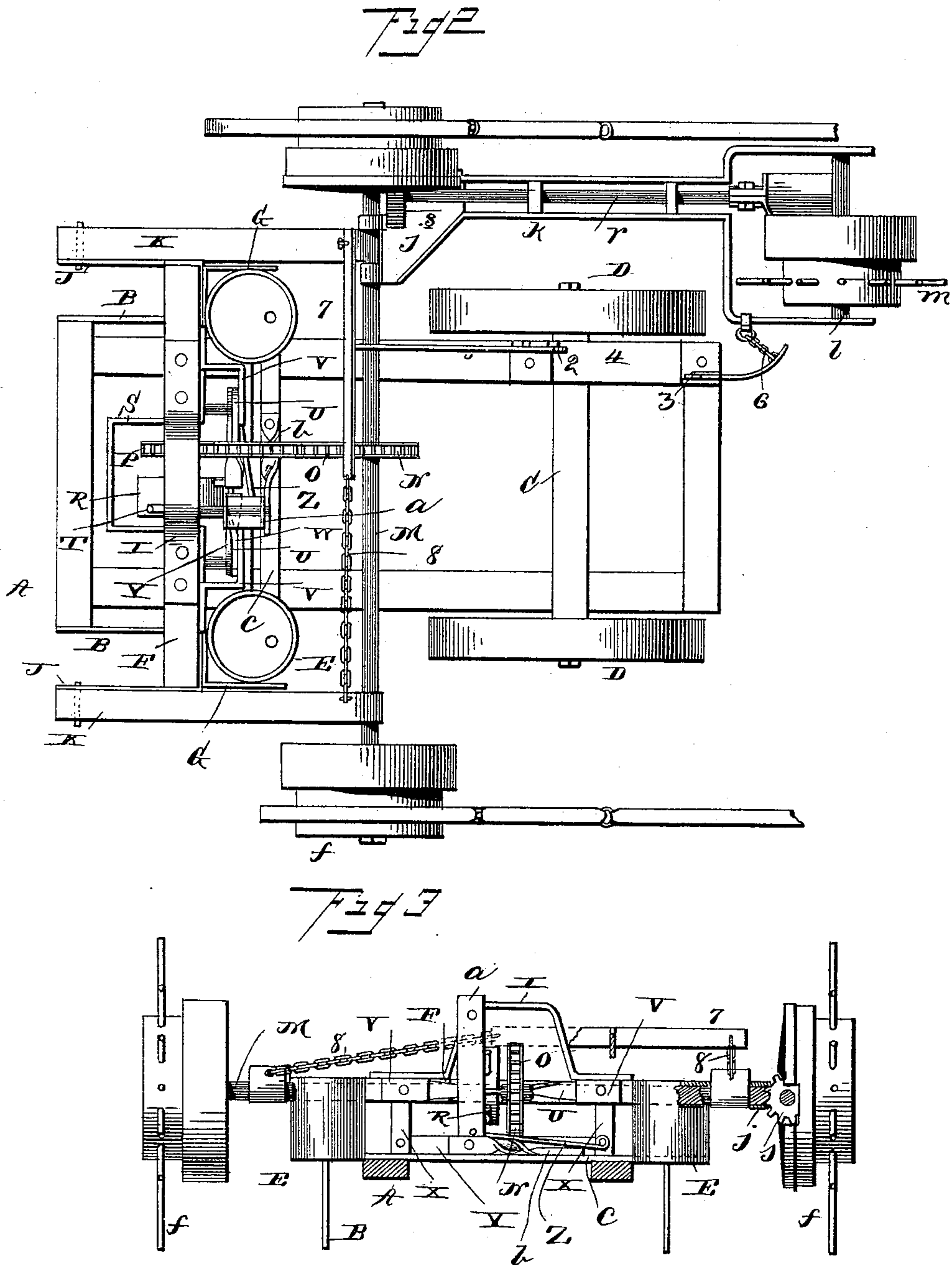
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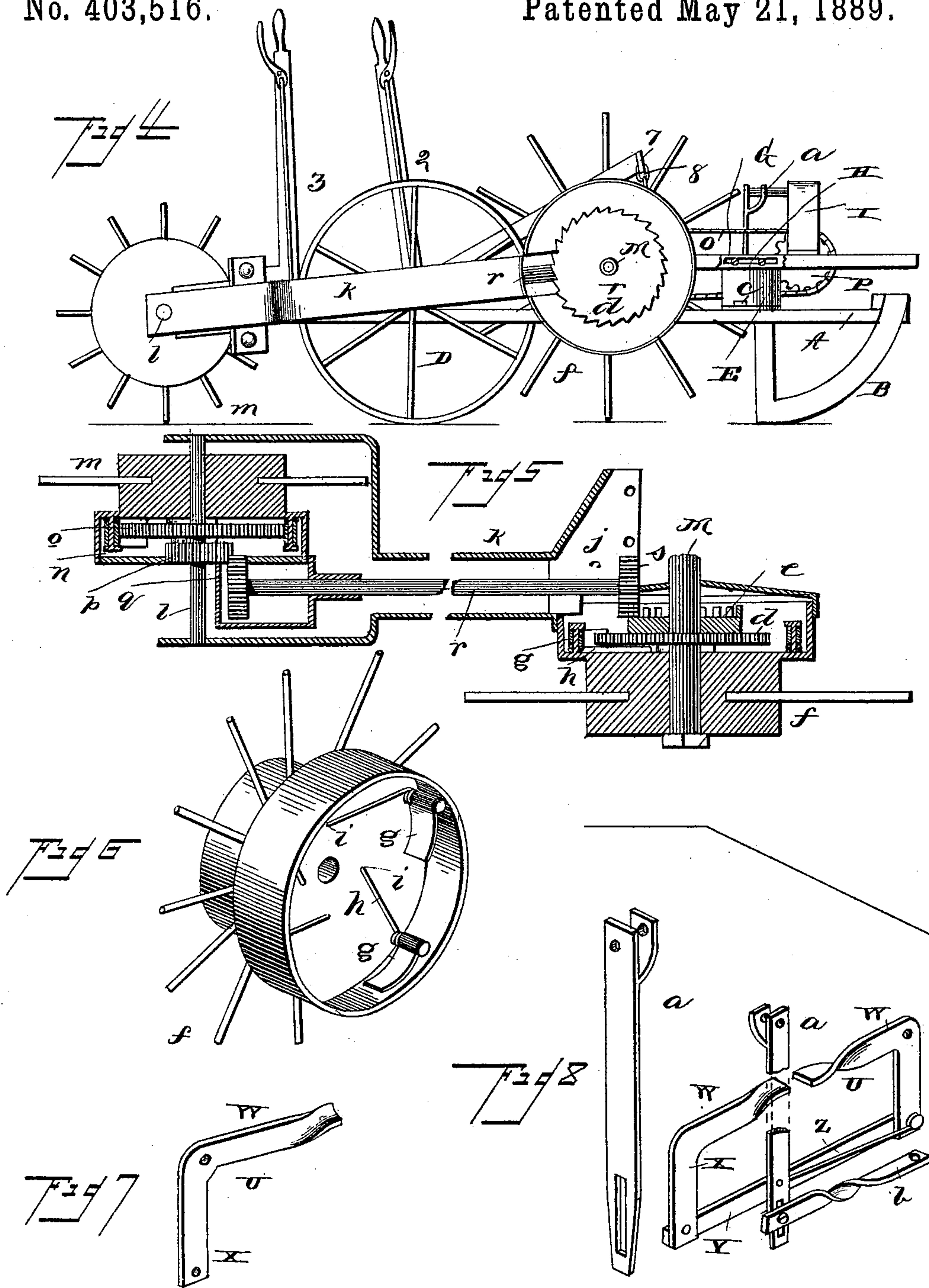
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# UNITED STATES PATENT OFFICE.

ALBERT CHARLES, OF BLUE MOUND, KANSAS.

## PLANTER.

SPECIFICATION forming part of Letters Patent No. 403,516, dated May 21, 1889.

Application filed January 26, 1889. Serial No. 297,643. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT CHARLES, a citizen of the United States, residing at Blue Mound, in the county of Linn and State of Kansas, have invented new and useful Improvements in Planters, of which the following is a specification.

My invention relates to improvements in planters; and it consists in certain novel features hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a planter provided with my improvements. Fig. 2 is a plan view. Fig. 3 is a cross-sectional view looking toward the front. Fig. 4 is a side view with the near spike-wheel removed. Fig. 5 is a horizontal section of the driving-gearing. Fig. 6 is a detailed view of one of the spike-wheels to show the pawls for engaging the ratchet-wheels. Figs. 7 and 8 are detail views showing portions of the seed-slide-operating devices.

Referring to the drawings by letter, A designates the main frame of the planter, having the furrow-openers B at its front end and the axle C at its rear end, on which the carrying-wheels D are mounted. The seed-boxes E are mounted on the frame near the front end of the same and over the rear ends of the furrow-openers. The seed-boxes are connected by a divided cross-bar or brace, F, which is secured to the seed-boxes by means of the brackets G, having their front ends secured to the said cross-bar or brace and provided with longitudinal slots H, through which securing-screws are passed into the seed-boxes, so that the said brace or cross-bar can be adjusted to or away from the front end of the frame in order to tighten the chain, hereinafter referred to. The members or sections of the divided cross-bar or brace are joined by an arched bar or brace, I, and at the ends of this divided cross-bar I secure the forwardly-projecting arms J, to the ends of which I pivot the front ends of the bars K, the rear ends of which are provided with bearings L, in which the transverse shaft M is journaled. This transverse shaft is provided at about its center with a sprocket-wheel, N, connected by a chain, O, with a small sprocket-pinion, P, secured on a short shaft, Q, journaled in and between the inner ends of the sections of the divided cross-bar. The operating-wheel R is

rigidly secured on the shaft Q and rotated thereby, and a guard or fender, S, is secured to the cross-bar and extends across the central space thereof, so as to protect the front sides of the operating-wheel and the sprocket-pinion. The operating-wheel is provided at regular intervals around its periphery with the radial pins or arms T, which are adapted to contact with and actuate the operating arms or levers.

The operating arms or levers U are pivoted between the divided cross-bar and angle arms or brackets V, secured to the rear side of the same, and consist of the horizontal inwardly-projecting arms W and the vertical arms X, depending from the horizontal arms. The lower ends of the vertical arms of the operating-levers are connected by a link, Y, so that the said levers are caused to move in unison. One of these operating-levers is connected by a connecting-rod, Z, with the lower end of an oscillating lever, *a*, which is pivoted at its upper end to the arched brace I, and has its lower end connected by a pitman, *b*, with the seed-slide *c*. The adjustability of the brackets G enables me to bring this lever *a* into proper position to be pivoted to the seed-slide.

On the shaft M, near the ends of the same, I secure the ratchet-wheels *d*, one of which is provided on its inner face with the crown-wheel *e*, as shown. The spike-wheels *f* are loosely mounted on the shaft M beyond the ratchet-wheels, and are provided on their inner sides with hollow cylindrical casings fitting over the ratchet-wheels and inclosing a series of pawls, *g*, which engage the ratchet-wheels, and are held in engagement therewith by the springs *h*, which are coiled around the pivots of the pawls and have one end bearing thereon, while the other ends are made to engage one of a series of sockets or recesses, *i*, in the casing.

Upon the shaft M, near one end of the same, I secure the boxing or bracket *j*, to which is secured the front end of a horizontal longitudinal frame, *k*, the rear end of which is provided with a U-shaped extension, between the ends of which a short shaft, *l*, is journaled. The rear spike-wheel, *m*, is mounted loosely on the said shaft, and is provided with a cylindrical casing, *n*, carrying a series of pawls adapted to engage a ratchet-wheel, *o*, secured



rigidly on the said shaft and provided on one side with a crown-wheel, *p*, as shown. The said crown-wheel meshes with the gear-wheel *q* on the rear end of a longitudinal shaft, *r*, which extends forward through the frame *k*, and is provided at its front end with the gear-wheel *s*, engaging the crown-wheel *e*.

In order that the operating mechanism may be lifted, so as to clear the ground when it is desired to move the machine from one field to another, I provide the levers 2 3, which are fulcrumed at the front and rear ends, respectively, of a plate, 4, secured on the main frame, and are provided with the latches 5. The levers are L-shaped, and the lower arm of the rear lever is connected with the rear portion of the frame *k* by means of a chain, 6. The lower arm of the front lever, 2, is provided at its front end with a cross-bar, 7, the ends of which are connected by chains 8 with the bars *K*, carrying the front spike-wheels.

When it is desired to use the machine, short marking-chains 9 are secured at one side of the field and wrapped around the wheels, as shown in Fig. 1. As the machine is drawn over the field, the spike-wheels will be caused to rotate by the chains, and the line of the row thus indicated. The spike-wheels are rotated by the chains, and after the chains are run out by contacting with the ground, so as to rotate the shafts on which they are mounted by means of the pawls carried thereby engaging the ratchet-wheels, and thereby rotate the sprocket wheel and pinion, and through them operate the dropping-wheel. As the operating-wheel is rotated the radial arms or pins thereon will be brought against the inner ends of the dropping-levers, so as to vibrate the same, and through them reciprocate the seed-slide, so as to permit the seed to escape from the seed-boxes.

From the foregoing description, taken in connection with the accompanying drawings, it will be seen that the operating mechanism is free of the main frame, so that it can be applied to any corn-planter, and will readily yield to inequalities of the surface of the ground over which it is drawn. By providing the rear spike-wheel and the gearing connecting the same with one of the front spike-wheels the shaft *M* is rotated easily and positively, so that the proper operation of the device is insured. The pawls carried by the spike-wheels are so arranged that should one of the spike-wheels strike an obstruction, and consequently be caused to rotate faster than the other wheels, the pawls will be sprung out of engagement with the ratchet-wheel, so as to slip over the same without interfering with the motion of the parts.

The length of stroke of the seed-slide can be regulated by causing the ends of the connecting-bars *Z* and *b* to engage the proper one of a series of transverse openings or adjusting them along the slot in the lower end of the oscillating lever, and the machine can be made to plant more or less closely by removing the

operating-wheel and substituting one with a greater or fewer number of radial arms or pins.

The marking or starting chains are used to indicate the beginning of each row.

The pins upon the operating-wheel are arranged so as to engage the lever-arms *W W* alternately, and thus cause the reciprocating motion of the seed-slide.

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

1. The combination, with a shaft, of a ratchet-wheel secured rigidly thereon, the spike-wheel loosely mounted on the shaft and provided with a cylindrical casing, the series of pawls arranged within the casing and engaging the ratchet-wheel, and the springs bearing on the said pawls, as set forth.

2. The combination of the shaft *M*, the frame *k*, extending therefrom, the ratchet-wheels rigidly secured on the shaft near the ends of the same, one of said ratchet-wheels being provided with a crown-wheel on its inner face, the spike-wheels loosely mounted on the said shaft and carrying a series of pawls engaging the ratchet-wheels, the shaft *l*, mounted in the rear end of the frame *k*, the ratchet-wheel secured on said shaft and having a crown-wheel on one side, the longitudinal shaft provided at its ends with beveled pinions engaging the crown-wheels, and the spike-wheel on the rear shaft, *l*, carrying a series of pawls engaging the ratchet-wheel thereon, as set forth.

3. The combination, with the main frame and the seed-boxes secured thereon, of the cross-bar secured to the seed-boxes, the forwardly-projecting arms secured to the ends of the cross-bar, the bars *K*, pivoted to the said arms, the shaft *M*, geared to the seed-slide, the frame *k*, extending rearwardly from the shaft *M*, the operating-gearing carried by the said shaft and frame, the lever 3, fulcrumed on the main frame and connected to the rear end of the frame *k*, the lever 2, fulcrumed on the main frame and having a lower arm provided with a cross-bar, and the chains extending between said cross-bar and the bars *K*, as set forth.

4. The combination, with the main frame and the seed-boxes secured thereon, of the shaft *M*, arranged in rear of the seed-boxes, the sprocket-wheel on said shaft, mechanism for rotating the said shaft, the divided cross-bar, the rearwardly-projecting arms attached to said cross-bar and adjustably secured to the seed-boxes, the shaft carried by said cross-bar, the sprocket-pinion on said shaft geared to the sprocket-wheel on the shaft *M*, the operating-wheel on the said shaft, the seed-slide, and mechanism actuated by the operating-wheel to reciprocate the seed-slide, as set forth.

5. The combination of the divided bar *F*, the arched bar *I*, connecting the members of the same, the seed-slide, the lever *a*, pivoted



at its upper end on the bar I, the pitman *b*,  
connecting said lever with the seed-slide, the  
angle-levers W, pivoted on the bar F, the rod  
Y, connecting said lever W, the rod Z, con-  
5 necting said levers to the lever *a*, the oper-  
ating-wheel arranged between the ends of  
the levers W and adapted to operate the same,  
and mechanism for rotating said operating-  
wheel, as set forth.  
10 6. The combination, with the corn-planter  
having the spiked operating-wheels, of the  
chains connected to and wound upon the said

wheels and having their free ends secured at  
the starting end of the field, so as to unwind  
gradually from the wheels as the machine 15  
progresses and secure an even start, substan-  
tially as set forth.

In testimony that I claim the foregoing as  
my own I have hereto affixed my signature  
in presence of two witnesses.

ALBERT CHARLES.

Witnesses:

J. O. SMITH,

T. F. WEAVER.