

(No Model.)

2 Sheets—Sheet 1.

G. V. KILLIAN.  
WATER ELEVATOR.

No. 421,581

Patented Feb. 18, 1890.

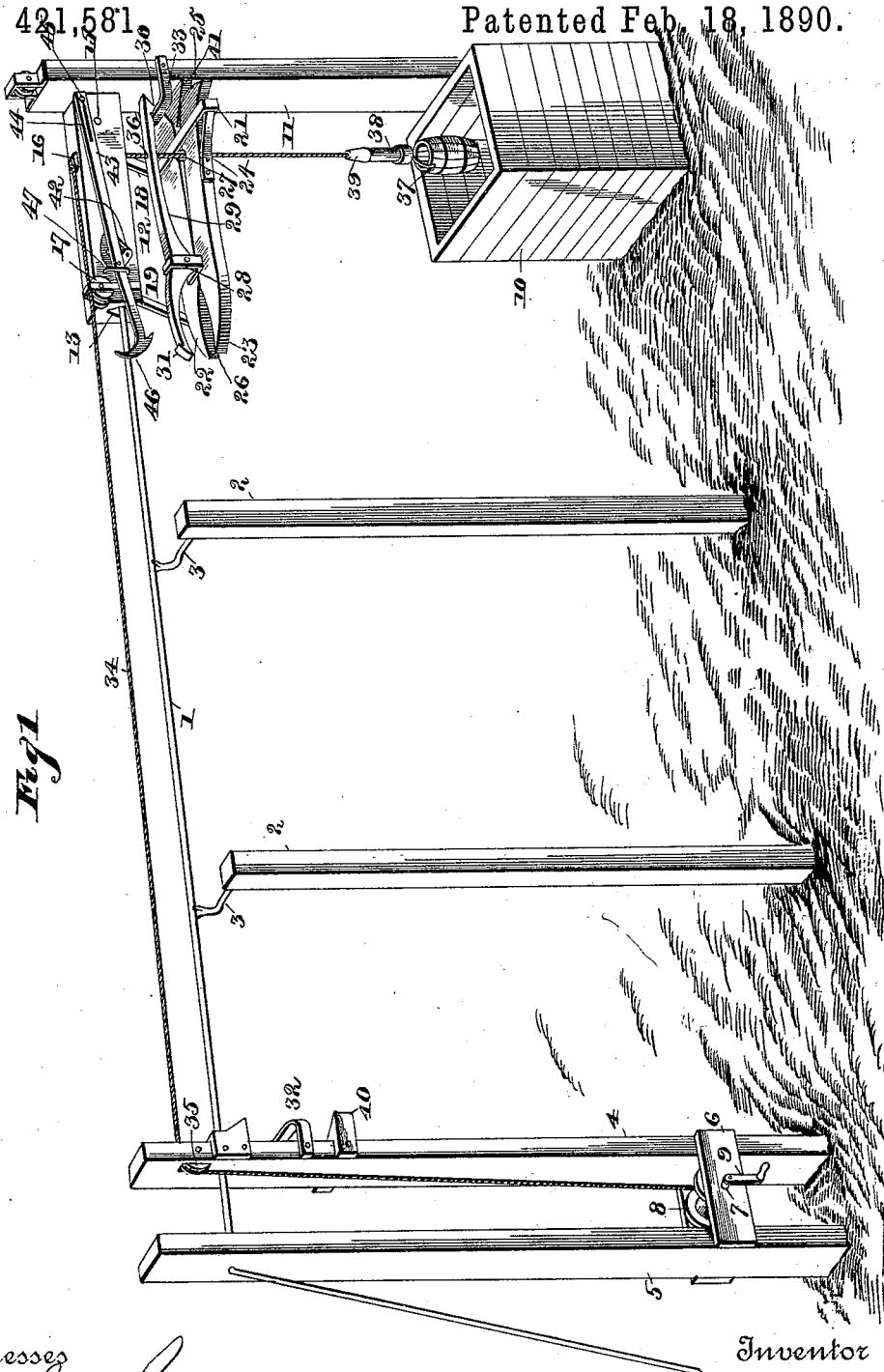


Fig 1

Witnesses

John Amie  
Wm. Baggers

Inventor

Green V. Killian

By his Attorneys

C. A. Snow & Co.

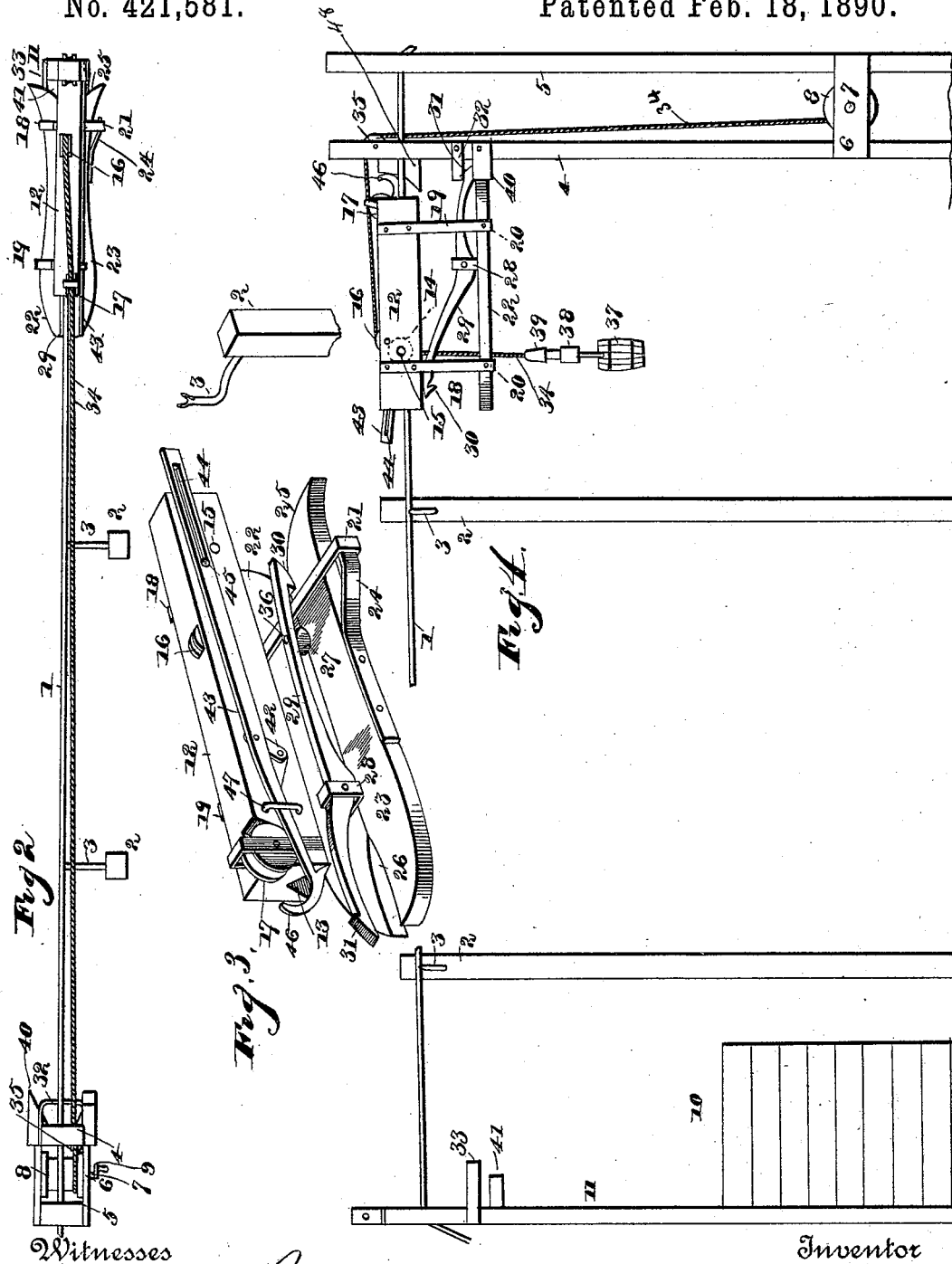
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John Smirre  
Wm. Baggers

By his Attorneys

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# UNITED STATES PATENT OFFICE.

GREEN V. KILLIAN, OF MOUNTAIN VIEW, ARKANSAS, ASSIGNOR OF ONE  
HALF TO GEORGE R. CASE, OF SAME PLACE.

## WATER-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 421,581, dated February 18, 1890.

Application filed December 3, 1889. Serial No. 332,449. (No model.)

*To all whom it may concern:*

Be it known that I, GREEN V. KILLIAN, a citizen of the United States, residing at Mountain View, in the county of Stone and State of Arkansas, have invented a new and useful Water-Elevator, of which the following is a specification.

This invention relates to water elevators and carriers of that class in which a car carrying the bucket is mounted upon an inclined track, so as to permit it to descend by gravity to the well, and which is provided with mechanism for lowering and elevating the bucket, and for suspending it under the car while the latter is traveling back to its starting-point; and it has for its object to provide a device of this class which shall possess superior advantages in point of simplicity, durability, and general efficiency, and which shall be provided with mechanism which in the event of the breaking of the hoisting-rope shall automatically detain the car at the first track-support which it may encounter on its return movement toward the well, thereby avoiding the risk of breakage.

The invention consists in the improved construction, arrangement, and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a perspective view of a water carrier and elevator embodying my improvements. Fig. 2 is a top view of the same. Fig. 3 is a perspective view, on a larger scale, of the car or carrier and one of the track-supports. Fig. 4 is a side view showing the car or carrier in a different position with relation to the track-support.

Like numerals of reference indicate like parts in all the figures.

1 designates the track-wire, which is supported upon a series of suitably-arranged posts 2, which are provided near their upper ends with angular arms or brackets 3, supporting the said track-wire. The wire 1 is connected at the starting-point to the upper ends of a pair of uprights 4 5, which are connected by braces 6, in which is transversely journaled a shaft 7, carrying a drum or reel

8, and provided at its outer end with an operating-crank 9. From the starting-post 4 the track-wire is inclined downwardly toward the well, the curving of which is indicated by 10, and at which point the wire is secured near the upper end of an upright 11.

12 designates the car or carrier, which may be constructed of a single plank, provided in its under side with a longitudinal groove 13, in which the supporting-wheels 14 are journaled upon transverse shafts 15. Suitably journaled in the upper side of the car are the guide wheels or pulleys 16 and 17. The car 12 is provided with downwardly-extending brackets 18 and 19, both of which are provided with horizontal arms 20, and the former of which has a loop 21.

Mounted pivotally upon the horizontal arm of the bracket 19 is a pair of arms or levers 22 and 23, the former of which has its front end secured in the loop 21 of the arm 18, while the front end of the lever 23 is forced into contact with the lever 22 by the action of a spring 24, attached to the said lever 23 and bearing against the inner side of the loop 21. The front ends of the levers 22 and 23 are beveled on their inner sides, as shown at 25, and the inner rear sides of said levers are likewise reduced, as shown at 26, so that their front ends may be separated by inward pressure upon the outer sides of the rear ends. The levers 22 and 23 are provided on their inner sides with grooves or recesses 27, registering with each other so as to form a vertical perforation.

28 is a loop or bracket attached to the lever 22 and forming a support for a pivoted arm or lever 29, which is mounted upon a horizontal pin or bolt. The lever 29 is provided at its front end on its under side with a beveled hook 30, and a similar beveled hook 31 is formed upon the upper side of its rear end. These hooks are adapted to engage bails or catches 32 and 33, which are secured, respectively, upon the post 11 and upon the starting-post 4, and which serve to retain the car in position at either station.

34 designates the operating-rope, which is wound upon the drum of a reel 8; and passes from thence over a guide-pulley 35 at the

upper end of the starting-post 1, over the guide-pulleys 17 and 16 of the car, thence downwardly through a vertical perforation 36 near the front end of the lever 29, and through the opening 27 of the horizontal levers 22 and 23. To the end of said operating-rope is attached the bucket 37, and upon the operating-rope above the said bucket is mounted a weight 38, the upper end of which has a conical flange-head 39, adapted to pass through the opening 27 between the levers 22 and 23 and to engage and be supported by the said levers.

The starting-post 4 is provided with a pair of beveled blocks 40, adapted to engage and compress the rear ends of the levers 22 23, and the post 11 is provided with a wedge-shaped block 41, adapted to enter between the beveled front ends of the said levers to spread them apart for the purpose of releasing the bucket.

Attached pivotally to one side of the body 12 of the car is an arm 42, the upper end of which is connected pivotally with a longitudinally-sliding bar 43, the rear end of which has a slot 44, sliding upon a stud 45, which extends laterally from the body of the car. The front end of the sliding bar 43 is provided with a beveled hook 46, and it may be confined and held in contact with the side of the car by means of a loop or staple 47, secured to the latter.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of my invention will be readily understood. At its starting-point the car is normally held in position by the hook 31 of the lever 29 engaging the catch 33. At this point the rear ends of the levers 22 23 are compressed by contact with the blocks 40, and their front ends are thus spread apart to permit the bucket to be sent for the purpose of emptying it. When it is desired to send the bucket to the well, the rope 34 is wound upon the reel 8 until the bucket is hoisted and the head at the upper end of the weight 38 comes in contact with the under side of the front end of the lever 29, thus lowering the rear end of said lever and disengaging the hook 31 from the catch 32. The car is now at liberty to travel down the inclined track toward the well, the operating-rope 34 being meanwhile unwound from the reel or drum 8. When the post 11 at the well is reached, the hook 30 of the lever 29 will engage the catch 33, and thus retain the car in position. At the same time the front ends of the levers 22 23 will be spread apart by contact with the wedge 41, thus releasing the weight 39 and permitting the bucket to descend. After the bucket has been filled the reel 8 is operated so as to wind the rope 34, thus raising the bucket until the weight 38 strikes against the under side of the lever 29, thereby releasing the hook 30 of the latter from the catch 32. By continuing to wind

the rope upon the reel the car carrying the bucket is drawn back to the starting-point, where the levers 22 23 are again engaged by the beveled blocks 40, thereby separating the front ends of said levers and enabling the bucket to be lowered and emptied. When the car is at the starting-point, the beveled hook at the front end of the sliding bar 43 engages the post 4, or a beveled block 48, secured to the latter, thereby throwing the said sliding arm in a forward direction upon the car and raising its hooked end, which is supported by the pivot bar or link 42. The car is thus enabled when released to travel upon the track toward the well without the hook 46 coming in contact with any of the supporting-arms 3 of the track. When the post 11 is reached, the end of the bar 43 comes in contact with said post, and said bar 43 is thrown in a rearward direction upon the car, the hooked end of said bar being at the same time lowered. It will be seen that when the car is drawn back to the starting-point the beveled hook 46 will successively slip over all of the track-supporting arms 3. In the event of breakage of the rope, it will thus be seen that the said hook will engage the first of said track-supporting arms which it encounters and be retained thereby, thereby preventing the car from continuing its downward movement until the well is reached.

In cases where it is not convenient to construct a downwardly-inclined track the post 11 may be provided at its upper end with a pulley 49 for the passage of an operating-rope, which may be attached to the front end of the car and be passed over said pulley and back to the starting-point, where it may be attached to a winding-drum. By operating the latter it will thus be seen that the car may be drawn along the track to the well.

Having thus described my invention, I claim—

1. In a water carrier and elevator, the combination of the track, the car having the supporting-wheels, the downwardly-extending brackets having horizontal arms, the levers pivoted upon one of the said horizontal arms, a spring arranged to force the free ends of said levers into contact with each other, mechanism for forcing the free ends of said levers apart at the two end stations, the hoisting-rope wound upon a reel at the starting-station and passing over guide-pulleys in the car and down between the free ends of the levers, the bucket and the weight having a conical flanged head, all arranged and operating substantially as set forth.

2. In a water carrier and elevator, the herein-described car, comprising a body grooved on its under side and provided with supporting-pulleys, the downwardly-extending brackets having horizontal arms, one of which is provided with a loop, the levers pivoted upon one of said arms and having recesses in their inner sides registering to form

a vertical opening, said levers being beveled at their front ends upon their inner sides and at their rear ends upon their outer sides, and the rear ends of said levers being reduced upon their inner sides, a spring attached to one of said levers and bearing against the outer end of the loop to hold the said levers in contact with each other, a lever pivoted to a bracket attached to one of the horizontal levers, provided with hooks at its front and rear ends and having a vertical perforation for the passage of the hoisting-rope, the bails or catches attached to posts or uprights supporting the ends of the tracks the blocks mounted upon said end posts and adapted to separate the horizontal levers, the hoisting-rope, the bucket, and the weight having a conical flanged head, all arranged and operating substantially as set forth.

3. In a water carrier and elevator, the herein-described car, having the horizontally-arranged levers provided with recesses in their inner sides, adapted to engage a weight mounted upon the hoisting-rope and having a conical flanged head, in combination with a vertically-movable lever attached to the car, and having hooked ends adapted to engage catches upon the end posts of the track, said lever being arranged in the path of and adapted to be actuated by the weight mounted upon the hoisting-rope, substantially as and for the purpose set forth.

4. In a water carrier and elevator, the combination, with the track mounted upon angular supports, of the car provided with a pivoted and longitudinally-sliding hooked rod having a beveled end adapted to pass freely over the angular supports of the track when the car is returned to the starting-point, and to engage said angular supports and detain

the car in the event of breakage of the hoisting-rope, substantially as set forth.

5. The combination, with the track mounted upon angular supports, of the car, an arm or bracket pivoted to the side of said car, a bar mounted to slide longitudinally upon said car and connected pivotally with the outer end of said pivoted arm, said longitudinally-sliding bar being provided at its rear end with a beveled hook adapted to engage the angular support of the track, substantially as set forth.

6. The combination of the track mounted upon angular supports, the end posts, the car, an arm mounted pivotally upon the side of the latter, a bar mounted to slide longitudinally upon the side of said car and connected pivotally with the outer end of said pivoted arm, and a beveled hook at the rear end of said longitudinally-sliding bar, the latter being of a length to cause its ends to come in contact with the supporting-posts at the stations or ends of the track, substantially as and for the purpose herein set forth.

7. The combination of the car, the pivoted arm 42, the bar 43, connected pivotally with the outer end of said arm, and having a longitudinal slot 44, mounted to slide upon a stud 45, extending from the side of the car, the beveled hook 46, formed at the rear end of said bar, and the staple or keeper 47, all combined and operating substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

GREEN V. KILLIAN.

Witnesses:

T. L. MARTIN,  
Z. W. CASEY.