

(No Model.)

5 Sheets—Sheet 1.

L. C. TRYON.

GRAIN WEIGHING APPARATUS.

No. 375,515.

Patented Dec. 27, 1887.

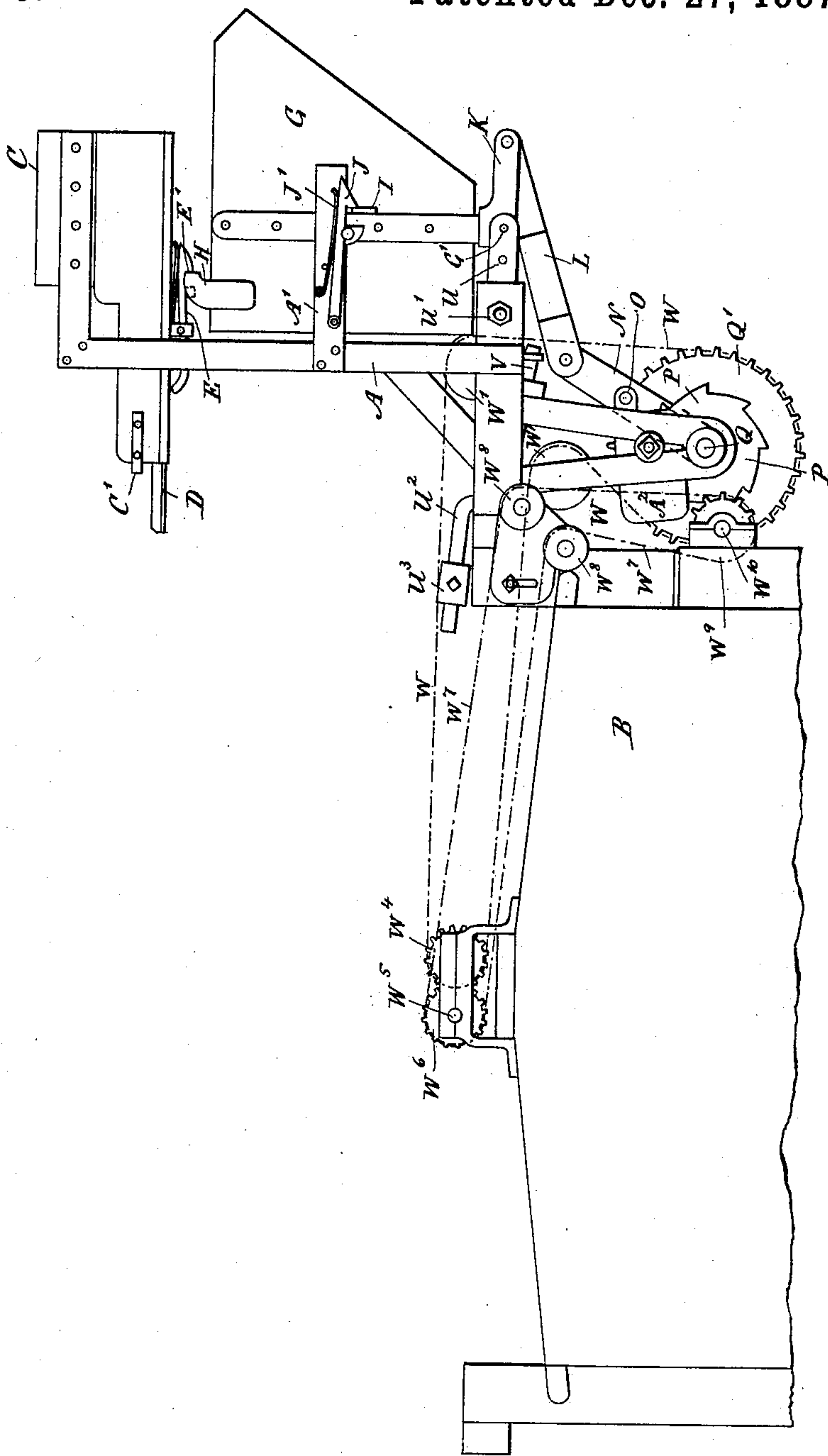


Fig. 1.

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C. M. Clark

INVENTOR:

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BY Munn & Co.
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(No Model.)

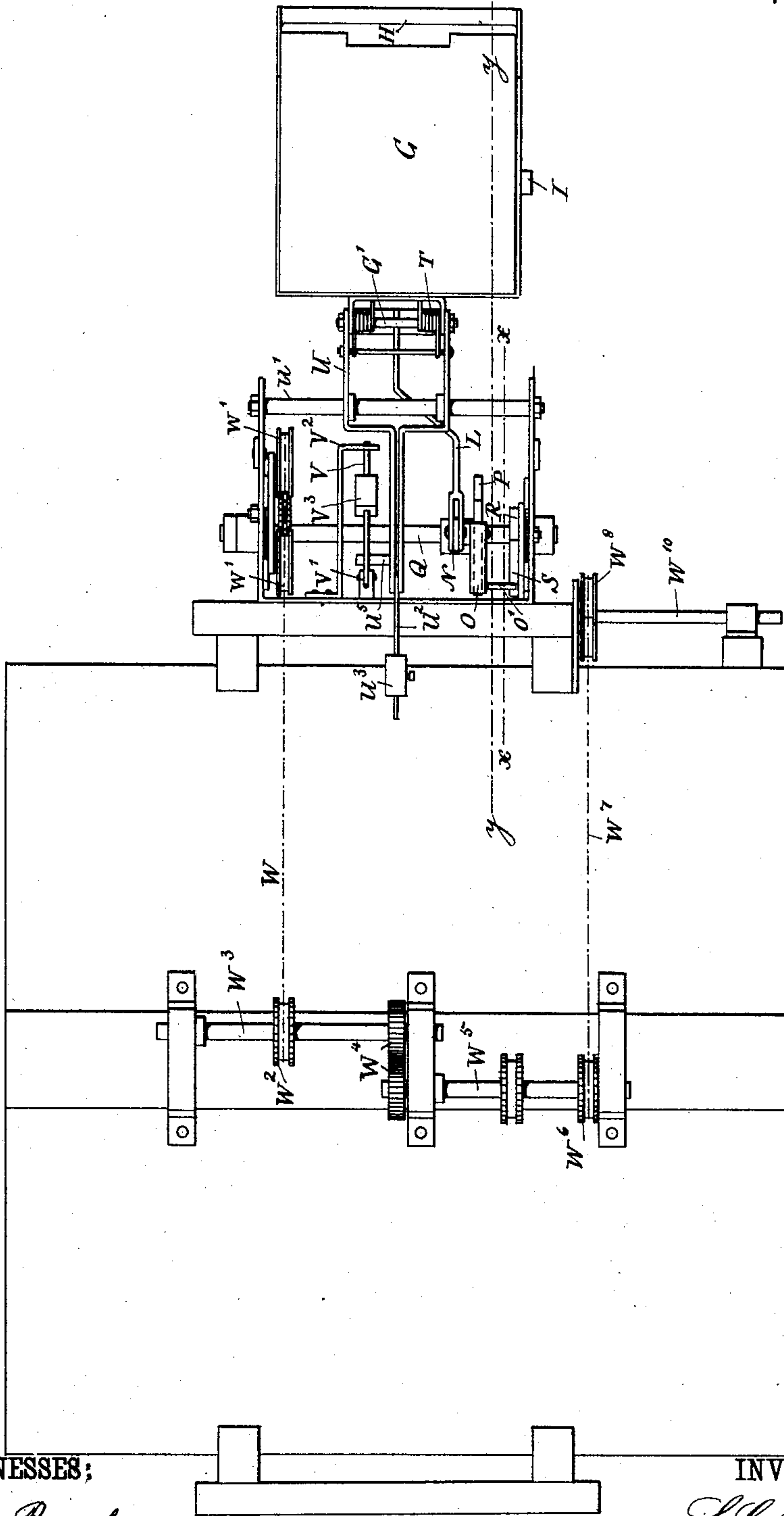
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Fig. 2.



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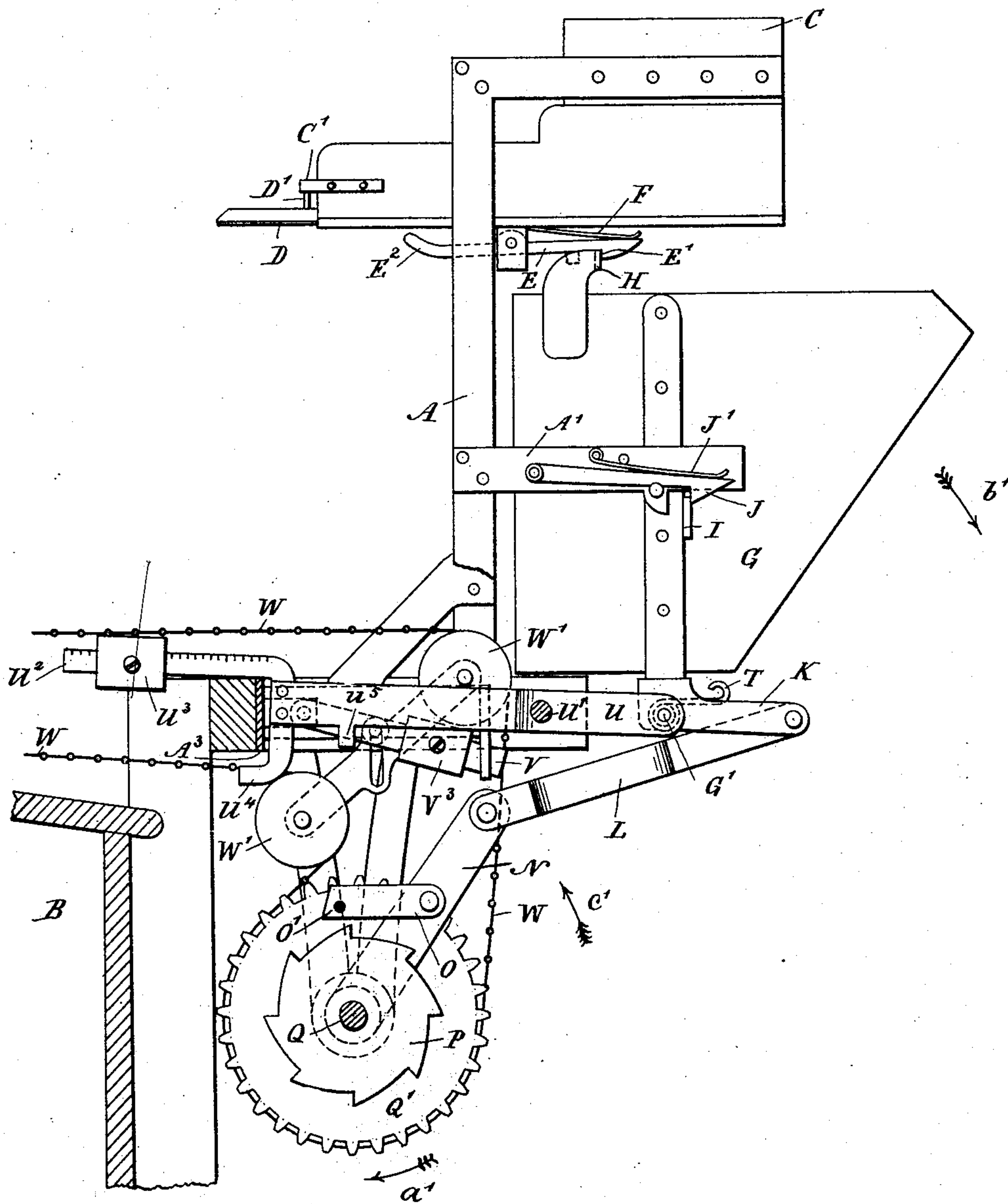
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Fig. 3.



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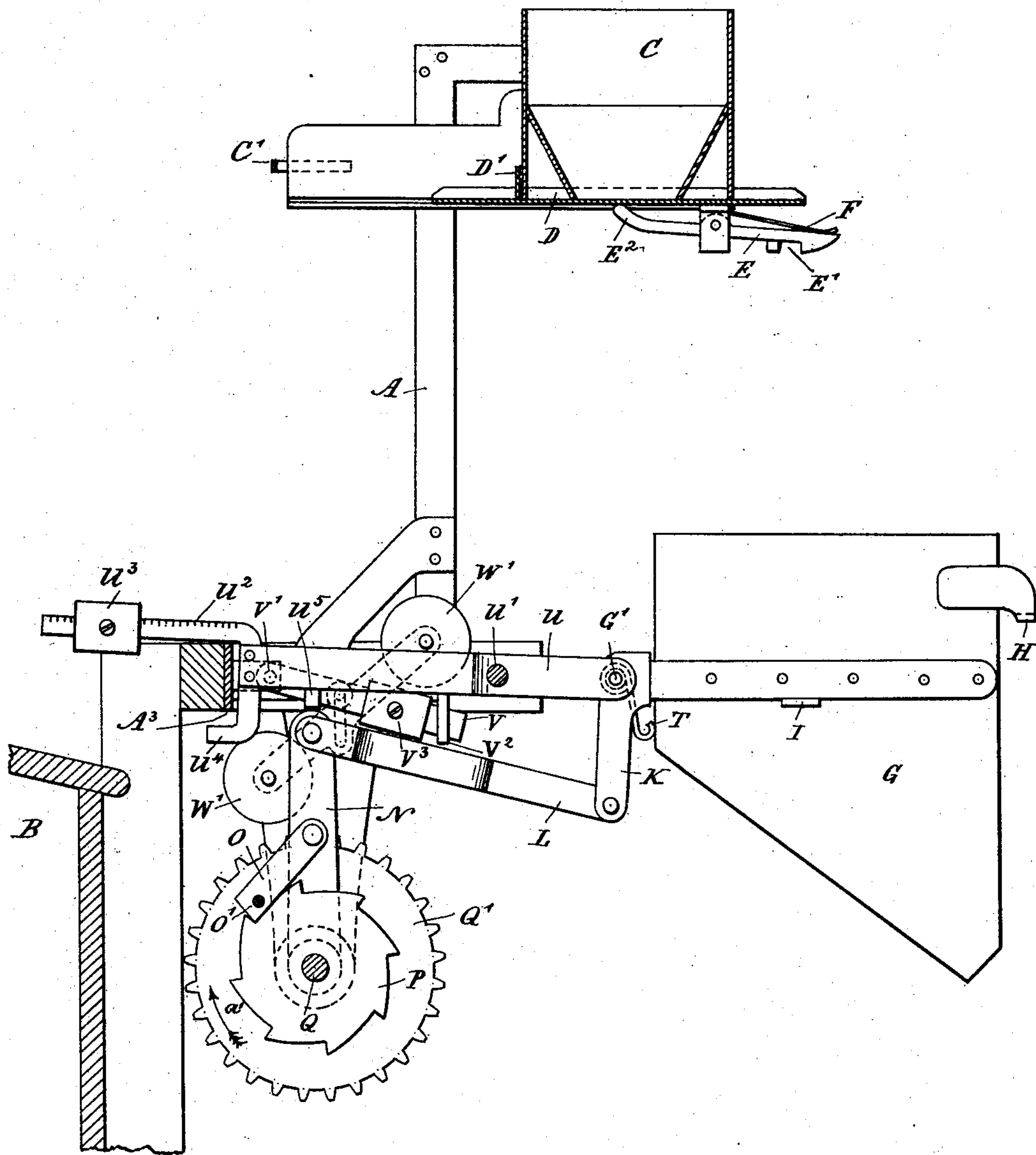
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Fig. 4.



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Fig. 5.

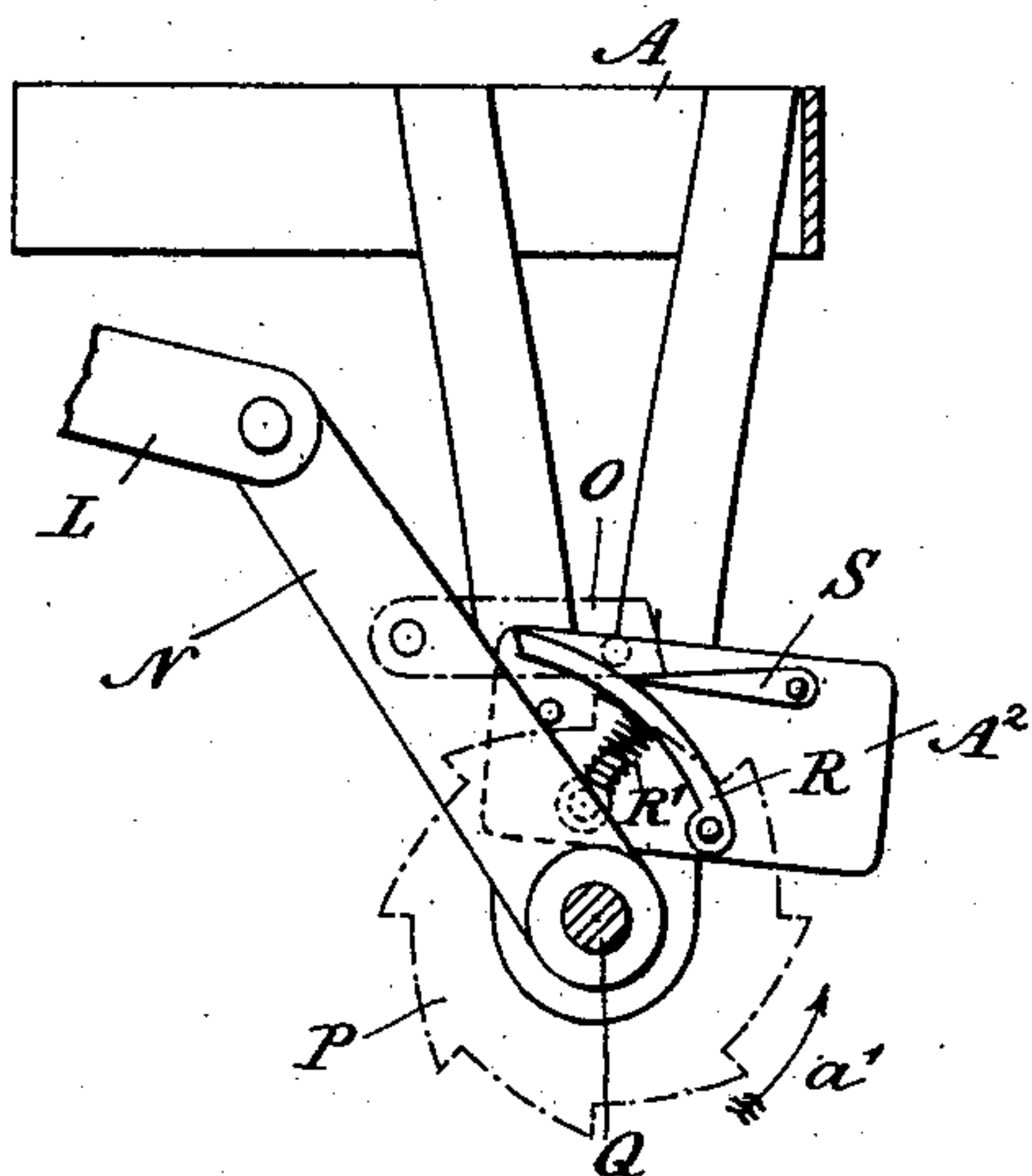


Fig. 6.

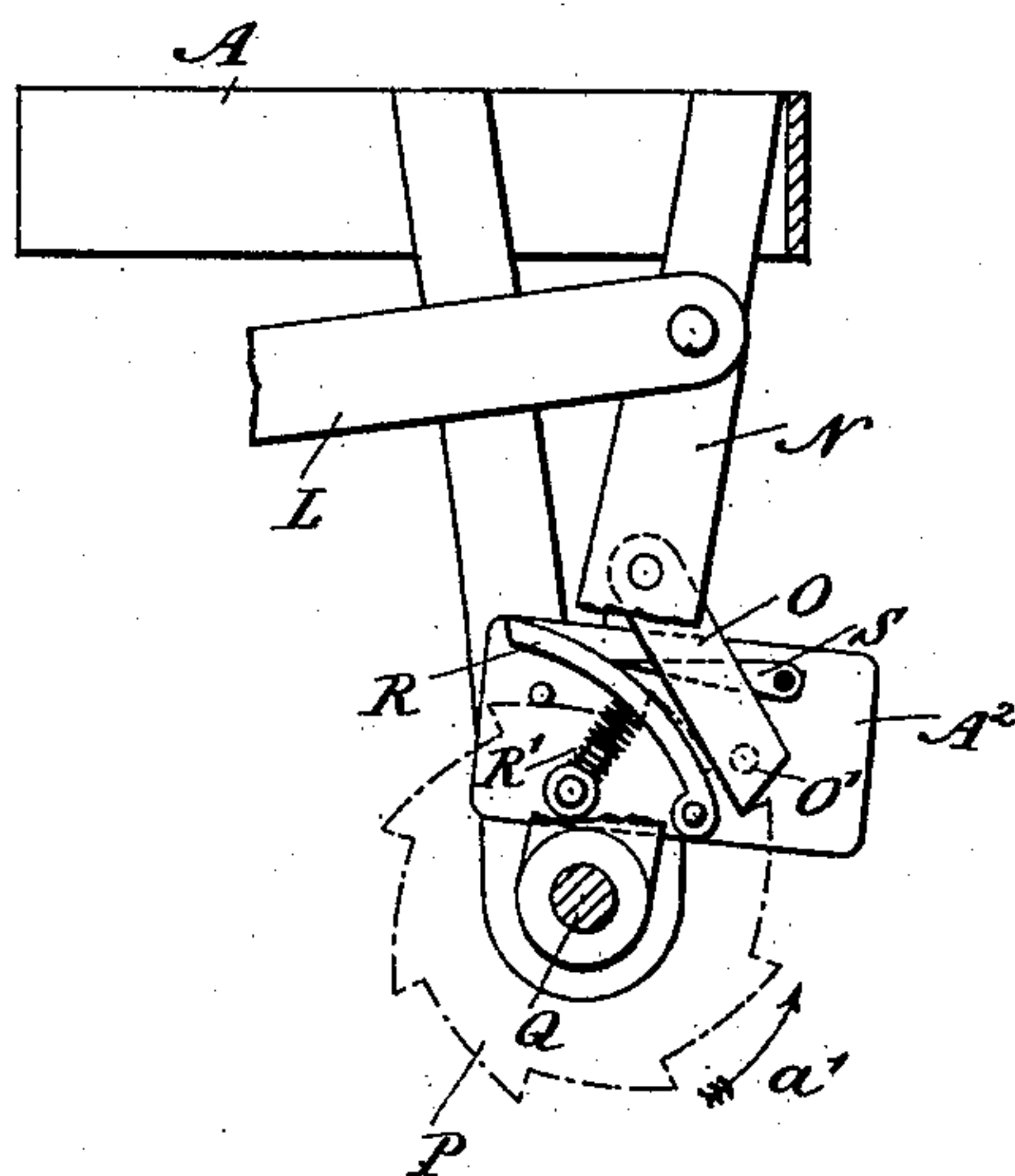
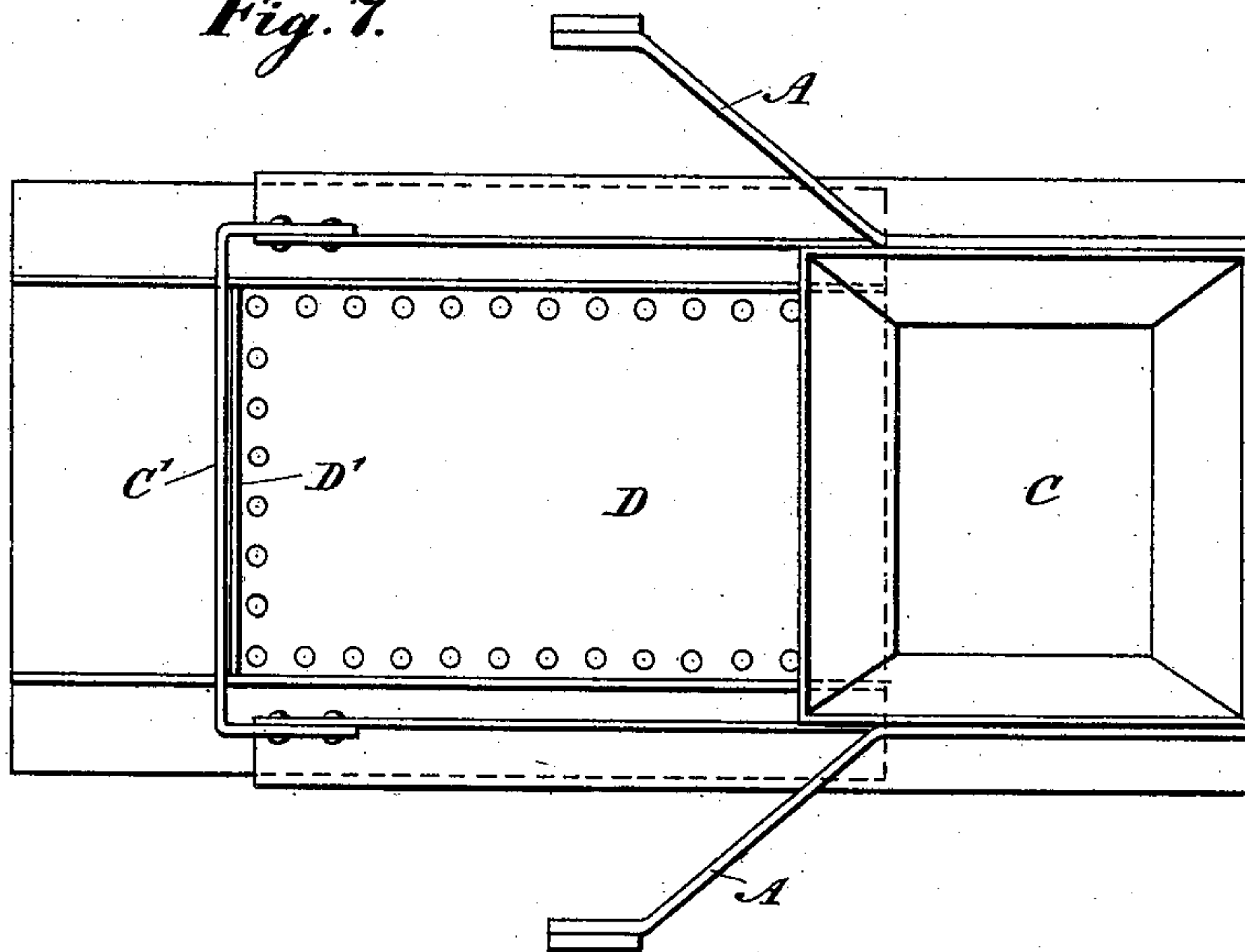


Fig. 7.



WITNESSES:

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INVENTOR:

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ATTORNEYS.

UNITED STATES PATENT OFFICE.

LE ROY C. TRYON, OF MARSEILLES, ILLINOIS.

GRAIN-WEIGHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 375,515, dated December 27, 1887.

Application filed July 25, 1887. Serial No. 245,263. (No model.)

To all whom it may concern:

Be it known that I, LE ROY CLIFFORD TRYON, of Marseilles, in the county of La Salle and State of Illinois, have invented a new and Improved Grain Weighing and Registering Machine, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved machine for automatically weighing and registering grain with great accuracy.

The invention consists of a stationary hopper provided with a sliding bottom operated by a measuring-receptacle pivoted on the weighing-beam and connected with the mechanism for returning the receptacle after dumping the measured grain.

The invention also consists in the construction and arrangement 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 side elevation of my improvement. Fig. 2 is a plan view of the same with the receiving-hopper removed. Fig. 3 is an enlarged sectional side elevation of my improvement on the line *xx* of Fig. 2, showing the measuring-receptacle in position for receiving the grain. Fig. 4 is a similar view of the same on the line *yy* of Fig. 2, showing the receptacle in its lowest position in the act of dumping. Fig. 5 is a sectional side elevation of the tripping device. Fig. 6 is a similar view of the same in another position, and Fig. 7 is a plan view of the receiving-hopper.

A suitably-constructed frame, A, in which my improvement is mounted, is secured either to the thrashing-machine B or to any other machine or building on which it is desired to use the mechanism. The main frame A supports on its upper end a fixed hopper, C, provided with a sliding bottom, D, mounted to slide in suitable grooves formed in the sides of said hopper C. The sliding bottom D is provided with an upward projection, D', adapted to strike the outer wall of the hopper C, and a transverse bar, C', secured to the sides

of the hopper C, so that when said sliding bottom is moved forward or backward said projection D' strikes alternately said outer side of the hopper C and the transverse bar C'. 55

On the under side of the sliding bottom D is fulcrumed the tripping-lever E, provided with a notch, E', in its front end, and also provided with an upwardly-bent rear end, E², adapted to engage the under side of the sliding bottom D, so as to hold the said tripping-lever E in a horizontal position. On the upper front end of the lever E presses the free end of a spring, F, secured to the under side of the sliding bottom D. 65

Directly below the fixed hopper C is placed the grain-measuring receptacle G, which is open at the top and provided on its upper end with a transverse rod, H, adapted to engage the notch E' in the tripping-lever E, so as to move, when the receptacle G turns, the sliding bottom D forward or backward. On one side of the receptacle G is formed a projection, I, adapted to engage a catch, J, fulcrumed on the arm A' of the main frame A, and held in the desired position by a spring, J', the free end of which presses on the front end of said catch J. 75

The grain-measuring receptacle is fulcrumed at its bottom on the shaft G', and from the bottom projects to the front the lever-arm K, pivotally connected by the link L with the lever N, fulcrumed loosely on a continually-rotating shaft, Q, receiving its motion in any desired manner. On the lever N is fulcrumed a pawl, O, engaging the teeth of the ratchet-wheel P, secured on said shaft Q. From one side of the pawl O projects a pin, O', adapted to engage the tripping device illustrated in Figs. 5 and 6, said tripping device consisting of a curved lever-arm, R, fulcrumed at its lower end on a bracket, A², secured on the arms carrying the shaft Q, said arms being secured to the main frame A. 85

The lever-arm R is held in the position illustrated in Figs. 5 and 6 by a spring, R', secured at one end to the bracket A², its other end bearing against the under side of said lever-arm. An arm, S, is fixed at one end to the bracket A², extends in a horizontal direction, and its other end rests upon the upper side of the lever-arm R, so that when the pin O' of the pawl O travels upward on the lever- 95 100

arm R the free end of the latter is lowered, and is raised again when said pin leaves it. When the pawl O travels in the opposite direction, as will be hereinafter more fully described, then the pin O' travels over the upper side of the fixed arm S, thus disengaging the pawl O from the ratchet-wheel P, until the pin O' drops over the fulcrumed end of the fixed arm S, so that the pawl O again swings into contact with the ratchet-wheel P.

The shaft G', on which the measuring-receptacle G is fulcrumed, carries a spring, T, the free end of which extends outward and is adapted to engage with the bottom of the measuring-receptacle G when the latter swings downward, so as to prevent the receptacle G from falling too far. The shaft G' is secured to the outer end of the weighing-beam U, fulcrumed at U' in the main frame A, and provided at its inner end with a graduated arm, U², carrying the adjustable poise U³ in the usual manner. The arm U² is provided with a downwardly-extending catch, U⁴, adapted to engage the lower edge of the transverse plate A³ of the main frame A when the measuring-receptacle G is loaded, thereby turning the weighing-beam U. The catch U⁴, in connection with the arm U², thus limits the swinging motion of the weighing-beam U. From the latter projects sidewise a pin, U⁵, engaging the lower edge of the adjustable weighing-beam V, pivoted at V' to the main frame A, and swinging with its free end in the guide V², secured to the main frame A and adapted to limit the swinging motion of the beam V. On the latter is held adjustably, in the usual manner, the poise V³.

The shaft Q is rotated in the direction of the arrow a', as illustrated in Figs. 4, 5, and 6, by any suitable means; but I prefer the means shown, which consists, principally, of a sprocket-wheel, Q', secured to the shaft Q, and a sprocket-chain, W, which passes over said sprocket-wheel Q', and also over the idlers W', and then over a sprocket-wheel, W², secured on a shaft, W³, mounted in suitable bearings on the top of the thrashing-machine B. The shaft W³ connects by the gear-wheels W⁴ with the shaft W⁵, also mounted in suitable bearings on top of the thrashing-machine B, and said shaft W⁵ is provided with a sprocket-wheel, W⁶, over which passes a sprocket-chain, W⁷, also passing over the two idlers W⁸, and then said sprocket-chain W⁷ passes over the sprocket-wheel W⁹, secured to the shaft W¹⁰, mounted in suitable bearings on one side of the thrashing-machine B, next to the shaft Q. The shaft W¹⁰ is rotated in any suitable manner from the mechanism of the thrashing-machine.

The operation is as follows: When the mechanism is in the position illustrated in Figs. 1 and 3, then the sliding bottom D is removed from under the fixed hopper C, and the open top end of the receptacle G is directly under the bottom opening of the hopper C, so that grain discharged into the latter passes into the receptacle G and fills the same. The trans-

verse bar H of the receptacle G is engaged with the notch E' of the tripping-lever E, and the projection I on said receptacle G is also engaged with the catch J, and when the receptacle is filled with such an amount of grain as to tip the beam U, then the projection I is disengaged from the catch J, and the receptacle G swings downward in the direction of the arrow b' in the position shown in Fig. 4. This swinging motion of the receptacle G causes the transverse bar H to pull on the tripping-lever E, so that the sliding bottom D is moved forward and closes the bottom opening of the hopper C, so that the grain discharged into the latter can accumulate in the same. When the receptacle G swings downward, its bottom engages the free ends of the spring T, and is held in position by said spring, as shown in Fig. 4. The swinging motion of the receptacle G causes its arm K to impart a swinging motion to the lever N in the direction of the arrow c' in Fig. 3, so that the pawl O moves backward without being engaged by the ratchet-wheel P, as the pin O' of the pawl O now travels over the top edge of the fixed arm S, as before described. When the receptacle G comes into its lowest position, then the pin O' drops over the fixed end of the arm S, so that the pawl O swings downward and again engages the ratchet-wheel P, which is continually rotating with its shaft Q in the direction of the arrow a', whereby a swinging motion in the inverse direction of the arrow c' is imparted to the lever N, and the latter, pressing on the lever-arm K by means of its link L, causes the now empty receptacle G to swing upward into its former position, as illustrated in Figs. 1 and 3. This return movement of the receptacle G in the inverse direction of the arrow b' causes the projection I to engage the catch J, and the transverse bar H again engages the rear wall of the notch E' of the tripping-lever E, thus pushing the sliding bottom D backward, and thereby again opening the bottom opening of the hopper C, so that the grain which accumulated during the discharge of the receptacle G passes into the latter. The above-described operation is then repeated.

It will be seen that the weighing-beam U is set to the quantity of grain to be measured by adjusting the respective poise U³ or V³, the second weighing-beam indicating the slightest movement of the other beam, U.

A registering apparatus of any approved construction may be secured to the frame A and connected with the swinging receptacle G, so that at each downward motion of said swinging receptacle G the registering apparatus is caused to tally.

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

1. In a grain-weighing machine, the combination, with the frame, the stationary hopper at the upper end thereof, and the sliding bottom having a tripping-lever on its lower side, of the

scale-beam pivoted on the frame, the grain-receptacle pivoted at its lower end to said beam to swing outward and downward, and acting at its upper inner end upon the tripping-lever to throw the sliding bottom in either direction, and a vertically-swinging catch pivoted to the frame and holding the receptacle from outward movement until depressed by the weight of the grain, substantially as set forth.

2. The combination, with the frame, a rotary shaft having a ratchet-wheel, a lever having a pawl acted upon by the ratchet and provided with a laterally-projecting pin, of a fixed arm and a curved arm on which the said pin travels, provided with a spring pressing its free end upward against the forward end of the fixed arm, substantially as set forth.

3. In a grain weighing and registering machine, a fixed hopper, a bottom adapted to slide on said hopper, and a tripping-lever having a notch held on said bottom, in combination with a grain-measuring receptacle provided with a transverse bar engaging the notch in said tripping-lever, a scale-beam on which said measuring-receptacle is pivoted, a projection, formed on one side of said receptacle, and a spring-catch engaging said projection so as to hold said measuring-receptacle in place until charged with grain, substantially as shown and described.

4. In a grain weighing and registering machine, the combination, with a continually-rotating shaft and a ratchet-wheel mounted on said shaft, of a pawl adapted to engage said ratchet-wheel and provided with a pin projecting from one side, a lever fulcrumed on said shaft and carrying said pawl, and also connected with the grain-measuring receptacle, a curved pivoted arm on which said pin of the pawl travels, and a fixed arm resting with its free end on the top edge of said curved arm, substantially as shown and described.

5. In a grain weighing and measuring machine, the combination, with a grain-measuring receptacle pivoted on the scale-beam, of an arm projecting from the bottom of said grain-measuring receptacle, a link connected with said arm, a lever pivotally connected with said link, a continually-rotating shaft on which said lever is fulcrumed, a ratchet-wheel carried on said rotating shaft, a pawl fulcrumed on said lever and adapted to engage said ratchet-wheel, and means, substantially as described, for disengaging said pawl automatically from said ratchet-wheel, as set forth.

L. C. TRYON.

Witnesses:

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GEORGE D. CHAPPLE.