A. D. WARD.

EXCAVATING MACHINE.

APPLICATION FILED JAN. 15, 1912.

1,074,480.

Patented Sept. 30, 1913.

3 SHEETS—SHEET 1.

Fig. 1.

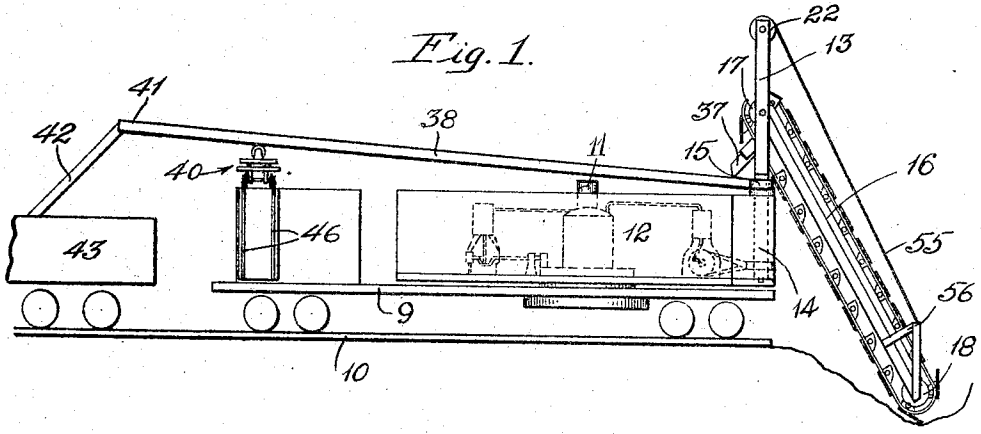


Fig. 2.

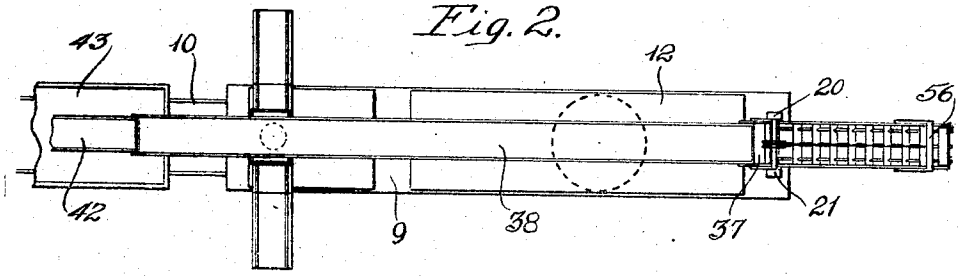
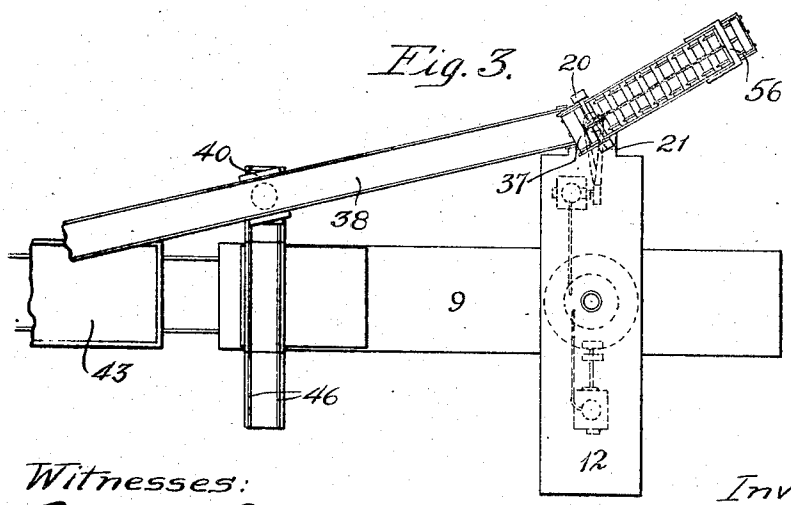


Fig. 3.



Witnesses:

Ephraim Banning

Walter Knebe

Inventor:

Abram D. Ward.

BY Banning & Banning

Attorneys.

A. D. WARD.

EXCAVATING MACHINE.

APPLICATION FILED JAN. 15, 1912.

1,074,480.

Patented Sept. 30, 1913.

3 SHEETS—SHEET 2.

Fig. 5.

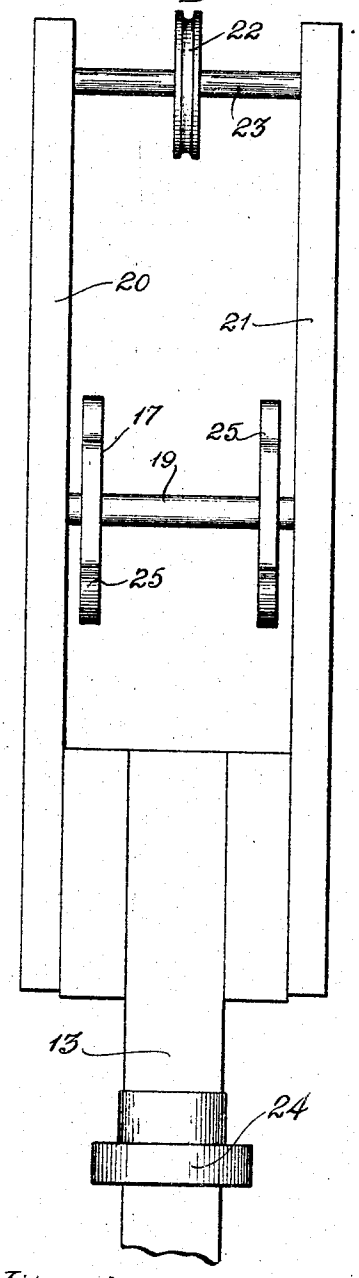


Fig. 4.

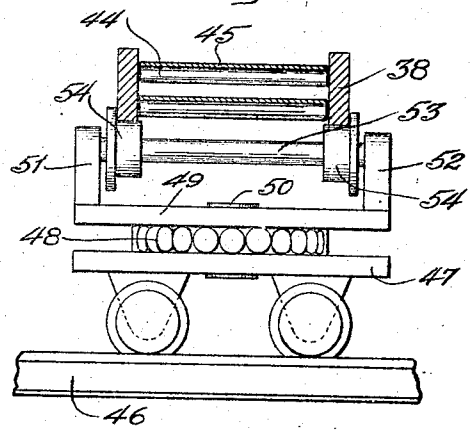
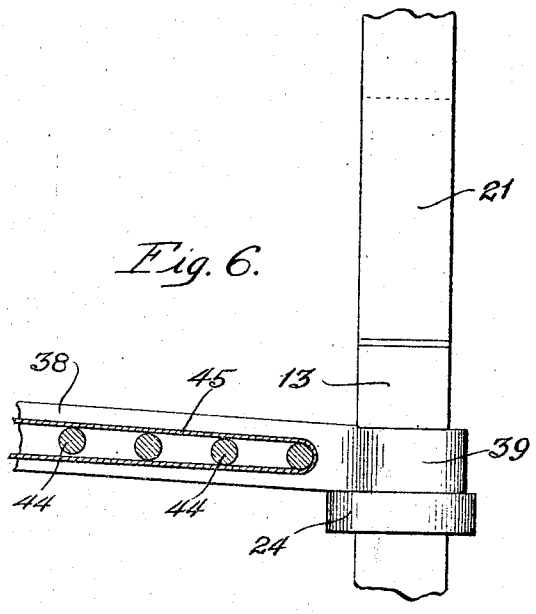


Fig. 6.



Witnesses:

Ephraim Banning.

Walter Wolfe

Inventor:

Abram D. Ward.

BY Banning & Banning

Attorneys.

A. D. WARD.

EXCAVATING MACHINE.

APPLICATION FILED JAN. 15, 1912.

1,074,480.

Patented Sept. 30, 1913.

3 SHEETS—SHEET 3.

Fig. 7.

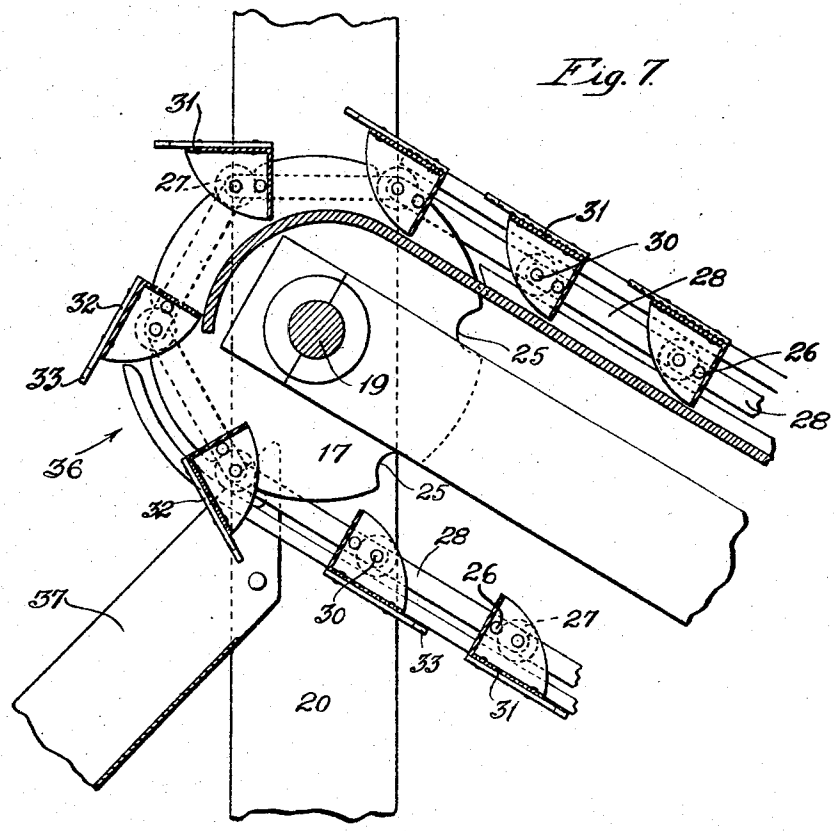
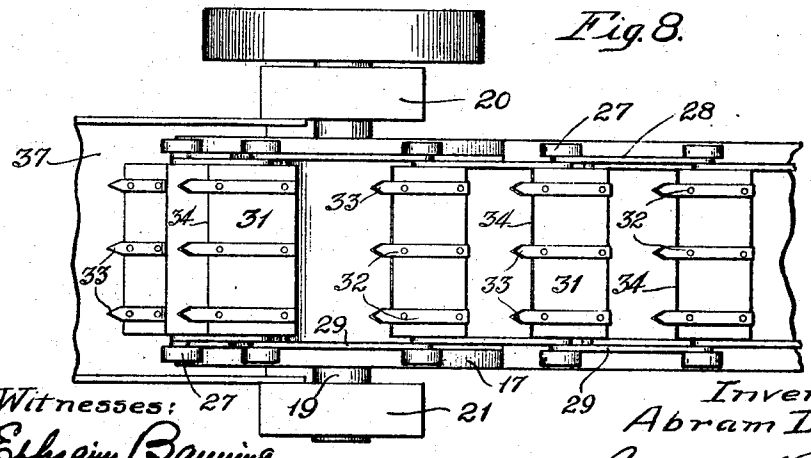


Fig. 8.



Witnesses:

Ephraim Banning.

Walter Sultze

Inventor:

Abram D. Ward

by Banning & Banning

Attorneys.

UNITED STATES PATENT OFFICE.

ABRAM D. WARD, OF CHICAGO, ILLINOIS.

EXCAVATING-MACHINE.

1,074,480. Specification of Letters Patent. Patented Sept. 30, 1913.

Application filed January 15, 1912. Serial No. 671,256.

To all whom it may concern:

Be it known that I, ABRAM D. WARD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Excavating-Machines, of which the following is a specification.

This invention relates to excavating machines; and its essential object is to provide a construction in which the excavating mechanism may be positioned and actuated as desired, irrespective of the exact location of the ground or material to be excavated, and, at the same time, to positively feed said excavating material into a discharging trough or runway, which may be constructed to permit of wide lateral adjustment, to allow the excavator to cover a large ground area, as well as to enable the excavated material to be loaded into dump cars, either upon the same track as the car upon which the excavating machine is carried or into dump cars on either side thereof.

The invention further relates to the excavating mechanism; to the means for actuating the same; and, finally, consists in the features of construction and combination of parts hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation of said excavating machine in operative position; Fig. 2, a top or plan view thereof; Fig. 3, a top or plan view looking down upon the excavating machine when moved about on the car turn table; Fig. 4, a side view of the carriage or car upon which the adjustable trough or runway is mounted; Fig. 5, a side view of the frame carrying the excavating mechanism; Fig. 6, a detail showing a preferred form of trough or runway which is shown adjustably secured to the end frame; Fig. 7, a sectional view taken through the excavating mechanism; and Fig. 8, a top or plan view of a portion of the excavating device.

This improved excavating machine is intended more especially for use in connection with railroad and construction work, and, as shown, said excavating machine is carried upon a flat car 9 traveling upon the rails 10, said car having an engine 11 for actuating the turn table carrying the engine room 12 and for operating the excavating mechanism. An upright supporting frame 13 is fixedly positioned within the outer end 14 of the engine room and is connected by any approved mechanism with the engine 11, and said supporting frame 13 engages a frame bearing at 15 to permit rotating frame movements back and forth as desired.

The excavating mechanism 16 is shown as traveling about oppositely disposed end actuating wheels or rollers 17 and 18. The upper actuating wheels or rollers 17 are shown in Fig. 5 as being spaced apart upon a shaft 19 communicating with any source of power for operating the same, said shaft 19 being secured to the opposite side frame rails 20 and 21 of the frame 13. Moreover, a sheave 22 is shown centrally keyed onto a transverse bar 23 rotatably secured within and to said frame rails 20 and 21, respectively, and a flanged collar 24 is secured about the contracted portion of the frame.

If desired, the upper and lower actuating wheels or rollers 17 and 18, respectively, may have a plurality of peripheral recesses 25, as shown in Fig. 7, or otherwise as desired, said recesses being shaped to coöperate and engage with the oppositely disposed carrier wheels 27 which may be pivotally secured adjacent the respective side bucket frames 28 and 29 by transverse locking pins 30, of any improved construction, which also secure the bucket frame sections together. The respective buckets are similar in construction and may be formed preferably of sheet metal having their respective end walls merge into elongated bucket bodies 31 which are each preferably provided with several projecting scraping blades or bars 32 which in Fig. 8 are shown secured to the bucket bottoms and have their inclined pointed edges 33 extending somewhat beyond the transverse bucket scraping edges 34. As shown, the side bucket carrier frames 28 and 29 each comprises a series of link members, for permitting the carrier frame to readily cooperate with the respective actuating wheels or rollers, and, as above indicated, the opposite ends of the link members carry the wheels or rollers 27 which are proportioned to register and seat within the respective notched peripheral openings 25 in the excavator actuating wheels or rollers 17 and 18. the buckets being locked to the links at their rear, as at 26, and in descending may assume substantially the position shown in Fig. 1. At the point where they contact the earth to be excavated their projecting scraper blades or bars 32 dig into the

ground, thus causing each bucket to be filled as it ascends toward the point of discharge 36. The earthy material, as it falls from these movable buckets, is caught by an inclined chute or way 37 discharging, as shown, into another elongated chute or runway 38 having its forward end provided with a collar 39 seating upon the flanged frame member 24, and the outer end of said elongated trough or runway is shown mounted upon a laterally movable carriage or truck 40 having its outer or discharging end 41 merging into an inclined discharging trough or chute 42 leading to a dump car 43, or otherwise. In Fig. 6 is shown a preferred form of interior construction of said elongated chute or runway 38 which may comprise a series of actuating rollers 44 carrying an endless movable conveyer 45 which may be formed of sheet metal of sufficient strength to carry away the earth and rocky material deposited thereon, or otherwise as desired. In Fig. 4 is shown a preferred form of said movable truck or carriage 40 traveling upon rails 46, the car frame 47 carrying roller bearings 48 upon which is mounted a truck frame 49 traveling about an axle or bearing post 50, said truck frame 49 having side bearings 51 and 52, in which an axle 53 is journaled and carries flanged wheels or rollers 54 which normally contact the under side of the elongated conveyer chute or runway 38.

The excavating mechanism is provided with a hoisting cable 55 secured at its lower end to the cross frame 56 adjacent the lower portion thereof, and said hoisting cable travels upon the sheave 22 and may travel at its lower end about a winding drum, or otherwise actuated from any suitable source of power, for raising and lowering the excavating mechanism carrying the traveling buckets.

In Figs. 1 and 2 the excavating machine is shown in position for excavating the ground directly in front of it, whereas in Fig. 3 the engine has moved the apparatus around to extreme lateral position, such as would be assumed, for instance, in excavating ditches, and it will thus be noted that the elongated chute or runway 38 is readily capable of assuming said lateral position since it is adjustably secured to the upright frame 13, as well as to the laterally movable carriage 40. Moreover, the elongated trough or runway 38 is peculiarly mounted, since its combined adjusting means permit of lateral, circular, and lengthwise movement depending upon the position of the excavator.

I claim:

1. A machine of the class described comprising a car body, a platform swingingly mounted on said car body, an upright frame and excavating mechanism carried near one end of said platform and swingingly mounted thereon, means for swinging said platform to any desired position horizontally of the car body, and means for swinging said frame and excavating mechanism horizontally of said platform, substantially as described.

2. A machine of the class described comprising a car body movable upon a track, a platform swingingly mounted on said car body, an upright frame and excavating mechanism carried near one end of said platform and swingingly mounted thereon, means for swinging said platform to any desired position horizontally of the car body, means for swinging said frame and excavating mechanism horizontally of said platform, and means for carrying the excavated material to a point over the car track or over a track adjacent either side thereto, substantially as described.

3. A machine of the class described comprising a car body movable upon a track, a platform swingingly mounted on said car body, an upright frame and excavating mechanism carried near one end of said platform and swingingly mounted thereon, means for swinging said platform to any desired position horizontally of the car body, means for swinging said frame and excavating mechanism horizontally of said platform, a runway arranged to convey the excavated material having the receiving end thereof positioned adjacent the said upright frame, and a laterally movable truck carried on said car body arranged to support the discharging end of said runway whereby the excavated material may be discharged at a point over the car track or over a track adjacent either side thereto, substantially as described.

4. A machine of the class described comprising a car body movable upon a track, a platform swingingly mounted on said car body, an upright frame and excavating mechanism carried near one end of said platform and swingingly mounted thereon, means for swinging said platform to any desired position horizontally of the car body, means for swinging said frame and excavating mechanism horizontally of said platform, a runway arranged to convey the excavated material having the receiving end thereof positioned adjacent the side of the upright frame, and a truck arranged to travel laterally of said car body and to slidably support the discharging end of said runway, whereby the said discharging end may be positioned directly over the car track or over a track adjacent either side thereto, substantially as described.

5. A machine of the class described comprising a car body movable upon a track, a platform swingingly mounted on said car body, an upright frame and excavating

mechanism carried near one end of said platform and swingingly mounted thereon, means for swinging said platform to any desired position horizontally of the car body, means for swinging said frame and excavating mechanism horizontally of said platform, a runway arranged to convey the excavated material having the receiving end thereof positioned adjacent the side of the upright frame, a track extending laterally of the car body near one end thereof having movable track extensions to either side thereof, and a truck arranged to travel upon said track to slidably support the discharging end of said runway, whereby the said discharging end may be moved to a point directly over the car track or over a track adjacent either side thereof, substantially as described.

ABRAM D. WARD.

Witnesses:
WALKER BANNING,
WALTER HOELTJE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."