

No. 670,176.

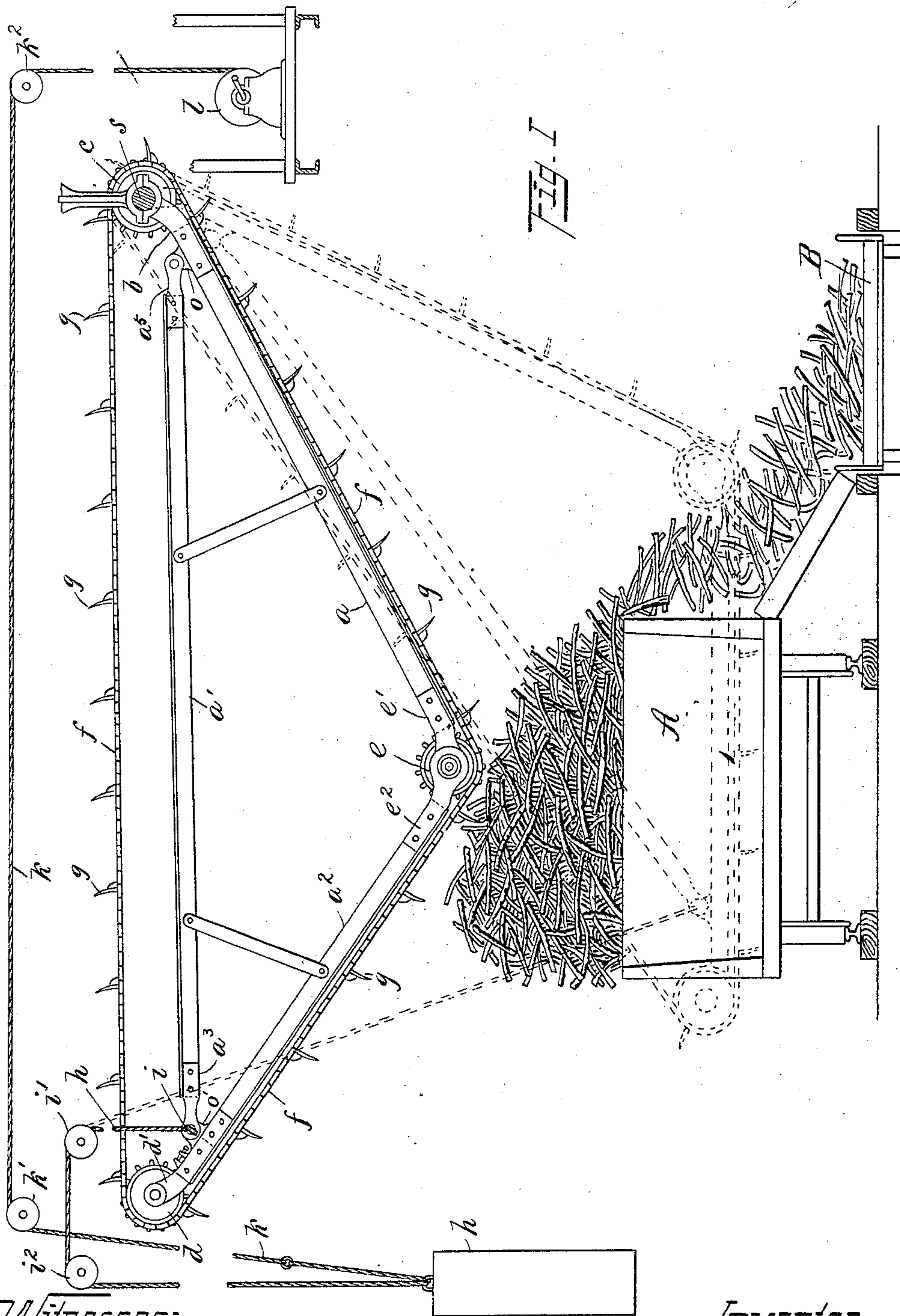
Patented Mar. 19, 1901.

W. C. GREGG.
CANE UNLOADING MACHINE.

(Application filed Dec. 18, 1900.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses:

Geo. A. Metzger.
George C. Wing

Inventor.
William C. Gregg.
by Louis F. Griswold.
his Attorney

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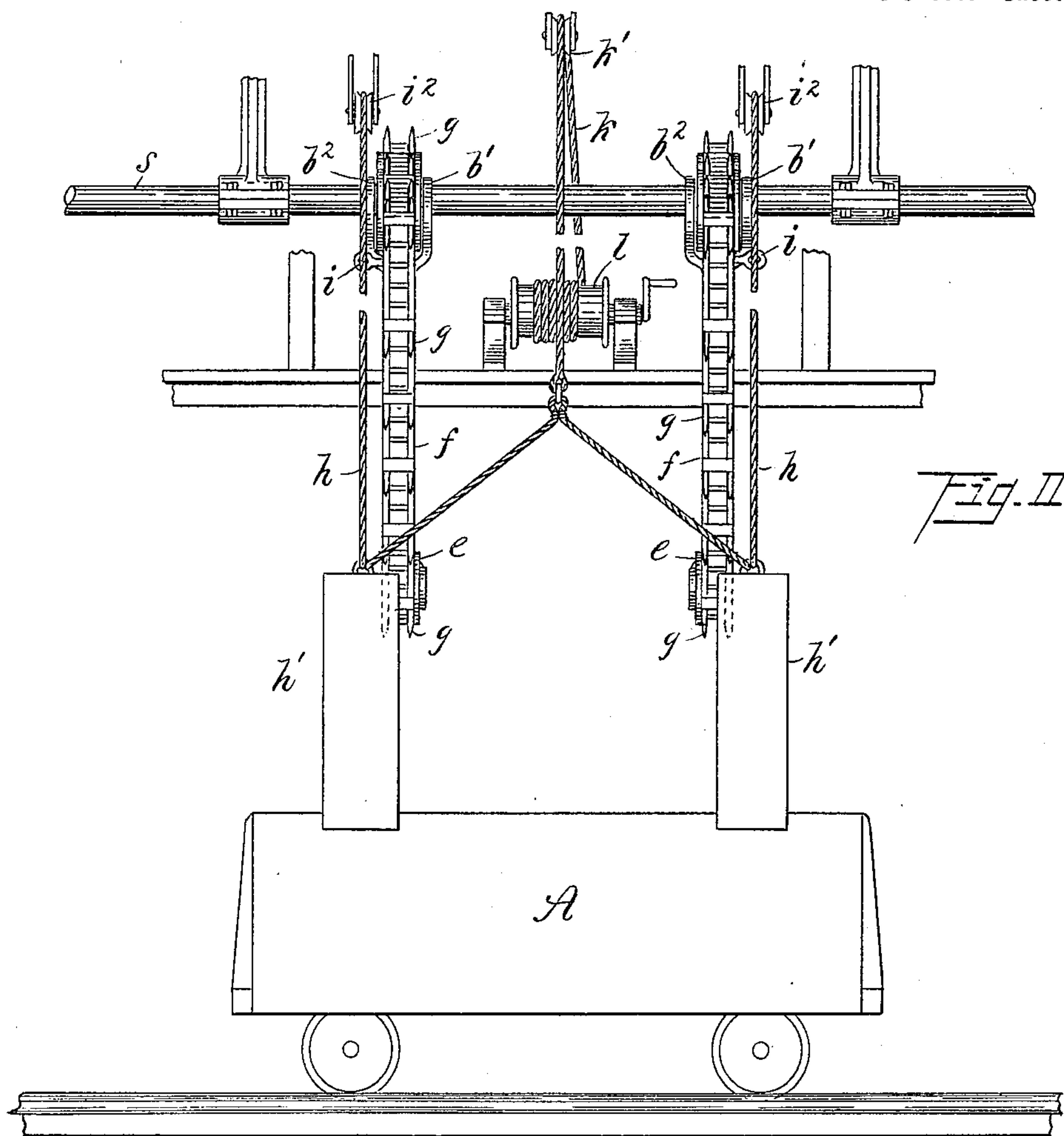


Fig. II

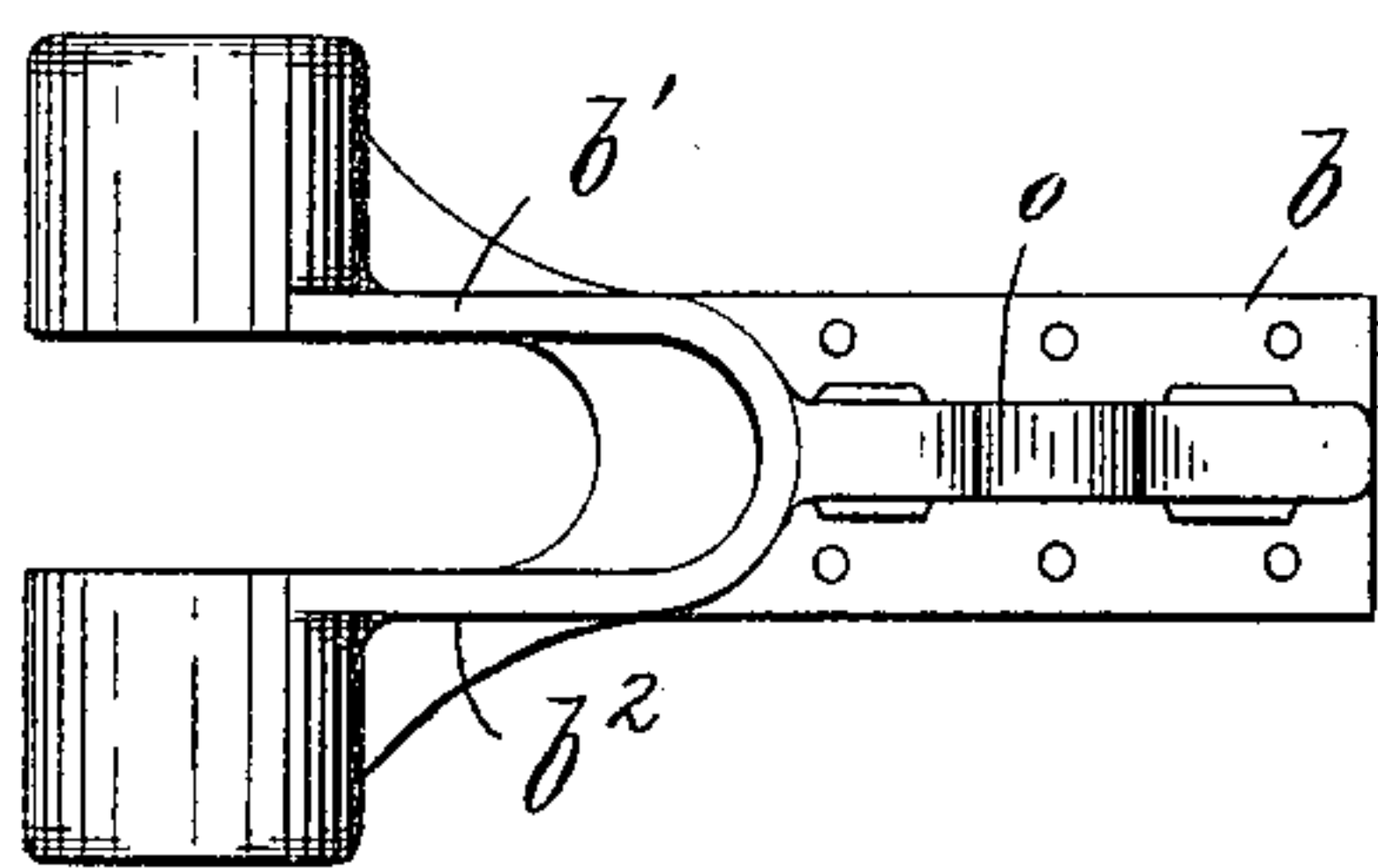


Fig. III

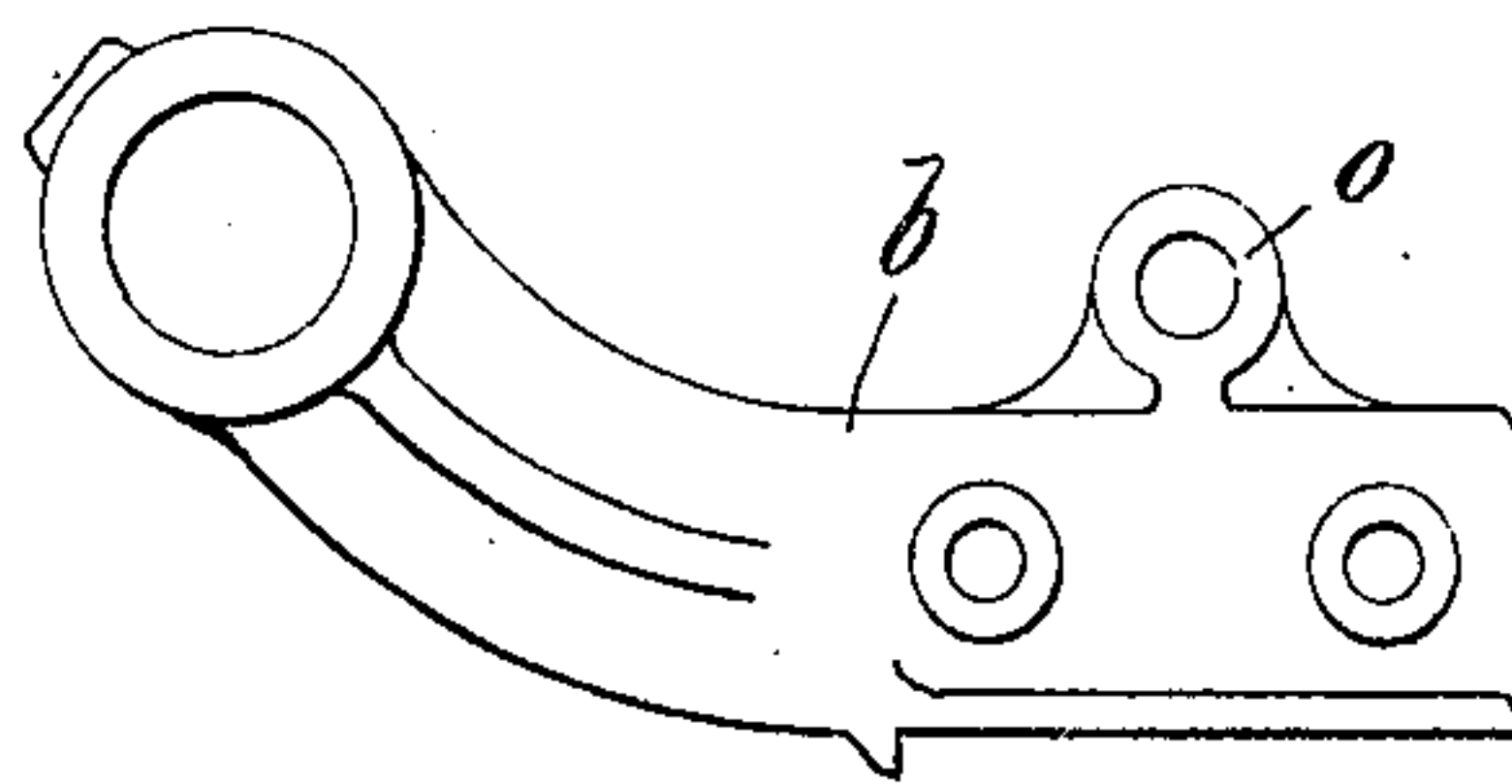


Fig. IV

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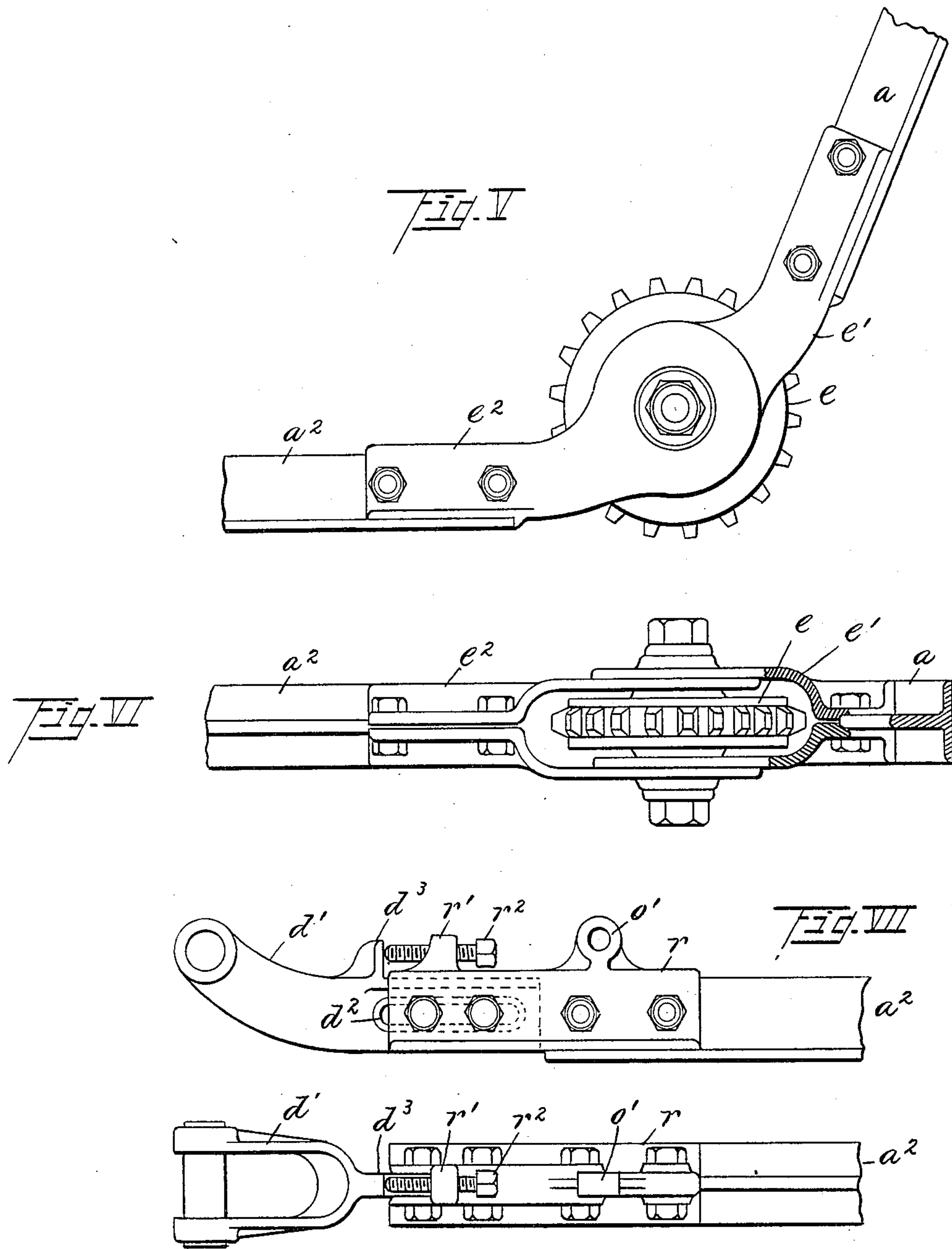
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Fig. VIII

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UNITED STATES PATENT OFFICE.

WILLIAM C. GREGG, OF HONOLULU, HAWAII.

CANE-UNLOADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 670,176, dated March 19, 1901.

Application filed December 18, 1900. Serial No. 40,327. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. GREGG, a citizen of the United States, residing at Honolulu, Island of Oahu, Hawaii, have invented certain new and useful Improvements in Cane-Unloading Machines, of which the following is a full, clear, and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

The invention relates to machines for automatically unloading cane or similar material from the cars to the apron or carrier upon which it is transported to the sugar-mill.

The object of the invention is to provide a machine which is simple and durable in construction, composed of comparatively few parts, and which requires no particular skill to adjust the parts to accommodate the machine to operate on cars at different distances from the driven shaft.

An important feature of the invention is in the mode of mounting the machine by hanging it entirely from overhead on the driven shaft without the use of framework or housing built up from the floor.

It is well known to those familiar with the handling of sugar-cane that owing to its irregular size, shape, and other peculiarities it is necessary in loading to pile the cane on the car in rather a promiscuous load. It is therefore a necessary consideration in the construction of a machine for unloading economically to provide mechanism that will quickly handle this promiscuous load, and as the cane is usually piled very high on the cars it is desirable to have a machine that will adjust itself to the load and readily clear the cane off of the cars from the top down to the bottom of the car. The improved machine herein described is particularly adapted for this purpose, inasmuch as the frame being pivotally suspended from overhead will fall by gravity and follow the load down as it diminishes, and the shape of the frame is such that one side of it will be parallel to the bottom of the car when at its lowest position. Another important matter to be considered, in view of the usually crowded condition of the building in which the cane is unloaded, is to occupy as little floor-space as possible. In machines heretofore invented for this pur-

pose it has been necessary to build up framework and suitable housing from the floor, which for the reason above mentioned is objectionable. In the improved machine herein described this objection is overcome, as no superstructure is necessary, the machine being hung directly on the driven shaft, which is overhead and out of the way.

The invention consists in the construction and combination of the parts herein described, and pointed out definitely in the claims, reference being had to the drawings forming a part of this specification, in which—

Figure I is a side elevation of the improved loading-machine, showing a loaded car in position and in process of unloading. Fig. II is an end view thereof. Figs. III and IV are detail views of the suspending member of the frame. Figs. V and VI are details of the bearing for one of the sprocket-wheels. Figs. VII and VIII are details of another sprocket-bearing and the adjusting device.

Similar characters of reference designate similar parts in the drawings and specification.

In the drawings, S represents a shaft, which may run the entire length of the building, supported at intervals by suitable hangers. This shaft is driven in the usual manner by a belt from an engine. (Not shown.) A triangular frame composed of the three adjustable bars a a' a'' is hung loosely on the driven shaft by means of the fork b , which is attached to the frame at the upper angle and has the two arms b' and b'' , the shaft passing through holes in the ends of said arms. Keyed to the shaft between the arms b' and b'' is a sprocket-wheel C. Mounted in the frame at the angles thereof are sprocket-wheels d and e . Passing around the three sprocket-wheels c , d , and e outside of the frame is an endless rake, made up of an endless sprocket-chain f , having teeth g attached thereto. A cable or chain h is attached to the bar a' at i and passes over sheaves i' and i'' to a counterweight h' . A secondary cable or chain k is also attached to the counterweight h' and passes over the sheaves k' and k'' to a winding-drum l .

As illustrated in Fig. II, the unloaders are usually operated in pairs, in which case the cable k is connected with the two counterweights in the manner shown. In the opera-

tion of the machine the shaft being driven in the proper direction propels the sprocket-wheel c , which in turn drives the endless rake, the teeth of which engage the cane on the car
 5 A and drag it off onto the carrier B. As the height of the load on the car diminishes, the cable k , being wound on the drum l by hand or other suitable power, relieves the weight of the counterweight on the frame and
 10 allows said frame to descend and adjust itself to the load. The shape of the frame is such that when it comes to its lowest point the rake will travel parallel to the bottom of the car, as shown by dotted lines in Fig. I, and thus
 15 clean the car entirely of its load, the sides of the car having of course first been let down. After the car has been relieved of its load the cable k is slackened on the drum l and the counterweight h' lifts the frame.

20 Should the rake-chain stretch and become slack, an adjustment is provided for as follows: The sprocket-wheel d is mounted in a fork d' , which is bolted to the member r by two bolts passing through holes in the said member and
 25 a longitudinal slot d^2 in the fork d' . A boss d^3 is cast on the fork d' , and a boss r' is cast on the piece r . A screw r^2 is threaded in the boss r' and bears against the boss d^3 . It will readily be understood that by loosening the
 30 bolts and screwing up on the screw r^2 against the boss d^3 the wheel d will be forced out, and thus tighten the chain.

To accommodate the frame to different distances and still have the rake travel parallel
 35 with the bottom of the car when the frame is at its lowest point, the frame is made adjustable by the rods being bolted to the sprocket-wheel bearings in the following manner: The bar a at its upper end is bolted to the fork b
 40 and at its lower end to the hinged sprocket-bearing e' . The bar a' is bolted to two eye-pieces a^5 and a^3 at its two ends, respectively. The eyes in the pieces a^2 and a^3 are adapted to register with eyes o and o' on the fork b
 45 and the member r . The bar a^2 has one end bolted to the hinged sprocket-bearing e^2 and the other end to the member r . It will therefore readily be seen that the bars a , a' , and a^2 may be removed and shorter or longer bars
 50 substituted as the case may require to operate the machine at different distances from the driving-shaft or, in other words, to extend the field of operation of the machine.

As hereinbefore stated, the machines are
 55 usually operated in pairs—that is to say, two to a car—and are so spaced on the shaft that they will unload the ordinary size of car used. The driven or line shaft runs overhead and parallel to the track on which the cars are
 60 run into the building and may be provided with as many pairs of machines as the number of cars the track will accommodate, and with these machines arranged in the proper positions over the several cars the entire train
 65 can be unloaded at the same time.

Having now fully described my invention,

what I claim, and desire to secure by Letters Patent, is—

1. In a cane-unloading machine a triangular frame pivotally supported from overhead,
 70 the said frame carrying suitable apparatus for engaging the cane and freeing it from the vehicle, and means for driving said apparatus substantially as described.

2. In a cane-unloading machine an adjustable, pivotally-supported, triangular frame;
 75 apparatus mounted on said frame and adapted to engage the cane; means for driving said apparatus to free the cane from the vehicle and means for raising and lowering said
 80 frame substantially as described.

3. In a cane-unloading machine an adjustable frame pivotally suspended from an overhead driving-shaft, an endless belt or chain
 85 mounted on said frame, said belt or chain provided with means for engaging the cane; means for transmitting power from the driving-shaft to the said belt or chain and means for raising and lowering the frame substan-
 90 tially as described.

4. In a machine for unloading sugar-cane, the combination of a triangular frame pivotally suspended from an overhead driving-shaft, a sprocket-wheel rigidly attached to
 95 said driving-shaft, two sprocket-wheels loosely mounted in the frame, an endless sprocket-chain provided with rake-teeth passing around the three sprocket-wheels, means for driving the shaft, a counterweight attached to a cable which passes over a sheave
 100 or sheaves and is attached to the frame, and means for raising said counterweight, substantially as specified.

5. In a machine for unloading sugar-cane, the combination of a triangular frame pivotally supported at one end from a driving-shaft,
 105 an endless sprocket-chain provided with rake-teeth passing around and engaging the sprocket-wheels loosely mounted in said frame and a sprocket-wheel attached to the
 110 driving-shaft, a counterweight attached to a cable which passes over a sheave or sheaves and is attached to said frame, a secondary cable attached to said counterweight and passing over sheaves to a winding-drum, substan-
 115 tially as described.

6. In a machine for unloading sugar-cane, a frame made up of three bars connected so as to form a triangle, said frame being pivotally supported at one end to an overhead
 120 driving-shaft, in combination with an endless rake carried by said frame, suitable means for driving said endless rake and suitable means for raising and lowering said frame, substantially as specified.
 125

7. In a machine for unloading sugar-cane, a triangular frame having two sprocket-wheels loosely mounted therein and pivotally supported at one end on an overhead driving-shaft, said frame made up of three bars bolted
 130 at their ends to bearings, for the sprocket-wheels and the driving-shaft, in combination

with a sprocket-wheel rigidly attached to the driving-shaft, an endless sprocket-chain provided with rake-teeth passing around and engaging with the three sprocket-wheels, and
5 means for adjusting one of the sprocket-wheels for tightening or loosening the chain, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM C. GREGG.

Witnesses:

E. O. HAGAN,
F. M. HAGAN.