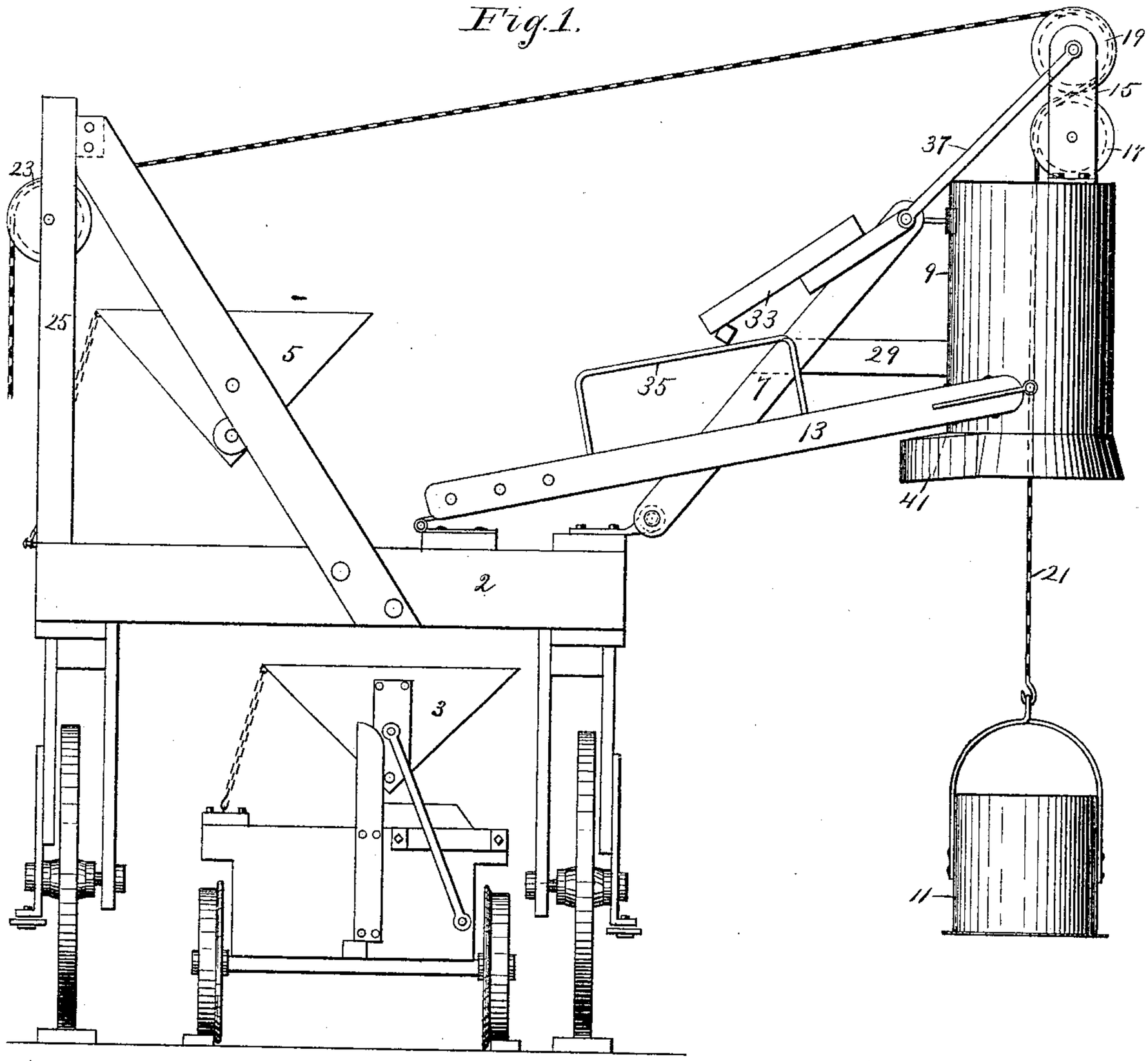
(No Model.) 2 Sheets—Sheet 1.

D. S. WHITE.

HOISTING AND LOADING MACHINE.

No. 377,183. Patented Jan. 31, 1888.

Fig. 1.



Witnesses.
S. J. Beardslee.
J. Jessen.

Inventor.
David. S. White.
By A. C. Paul Atty.

(No Model.) 2 Sheets—Sheet 2.

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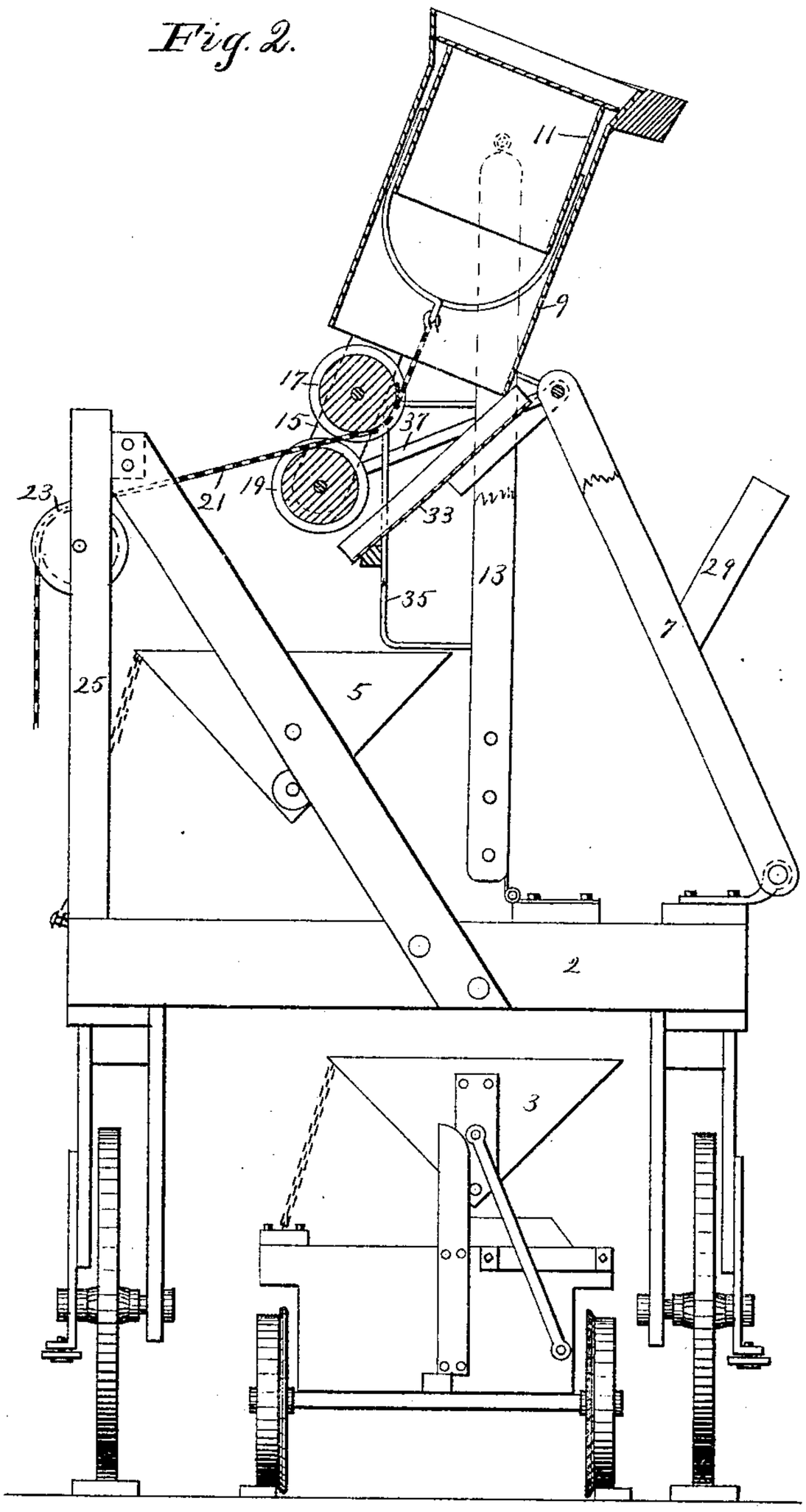
Fig. 2.



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S. J. Beardslee
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UNITED STATES PATENT OFFICE.

DAVID S. WHITE, OF MINNEAPOLIS, MINNESOTA.

HOISTING AND LOADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 377,183, dated January 31, 1888.

Application filed September 19, 1887. Serial No. 250,072. (No model.)

To all whom it may concern:

Be it known that I, DAVID S. WHITE, of the city of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain Improvements in Hoisting and Loading Machines, of which the following is a specification.

My invention relates particularly to improvements in machines designed especially for use in forming excavations for sewers and other purposes; and the objects I have in view are to provide a machine by means of which the hoisting-buckets may be raised and brought over a suitable hopper or receptacle and its contents discharged into said receptacle, and all by a single direct pull upon the rope or chain which supports the hoisting-bucket.

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

Figure 1 is an end elevation of my improved machine, showing the parts in the position that they assume as the bucket is being lowered or while it is being raised and before it strikes the device that automatically directs its contents into the hopper or receptacle. Fig. 2 is a similar view, but partially in section, showing the device in position for discharging the contents of the bucket into the hopper or receptacle.

In the drawings, 2 represents a suitable carriage which may be of any size and construction and is mounted upon suitable wheels. This carriage is preferably adapted to permit a car, 3, to be passed under it, and the hopper and receptacle 5 is mounted upon the carriage and is adapted to dump its contents into the car 3 when it is beneath the carriage. I make no claim, however, in this application to the carriage or car, as herein shown, as I have claimed the same in a separate application for Letters Patent filed on the 3d day of May, 1887, Serial No. 236,920.

Pivoted upon the frame of the machine is a suitable arm or bar, 7, having its upper end pivoted to the side of the receiver 9, that is open at both ends and is adapted to receive the hoisting-bucket 11, as hereinafter described. Two other bars, 13, similar to each other, are also pivoted upon the carriage at their lower ends, and their opposite ends are pivoted to the receiver 9 at a point below the pivotal point of the bar 7. The other ends of the bar 13 are secured to the carriage at a point nearer its center than the pivotal point of the bar 7, so that the bars 7 and 13 when in the position shown in Fig. 1 are in the form of an irregular letter **X**. The receiver 9 is open at both ends, and its lower end is preferably flared, so as to form a guide for the hoisting-bucket. To the top of the receiver is secured a suitable standard, 15, in which are mounted the sheaves 17 and 19. A hoisting rope or chain, 21, passes over the bucket 11, through the receiver 9 between the sheaves 17 and 19, and over the sheave 19 and over the sheave 23, mounted in the suitable standard, 25, at or near the opposite side of the carriage. A rope may then be carried to a winding-frame or other device by which it may be wound up and released for the purpose of hoisting or lowering the bucket. The bars 7 and 13 are so proportioned to each other and to the receiver that the receiver preferably stands substantially vertical when in its normal position, as shown in Fig. 1. I prefer, however, to provide the bar 7 with a supporting-bar, 29, against which the side of the receiver bears when in a vertical position.

The manner of operating the device is as follows: Power being applied to the rope 21 to raise the bucket 11, it is hoisted vertically until it has entered the receiver 9. A convenient projection upon the bucket 11—such as a projecting flange at the bottom—encounters the lower end of the receiver, and a pull on the rope, continuing, causes the receiver to be moved with the bucket. The bars 7 and 13 are thereby turned upon their pivots, and at the same time the receiver is also turned on the pivotal supports between it and these bars. A continued movement of the rope carries the bar 13 into a substantially vertical position, as shown in Fig. 2, and brings the receiver over the receptacle 5 on the carriage in an inverted position. The material in the bucket 11 will then fall out and into the receptacle 5. In order that all of the material may in all cases be directed from the receiver into the receptacle 5, I prefer in some instances to provide a chute, 33, that is pivoted upon the pivot that secures the upper end of the bar 7

to the receiver 9. The lower end of this chute rests upon a guide-bar, 35, secured to the bar 13. As the receiver is moved toward the receptacle 5, the lower end of the chute 33 is raised by the guide-bar 35 and brought into proper position over the receptacle 5, when the bar 13 stands in a vertical position. I may also provide a connecting rod or link, 37, pivoted to the upper end of the bar 7 and to the axis of the sheave 19. The chute 33 and its guide-bar may, if preferred, be omitted, as the material will be directed into the receptacle 5 without the use thereof.

I do not confine myself to the details of construction herein described, as the same may be substantially varied without departing from the principles of my invention. The form of the receiver and the form of the bucket may be varied; and while I have shown a receiver consisting of a close cylinder, it need not be in this form and need not be close, except where it is desired that the receiver shall also act as a chute to guide the material from the bucket into the receptacle in the carriage. The parts, however, might be proportioned so that the bucket would be brought directly over the receptacle or receiver, and it is also preferably provided at its lower end with a weight, 41, that may be secured thereto in any suitable manner for the purpose of causing the receiver to tip backward and resume its normal position as soon as the strain on the rope is relieved.

I do not confine myself to the use of a carriage or movable frame-work, as the device may be permanently attached to any foundation, in which case the portion 2 would represent the sill to which the hoisting apparatus is attached.

I claim as my invention—

1. The combination, with a suitable carriage or frame and a receptacle mounted thereon, of the receiver 9, bars 7, pivoted to the frame and to said receiver at a point near its upper end, and the bars 13, pivoted to the receiver at a point near its lower end, and also pivoted to said frame, the hoisting bucket and rope, substantially as described.

2. The combination, in a machine of the class described, with a suitable carriage, of a standard secured upon the carriage, a receiver, 9, a movable support secured upon said carriage and supporting said receiver, a hoisting-bucket, and a rope or chain passing through said receiver and over said support, substantially as described.

3. The combination, with a suitable carriage having a standard secured therein, and with a sheave or pulley on said standard, of a movable support adapted to overhang the side of the carriage, a receiver, 9, carried by said support, a receptacle on said carriage between said standard and said support, a hoisting-bucket, and hoisting-rope passing over said support and over the sheave on said standard, substantially as described.

In testimony whereof I have hereunto set my hand this 14th day of September, A. D. 1887.

DAVID S. WHITE.

In presence of—

R. H. SANFORD,

A. G. TRYON.