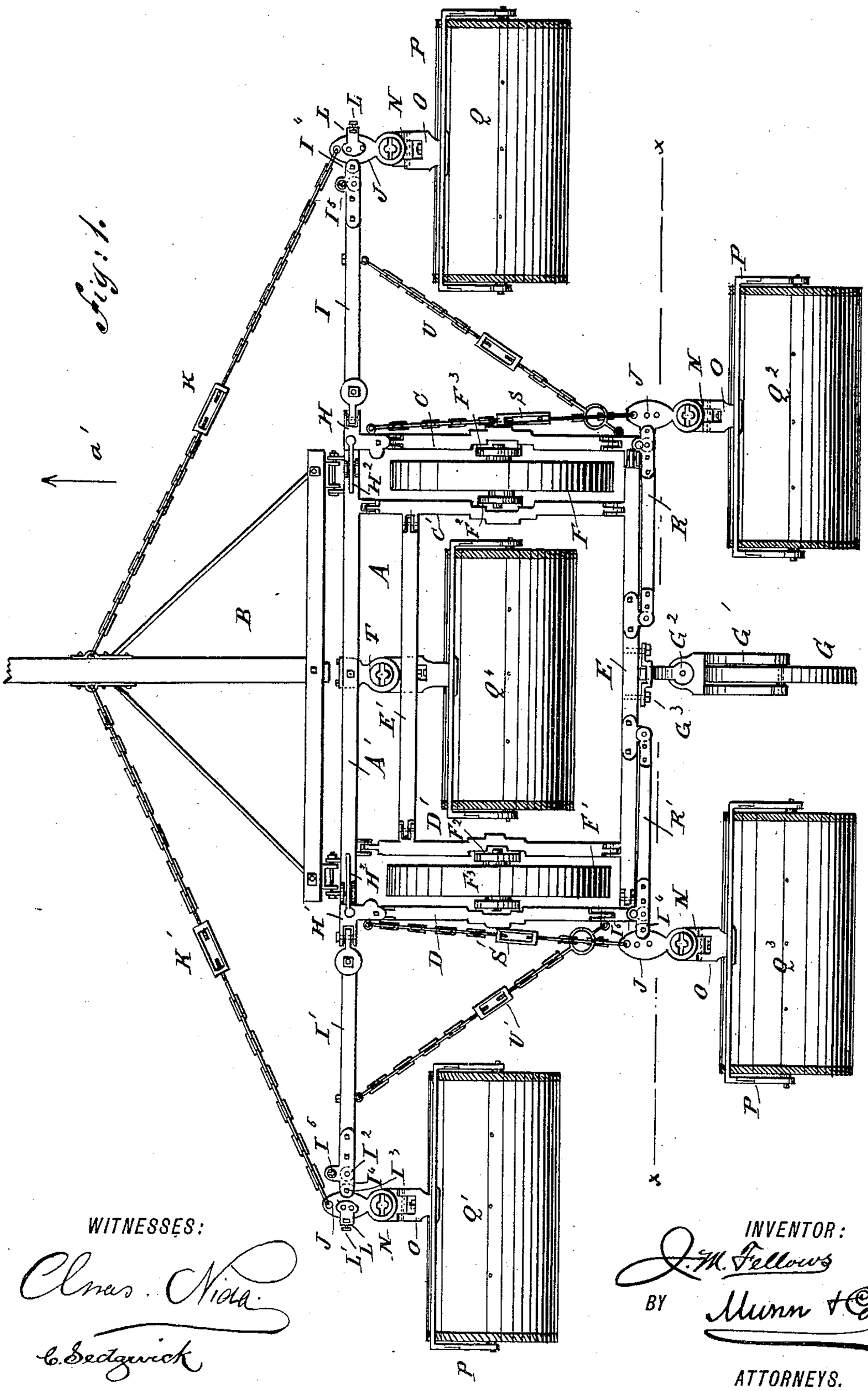
(No Model.)

3 Sheets—Sheet 1.

J. M. FELLOWS.

LAND ROLLER.

No. 407,520. Patented July 23, 1889.



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(No Model.)

3 Sheets—Sheet 2.

J. M. FELLOWS.

LAND ROLLER.

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Fig: 11

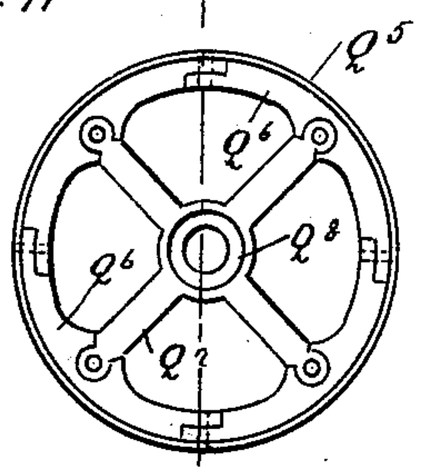


Fig: 12.

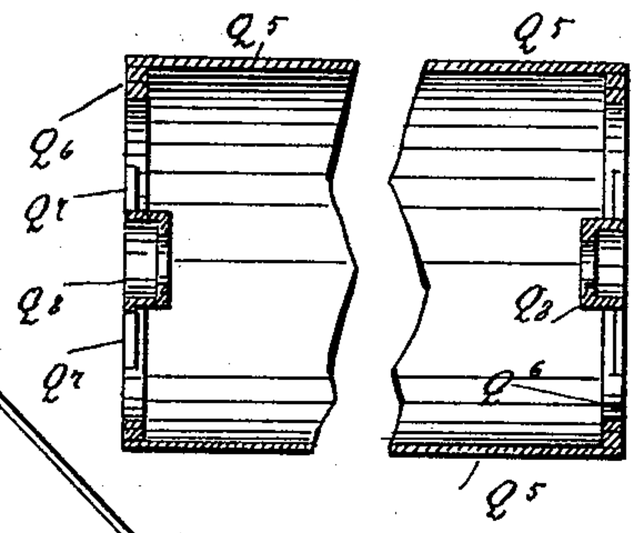
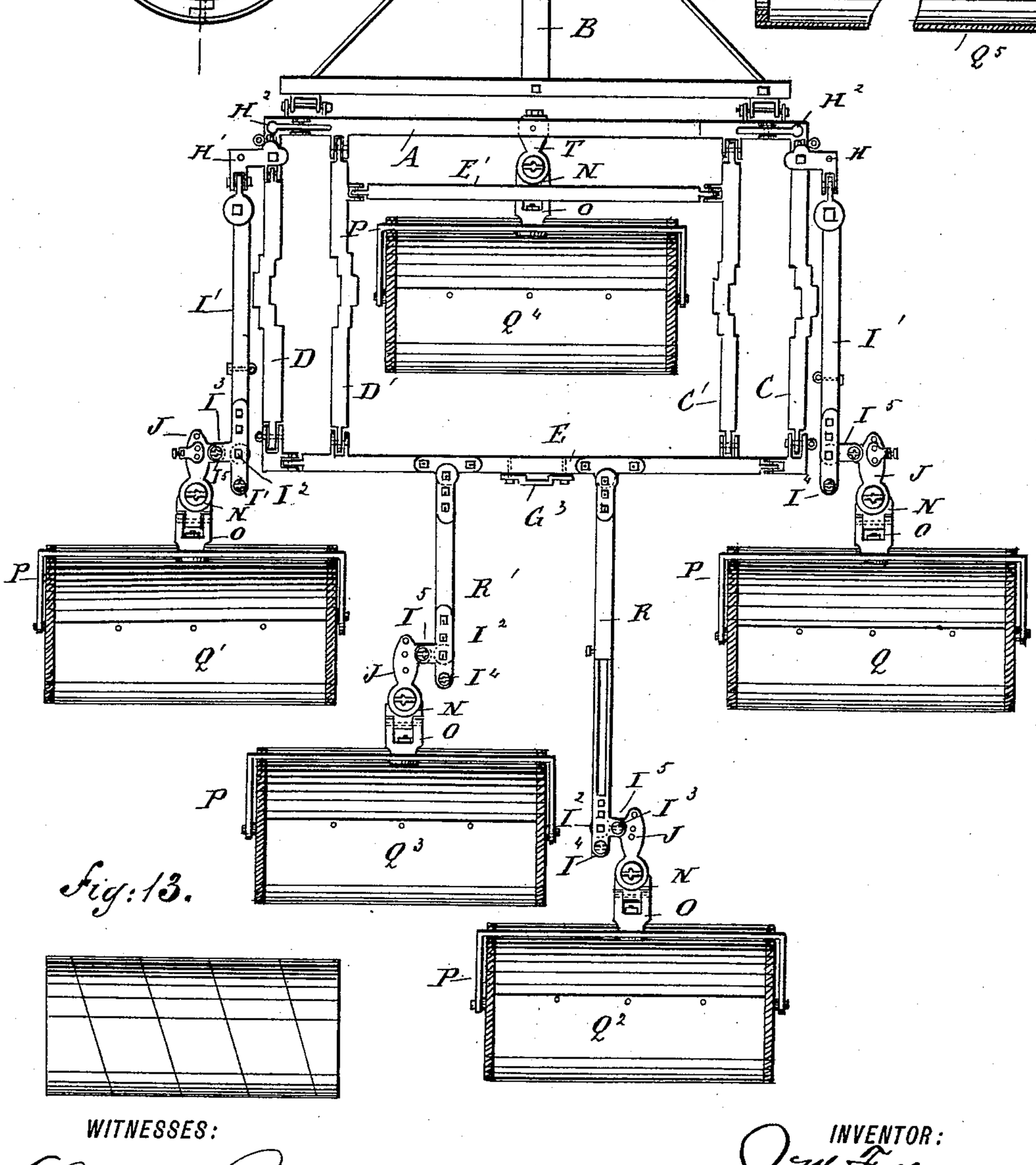


Fig: 13.



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(No Model.) 3 Sheets—Sheet 3.

J. M. FELLOWS.

LAND ROLLER.

No. 407,520. Patented July 23, 1889.

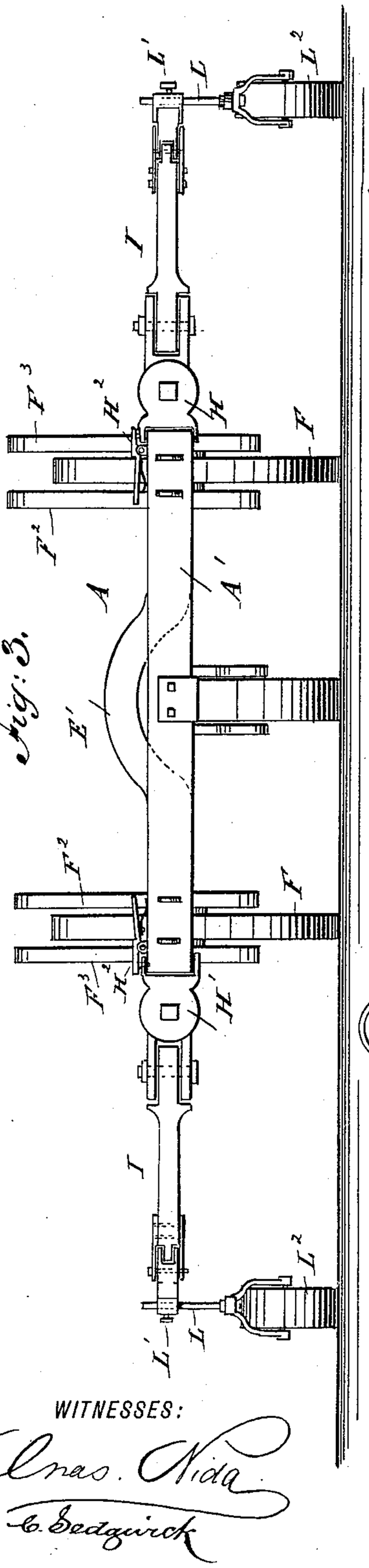

Fig. 3.

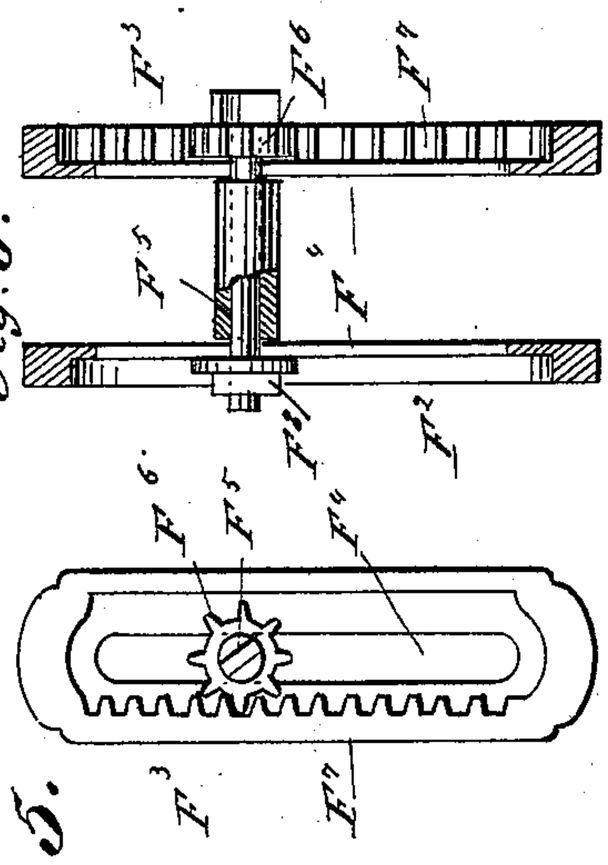

Fig. 5.

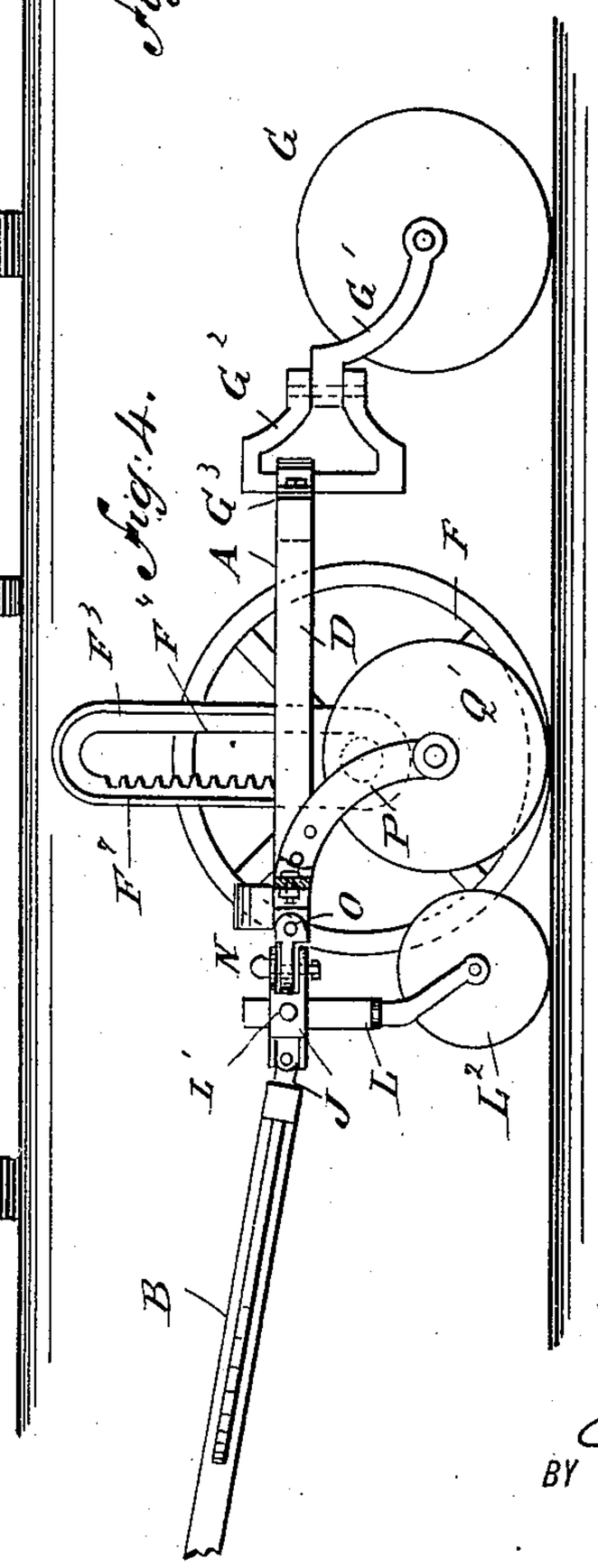

Fig. 4.

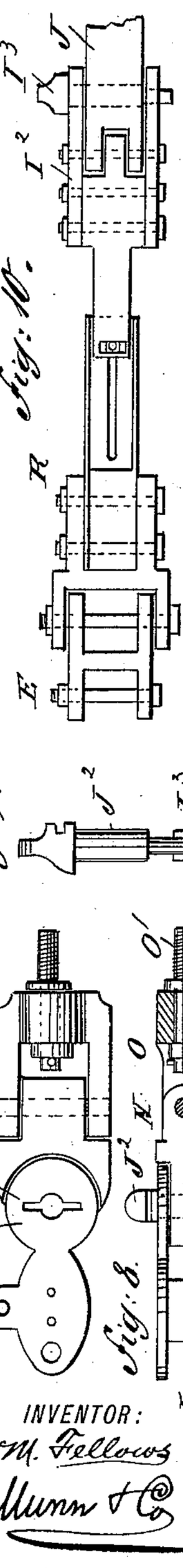

Fig. 10.

Fig. 9.

Fig. 7.

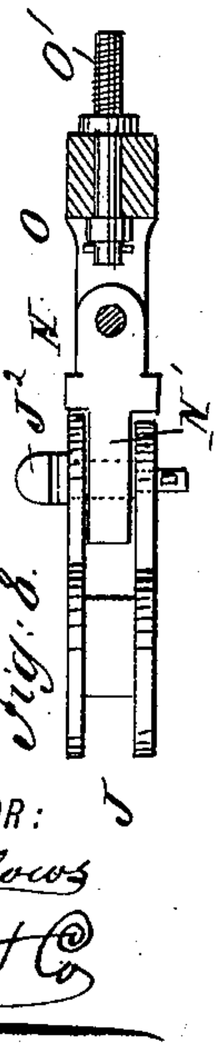

Fig. 8.

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UNITED STATES PATENT OFFICE.

JOHN M. FELLOWS, OF BURLINGTON, INDIANA.

LAND-ROLLER.

SPECIFICATION forming part of Letters Patent No. 407,520, dated July 23, 1889.

Application filed September 5, 1888. Serial No. 284,603. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. FELLOWS, of Burlington, in the county of Carroll and State of Indiana, have invented a new and Improved Land-Roller, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved land-roller arranged in such a manner that the several rollers can drop one behind the other, so as to take up but little room in moving the land-roller from place to place.

The invention consists of a main frame mounted on wheels and provided with pivoted arms, each universally connected with a frame carrying a land-roller.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the improvement as applied in the field. Fig. 2 is a like view of the same, showing the several rollers placed one behind the other. Fig. 3 is a front elevation of the same with the rollers and tongue removed. Fig. 4 is a side elevation, with parts in section, of the improvement. Fig. 5 is a side view of the wheel-bearing. Fig. 6 is a sectional front elevation of the same. Fig. 7 is an enlarged plan view of the universal joint connecting the roller-frame with a pivoted arm. Fig. 8 is a sectional side elevation of the same. Fig. 9 is a side elevation of the bolt used on the universal joint. Fig. 10 is a plan view of part of the frame. Fig. 11 is an end elevation of one of the rollers. Fig. 12 is a longitudinal section of the same, and Fig. 13 is a side view of a modified form of one of the rollers.

The improved land-roller is provided with a sectional frame A, consisting, principally, of a front beam A′, to which is pivotally connected, in the usual manner, the tongue B. From the rear of the front beam A′ extend the beams C C′ and D D′, connected with each other by the cross-beam E and the brace E′, slightly curved in its middle, as shown in Figs. 3 and 4. Between the beams C C′ and the beams D D′ are mounted the wheels F and F′, and on the transverse beam E is mounted the wheel G, said three wheels F, F′, and G supporting the main frame A.

The wheels F and F′ are mounted vertically adjustable in bearings F^2 and F^3, secured on the respective beams C C′ or D D′. Each of the bearings F^2 and F^3 is provided with a vertical slot F^4, through which passes a shaft F^5, carrying the wheels F or F′. On the shaft F^5 is secured a gear-wheel F^6, meshing into a rack F^7, formed on the bearing F^3, and the said shaft F^5 is fastened to the bearings at any desired height by a nut F^8, screwing on the outer threaded end of the said shaft F^5 against the bearing F^2, as plainly illustrated in Figs. 5 and 6. Thus by loosening the nut F^8 the wheels F and F′ can be raised or lowered, so that the frame A is adjusted to any desired height. The nut F^8 is then screwed up, so as to fasten the shaft F^5 to the bearings F^2 and F^3.

The rear wheel G is connected with the transverse beam E in such a manner that when the frame A is raised or lowered the connection of the wheel with the frame adjusts itself. Said wheel G is mounted for this purpose in the forked frame G′, pivotally connected with the U-shaped arm G^2, held vertically and passed loosely at its middle portion through a holder G^3, secured to the rear of the transverse beam E, as is plainly shown in Fig. 4. Thus when the frame A is raised and lowered said holder G^3 slides up or down on the middle portion of the U-shaped arm G^2.

Near the front end of the beams C and D are pivoted the L-shaped brackets H and H′, respectively, adapted to be locked in place on the frame A by a spring-lever H^2, pivoted on top of the front beam A′. On the outwardly-extending arms of the brackets H and H′, respectively, are pivoted the beams I and I′, each pivotally connected by bolt I^2 with a clevis J, adapted to be locked in place by a bolt I^3, passing through the said clevis and either of the arms I^4 and I^5, formed at right angles to each other on the end of the beam I or I′. The arm I^4 extends in line with the respective beam I or I′. One end of the clevis J is connected by the adjustable chain K with the tongue B. On each clevis J is formed a vertical aperture, through which passes a rod L, held in any desired place in the clevis G by

a set-screw L′. On the lower end of the rod L is mounted to rotate a wheel L^2, as plainly shown in Figs. 3 and 4.

On the clevis J is formed a fork J′, between the arms of which is held a disk N′ of the link N, said disk being pivoted on the said fork by means of a bolt J^2, passing through the fork and the said disk N′, and provided at its lower end with offsets J^3, which pass through corresponding slots J^4, formed in the plates of the fork J′, as shown in Figs. 7 and 8. When the bolt J^2 is inserted through the fork J′ and the disk N′, said bolt is turned, whereby the projections J^3 engage the under side of the fork J′, and thus prevent the bolt J^2 from becoming detached from the said fork. A spring may be employed to hold said bolt J^2 in place after being turned.

The link N turns horizontally on the clevis J, and on the said link N is pivoted another link O, mounted to swing up and down on the said link N and carrying a bolt O′, on which is secured a U-shaped frame P, in which is mounted to turn a roller Q or Q′. The frame P of the roller Q or Q′ is thus universally jointed by means of the links N and O to the clevis J, whereby the roller Q or Q′ can swing sidewise and pass over uneven ground independently of the main frame A.

To the rear of the cross-beam E of the main frame A are pivoted the beams R and R′, each provided at its outer end with a clevis J, of the same construction as the one above referred to in reference to the beams I and I′. The arm R can be lengthened whenever desired, as illustrated in Fig. 10. The clevises J on the beams R and R′ are connected by adjustable chains S and S′, respectively, with the side beams C and D of the frame A, as is plainly shown in Fig. 1. Each of the said clevises J of the beams R and R′ is also universally jointed to frames P, carrying the rollers Q^2 Q^3. The same links N and O, as above described, connect the said frames to the said clips.

In the space formed by the frame A is held a roller Q^4, mounted to turn in a frame P, universally jointed by links O and N to a clip secured to the middle of the front beam A′. The side beams C and D is also connected by adjustable chains U and U′ with the beams I and I′, respectively.

Each of the rollers Q, Q′, Q^2, Q^3, and Q^4 is preferably made as illustrated in Figs. 11 and 12, in which the rim Q^5 is formed of sheet metal and is secured to disk-heads Q^6, made in sections and supported by spokes Q^7, projecting from the hub Q^8. The sheet-metal covering of the rollers is preferably spirally arranged, as shown in Fig. 13.

The operation is as follows: When the land-roller is in the position shown in Fig. 1 and is moved forward in the direction of the arrow *a*′, the five rollers Q, Q′, Q^2, Q^3, and Q^4 are arranged so that all the space of the field between the outer ends of the rollers Q and Q′ is rolled, the space between the rollers Q and Q^4 and Q′ and Q^4 being rolled by the rear rollers Q^2 and Q^3. The universal joint on each of the rollers permits a sidewise or up-and-down movement of the said rollers independently of the main frame A and the tongue B. When the operator desires to move the land-roller from place to place over roads, fields, &c., the arrangement shown in Fig. 1 would take up too wide a space, and the operator then disconnects the chains K K′, S S′, and U and U′ from their respective beams. The beams R and R′ then swing rearward and the arm R is lengthened out, as is plainly shown in Fig. 2. The corresponding rollers Q^2 and Q^3 of the said beams R and R′ then assume the position shown in said Fig. 2—that is, one directly behind the other and to one side. The beams I and I′ also swing rearwardly and inwardly, and the rollers Q and Q′ are directly behind the cross-beam E and in front of the rollers Q^2 and Q^3, respectively. The universal joints by which the several frames are connected with their respective beams I I′ and R R′ adjust themselves so that the several rollers assume the relative position to the main frame shown in said Fig. 2. The pin I^3, locking the clevis J to the arm I^4, is withdrawn and passed through the other arm I^5 of the said clevis, as plainly shown in Fig. 2. It will be seen that the several rollers take up very little space in width.

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

1. In a land-roller, the combination, with a main frame, of beams pivoted to said frame, and the clevises for connecting the beams and main frame, the clevises carried at the free end of the beams and connected with the roller-carrying frame, substantially as shown and described.

2. The combination, with the main frame consisting of the beam A E and cross-beams C C′ D D′, of the slotted vertical bearings F^2 F^3, secured, respectively, to the cross-beams C′ D′ and C D, the bearings F^3 being provided with racks, the wheels F F′, carried between the slotted bearings, shafts F^5, carrying said wheels and provided with pinion F^6 upon their outer ends and adapted to engage with the racks F^7, and the nut F^8, for holding the shaft securely between the slotted bearings, substantially as shown and described.

3. In a land-roller, the combination, with a main frame and a roller universally jointed on the said frame, of beams pivotally connected with the said main frame, a universal joint connected with each pivoted beam, a frame held on the said universal joint, and a roller supported on the said frame, substantially as shown and described.

4. In a land-roller, the combination, with wheels and a main frame held vertically adjustable on the axis of the said wheels, of beams pivoted on the said main frame, a clevis held on the free end of each beam, a universal joint connected with the said clevis,

a frame held on the said universal joint, and a roller mounted to turn in the said frame, substantially as shown and described.

5. In a land-roller, the combination, with a main frame, of beams pivotally connected with the front beam of the said frame, a clevis held on the free end of each of the said beams, a roller held on the said clevis, and a wheel mounted on a rod held to slide vertically in each of the said beams, substantially as shown and described.

JOHN M. FELLOWS.

Witnesses:
GRACE GWINN,
IDA GWINN.