

No. 708,634.

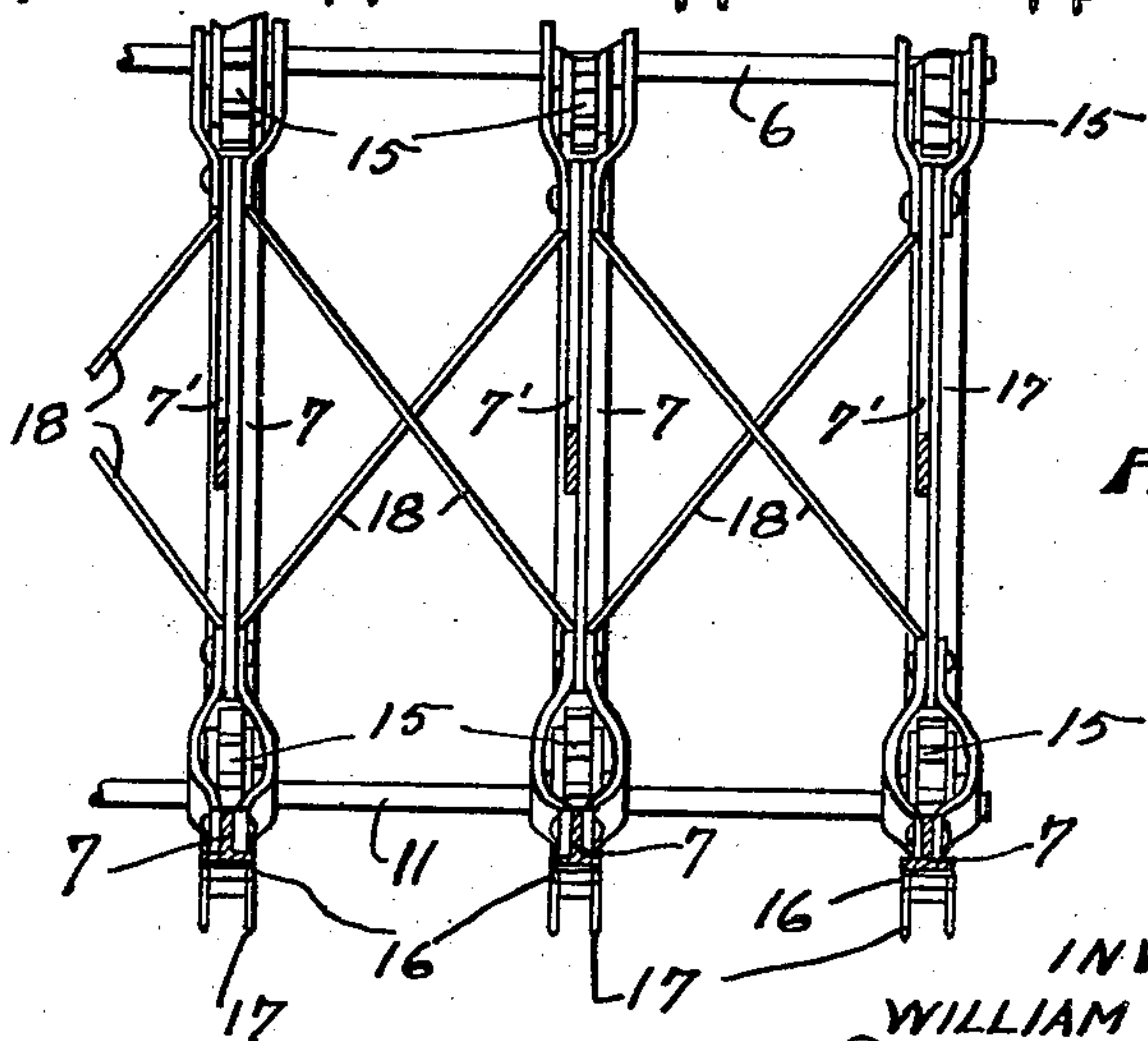
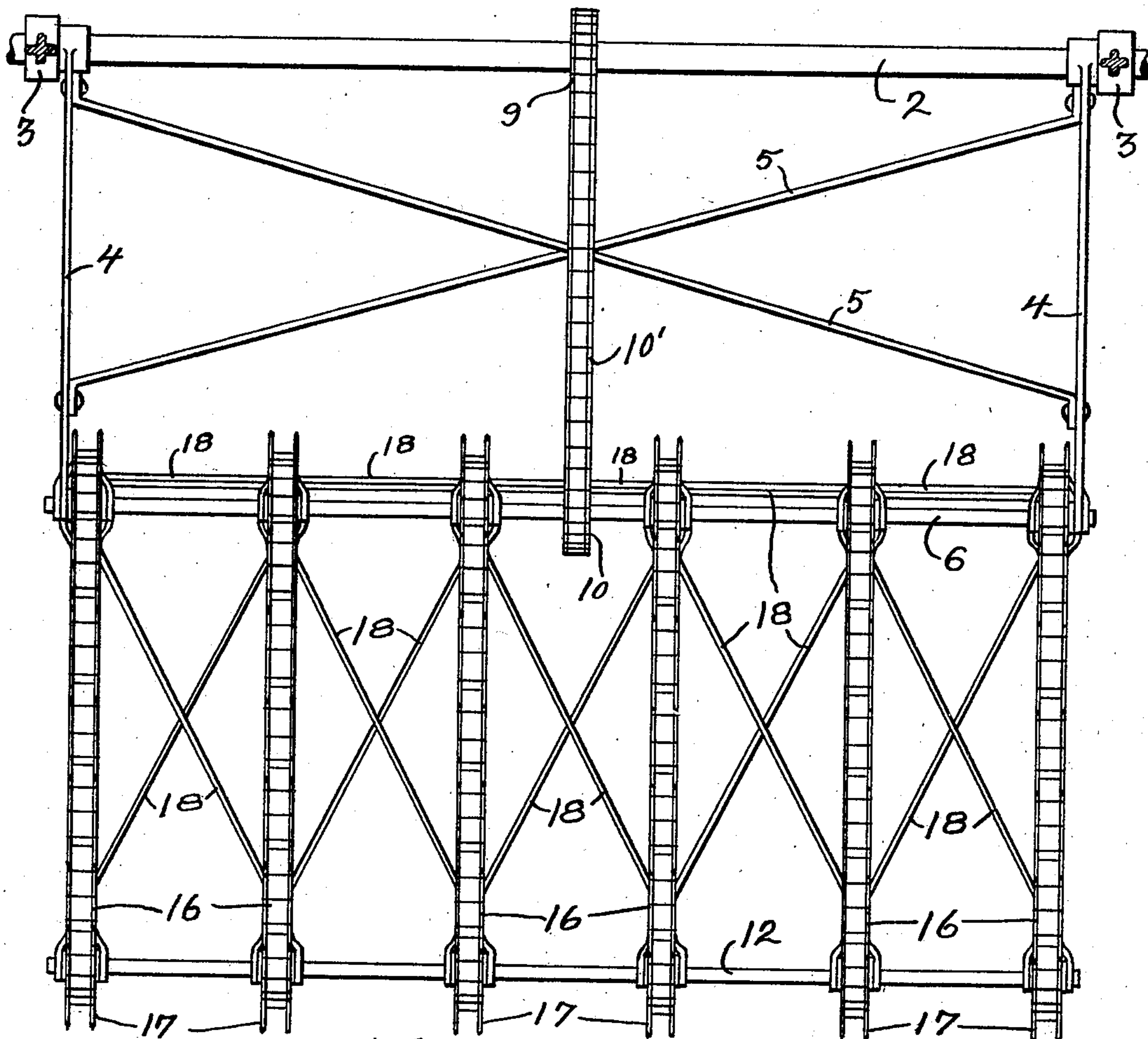
Patented Sept. 9, 1902.

W. C. GREGG.
CANE UNLOADING MACHINE.

(Application filed Jan. 14, 1902.)

(No Model.)

4 Sheets—Sheet 2.



WITNESSES

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INVENTOR

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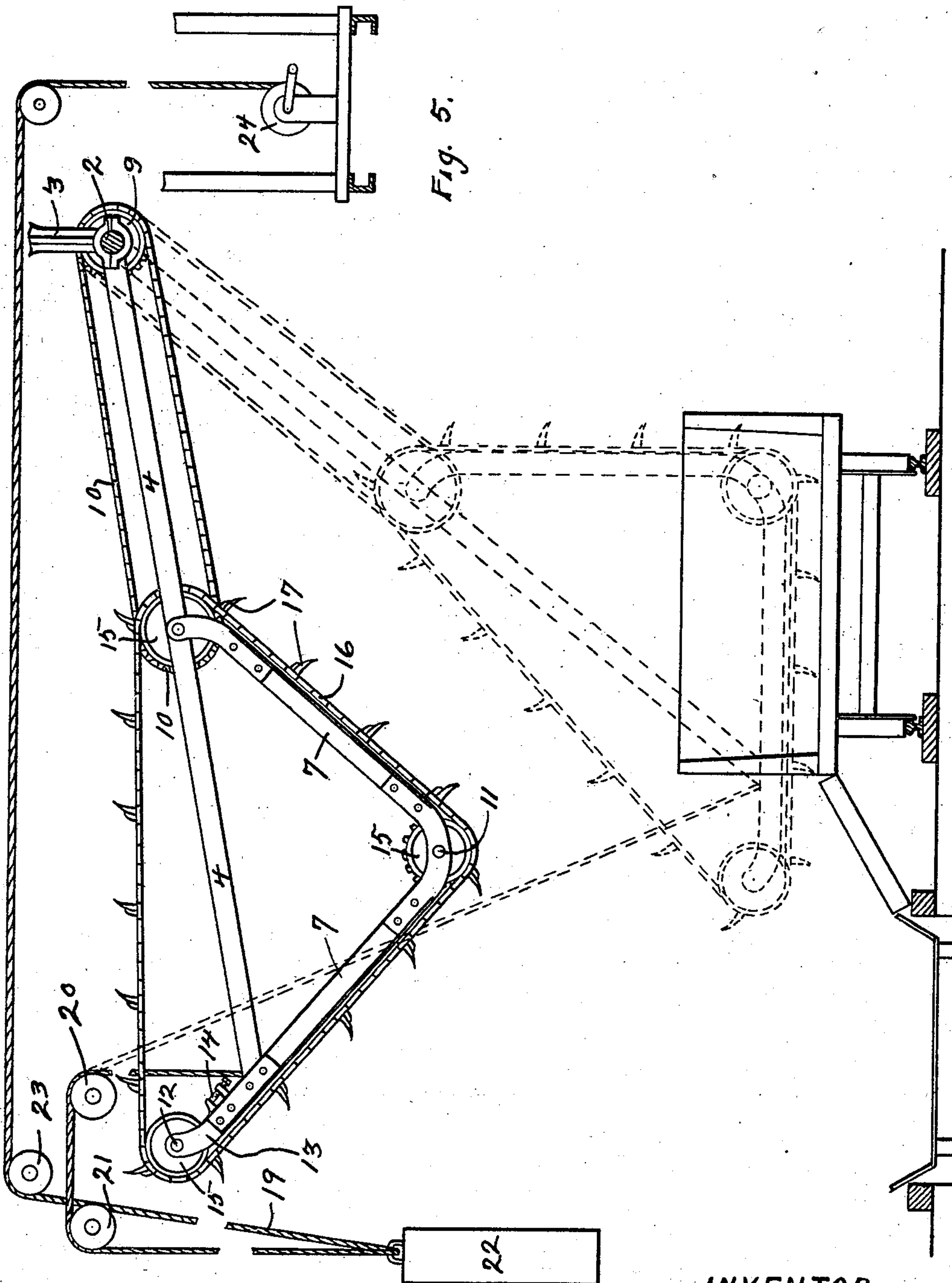
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UNITED STATES PATENT OFFICE.

WILLIAM C. GREGG, OF MINNEAPOLIS, MINNESOTA.

CANE-UNLOADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 708,634, dated September 9, 1902.

Application filed January 14, 1902. Serial No. 89,731. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. GREGG, of Minneapolis, Hennepin county, Minnesota, have invented certain new and useful Improvements in Cane-Unloading Machines, of which the following is a specification.

This invention relates to machines for automatically unloading cane or similar material from cars.

My present invention is an improvement upon that shown and described in Letters Patent No. 670,176, issued to me on the 19th day of March, 1901.

One object of my present invention is to provide a larger number of working rakes in proportion to the total weight of the machine.

Another object of the invention is to provide increased compactness of rake-supporting frame on account of the shorter length of the parts.

Another object of the invention is to provide a device of this kind that can be used for unloading cars having solid sides by lowering one side only of the car.

Other objects of the invention will appear from the following detailed description, taken in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of a machine embodying my invention, showing the car and a carrier upon which the material is to be deposited by the machine. Fig. 2 is a plan view of the machine shown in Fig. 1. Fig. 3 is a transverse vertical section on line *x x* of Fig. 1 looking in the direction of the arrow. Fig. 4 is a side elevation showing a slightly-modified construction from that shown in Fig. 1. Fig. 5 is a side elevation showing another modification.

In the drawings, 2 represents a suitable driving-shaft suspended by suitable hangers 3 and driven by suitable means. The hangers 3 preferably extend below the shaft 2, as shown in Fig. 1 of the drawings. Bars 4 are pivotally supported upon the shaft 2, and said bars are preferably connected by the cross rods or braces 5. A shaft 6 is mounted in the ends of the bars 4, and a series of angular frames 7 are pivotally mounted upon the shaft 6. Each of these angular frames 7 is preferably provided with a brace-bar 7',

which is preferably connected to the outer ends of the angular frame and serves to rigidly brace said frame. This brace-bar can, if preferred, be omitted, in which case the angular frame is made sufficiently stiff, preferably by being strengthened at the corner, to withstand any strain upon it. Bars 8, parallel with bars 4, are pivotally connected to the lower ends of the hangers 3 and the angular frame 7. The bars 4 and 8 are each free to swing vertically upon their pivotal supports; but said bars must always remain parallel with each other. (See the full and dotted lines in Fig. 1.) The shaft 2 is provided with a suitable sprocket-wheel 9, and a similar sprocket-wheel 10 is provided upon the shaft 6. A chain 10' connects the sprocket-wheel 9 and the sprocket-wheel 10, and by this means the shaft 6 is driven from the shaft 2. A shaft 11 is mounted on the angular frame 7 below the shaft 6, preferably substantially at the corner of the frame, and the shaft 12 is mounted in adjustable bearings 13, that are carried by said angular frame. The bearings 13 are preferably adjustable toward or from the shaft 11 and may be moved by means of suitable adjusting-screws 14. The shafts 6, 11, and 12 are each provided with a series of sprocket-wheels 15, and endless rakes, consisting of sprocket-chains 16, having suitable lugs or teeth 17, are arranged upon the sprocket-wheels 15, and passing over the three wheels the rakes are arranged in a substantially triangular form. There are a series of angular frames 7 arranged side by side, as illustrated in Fig. 2 of the drawings, and these frames are connected by means of the cross rods or stays 18, and by this means said frames are rigidly secured together, so that they constitute, in effect, a single rigid frame. A cable or chain 19 is connected to one of the angular frames 7 and passes over the sheaves 20 and 21 and supports a suitable counterweight 22. This cable passes from the counterweight over a sheave 23 to a suitable winding-drum 24.

In the construction shown in Fig. 4 endless rakes are arranged to pass around the sprocket-wheels on the shafts 11 and 12 only. In this instance the upper and lower parts of the rakes are parallel or substantially parallel to each other. With this construction

the shaft 6 need not be provided with the sprocket-wheels 15, but only with the sprocket-wheel 10 and with the sprocket-wheel 25 to receive a chain or belt 26, which engages a sprocket-wheel 27 on the shaft 11, by means of which the shaft 11 is driven. In other respects this construction is similar to that shown in Fig. 1 and hereinbefore described.

In the construction shown in Fig. 5 the bars 4 are extended and take the place of the brace-bars 7' in the construction shown in Figs. 1 and 4. In this instance the bars 8, parallel to the bars 4, are omitted, and the hangers 3 need not extend below the shaft 2. In other particulars this construction is similar to that shown in Fig. 1. In all of the constructions, as the angular frames 7 are rigidly connected together, a compact device is provided having a suitable number of endless rakes, which may be arranged at any suitable distance apart, and these frames being pivotally supported overhead the floor or space where the device is used is left entirely unobstructed. All of the rakes being arranged upon the angular frames that are rigidly connected together, said frames will at all times be at the same level, and hence the material will be unloaded evenly by the rakes. The working parts of the rakes will be substantially parallel to the bottom of the car at all times, and when the rakes descend to a point near the bottom of the car they will be actually parallel with the bottom of the car. As the frames supporting the rakes have their pivotal supports above the sides of the car opposite that at which the carrier is located or at which the car is to be unloaded, it will be seen that the device may be used in connection with a car having solid sides, one side of said car being let down, and in this instance, as illustrated by the dotted lines, the rakes will remove all of the material from the car without being interfered with by the other wall of the car, which remains in position.

The construction herein shown and described is very simple and economical of construction, can be operated by any skilled workman, cannot get out of order, and can be efficiently employed for unloading cars having open sides with stakes for holding the material in place or with cars having solid sides. The details of the construction may be modified in many particulars without departing from my invention.

I claim as my invention—

1. In a cane-unloading machine, the combination, with a suitable overhead driving-shaft, of bars pivotally supported upon said shaft, an angular frame supported upon said bars, suitable endless rakes supported by said

frame and means for operating said rakes, for the purpose specified.

2. In a cane-unloading machine, the combination, with a suitable overhead driving-shaft, of bars pivotally supported upon said shaft, a series of angular frames connected together and supported upon said bars, a series of endless rakes mounted upon said frames, and means for simultaneously operating all of said rakes, substantially as described.

3. In a cane-unloading machine, the combination, with a suitable driving-shaft, of bars pivotally supported upon said shaft, a shaft 6 mounted in said bars, means for driving said shaft 6 from said driving-shaft, a series of angular frames mounted upon said shaft 6, means connecting said frames, and a series of endless rakes mounted upon said frames and driven from said shaft 6, substantially as described.

4. In a cane-unloading machine, the combination, of a suitable shaft, means supporting said shaft capable of being raised and lowered, an angular frame mounted upon said shaft, sprocket-wheels upon said shaft, other sprocket-wheels mounted upon said angular frame and endless rakes supported upon said sprocket-wheels, substantially as described.

5. The combination, with a series of angular frames and means connecting said frames, of a shaft upon which said frames are pivoted, supports for said shaft and by means of which said shaft is capable of being raised or lowered, endless rakes supported upon said frames and means for simultaneously operating all of said rakes, substantially as described.

6. The combination, with the angular frames 7, the shaft 6 upon which said frames are mounted, means supporting said shaft and permitting the same to be raised or lowered with said frames, sprocket-wheels upon said shaft 6, other sprocket-wheels upon said frames and endless rakes passing around the sprocket-wheels upon said shaft and also around the sprocket-wheels upon said frames, with means for operating said rakes.

7. The combination, with the driving-shaft 2, of the angular frames, bars 4 pivotally supported upon said driving-shaft and forming pivotal supports for said angular frames, bars 8 arranged parallel with said bars 4, endless rakes arranged upon said angular frames, and means for operating said rakes.

In witness whereof I have hereunto set my hand this 10th day of January, 1902.

WILLIAM C. GREGG.

Witnesses:

A. C. PAUL,

A. M. SULLIVAN.