(No Model.) 3 Sheets—Sheet 1.

# R. R. OSGOOD.

## EXCAVATOR.

No. 342,454. Patented May 25, 1886.

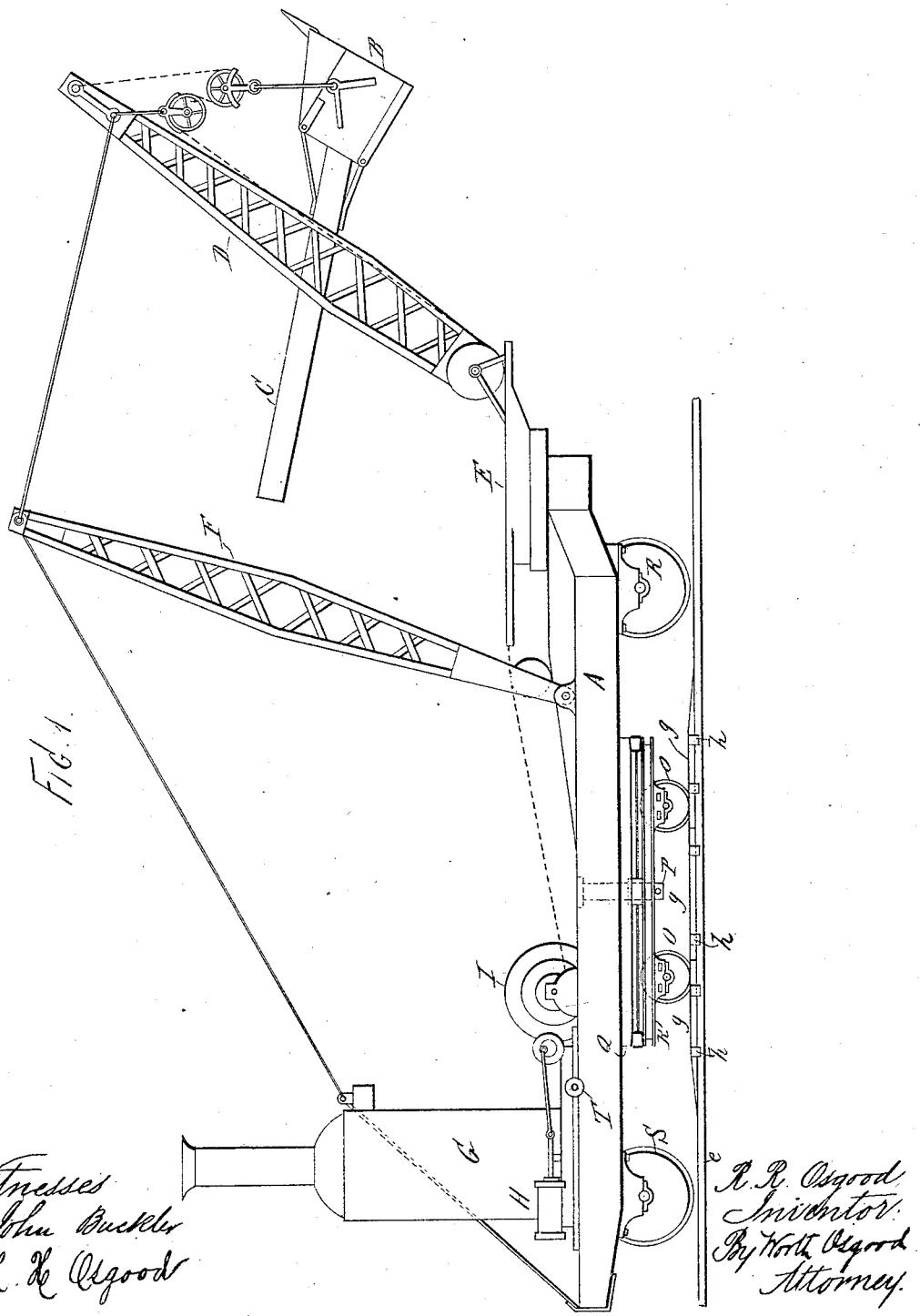


FIG. 1.

Witnesses
John Buckler
L. R. Osgood

R. R. Osgood
Inventor.
By Wolfe & Osgood
Attorney.

(No Model.) 3 Sheets—Sheet 2.

# R. R. OSGOOD.

## EXCAVATOR.

No. 342,454. Patented May 25, 1886.

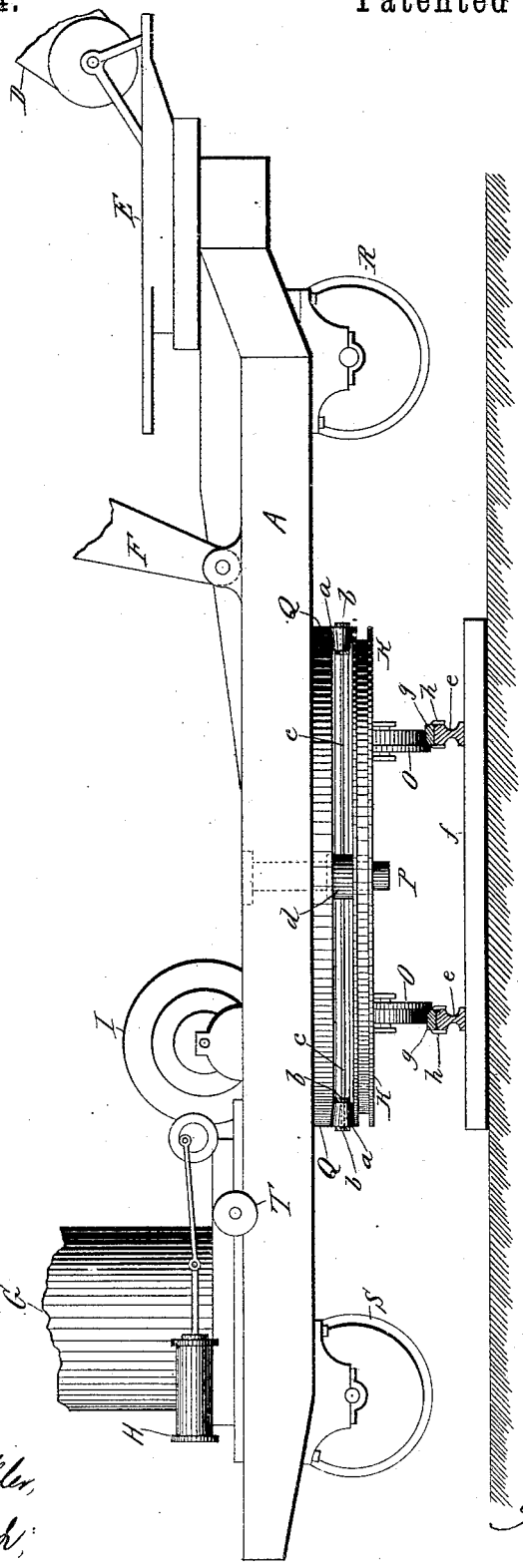


FIG. 2.

Witnesses:
John Buckler,
L. H. Osgood.

R. R. Osgood,
Inventor.
By North Osgood
Attorney

(No Model.) 3 Sheets—Sheet 3.

# R. R. OSGOOD.

## EXCAVATOR.

No. 342,454. Patented May 25, 1886.

FIG. 3.

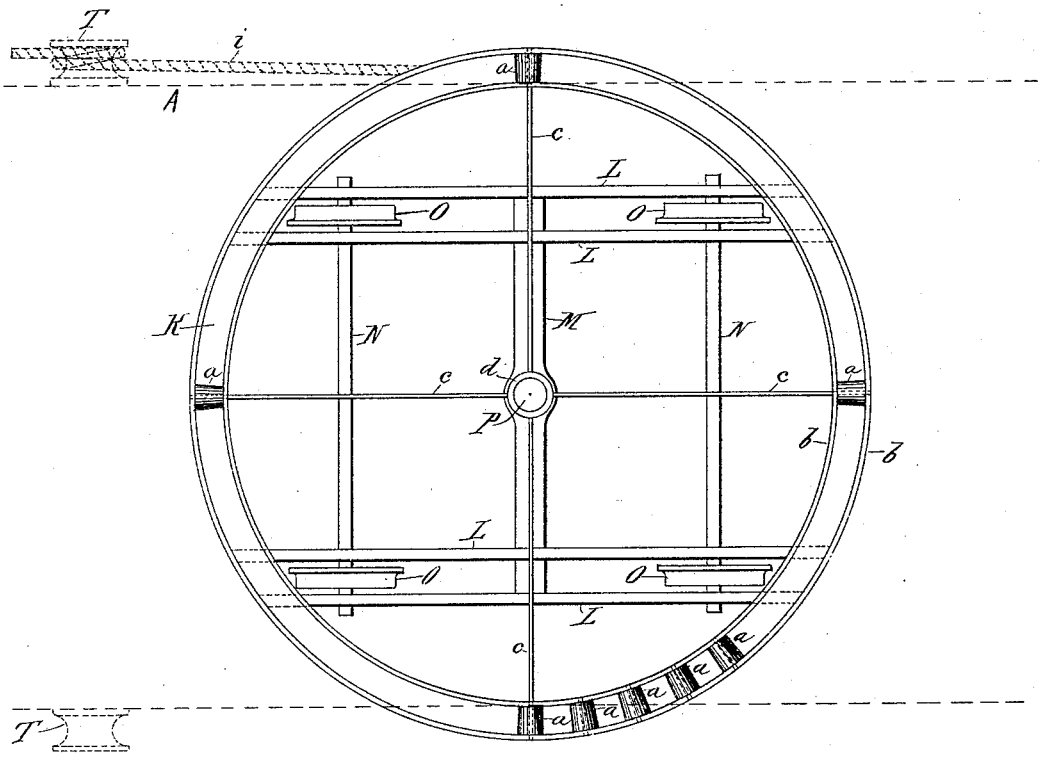



FIG. 4.

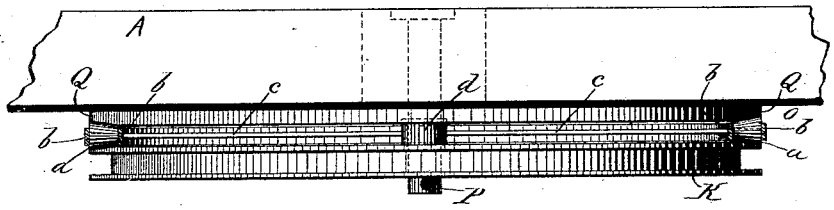
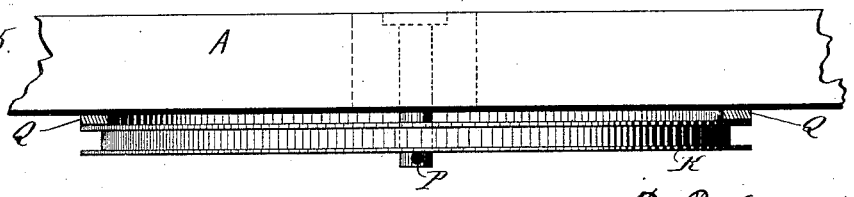



FIG. 5.




Witnesses
John Buckler.
L. R. Osgood.

R. R. Osgood,
Inventor.
By North Osgood,
Attorney.

# UNITED STATES PATENT OFFICE.

RALPH R. OSGOOD, OF ALBANY, NEW YORK.

## EXCAVATOR.

SPECIFICATION forming part of Letters Patent No. 342,454, dated May 25, 1886.

Application filed August 4, 1884. Serial No. 139,600. (No model.)

*To all whom it may concern:*

Be it known that I, RALPH R. OSGOOD, of Albany, county of Albany, and State of New York, have invented certain new and useful Improvements in Excavators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention has relation to that class of machines employed for excavating earth and other material, and provided with a scoop or other dipper arranged and mounted so as to take the load, elevate it, swing it toward either side of the machine, dump it, and be returned to position to take another load. These machines, when intended for use upon land, are usually mounted on wheels, intended to run upon tracks or ways, and are commonly called "excavators" or "land-machines."

The object of my invention is to provide an excavator of the above-mentioned class with simple, durable, and efficient means for turning the whole of the main frame or car of the machine over or across the tracks, or to reverse the machine entirely, thus making the machine in effect double-ended or capable of working in the direction of either end, the machine being held stationary while performing its digging or loading and unloading operations. To accomplish this my improvements involve certain novel and useful peculiarities of construction, relative arrangements or combinations of parts, and principles of operation, all of which will be herein first fully described, and then pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of one form of excavator having my improvements applied in connection therewith, the main working elements of the machine being represented in outline and the machine and excavator in position to be reversed in accordance with my invention. Fig. 2 is a side elevation and partial sectional view upon a scale somewhat larger than Fig. 1, representing the car-body turned part way around or across the line to the tracks, the upper portions of the machinery being broken away. Fig. 3 is a top or plan view (on a still larger scale) of the car-turning-table appliance shown in previous figures, the position of the car-body being indicated by dotted lines. Fig. 4 is a side elevation and partial section showing the construction and arrangement of the upper part of the car-turning table, and Fig. 5 is a similar view showing the same with the anti-friction rollers omitted.

In all these figures like letters of reference, wherever they occur, indicate corresponding parts.

To illustrate the application of my invention, I have represented the same as being applied in connection with what is now ordinarily known as a "boom-machine"—that is, a machine or excavator wherein the dipper-handle is mounted upon a boom, which in turn is hinged upon a turn-table at its base; but it will be apparent that my improvements are likewise applicable in connection with excavators of other styles which are provided with means for raising and swinging the load while the car or body of the machine remains stationary, as above indicated.

A represents the main frame of the car or platform, upon which the excavating machinery is mounted.

B is the dipper or scoop; C, the dipper-handle; D, the boom or other support therefor, and E the turn-table, mounted upon the car-body and employed for the purpose of swinging the load toward either side of the machine while the car or platform remains stationary.

F represents the A-frame for sustaining the boom and its appliances at any desired angle.

G is a boiler; H, an engine, and I a chain-drum. All these parts are mounted upon the car body or platform, and may be arranged and adapted to operate in any preferred manner.

In operating these excavating-machines it frequently becomes desirable to reverse the machine upon its track—that is, so that after it has finished its work in one direction it may be turned so as to proceed in the opposite direction. For other reasons, also, it is often desirable to reverse the machine, or to turn it partly across the track. To provide for thus turning the machine, I supply a turn-table capable of supporting the whole weight of the machine, the same being connected with the car body or platform and arranged to travel therewith upon the track as the machine is

moved back and forth, but which is intended to remain stationary while the car is being turned thereon. K is the ring or bed of the car-turning table, the same being preferably made of channel or angle iron, as indicated, and amply strong for the purposes intended. It is braced and stiffened in its different parts, as by the pieces L L and cross-connection M, also of angle or channel iron, or other suitable material, applied in a workmanlike manner. The pieces L L afford convenient means of mounting the axles N N of the car-wheels O O, (preferably four in number,) which sustain the car-turning table, and also the weight of the whole machine, when the car is being turned. This turn-table is connected with the car-body by means of a king-bolt, as represented at P.

Q is a metallic ring, affixed to the under side of the car-body and intended to operate in connection with the turn-table appliances.

Conical anti-friction rollers, as *a a*, &c., (of any number,) may be mounted between the rings Q and K. When these anti-friction rollers are employed, they may be axled between straps or bands, as *b b*, and prevented from becoming displaced or disarranged by three, four, or more tie-rods, as *c c*, connected with a ring, *d*, arranged to turn about the king-bolt P. These rollers may be omitted, and the ring Q arranged to bear and travel on the ring K, as indicated in Fig. 5. A little oil or lubricating material between the two parts will ordinarily suffice to make them work sufficiently freely for all practical purposes. The car is supplied with forward wheels, R, and rear wheels, S, and these wheels, together with those at O, sustain the weight of the machine while at work, and they (the forward and rear wheels) operate as supports for the front and rear ends of the car while the machine is at work, thus bracing and holding the machine steady, as required, and not permitting it to move upon its turn-table.

The ordinary track or rails are represented at *e*, the same being fixed upon cross-ties *f* in the usual fashion. At *g* are supplemental pieces of track, intended to rest upon the tops of tracks *e*, the same being supplied with any suitable side pieces, as *h h*, for holding them in place and for facilitating their adjustment when required for use. These supplemental sections may be of any length, so that they are easy to handle, and their extremities are gradually inclined, so as to facilitate running the machine on and off. They are not intended to extend along the tracks a greater distance than the reach between the forward and rear car-wheels.

When it is desired to turn the machine around or to reverse it, the supplemental pieces are applied to the tracks in front or rear of the machine and the machine run thereon, as indicated in Fig. 1, in which position the forward and rear wheels of the car will be raised from off the main tracks, so that they may be moved over or across them without striking them. Then the car may be swung around upon its turn-table, and when completely turned moved down from off the elevation and the supplemental pieces detached from the tracks. The machine is then ready to go to work again, all of its wheels bearing evenly upon the tracks and properly supporting the weight and steadying the machine. If the machine be not entirely reversed, the tracks may be shifted while the machine is elevated, so as to come under the forward and rear wheels.

T T are capstans, such as are usually applied on the sides of excavators, the same being arranged to be driven by power, and intended for winding ropes or chains for various services on or about the machine.

With my improved appliances of course the machine may be turned by any suitable power; but I prefer to use the capstans for this purpose.

A rope, chain, or cable, *i*, Fig. 3, is connected at one end with the turn-table ring K, finding a convenient seat in the exterior channel thereof, and at the other end with one of the capstans. Under this arrangement, by turning the capstan, the turn-table remaining stationary, it is apparent that the whole machine will be swung around toward the side on which the line is applied. It may be applied on either side at pleasure. The turn-table is of such extent or is so located with respect to the car-body, or the machinery is so disposed upon the car, as to obviate undue tipping of the machine when being reversed.

When constructed and arranged for operation substantially in accordance with the foregoing explanations, the improvements will be found in practice to admirably answer the purpose or object of my invention as previously set forth.

I am aware that cars have heretofore been provided with turn-tables of various constructions, located beneath and connected with them, for enabling them to be turned, and I do not wish to be understood as making any claim to such constructions, the object of my invention being, among other things, as before pointed out, to make my improved excavator "double-ended."

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine of the character herein set forth, provided with forward and rear wheels, the combination, with the car body or platform, of a turn-table also mounted upon wheels, the same being connected with the platform between said forward and rear wheels, and arranged for operation substantially as shown and described.

2. The herein-described excavator, composed essentially of the following elements, viz: a dipper for taking the load, means for swinging the load toward either side of the machine, a car or platform for supporting the operating machinery, a turn-table for support-

ing the machine when being turned across or over upon the track, and means for steadying or supporting the car at each end, these parts being combined for operation substantially as and for the purposes set forth.

3. In an excavator having a turn-table for swinging the dipper, the car-body provided with a capstan mounted thereon and movable therewith, said car-body being mounted upon and arranged to turn upon a turn-table, and a rope or line connected with the turn-table and with the capstan, these parts being combined for operation substantially as and for the purposes set forth.

4. The combination, as before set forth, of the car-body having the excavating machinery mounted thereon, the forward and rear wheels, the turn-table connected with the car-body between said wheels, the main tracks, and the removable supplemental tracks, substantially as shown and described, and for the purposes explained.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

RALPH R. OSGOOD.

Witnesses:
JOHN BUCKLER,
WORTH OSGOOD.