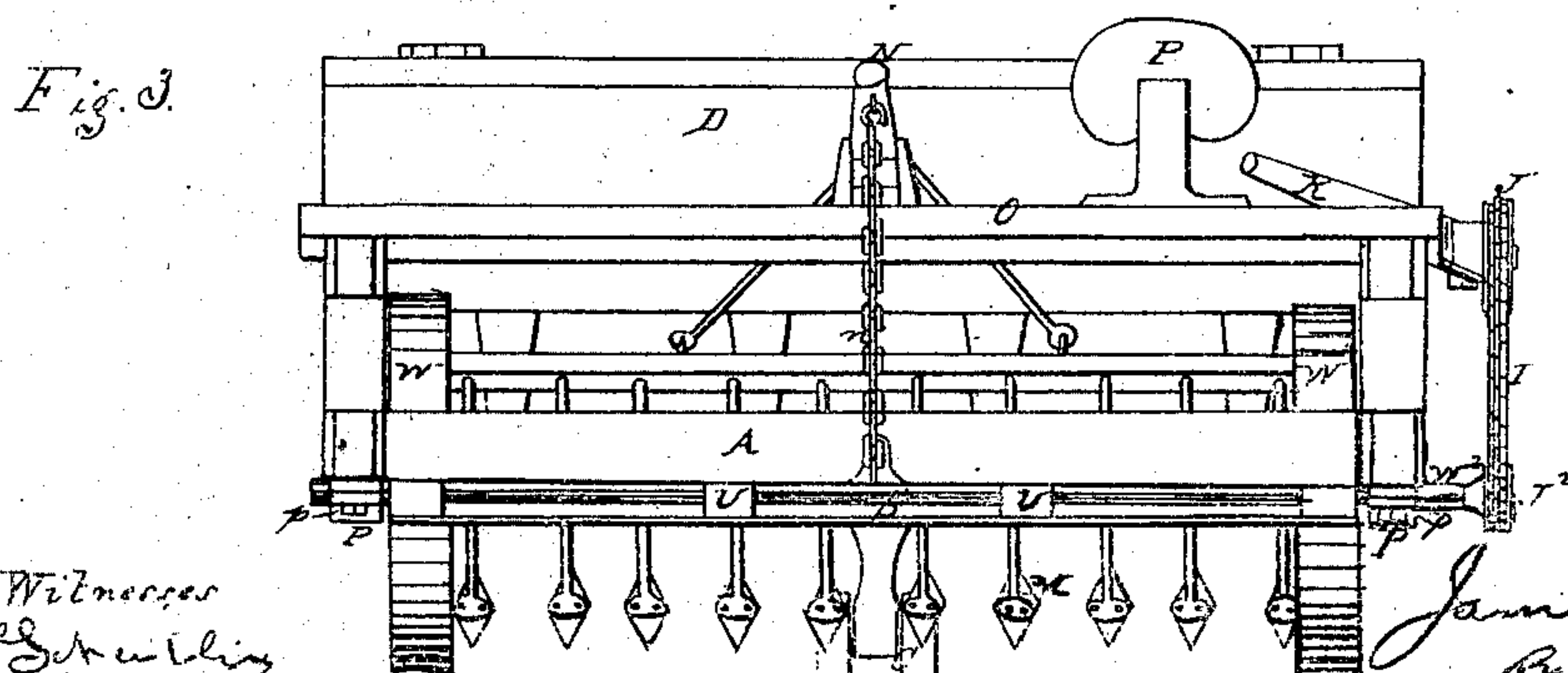
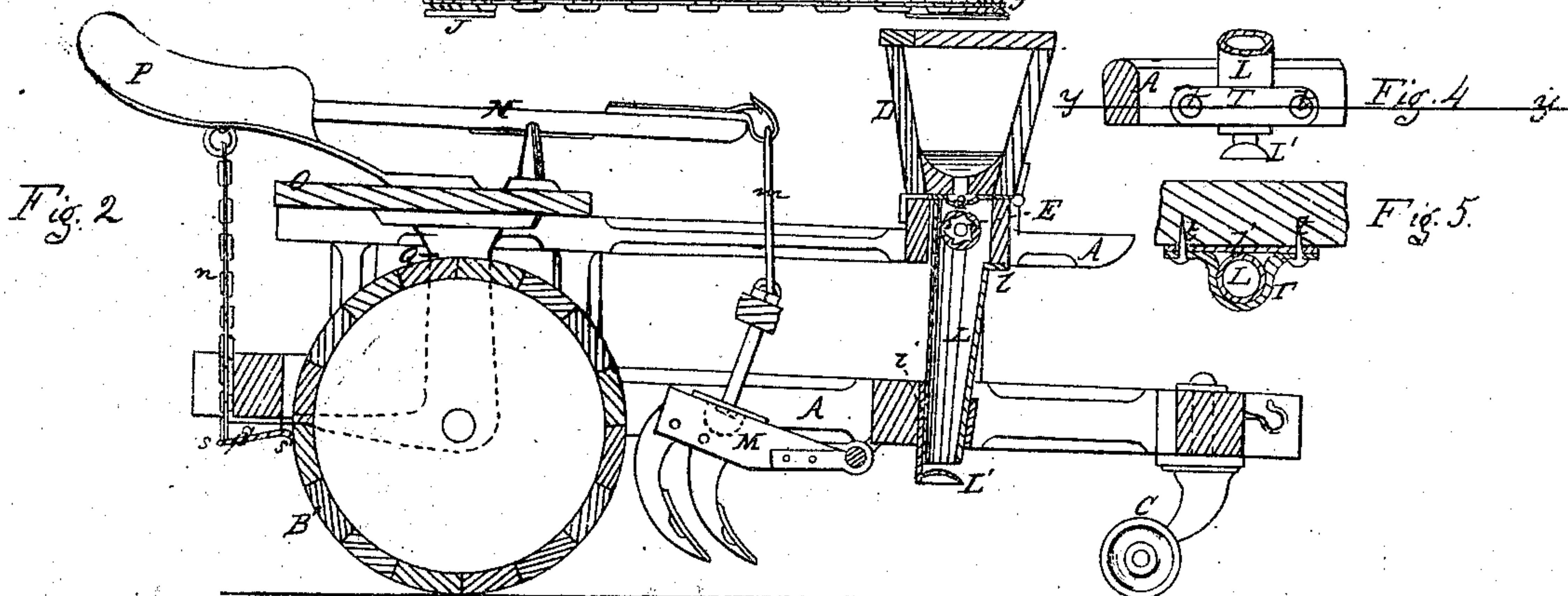
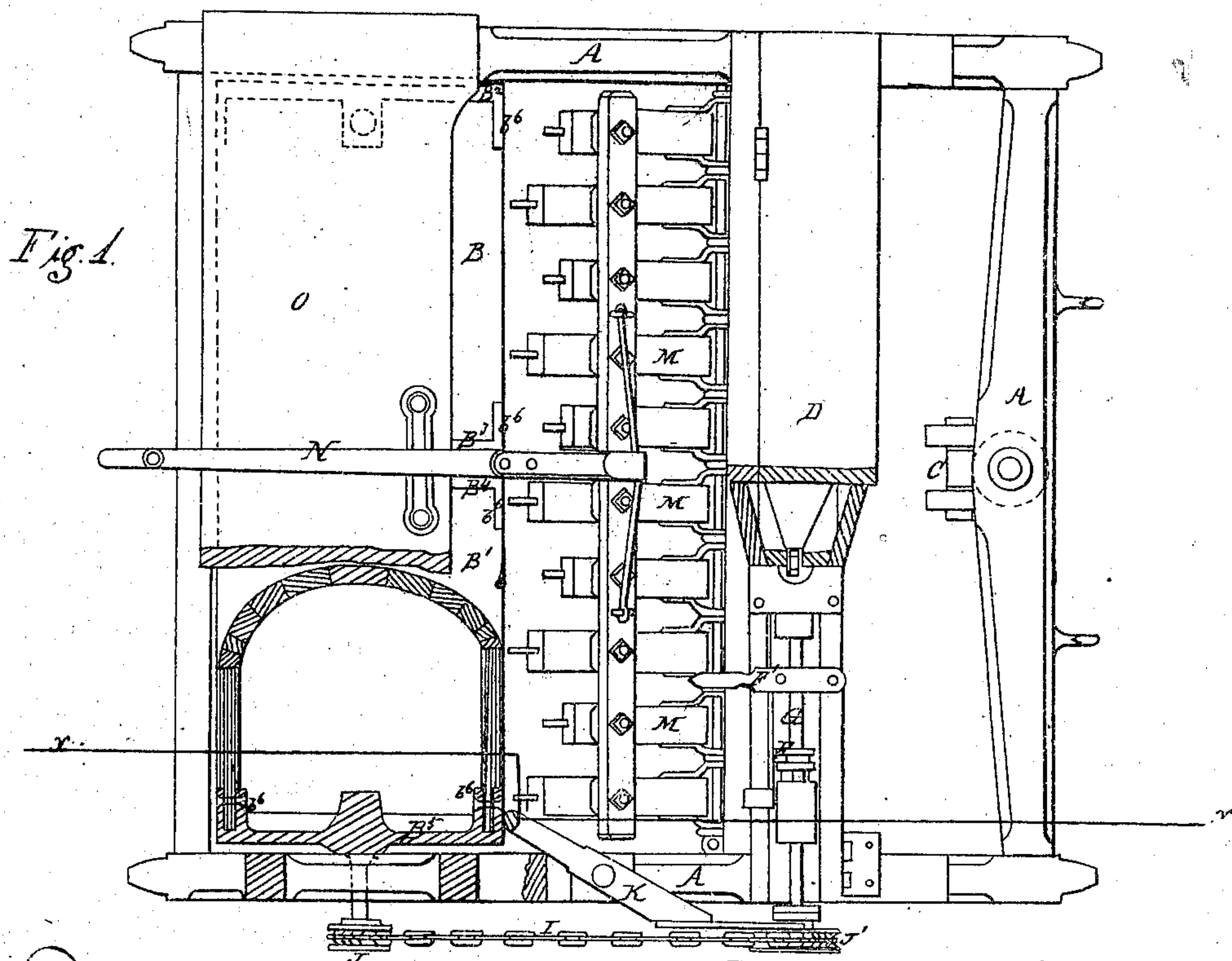


J. P. Long, Seeder Cultivator & Roller.

Nº 75,936.

Patented Mar. 24. 1868.



Witnesses
J. Schuchling
J. M. Bowen

James P. Long
By Knight & Co. Attys

Seeder, Cultivator & Roller.

Patented Mar. 24, 1868.

Nº 75.436

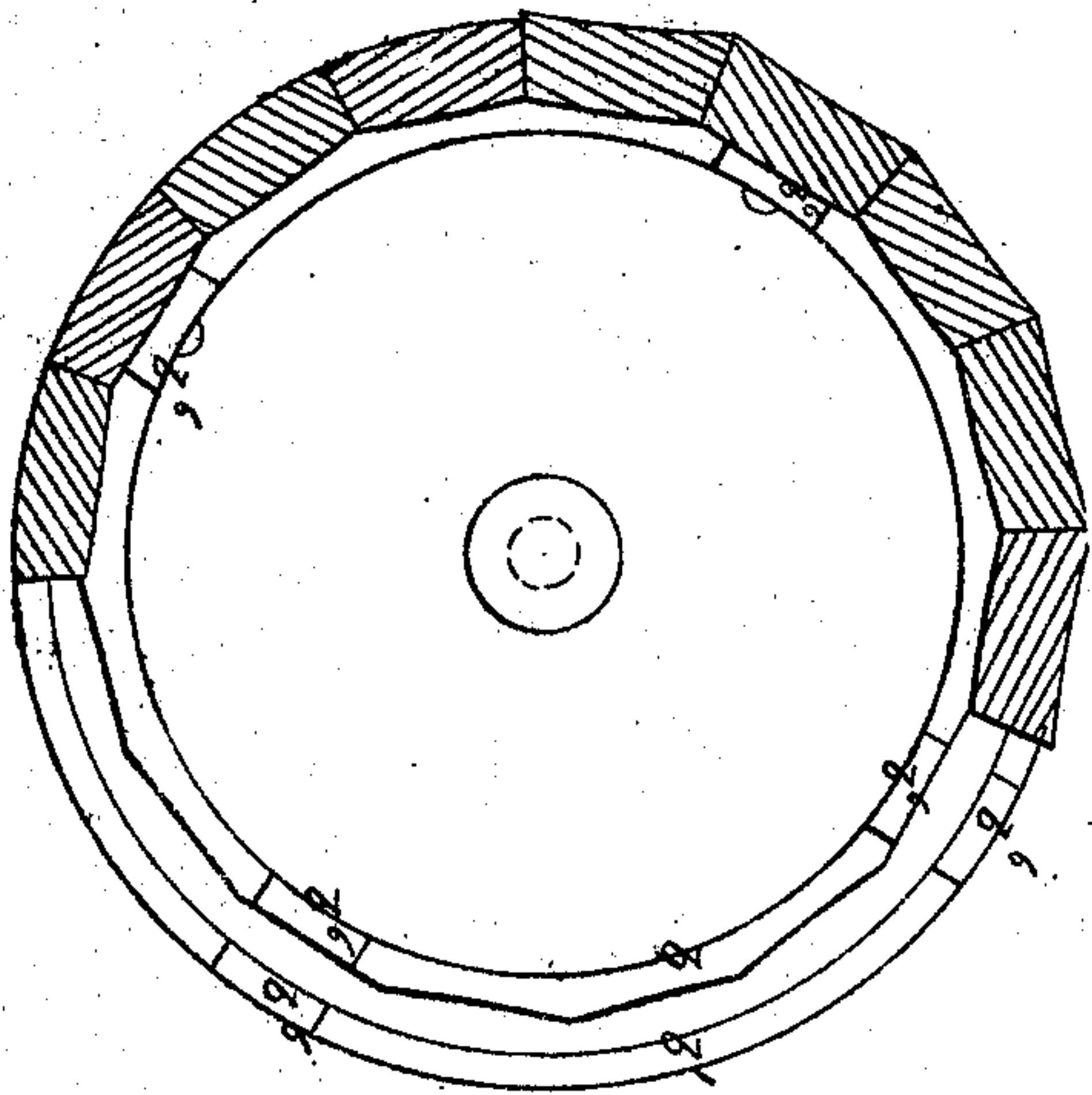
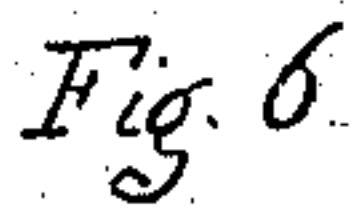
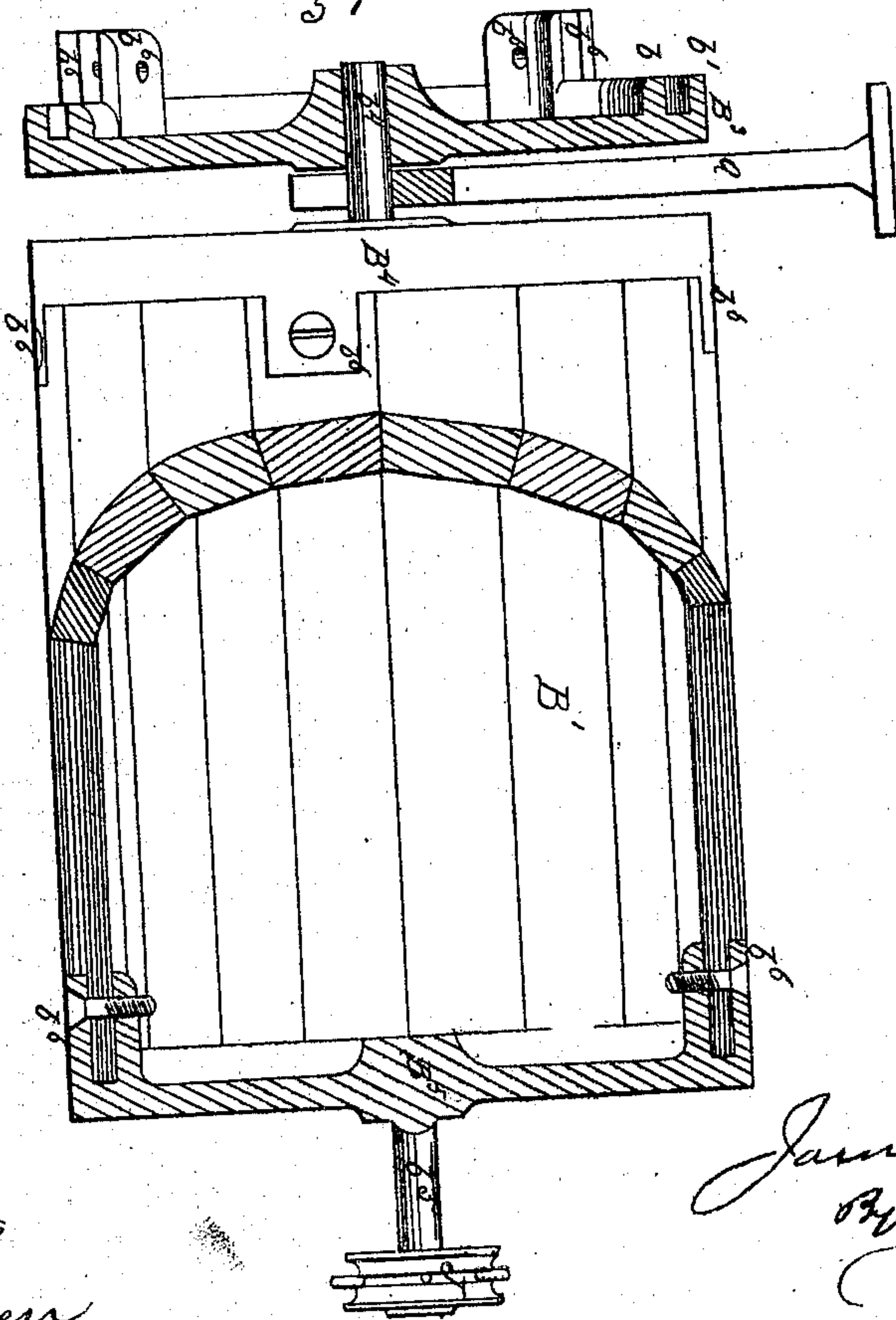


Fig. 7



Wilnesses
 J. Scheithin
 Fern Rowen

Inventor.

James P. Long
By Thompson
Attest

United States Patent Office.

JAMES P. LONG, OF OSAGE, IOWA.

Letters Patent No. 75,936, dated March 24, 1868.

IMPROVED COMBINED BROADCAST SEEDER, CULTIVATOR, AND ROLLER.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JAMES P. LONG, of Osage, in the county of Mitchell, and State of Iowa, have invented a new and useful Combined Broadcast Seeder, Cultivator, and Roller; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, which are made a part of this specification.

Figure 1 is a plan view, partly in horizontal section, of a broadcast seeder, cultivator, and roller, illustrating my invention.

Figure 2 is a vertical section in the planes indicated by the lines xx in fig. 1.

Figure 3 is a rear view of the implement, showing wheels substituted for the rollers.

Figure 4 is a detached elevation, illustrating the manner of attaching the seed-scatterer and the lower end of the conducting-tube.

Figure 5 is a horizontal section at yy , fig. 4.

Figures 6 and 7 are detached sectional views, on a larger scale, of the rollers, which will be hereinafter described.

Similar letters of reference indicate corresponding parts in the several views.

This invention is an improvement on the combined seeder, cultivator, and roller described in Letters Patent, No. 46,480, granted to me on the 21st of February, 1865.

The improvements consist, first, in a peculiar manner of constructing the rollers; second, in a device for substituting wheels for the rollers when desired; third, in a mode of applying the scraper which is employed to remove earth from the surface of the rollers; fourth, in a device for connecting the conducting seed-tubes to the frame; fifth, in a device for securing the lower ends of the seed-tubes and the seed-scatterers which are applied thereto; sixth, in a device for communicating motion from the rollers or driving-wheels to the seeding-mechanism.

The frame A, supporting truck C, hopper D, seeding-apparatus E F F' G, clutch-pulley and lever J K, cultivator M, elevating-lever N, platform O, and driver's seat P, may be substantially as described in my previous patent, hereinbefore referred to.

My improved rollers B B' are made of staves, tenoned at their ends into the annular grooves between flanges $b b'$, in the cast-metal heads B² B³ B⁴ B⁵. Projecting longitudinally from the outer flange b' of each head, are perforated ears b^6 , three, four, or more in number, which may be bolted or nailed to the wooden staves, care being taken that both ends of the same staves are thus secured, so that the said staves will serve to tie the heads together, while the heads serve to secure the staves in their cylindrical relation. The ends of the staves are either tenoned or chamfered down on their outer faces, to adapt them to fit into the grooves in the heads, and suitable notches or recesses are formed for the reception of the ears b^6 . The parts being then put together, the entire outer surface of the roller is turned down to the required size and cylindrical shape.

Fig. 6 represents an inner face view of one of the roller-heads, with some of the planks or staves in position, and some of those that are in position turned or dressed down to their proper cylindrical shape, flush with the peripheries of the heads. By forming the inner flange b in the angular shape represented in this view, (fig. 6,) I dispense with any necessity of dressing the inner faces of the planks, but tenon them into their grooves by cutting on the outside only.

Upon the heads B⁴ B⁵ of the roller B' are cast stud-shafts $b^4 b^5$, constituting the journals upon which the said rollers turn, and the outer head B² of the roller B, has a similar stud-shaft, which is not here shown. The journals at the outer ends of the rollers run in boxes P P, (fig. 3,) fitted with screw-bolts $p p$, so that the caps may be removed at will.

Q represents a standard or hanger, formed underneath with a notch, (indicated by the dotted white line in fig. 2,) constituting the bearing of the journal b^4 , and enabling the machine to be lifted clear of the rollers, when the caps of the boxes P are removed.

The stud-shaft b^4 fits in a socket in the centre of the head B³, as shown in fig. 7, so as to permit the rollers to turn independently of each other, and thus adapt the machine to be turned freely in any direction. The

stud-shaft B³ carries a pulley, J, which drives a chain, I, so as to communicate motion to the clutch-pulley J¹, and thus to the seeding-apparatus. The pulleys J J¹ are formed to fit the links of the chain I, so as to avoid the possibility of slip. The device I have substituted for the driving-band, described in my former machine, because I find the chain positive, reliable, and certain in its operation.

Having found that it is frequently desirable to use other parts of my machine without the rollers, and to provide the farmer with a combined implement which he can use whether the ground is in a suitable condition for rolling or not, I have made my rollers B B¹ removable, as above described. When the rollers are dispensed with, I support the rear of the machine on a pair of wheels, W W¹, mounted on a shaft, W², which carries a pulley, J², to drive the chain I, as before described. The wheel W is mounted loosely upon the shaft W², to facilitate the turning of the machine in any direction, and the driving-wheel W¹ is keyed to the said shaft, so as to impart motion to it, and through it and the chain I to the seeding-apparatus.

S is a scraper, attached to the rear part of the frame through blocks U U, which taper forward both vertically and horizontally. The forward edge s' of the said scraper, for a width of about half an inch, is turned obliquely downward, and placed nearly in contact with the surface of the rollers, so as to scrape the earth therefrom, as they rotate. In operation some particles of earth will fail to be fully removed by the scraper S, but being loosened and carried above it, will fall back upon the scraper, and may there collect and clog unless a special provision be made to facilitate their free discharge. The horizontal taper of the blocks is to prevent their offering obstruction to the discharge of any dirt that may fall upon the back s, by which the scraper is attached to the frame, and the vertical taper of the blocks imparts a backward inclination to the said back of the scraper, so that the dirt will be constantly discharged by its own gravity.

The upper ends of the conducting-tubes L are formed with flanges l, turned down at right angles for the reception of screws, by which the tubes are attached to the frame. Straps T pass round in front of the conducting-tubes L, near their lower ends, and are secured to the frame by bolts t, which also pass through the attaching flanges or T-heads l' of the seed-scatterers L'.

By these means I am enabled, with great ease, and without disturbing any other part of the machine, to remove and replace any tube or scatterer which may have become injured in use.

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

1. The combination of the ears b⁶, angular flanges b, and annular flanges b¹, for securing the staves of the rollers, as described.
2. I further claim the combination of the open bearing Q with the detachable caps P, to facilitate the removal of the rollers B B', substantially as explained.
3. I further claim the scrapers S, constructed with sloping backs s, and down-turned edges s', and fastened under tapering blocks U, attached to the under side of the rear of the frame, substantially as and for the purposes set forth.
4. I further claim constructing the conducting-tubes L, with flanges l, for attaching them beneath the frame, and permitting their ready removal, as explained.
5. I further claim the T-headed scatterers L' l', when made separately from the tubes L, and attached in connection therewith, but capable of independent removal, substantially as described.

JAS. P. LONG.

Witnesses:

OCTAVIUS KNIGHT,
J. E. M. BOWEN.