

No. 673,360.

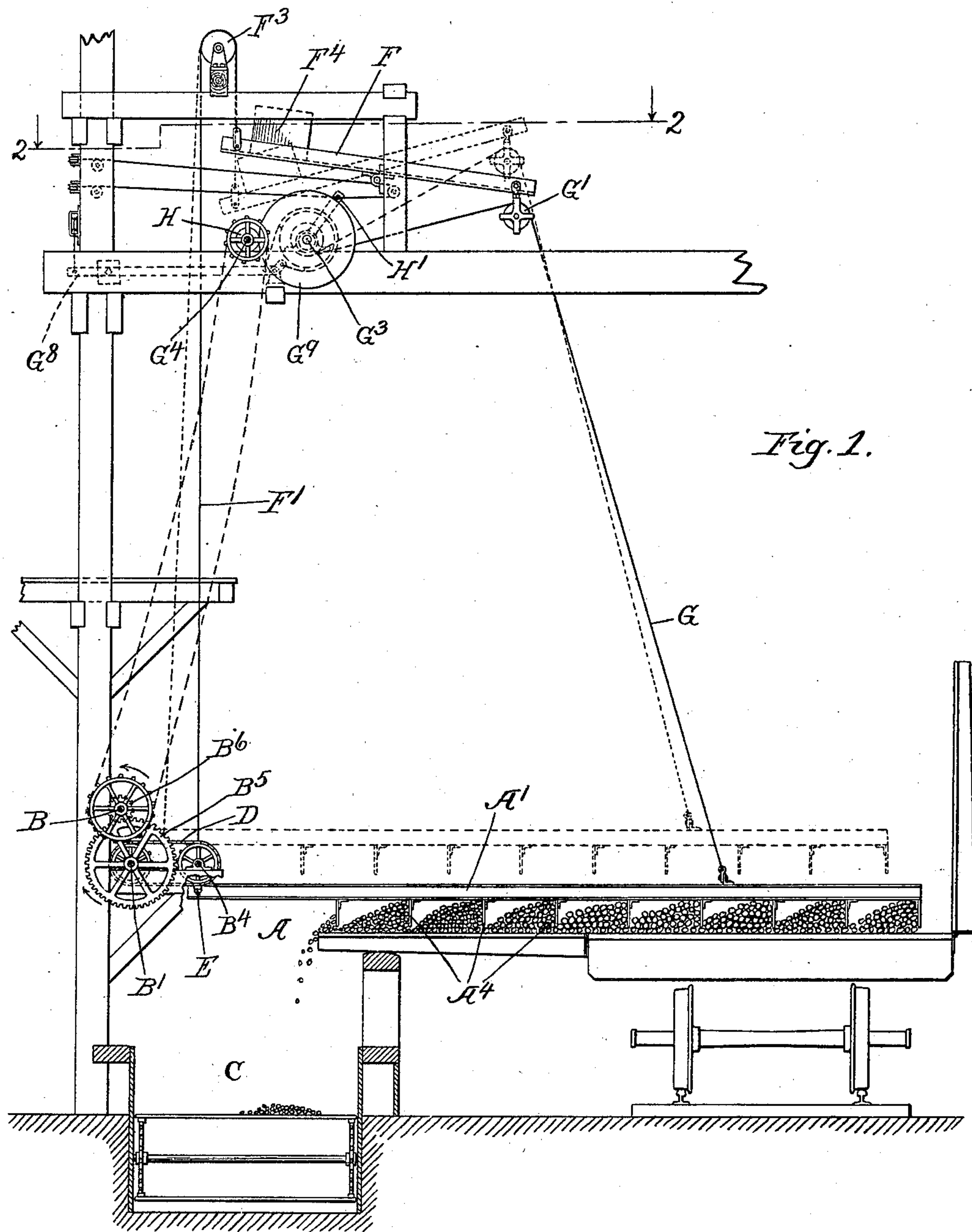
Patented Apr. 30, 1901.

W. O. DEQUEDE.
CAR UNLOADING APPARATUS.

(Application filed Feb. 9, 1900.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses.

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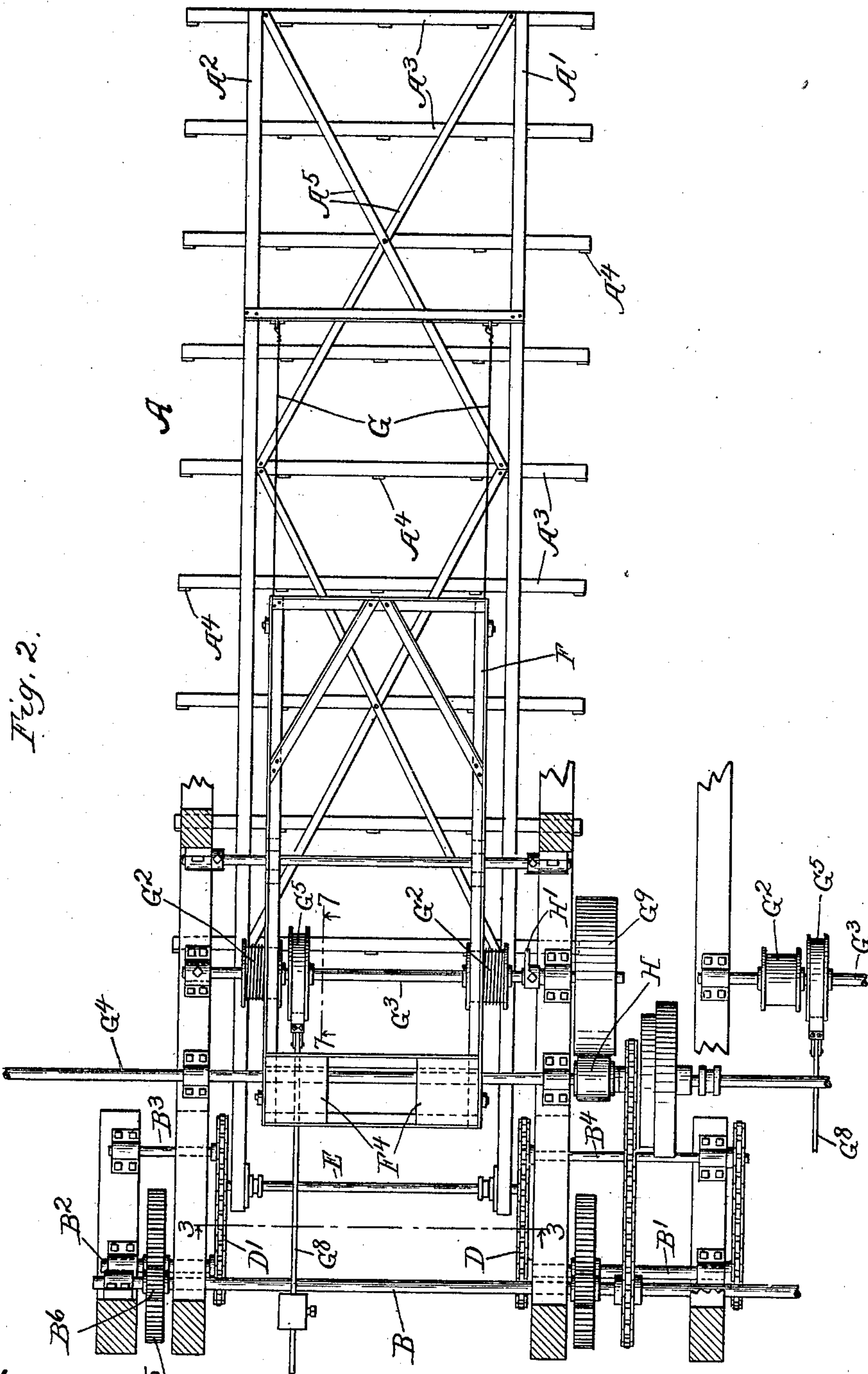
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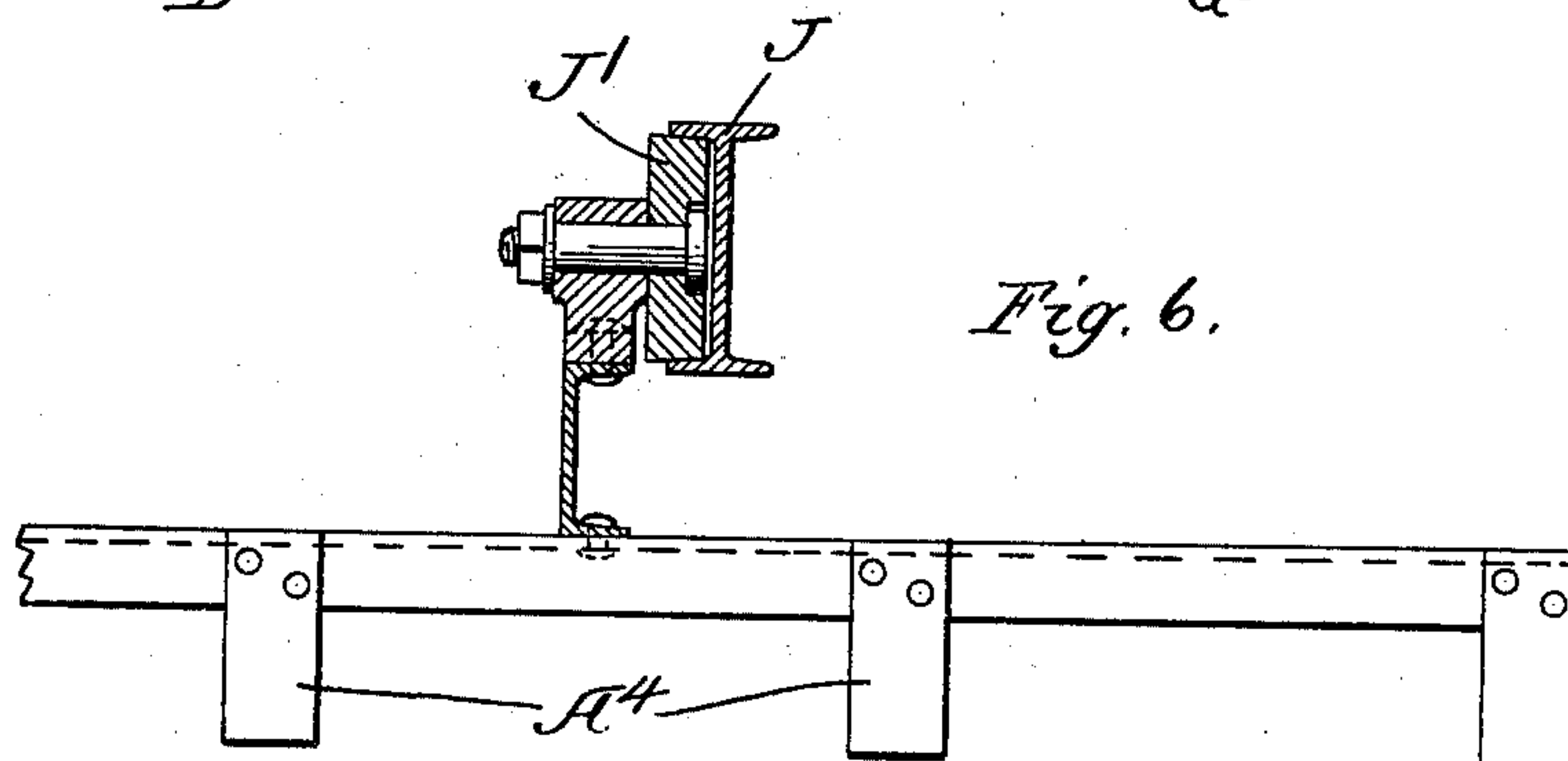
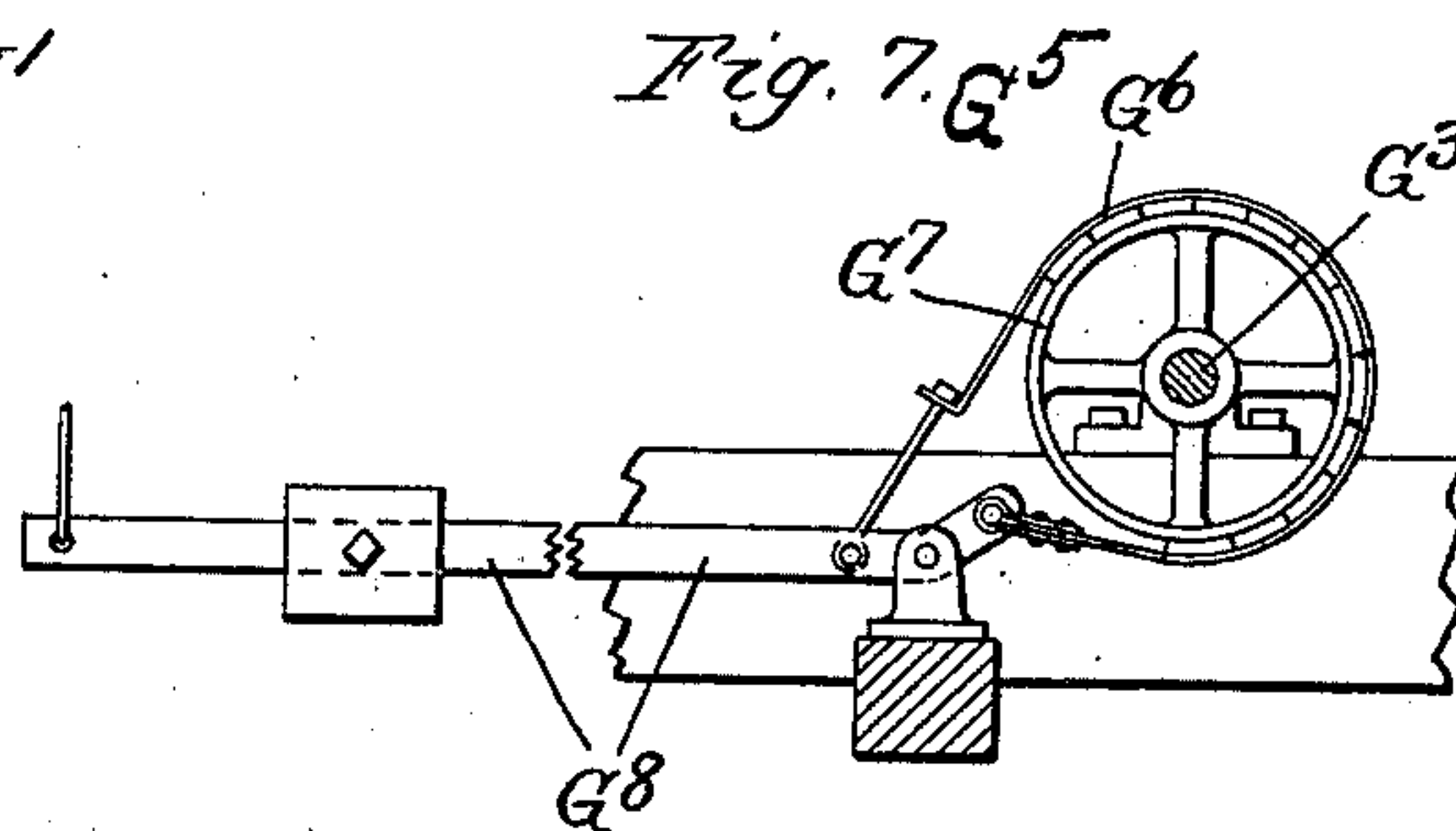
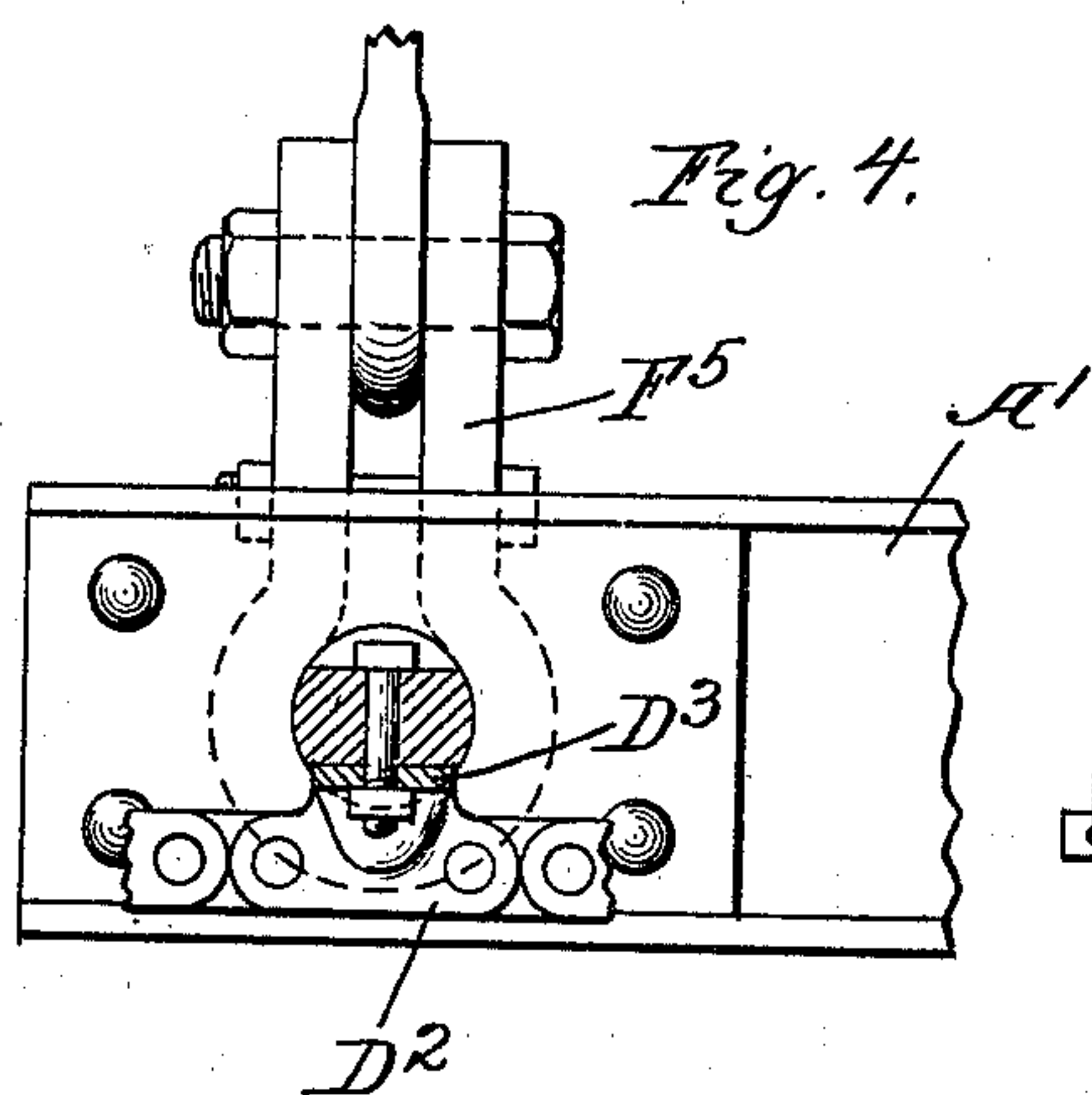
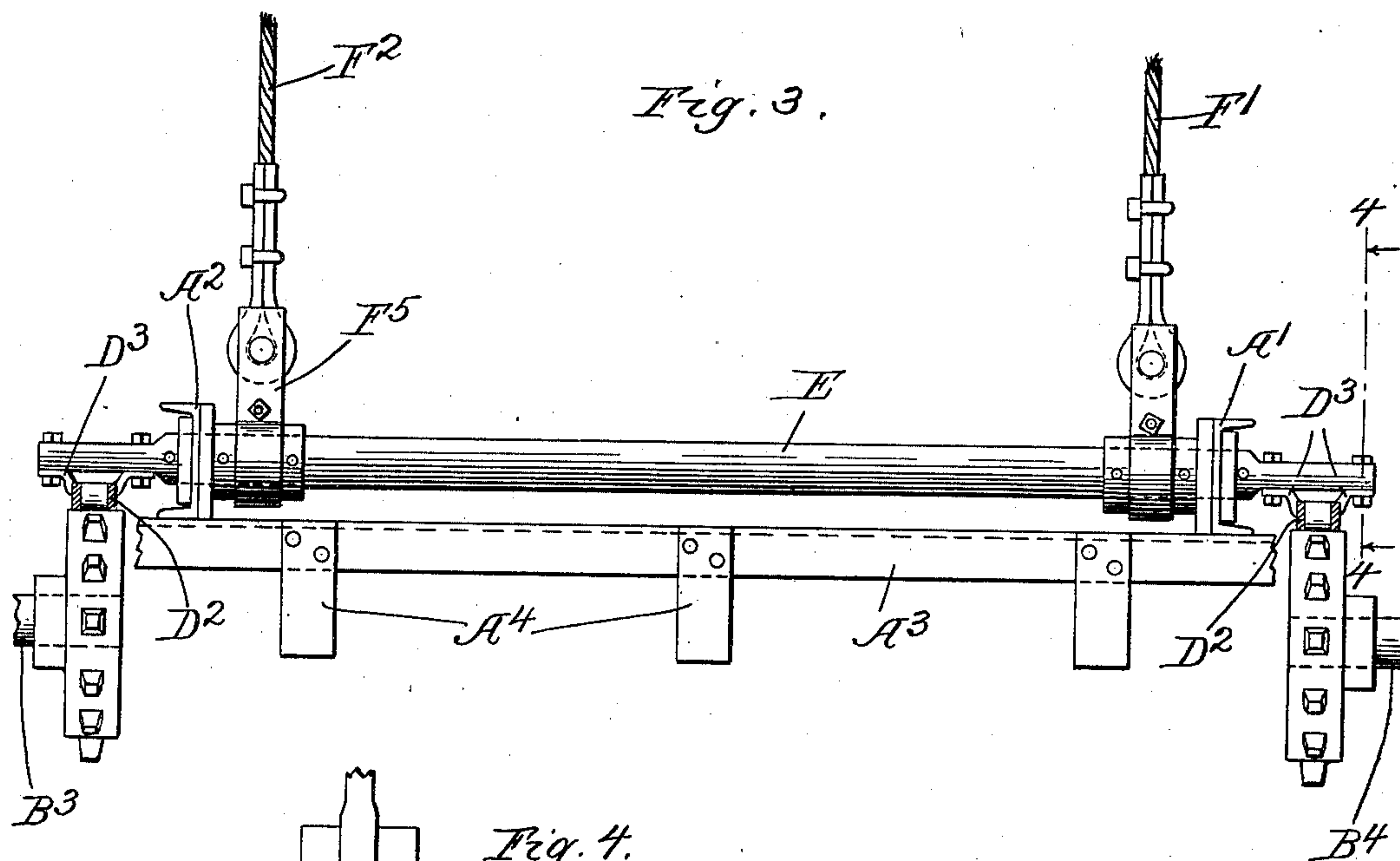
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4 Sheets—Sheet 3.



Witnesses,

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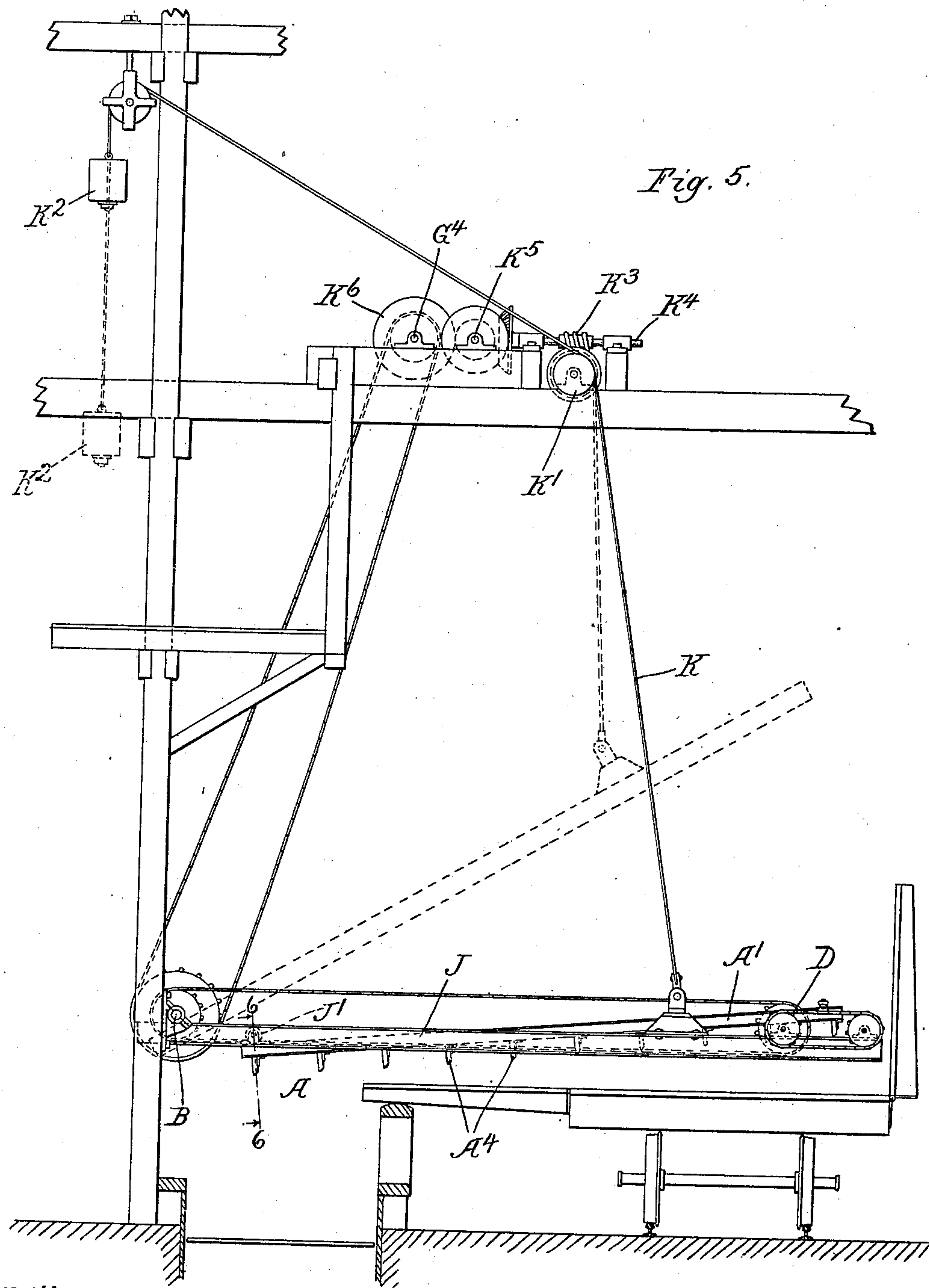
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4 Sheets—Sheet 4.

(No Model.)



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UNITED STATES PATENT OFFICE.

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CAR-UNLOADING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 673,360, dated April 30, 1901.

Application filed February 9, 1900. Serial No. 4,606. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM O. DEQUEDE, a subject of the Emperor of Germany, residing at New Orleans, in the parish of Orleans, State of Louisiana, have invented a certain new and useful Improvement in Car-Unloading Apparatus, of which the following is a specification.

My invention relates to unloading apparatus for vehicles, and has for its object to provide a new and improved unloading device particularly adapted to handle sugar-cane and the like.

My invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation showing a construction embodying my invention. Fig. 2 is a horizontal view on line 2 2, Fig. 1. Fig. 3 is a section on line 3 3, Fig. 2. Fig. 4 is a section on line 4 4, Fig. 3. Fig. 5 is a side elevation showing a modified construction. Fig. 6 is a section, on an enlarged scale, on line 6 6, Fig. 5. Fig. 7 is a section on line 7 7, Fig. 2.

Like letters refer to like parts throughout the several figures.

I have shown my invention as embodied in a construction particularly adapted to be used in unloading sugar-cane from the car and depositing it upon the carrier which conveys it to the crushing-mills. It is necessary to have the cane deposited on this carrier in a uniform and even manner, so that there will be a uniform feed to the mill. In view of the characteristics of such material as sugar-cane it is difficult to feed it in a uniform manner, as it is generally removed from the car in tangled masses.

One of the objects of my invention is to easily, quickly, and cheaply unload the cars and at the same time uniformly distribute the cane upon the mill-carrier as unloaded.

Referring now to Figs. 1 and 2, I provide one or more rakes A, made up in any desired manner and adapted to be manipulated as hereinafter set forth. I have illustrated one form of rake in the drawings, which consists of two longitudinal beams A' A², to which are attached a series of cross-pieces A³, carrying the rake-teeth A⁴. A series of strengthening-braces A⁵ hold the parts in the proper po-

sition. It is of course evident that this rake may be made up of any desired material; but as herein shown the longitudinal beams A' and A² are made of channel-iron and the cross-pieces of angle-iron. The cars to be unloaded are preferably provided with sides, which may be lowered, as shown, so as to form a platform between the car-body and the carrier. A suitable reciprocating device is connected with the rake, so as to reciprocate it, and there is also provided a disengaging device for disengaging the rake from the material while it is being moved in one direction. The mechanism is preferably so arranged that when the rake is lifted free of the material it is moved forward, so that when it is again lowered it engages the material at different points. As it is moved back it carries the material with it and when again lifted and moved forward engages the material at new points. It will be seen that by such an arrangement there is a gradual feed of the material from the car to the carrier. In Figs. 1 and 2 I have shown a particular mechanism for producing this result. In this construction I provide a shaft B, mounted upon suitable supports placed at one side of the carrier C. Said shaft is connected with a suitable motor and acts to drive the rake mechanism. At the rear end of the rake are located the short shafts B', B², B³, and B⁴. The shafts B' and B² are operatively connected with the shaft B by means of the gears B⁵ and B⁶. These short shafts are provided at their ends with sprocket-wheels, upon which work the chains or other power-transmitting devices D D'. The rear end of the rake is connected with these chains D D', so that said rear end is carried around the sprocket-wheels as they rotate. This reciprocates the rake and also raises and lowers it. It is of course evident that any suitable construction may be used to connect the rake with the chains D and D'. As herein illustrated, a shaft E is freely mounted on the longitudinal beams A' and A² and is connected at its ends to the power-transmitting devices D and D'.

Referring now to Fig. 3, I have shown the shaft E as flattened at its ends, one flattened end being connected to each of the chains D and D'. As shown, the links D² of the chains

are provided with projecting lugs D^3 , which are bolted to the flattened ends of the shaft. It will thus be seen that as the chains move around the sprocket-wheels the rake is carried bodily with them, the space between the short shafts being left open, so that there will be nothing to obstruct the movement of the rake. Since the shaft E is freely mounted in the longitudinal beams, it will be seen that it will readily adjust itself to the various positions of the chains.

The connection of the rake with the chains D and D' reciprocates said rake, but only tends to move its rear end up and down. Some suitable means may therefore be provided for giving this up-and-down movement to the front end of said rake. As shown in Figs. 1 and 2, the rear end of the rake is connected to the rocking frame F by means of suitable connections or ropes F' F^2 . The ends of these ropes are preferably connected with the shaft E by means of the stirrups F^5 , (see Figs. 3 and 4,) the stirrups being so constructed as to permit the movement of the shaft E as it passes around the sprocket-wheels. This rocking frame is pivotally connected with a suitable supporting device, and the connections F' and F^2 pass over pulleys F^3 and are then connected with the rocking frame, so that the inner end of said frame is moved up and down as the rear end of the rake is moved down and up, the motion of the two ends being in opposite directions. A suitable counterweight F^4 is connected with the inner end of the rocking frame F and the parts are so arranged that when the rear end of the rake is moved up the counterweight moves the inner end of the rocking frame downwardly, thus rocking it about this pivotal connection and raising its outer end. This outer end is connected to the outer end of the rake by means of the connections or cords G , so that when the outer end of the rocking frame is moved upwardly the outer end of the rake will also be moved in the same direction. It will thus be seen that by this construction the entire rake is moved bodily up and down. Some means must be provided for varying the height of the rake, so that it may be adjusted to correspond with the height of the material in the car. Any convenient means may be used for this purpose, and, as herein shown, the cords or ropes G pass over suitable pulleys G' , connected with the rocking frame, and then pass around suitable drums G^2 on the shaft G^3 . By rotating the shaft G^3 in one direction or the other it will be seen that the outer end of the rake can be raised or lowered. In order to raise and lower the rake while it is in operation and without affecting this operation, I provide suitable means for connecting the shaft G^3 with a suitable driving-shaft G^4 , operatively connected with the shaft B . The shaft G^3 is normally held from rotating, so as to hold the rake in any desired position, by means of the brake G^5 . This brake consists of a strap G^6 , passing around a pulley G^7 on

the shaft, (see Fig. 7,) the strap being controlled by means of the lever G^8 . A suitable cord is connected with said lever, so that it may be controlled from any desired point by the operator. Said shaft G^3 is connected with the shaft G^4 by means of the friction-pulley G^9 , which is eccentrically mounted upon said shaft and which engages the friction-drum H on the shaft G^4 . The position of the pulley G^9 is controlled by means of the arm H' , which varies the position of the eccentric, thus moving the pulley toward or from the shaft G^4 . Suitable cords are connected with said arm, so that it may be controlled from any point by the operator.

A series of the rakes A may be placed side by side, as indicated in Fig. 2, and in this event the intermediate short shafts, such as B' and B^4 , will be connected with two rakes. Four rake-sections would generally be used upon an ordinary railway-car; but I have not shown all these sections, as they would all be similar. It is also desirable to provide a series of rakes on the other side of the carrier C , so that cars may be unloaded onto it from either side. The disposition and arrangement of the rakes will of course depend upon the conditions presented and will readily occur to those versed in the art.

When the constructions shown in Figs. 1 and 2 are used, the part which extends over the car and carrier and which engages the sugar-cane consists of a structure having no relatively movable parts or chains or the like, and hence there is no danger of breakage or of pieces of chain or the like getting into the carrier and injuring the mill.

Referring now to Fig. 5, I have shown a modified construction. In this construction the rake A is mounted upon the frame J , which is pivotally supported at its rear end, preferably upon the shaft B . The rake A is mounted at its rear end upon said frame, so as to be moved back and forth. As shown in the drawings, the sides of the frame J consist of channel-irons, I-beams, or the like, and the rake is provided with small wheels J' , (see Fig. 6,) which work in the groove of the channel-iron or I-beam. The outer end of the rake is attached to the chains D and D' in the same manner that the inner end of said rake is connected to said chains in Figs. 1 and 2. The sprocket-wheels for said chains are mounted upon the frame J and are operated from the shaft B by suitable connecting-pulleys or the like. It will be seen that this construction lifts the rake up and down and moves it back and forward. The outer end of the rake is connected with the rope K , which passes around the drum K' and which is provided at its end with a counterweight K^2 . When it is desired to raise or lower the rake, the drum K' is operated by means of the worm K^3 on the shaft K^4 . This shaft is connected by suitable beveled gears with the intermediate shaft K^5 , carrying a friction-wheel adapted to be thrown into engagement

with the friction-wheel K⁶ on the shaft G⁴. When it is desired to raise or lower the rake, the two friction-wheels are brought into engagement, so as to rotate the shaft K⁴.

5 I have described in detail various devices embodying my invention; but it is of course evident that the form, construction, and arrangement of the parts may be greatly varied without in any manner departing from
10 the spirit of my invention. It is also evident that some of the parts may be omitted and others used in connection with parts not herein shown, and I therefore do not limit myself to the devices illustrated in the drawings.

15 The use and operation of my invention are as follows: When it is desired to unload such material, for example, as sugar-cane from cars or other vehicles and deposit it upon the carrier C, the cars are brought opposite the rakes
20 A. One side of the car is then let down, as shown in Fig. 1, and the rake lowered, so as to engage the material in the car. If now the shaft B is in motion, this motion is communicated to the chain to which the rake is attached, and said chain will move around the
25 sprocket-wheels, carrying with it the rear end of the rake. It will be seen that as the rake moves from one sprocket-wheel to the other it will be reciprocated and that it will further be given an up-and-down motion at the end of its reciprocating movement. This up-and-down movement is conveyed to the rocking
30 frame F, and hence to the outer end of the rake, thus giving the entire rake a bodily up-and-down movement. The rake during this reciprocating movement to the left, for example, engages the material in the car and moves it a short distance toward the carrier.
40 Said rake is then lifted upward, so as to be disengaged from the material, and moved back, so as to obtain a new engagement upon the material at different points, and is then again moved forward, this movement being repeated in a substantially uniform and even
45 manner. It will thus be seen that the material is gradually moved toward the carrier and deposited thereon in small portions, so that it is uniformly distributed, thus permitting it to be carried through the rolls of the mill. As the cane is taken from the car the rake is gradually lowered, said rake being always kept in an effective position. It will
50 also be seen that the rake can be governed by a single operator located at any given point. This construction permits the easy, quick, and satisfactory unloading of such material as sugar-cane and at the same time permits it to be unloaded in a uniform manner upon
60 the carrier conveying it to the mill.

I claim—

65 1. A device for handling sugar-cane or the like, comprising a rake having a series of engaging parts, the parts in said series being arranged along the line of reciprocation of the rake and adapted to engage the material to be handled, a reciprocating mechanism con-

nected with said rake so as to reciprocate the same, whereby the mass of material is moved along the rake in sections from one engaging part to another, and a controlling device
70 for varying the position of the rake with relation to the material acted upon.

2. A device for handling sugar-cane or the like, comprising a rake provided with a series
75 of engaging devices adapted to engage the material to be handled, a support for said rake, a reciprocating mechanism connected with said rake so as to move it back and forward, and a disengaging device adapted to disen-
80 gage the rake from the material while it is being moved in one direction.

3. A device for handling sugar-cane or the like, comprising a rake provided with a series
85 of engaging devices adapted to engage the material to be handled, a support for said rake, a reciprocating mechanism connected with said rake so as to move it back and forward, a disengaging device adapted to disengage the rake from the material while it is being moved
90 in one direction, and a controlling device for varying the position of the rake with relation to the material acted upon.

4. A device for handling material, comprising a part adapted to engage said material,
95 one or more flexible power-transmitting devices passing around suitable wheels so as to form one or more loops, a connection between said part and said power-transmitting device or devices, whereby the movement of the
100 power-transmitting device or devices reciprocates said part and moves it out of and into engagement with the material acted upon, at predetermined times.

5. A device for handling material, comprising
105 a part adapted to engage said material, one or more flexible power-transmitting devices passing around suitable wheels so as to form one or more loops, a connection between one end of said part and said power-trans-
110 mitting device or devices, whereby the movement of the power-transmitting device or devices reciprocates said part and moves it out of and into engagement with the material acted upon at predetermined times, and a con-
115 nection between the two ends of said part adapted to equalize the movement between said ends.

6. A device for handling material, comprising
120 a part adapted to engage said material, one or more flexible power-transmitting devices passing around suitable wheels so as to form one or more loops, a connection between one end of said part and said power-trans-
125 mitting device or devices, whereby the movement of the power-transmitting device or devices reciprocates said part and moves it out of and into engagement with the material acted upon at predetermined times, a rock-
130 ing frame associated with said part, a connection between said rocking frame and the end of said part, whereby the part and frame are moved in opposite directions when the part is moved into and out of engagement with the

material acted upon, and a connection leading from said rocking frame to a point near the other end of said part.

7. A device for handling material, comprising a part adapted to engage said material, one or more flexible power-transmitting devices passing around suitable wheels so as to form one or more loops, a connection between one end of said part and said power-transmitting device or devices, whereby the movement of the power-transmitting device or devices reciprocates said part and moves it out of and into engagement with the material acted upon at predetermined times, a pivoted rocking frame associated with said part, a flexible connection attached to the end of said part, said flexible connection passing over a pulley and then being attached to the end of said rocking frame, a counterweight on said rocking frame, and a second connection between the rocking frame and said part.

8. A device for handling material, comprising a part adapted to engage said material, one or more flexible power-transmitting devices passing around suitable wheels so as to form one or more loops, a connection between one end of said part and said power-transmitting device or devices, whereby the movement of the power-transmitting device or devices reciprocates said part and moves it out of and into engagement with the material acted upon at predetermined times, a pivoted rocking frame associated with said part, a flexible connection attached to the end of said part, said flexible connection passing over a pulley and then being attached to the end of said rocking frame, a counterweight on said rocking frame, a connection between the rocking frame and said part, and means for con-

trolling said latter connection so as to vary the position of said part.

9. A device for handling material, comprising a rake adapted to engage the material to be acted upon, an actuating mechanism for moving one end of said rake in two directions, one substantially horizontal and the other substantially vertical, a pivoted part associated with said rake, a connection between the end of said rake and one end of said pivoted part, a direction-changing device associated with said connection, and a connection between the other end of said part and said rake, whereby a bodily movement of the rake in a vertical direction is produced.

10. A device for handling material, comprising a rake, two flexible endless parts passing over suitable wheels, a connection between one end of said rake and said flexible endless parts, and means for moving said endless parts so as to reciprocate the rake and move it into and out of engagement with the material to be acted upon at predetermined times.

11. A device for handling material, comprising a rake, two flexible endless parts passing over suitable wheels, a connection between one end of said rake and said flexible endless parts, means for moving said endless parts so as to reciprocate the rake and move it into and out of engagement with the material to be acted upon at predetermined times, and a connection between the two ends of said rake, whereby a bodily movement of the rake is produced.

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Witnesses:

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