

No. 779,714.

PATENTED JAN. 10, 1905.

J. S. KEMP.
MANURE SPREADER.

APPLICATION FILED MAY 17, 1904.

3 SHEETS—SHEET 1.

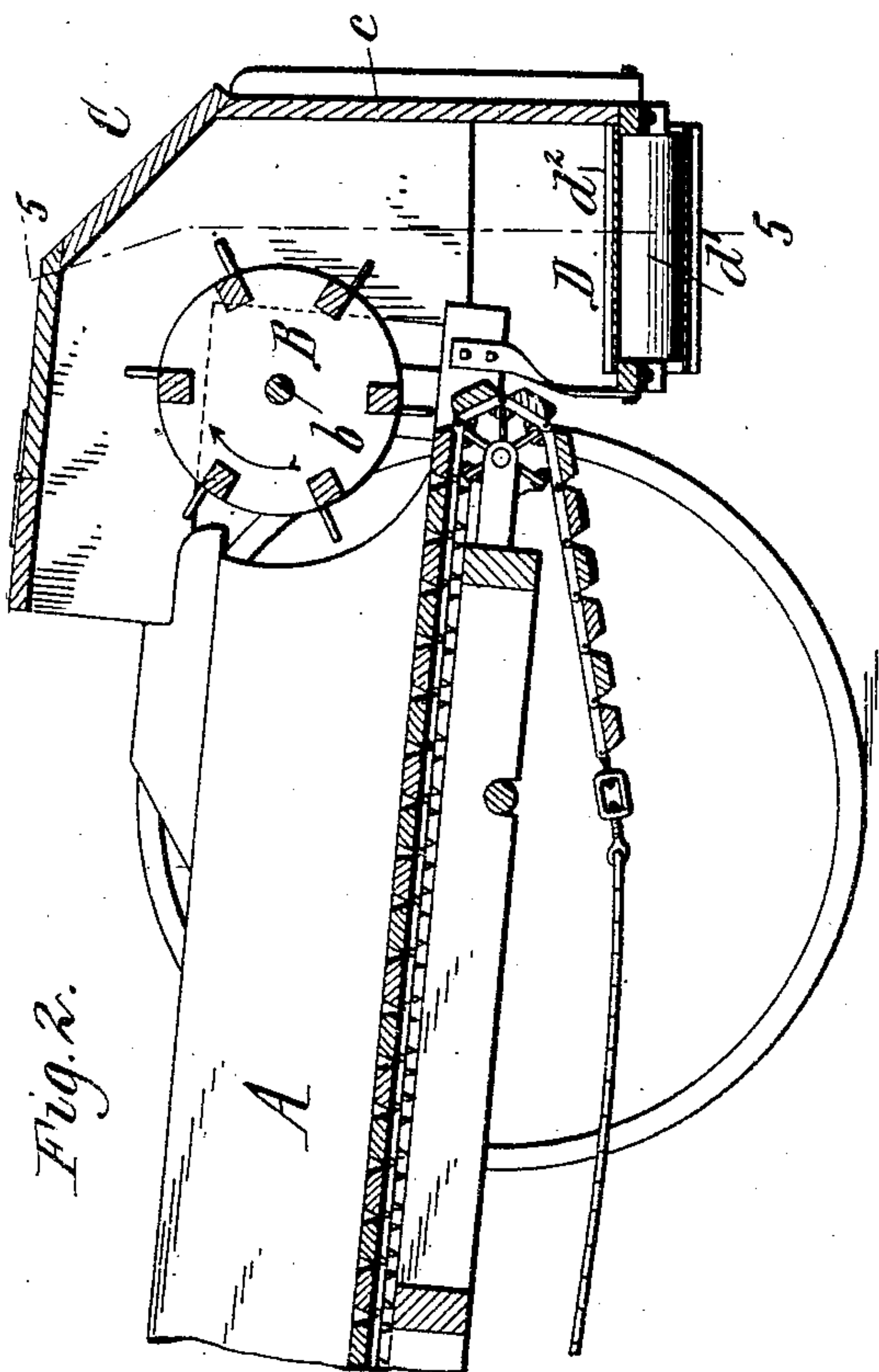


Fig. 2.

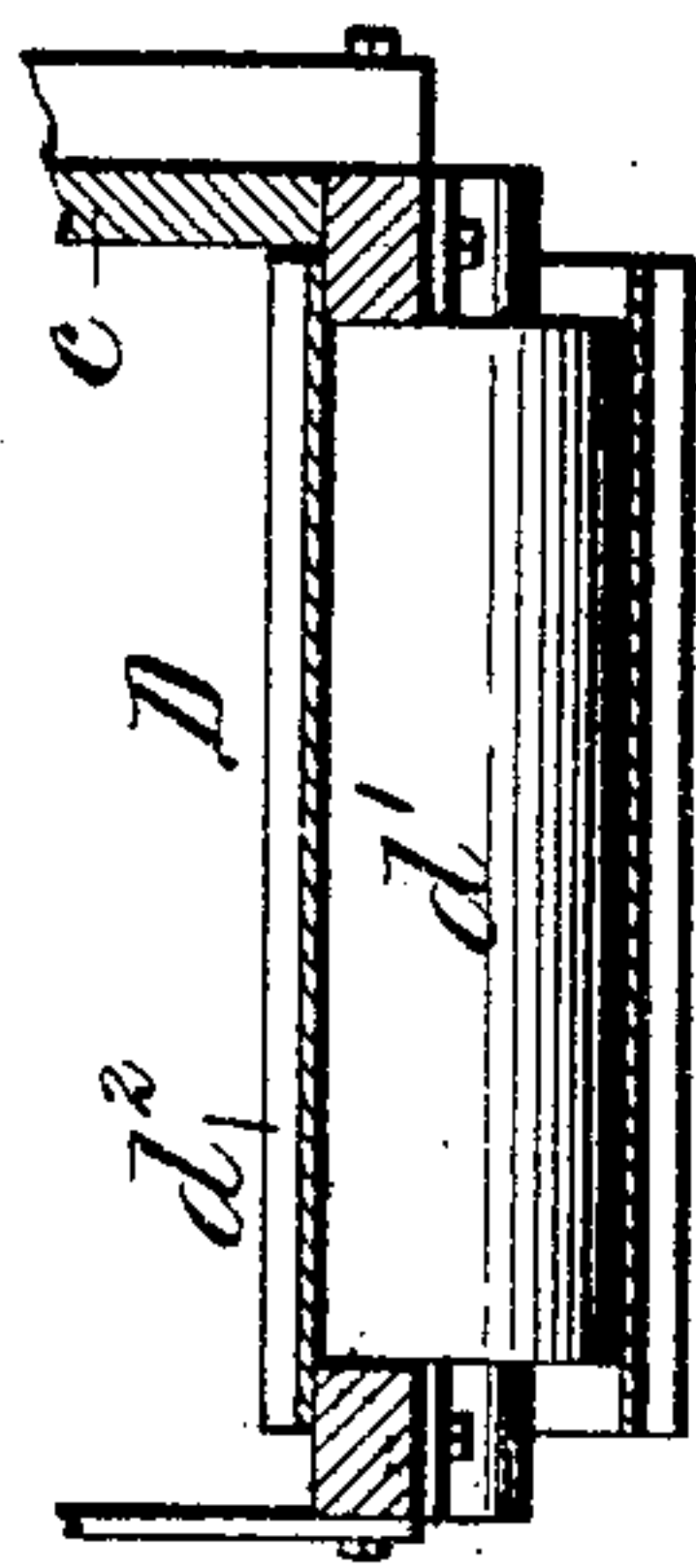


Fig. 3.

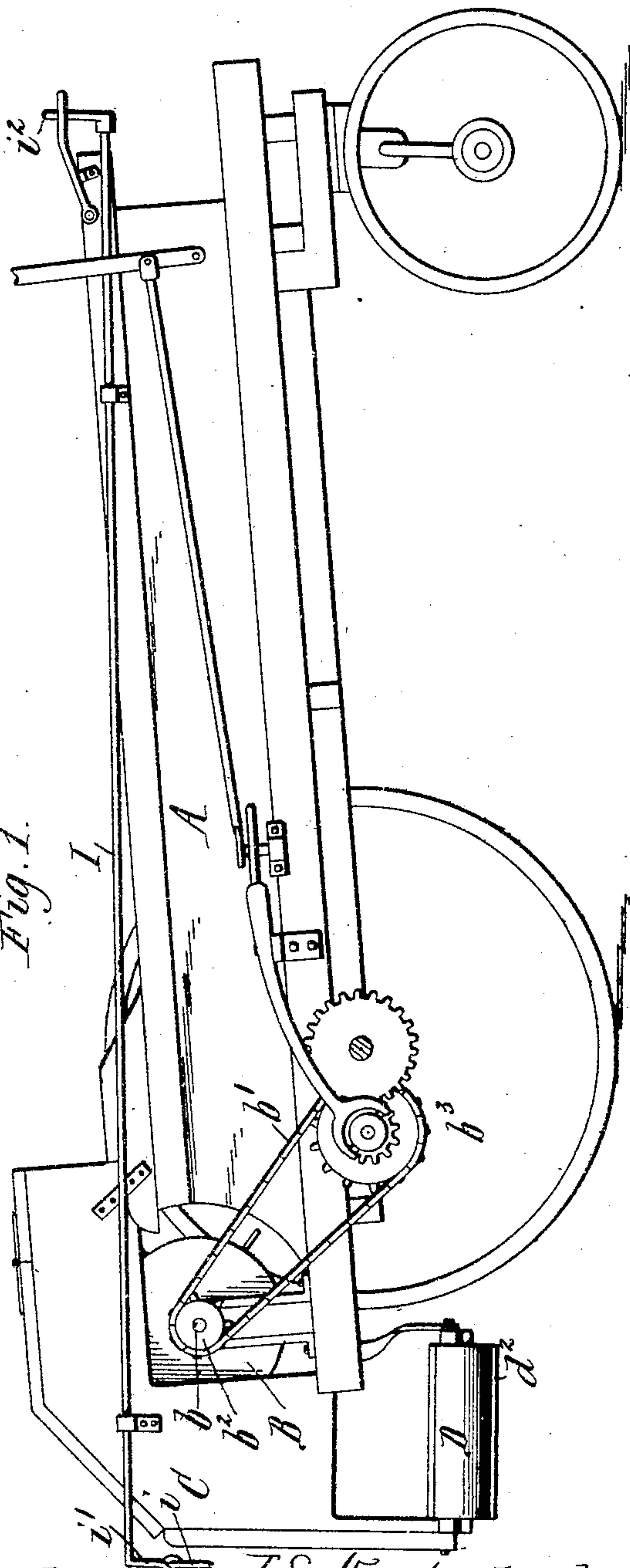


Fig. 1.

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3 SHEETS—SHEET 2.

Fig. 4.

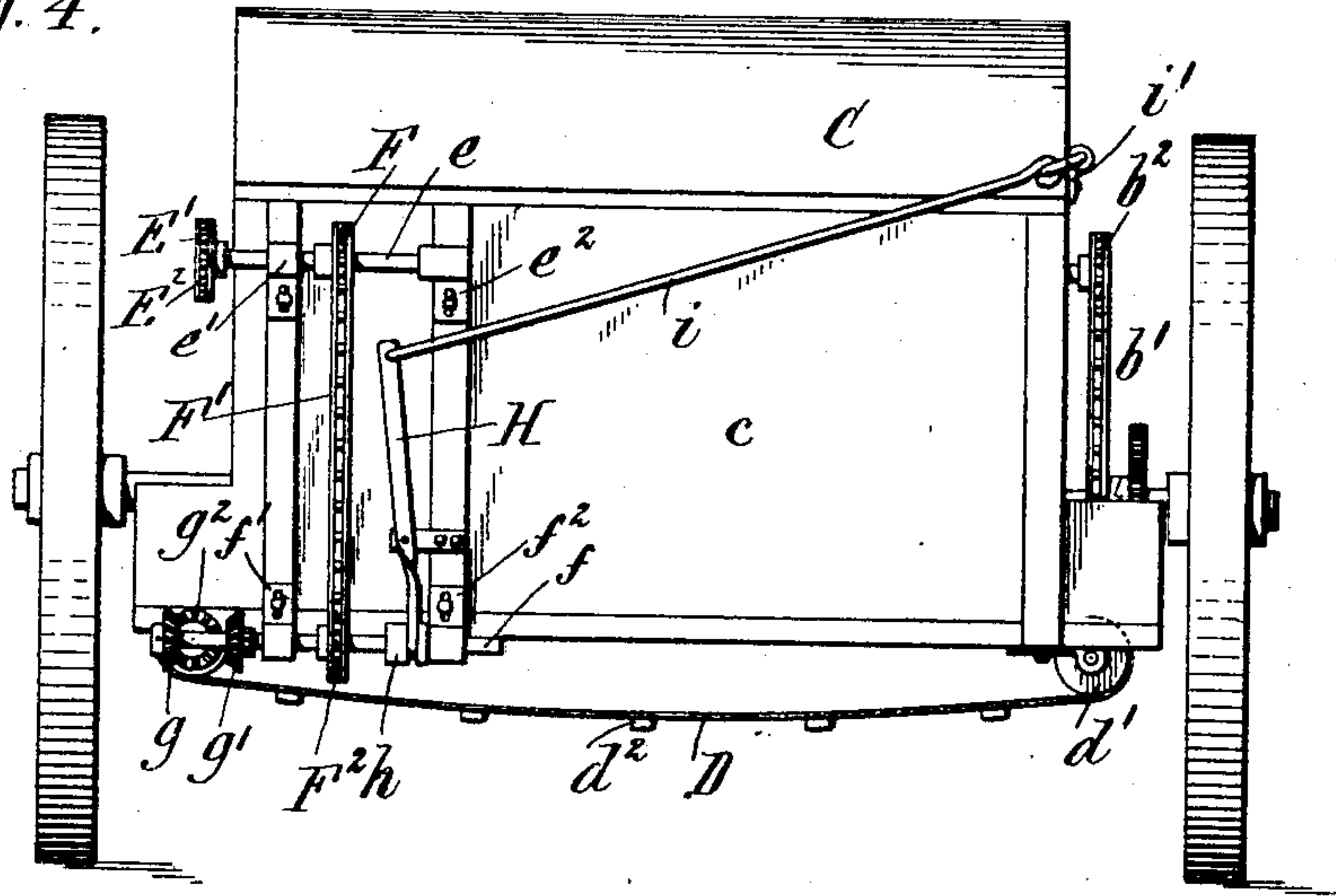


Fig. 5.

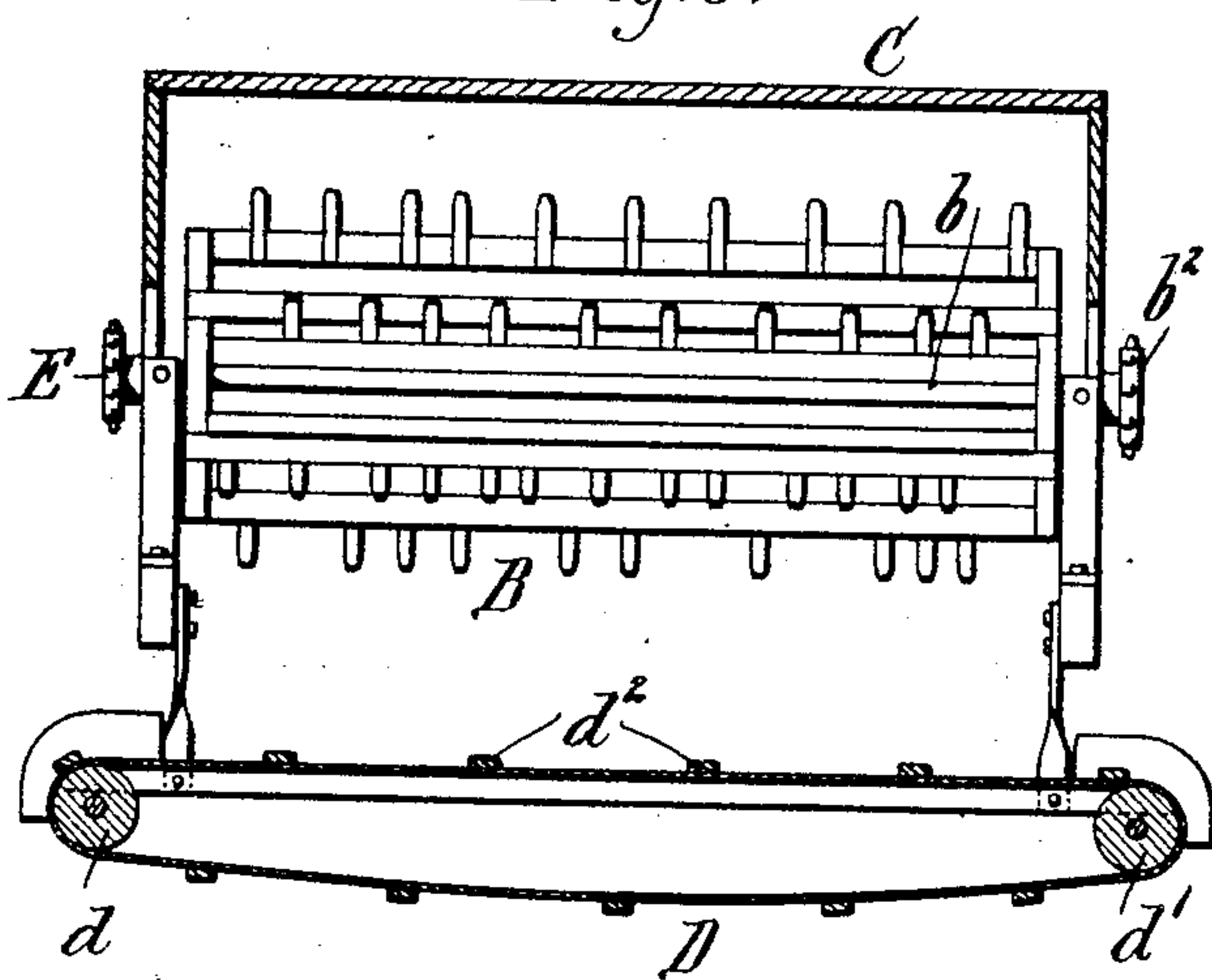
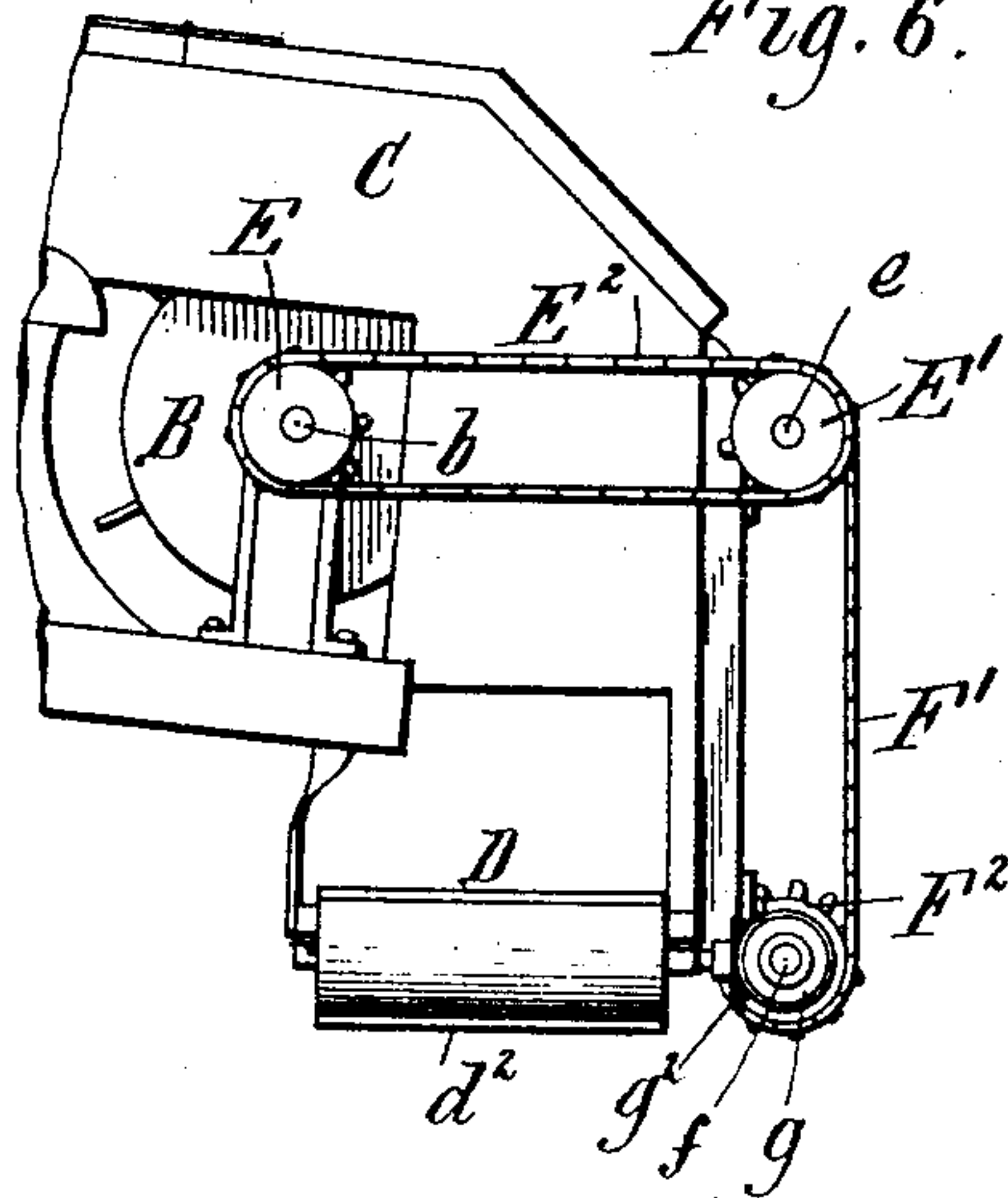


Fig. 6.



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3 SHEETS—SHEET 3.

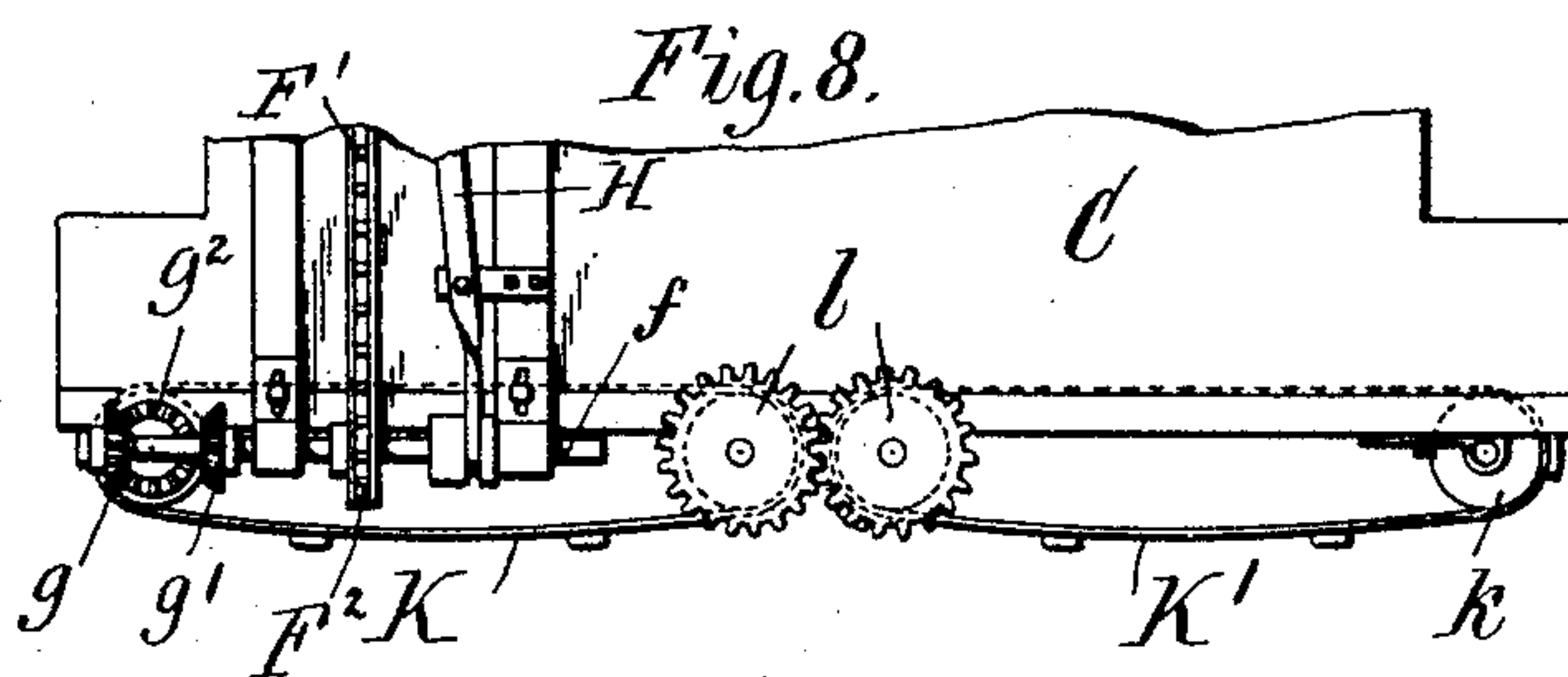
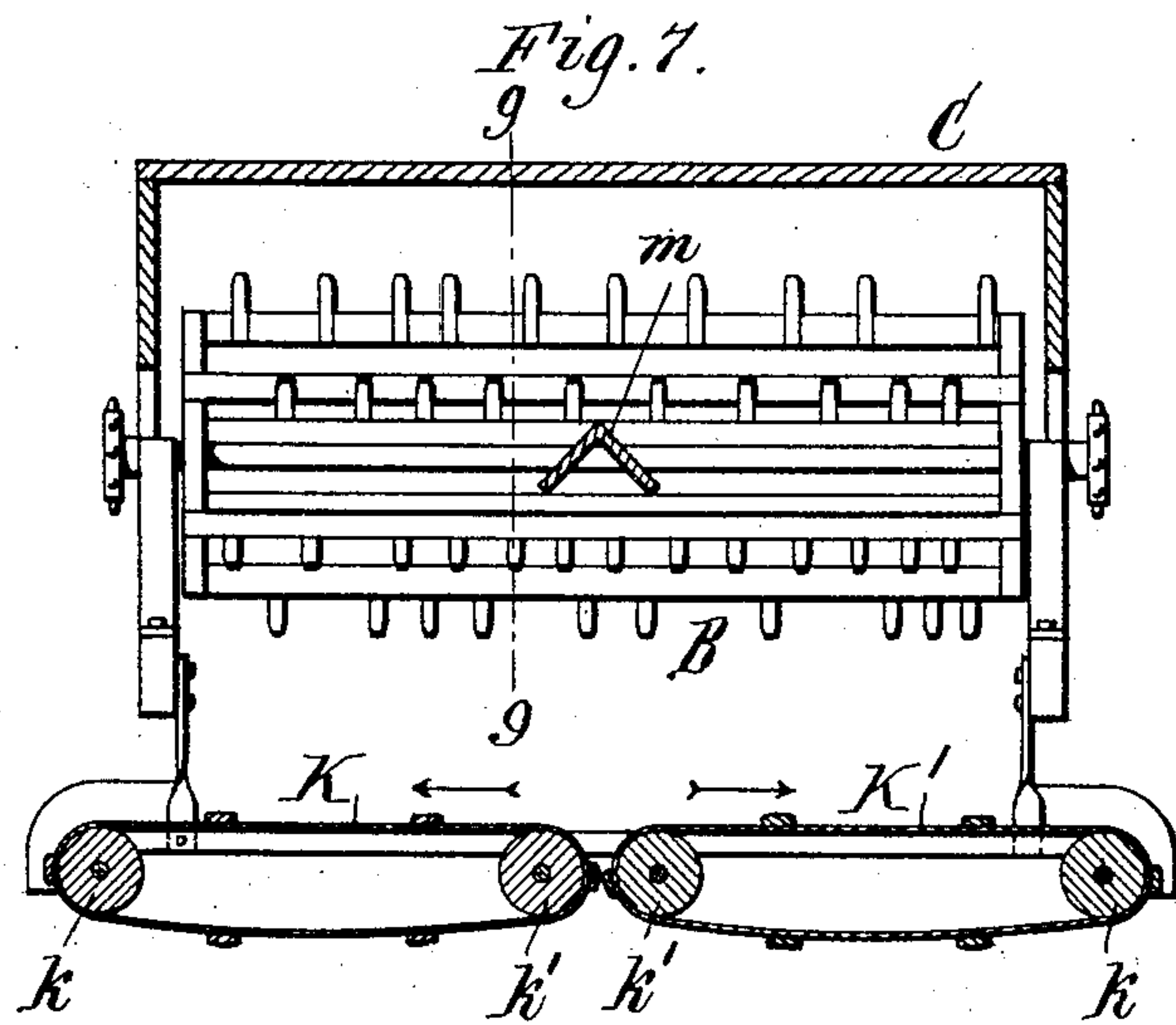


Fig. 9.

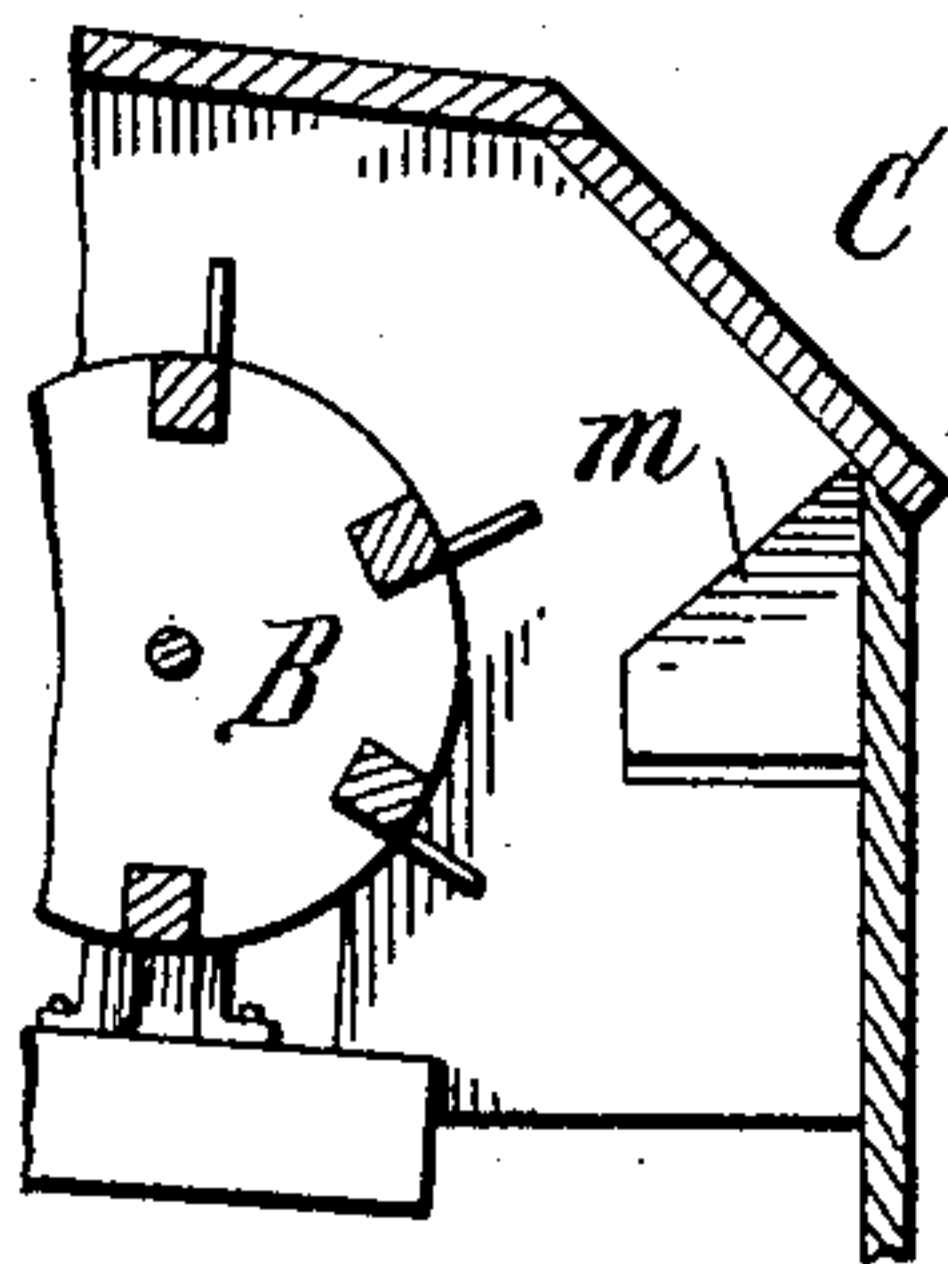


Fig. 10.

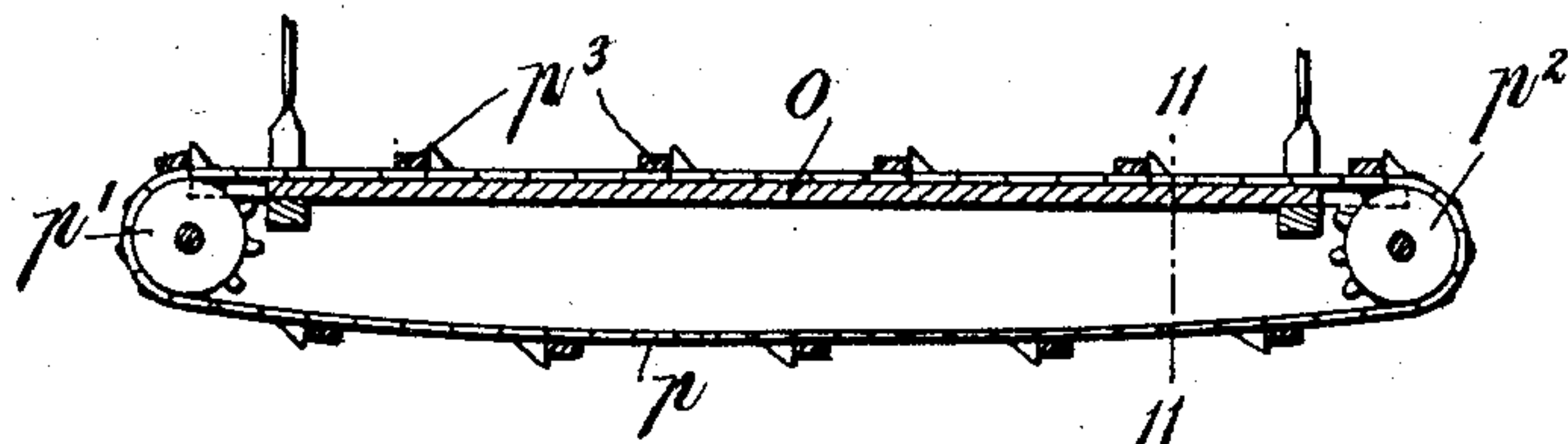
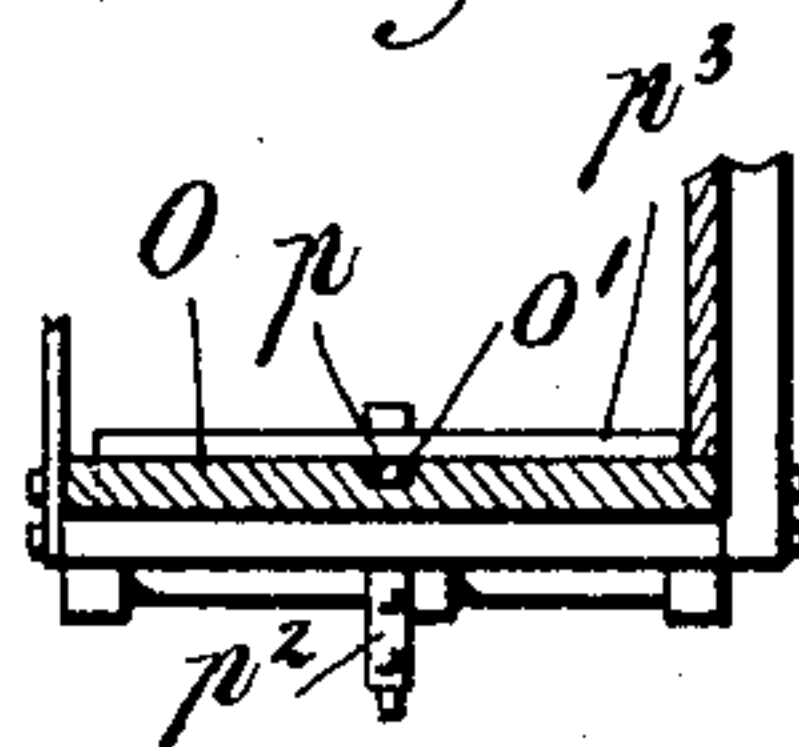


Fig. 11.



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UNITED STATES PATENT OFFICE.

JOSEPH SARGENT KEMP, OF NEWARK VALLEY, NEW YORK.

MANURE-SPREADER.

SPECIFICATION forming part of Letters Patent No. 779,714, dated January 10, 1905.

Application filed May 17, 1904. Serial No. 208,373.

To all whom it may concern:

Be it known that I, JOSEPH SARGENT KEMP, a citizen of the United States, and a resident of Newark Valley, in the county of Tioga and State of New York, have invented new and useful Improvements in Manure-Spreaders, of which the following is a specification.

This invention relates mainly to that class of manure-spreaders or fertilizer-distributors which are provided at the rear end of the wagon-body or receptacle for the material with a rotary or other movable beater or distributor by which the manure or fertilizing material is detached from the mass of material contained in the wagon-body and delivered and scattered in a rearward direction.

The object of this invention is to provide such a machine with convenient mechanism by which the material delivered by the beater or distributor is collected and delivered laterally on one side or both sides of the machine, so that the latter can be employed for delivering fertilizing material into furrows, trenches, or drills.

In the accompanying drawings, consisting of three sheets, Figure 1 is an elevation of the right-hand side of a manure-spreader provided with my improvements. Fig. 2 is a longitudinal sectional elevation of the rear portion of the machine. Fig. 3 is a vertical section of the lateral delivery-apron, taken in the longitudinal direction of the machine and on an enlarged scale. Fig. 4 is a rear elevation of the machine. Fig. 5 is a vertical transverse section in line 55, Fig. 2. Fig. 6 is a left-hand side elevation of the rear portion of the machine. Fig. 7 is a vertical transverse section through the rear portion of the machine, showing a lateral delivery apparatus which contains two aprons traveling in opposite directions. Fig. 8 is a fragmentary rear elevation of a machine provided with this delivery apparatus. Fig. 9 is a vertical section in line 9 9, Fig. 7. Fig. 10 is a fragmentary transverse section showing another modification of the lateral delivery apparatus. Fig. 11 is a vertical section in the longitudinal direction of the machine in line 11 11, Fig. 10.

Like letters of reference refer to like parts in the several figures.

A represents the wagon-body or wheeled receptacle of a manure-spreader or fertilizer-distributor, and B the rotary beater arranged at the rear end of the body or receptacle and mounted upon a shaft *b*, which may be driven, as shown, on the right-hand side of the machine by a drive-chain *b'*, running around sprocket-wheels *b²* *b³*. The wagon-body or wheeled receptacle, the beater, and the mechanisms connected with these parts of the machine may, however, be of any well-known or suitable construction. The beater is rotated upwardly on the side adjacent to the mass of material in the receptacle, as indicated by the arrow in Fig. 2, so that the material which is detached from the mass by the beater is carried upwardly and rearwardly by the same.

C represents a hood or casing which is arranged in rear of the beater and which extends forwardly over the same and downwardly to the lateral delivery apparatus, so that the material which is delivered broadcast by the beater in a rearward direction is collected by this hood or casing and directed downwardly upon the lateral delivery apparatus.

Referring to Figs. 1 to 6, the lateral delivery apparatus consists of an endless horizontal conveyer apron or belt D, which is arranged transversely in the lower portion of the hood and runs around rollers *d* *d'*. This apron is preferably provided on its upper side with transverse cleats *d²* and is operated by any suitable mechanism from any suitable moving part of the machine. As shown in the drawings, Figs. 4 and 6, the roller *d* of the apron is driven from the beater-shaft *b* by the following mechanism: E represents a sprocket-wheel secured to one end of the beater-shaft, E' a similar sprocket secured to an upper counter-shaft *e*, and E² the drive-chain running around these wheels. The counter-shaft *e* is journaled in bearings *e'* *e²*, which are secured to the upright rear wall *c* of the hood or casing C and carries another sprocket-wheel F, from which a drive-chain F' extends

down to a sprocket-wheel F^2 on a lower counter-shaft f . The latter carries oppositely-facing bevel-wheels g g' , either of which can be engaged with a bevel-wheel g^2 on the shaft of the roller d by any suitable means. As shown, the lower counter-shaft is movable lengthwise in its bearings f' f^2 for that purpose and provided with a shifting-lever H , which is pivoted to the rear wall c of the hood and engages with its lower end in a grooved collar h on the counter-shaft f . By engaging the bevel-wheel g or g' with the wheel g^2 on the roller d the latter is rotated in one direction or the other, and the manure is delivered on one side or the other side of the machine accordingly. For the purpose of enabling the operator to reverse the movement of the apron conveniently from the front of the machine the shifting-lever H is connected by a rod i with an arm i' on the rear end of a longitudinal rock-shaft I , which is arranged on the right-hand side of the machine and provided at its front end, near the driver's seat, with a handle i^2 , Figs. 1 and 4. The material, which is detached and scattered by the beater, is collected and directed down upon the transverse apron, which latter receives this loosened material and conveys the same to one side of the machine, where the material is delivered into the trench, furrow, or drill in the disintegrated and loosened condition in which it is delivered by the beater. By delivering the material at the side of the machine instead of broadcast rearwardly the machine is rendered suitable for fertilizing crops which are planted in rows or drills. The hood and the lateral delivery apparatus attached thereto are preferably attached to the body of the machine in such manner that these parts can be removed if it is desired to use the machine for broadcast delivery in the ordinary way.

In the construction represented in Figs. 7 to 9, two lateral delivery-aprons K K' are employed, running, respectively, around outer and inner rollers k k' , and these aprons travel in opposite directions, so that the material is delivered on both sides of the machine. As shown in these figures, the inner rollers k' of the two aprons are connected by gear-wheels l for driving the apron K' from the apron K . The rear wall of the hood is preferably provided on its inner side with an angular deflector m , which is arranged over the adjacent inner portions of the aprons and which prevents the material from falling directly upon the inner portions of the aprons.

In the construction represented in Figs. 10 and 11 the hood is provided with a transverse bottom plate or board O , upon which the material falls from the beater and from which the material is removed in a lateral direction and delivered at the side of the machine by

an endless scraper consisting of an endless chain p , which runs around rollers p' p^2 and carries scraper-bars p^3 . The upper stretch of the endless chain runs in a groove o' of the bottom O , and the scraper-bars p^3 sweep over this bottom and remove the material therefrom.

I claim as my invention—

1. The combination of a fertilizer-receptacle, a beater at the rear end thereof, a hood arranged behind the beater and extending with its upper portion forwardly over the beater to receive the material delivered by the same, and an endless conveyer which is arranged transversely at the lower end of the hood for receiving the disintegrated material from the beater and delivering the same at the side of the machine, substantially as set forth.

2. The combination of a fertilizer-receptacle, a beater at the rear end thereof, a hood inclosing the beater, and an endless conveyer-apron arranged transversely at the lower end of the hood and delivering the material at the side of the machine, substantially as set forth.

3. The combination of a fertilizer-receptacle, a beater at the rear end thereof, a hood inclosing the beater, an endless conveyer-apron arranged transversely at the lower end of the hood, and a reversible driving mechanism for driving said apron in either direction, substantially as set forth.

4. The combination of a fertilizer-receptacle, a beater at the rear end thereof, a hood inclosing the beater, an endless conveyer-apron arranged transversely at the lower end of the hood, a horizontal upper counter-shaft driven from the beater-shaft and supported on the upper portion of the hood, and a horizontal lower counter-shaft geared with the transverse apron and supported on the lower portion of the hood, substantially as set forth.

5. The combination of a fertilizer-receptacle, a beater at the rear end thereof, a hood inclosing the beater, an endless conveyer-apron arranged transversely at the lower end of the hood, a driving-shaft for said apron supported on said hood, means for reversing the motion of said shaft, a shifting-lever for operating said reversing means, and a longitudinal actuating device arranged at the side of said receptacle and connected at its rear end with said shifting-lever, substantially as set forth.

6. In a fertilizer-distributor the combination with means for carrying the load toward the rear end of the machine, a rotary beater, a conveyer in rear of the beater which receives the fertilizer therefrom and means for positively actuating the conveyer to cause it to deliver the fertilizer to the land.

7. In a fertilizer-distributor the combination with means for feeding the load to the rear of the machine, a rotary beater and a conveyer which receives the fertilizer from the

beater and which comprises an endless apron provided with slats for positively feeding the fertilizer and means for actuating the slatted apron to deliver the fertilizer to the land.

5 8. The combination of a fertilizer-receptacle, a beater at the end thereof, means for feeding the fertilizer to the beater, a conveyer-apron which receives the fertilizer from

the beater, and means for actuating the conveyer-apron to cause it to deliver the fertilizer to the land, substantially as set forth. 10

Witness my hand this 14th day of May, 1904.

JOSEPH SARGENT KEMP.

Witnesses:

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