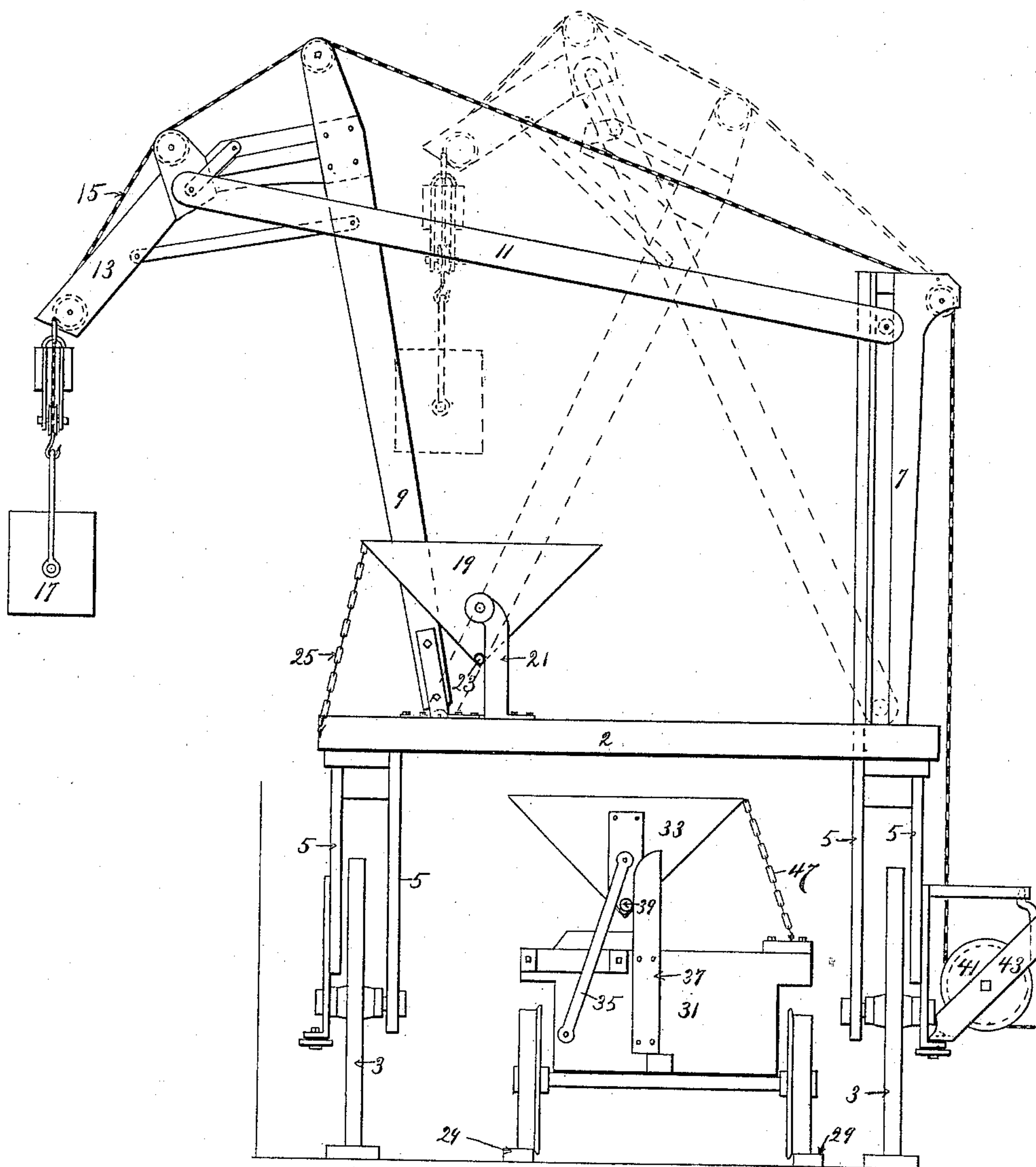


(No Model.)

D. S. WHITE.  
HOISTING AND LOADING MACHINE.

No. 401,618.

Patented Apr. 16, 1889.



Witnesses.  
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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. 401,618, dated April 16, 1889.

Application filed May 3, 1887. Serial No. 236,920. (No model.)

*To all whom it may concern:*

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

This invention relates particularly to improvements in machines for excavating sewers, though applicable in making many other excavations.

The object I have in view is to provide a machine by which the dirt or material may be quickly raised from any depth and dumped into a suitable receptacle, from which it may be transferred to a suitable car and transferred to any desired point.

Other objects of the invention will appear from the following detailed description, taken in connection with the accompanying drawing, which represents an end elevation of my improved device.

In the drawing, 2 represents a suitable carriage, that is mounted upon wheels 3. The platform of the carriage is preferably at some distance above the wheels, to the axles of which it is secured by suitable standards, 5. The object of this arrangement of the carriage is to raise its main part or platform to a sufficient height to allow a suitable car to be run under the carriage and receive the material that has been raised from the excavation.

To the platform of the carriage I secure a suitable hoisting apparatus, by which the excavating-buckets, which may be of any preferred style, may be raised and drawn back over the carriage-platform. I have shown a hoisting device consisting of a stationary standard, 7, a swinging mast, 9, a sliding boom, 11, and a movable block, 13, that is adapted to be moved out so as to overhang one side of the carriage and to be drawn back to a position over the top of the carriage. A rope, 15, passes from the hoisting-bucket 17 over sheaves on the block 13 and over a sheave on the standard 7. By a direct and single strain of the rope the hoisting-bucket is drawn up and the movable block and the bucket are together drawn back over the carriage. The standard 7 is preferably placed at the side of the carriage opposite that over which the bucket is raised and lowered. After the

bucket is dumped, the block 13 will automatically move back to its former position, carrying the bucket with it, which will then be allowed to descend into the sewer or other excavation. Any other equivalent support may be used for the block 13 which will permit it to be drawn back over the carriage for the purpose of permitting the bucket to be drawn back over the receptacle or box on the carriage, as hereinafter described.

Upon the carriage-platform I mount a suitable box, 19, which is adapted to receive the material from the bucket 17 and to dump it into a car that is run beneath the carriage 2. This box may be of any suitable construction and arranged in any preferred manner upon the carriage. The box that I have shown, and which I find to be well adapted for the purpose, is of triangular or hopper shape, and is mounted upon trunnions in standards, 21 upon the top of the carriage 2. It is provided at or near its bottom with stops 23, which strike against the standard and prevent the box from turning in one direction. The standards 21 are preferably provided with offsets at their upper ends, in which the trunnions are located. A chain, 25, or other suitable device may be provided for holding the box in an upright position until it is desired to dump the material therefrom.

It will be seen that when the bucket is raised it may be brought over the box 19 and its contents discharged into that box.

The box which I have used is pivoted centrally, and it is usually necessary for one of the operators to tip the box over by hand after the chain is unhooked.

I make no claim herein to the construction of the hoisting device, as I have shown and claimed substantially the same device in a prior application for patent, Serial No. 226,150, filed February 1, 1887; nor do I wish to be understood as confining myself to the use of this hoisting device, as any suitable apparatus which can be mounted on the carriage 2, and by which the bucket may be raised and brought over the receptacle 19, may be used in this combination as the equivalent of the apparatus shown.

The carriage 2, as before stated, is of sufficient height to allow a car, 31, to be run under it between its wheels 3 to receive the ma-



terial from the box 19. Any suitable car may be used for this purpose. I prefer to use a dump-car, from which the material may be readily discharged after being transferred to the desired point. The car that I have shown is arranged to run upon a suitable track, 29, and is provided with a box or receptacle, 33, that is pivoted upon the upper ends of standards 35, which are in turn pivoted to the body of the car, near one edge thereof. The car is also provided with stationary standards 37 and the box with stops 39 at or near its lower side. When the box is in the position shown in the drawing, it will remain in an upright position, being held by the standards 37, the stops 39, the pivoted standards 35, and a suitable chain, 47. After the box has received the load from the receptacle on the carriage 2 the car may be run to the desired point and the box 33 turned over and dumped by moving it outward from the standards 37. The standards 35 will cause the box to be moved some distance from the side of the car. This construction and arrangement will therefore be especially advantageous when it is desired to dump the earth back into the excavation at a point where the sewer has been completed. By raising the earth from the sewer excavation and transferring it to the car, and then running the car along to a point where the sewer has been completed and dumping the earth directly from the car back into the excavation, the work may be very rapidly carried on. Any suitable car may, however, be used in place of that here shown, it being desirable, however, that the car should be of suitable size to pass beneath the carriage 2.

The rope 15 from the hoisting apparatus preferably passes under a sheave, 41, that is mounted in a pivoted standard, 43, so that the rope may be drawn in any direction, the standard turning as the direction is changed.

The hoisting apparatus and the box 19 are both mounted on the carriage 2, and when it is desired to change the position of the apparatus it is only necessary to move the carriage and to extend the track 29, so that the car may be brought under the carriage to receive the material from the box 19.

The material is dumped from the bucket into the box 19, and after the box has been filled is dumped into the car.

I claim as my invention—

1. A hoisting and loading machine comprising a suitable carriage constructed with depending standards having a clear space between them adapted to permit a car to be passed beneath the carriage, standards fixed upon said carriage, a receptacle pivoted in said standards and adapted to dump its contents into a car beneath said carriage, and a hoisting apparatus mounted on said carriage and adapted to raise material and deposit it in said receptacle, substantially as described.

2. The combination, in a machine of the class described, of a suitable carriage constructed with depending standards having a

clear space between them adapted to permit a car to be passed beneath the carriage, standards fixed upon said carriage, and a receptacle pivoted in said standards and adapted to dump its contents into a car beneath the carriage, substantially as described.

3. The combination, with a suitable carriage constructed with depending standards and adapted to permit a car to be passed beneath it and between said standards, of standards fixed upon said carriage, a receptacle, 19, pivoted in said standards and arranged to dump its contents into a car beneath said carriage, a hoisting-bucket, and a hoisting apparatus adapted to raise said bucket and carry it over said receptacle 19, substantially as described.

4. The combination, with the carriage 2, constructed with depending standards and adapted to permit a car to be passed beneath said carriage, and between said standards, of the standards 21, mounted thereon, and the receptacle 19, pivoted in said standards and adapted to dump its contents into a car beneath said carriage, substantially as described.

5. The combination, with a suitable carriage constructed to permit a car to be passed beneath it, of a box or receptacle pivoted in standards upon said carriage and provided with stops 23, that strike against the standards and limit the movement of the box in one direction, and a locking device adapted to hold said box in its filling position.

6. The combination, in a machine of the class described, with the carriage provided with depending standards at each side and having a clear space between said standards, through which a car may be passed, and supporting-wheels mounted upon axles in said standards, of a hoisting apparatus mounted on said carriage and adapted to overhang one side of the carriage, and a receptacle mounted upon said carriage and adapted to receive material from said hoisting apparatus and to hold it and to be dumped at will to deposit said material in a car beneath said carriage.

7. The combination, with the carriage 2, constructed to permit a car to be passed beneath it, of the standards 21, having the offset portions at their upper ends, the hopper-shaped receptacle 19, pivoted in said offset portions of said standards and provided with the stops 23, adapted to encounter said standards when the box is in filling position, and a securing device for holding said receptacle in such position.

8. The combination, with a carriage constructed to permit a car to be passed beneath it, of a standard, as 7, secured to the carriage near one side thereof, a movable block adapted to overhang the opposite side of the carriage, a support secured upon the carriage and constructed to permit said block to be drawn back to a position over the carriage, a hoisting-bucket, a hoisting rope or chain passing over sheaves on said movable block and over a sheave on said standard, stand-



ards 21 on said carriage, and a receptacle pivoted in said standards and adapted to receive material from said bucket and to dump its contents into a car beneath the carriage.

5 9. A hoisting and loading machine comprising a carriage constructed with depending wheeled standards having a clear space between them adapted to permit a car to be passed longitudinally beneath the carriage, a  
10 fixed standard, as 7, secured upon the carriage, a hoisting apparatus mounted and supported upon said carriage and provided with a movable block adapted to overhang one  
15 side of the carriage, a hoisting-bucket and a rope or chain passing from said bucket over said movable block and over a sheave on said standard, a receptacle on said carriage between said standard and the opposite side of  
20 the carriage, and a car adapted to pass beneath said carriage and receive material from said receptacle, substantially as described.

10. A hoisting and loading apparatus comprising a suitable carriage constructed to permit a car to be passed beneath it, a hoisting mechanism on said carriage adapted to raise 25 material and carry it to a point over said carriage, standards fixed upon said carriage, a hopper pivoted in said standards and adapted to receive material from said hoisting mechanism and dump it beneath said carriage, and 30 a car adapted to pass beneath said carriage and receive material from said receptacle, substantially as described.

In testimony whereof I have hereunto set my hand this 29th day of April, 1887.

DAVID S. WHITE.

In presence of—

A. C. PAUL,

A. M. GASKELL.