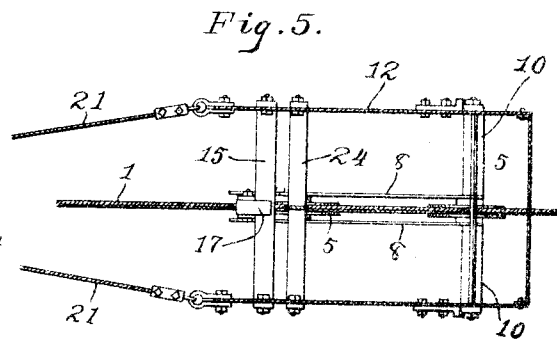
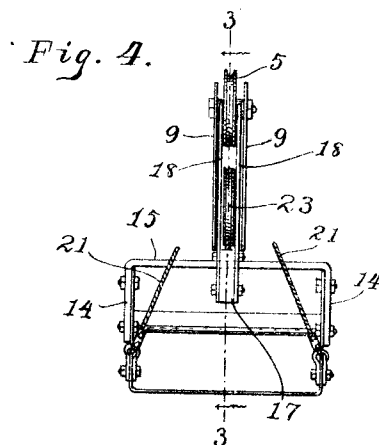
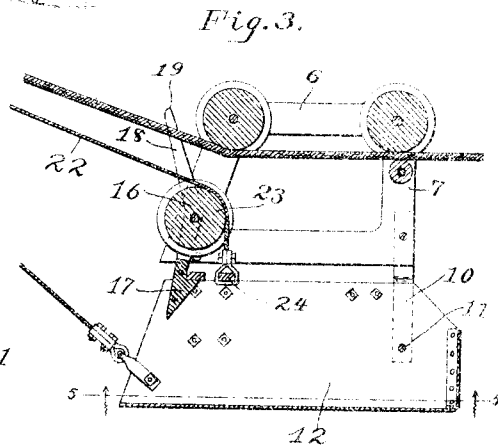
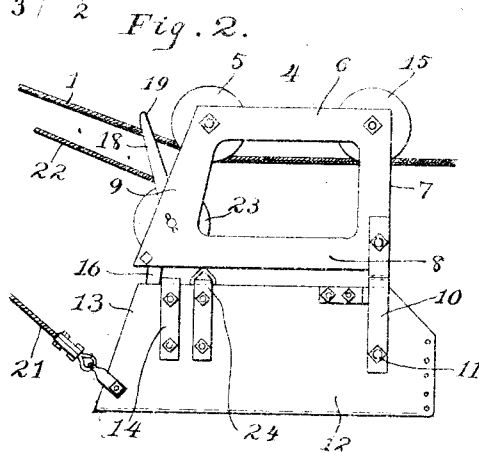
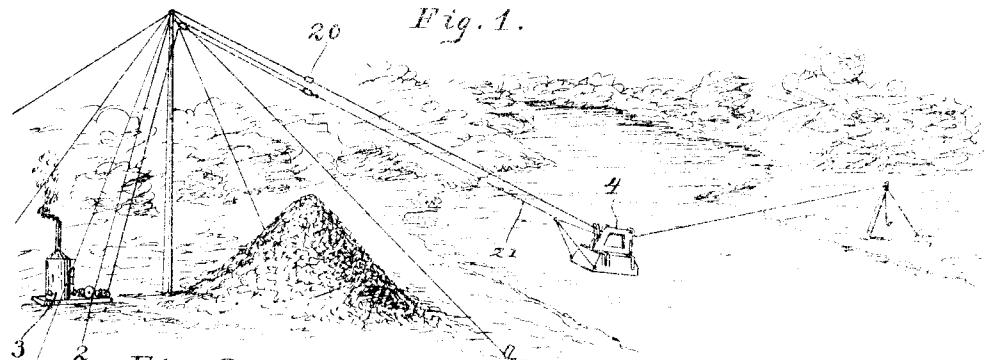


C. E. NEGLEY.
EXCAVATING MACHINE.
APPLICATION FILED MAY 6, 1912.

1,053,428.

Patented Feb. 18, 1913.



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UNITED STATES PATENT OFFICE.

CLAUDE E. NEGLEY, OF INDIANAPOLIS, INDIANA.

EXCAVATING-MACHINE.

1,053,428.

Specification of Letters Patent.

Patented Feb. 18, 1913.

Application filed May 6, 1912. Serial No. 695,550.

To all whom it may concern:

Be it known that I, CLAUDE E. NEGLEY, a citizen of the United States, residing at Indianapolis, Marion county, and State of Indiana, have invented and discovered certain new and useful Improvements in Excavating-Machines, of which the following is a specification.

My invention relates to excavating machines and its object is to provide a device of the slack cable type in which the excavating bucket shall be held securely in engagement with the carrier during the acts of excavating and of carrying the load toward the point of dumping and shall be automatically released from such engagement to permit the dumping thereof at the desired point.

To these ends my invention is embodied in preferable form in the device hereinafter described and illustrated in the accompanying drawings.

In these drawings Figure 1 is a perspective view of a slack cable system, showing my invention applied thereto; Fig. 2 is a side view in elevation on a larger scale of the bucket and its connected parts; Fig. 3 is a central vertical section through the bucket; Fig. 4 is a front view in elevation of the bucket, and Fig. 5 is a bottom plan view with bottom of bucket removed.

Referring to the drawings, 1 is a track cable of the usual construction employed in slack cable systems and which is adapted to be alternately tightened and slackened for the purpose of lowering and raising the carrier adapted to travel thereon, to which carrier is adapted to be attached an excavating bucket. The track cable is adapted to be tightened and slackened by means of a windlass and suitable power means controlling the same, as indicated respectively at 2 and 3. Mounted on this track cable 1 is a bucket carrier 4 provided with a pair of pulleys or wheels 5 mounted in the arm 6 of the carrier frame. This frame is provided with rear vertical arms 7, horizontal bottom arms 8 and forwardly projecting inclined front arms 9 adapted to connect the upper and lower horizontal arms.

Fixed to the arms 7 are depending bail arms 10, one on each side of the carrier. Pivoted to these bail arms at 11 is an excavating bucket 12 having a backwardly inclined front end 13. In front of the arms 11 on the bucket are fixed stop lugs which

serve to prevent or limit the swinging movement of the bucket relative to the arms 10. Rising from the bucket at the front end thereof are vertical arms 14, joined by a cross bar 15. Adapted to engage this cross bar is a latch member 16 pivoted on the front arm 9 of the carrier and having a depending hook arm 17 having at its lower end a hook which is adapted to engage the under side of the transverse bar 15 for the purpose of holding the forward end of the bucket elevated, after the bucket has taken a load and is being carried along the track cable to the point of dumping. The latch member is provided on the upper side of its pivot with an upwardly projecting trip arm 18 which arm is divided so as to have projections 19, which embrace the track cable and are adapted to extend slightly above the same and closely adjacent thereto. Fixed to the track cable 1, adjacent to the point of dumping is a trip block 20 with which the projections 19 of the latch are adapted to engage when the carrier and bucket are moved up to the point where the load is to be dumped.

A load pulling cable 21 is connected to and operated by a suitable windlass or other winding means under the control of an operator and at its outer end this load cable connects by two branch lines to either side of the bucket 13, said branch members being connected to the bucket near the lower front edge of the latter. The load cable also connects to the bucket by means of a branch cable 22 which runs over a sheave or pulley 23 pivoted on the front arm 9 of the carrier, the axle of which pulley or sheave forms the pivot for the latch lever. The pulley is mounted between the arms of the latch-lever, as seen in Fig. 3. The branch cable 22 passes from the pulley 23 in substantially a vertical line downward and is engaged at its lower end with a transverse bar 24, fixed to and extending across the bucket above the upper edge of the latter.

The operation of the device is as follows:—To load the bucket, the load cable is slackened, permitting the carrier and bucket to roll by gravity down the track cable to the excavating point and then the track cable is slackened, lowering the bucket into contact with the soil to be excavated. The latch member is drawn up into engagement with the latch bar of the bucket after the latter has been dumped by tightening the load

cable which, through the branch cable 22 lifts the bucket into position to engage the hook of the latch. The weight of the hooked end of the latch is made sufficient to keep the hook pressed constantly toward the latch bar so that when the bucket is moved upwardly the automatic engagement of the latch and bar will be effected. As the bucket strikes the surface of the bed, the transverse bars 15 and 24 will serve as stops to limit the downward movement of horizontal longitudinal arms 8 of the carrier frame which are for this purpose prolonged at their forward ends beyond the said transverse bars. This arrangement serves to tend to prevent either the bucket or carrier from tipping over sideways, which result is further insured by the laterally unyielding engagement between the carrier and bucket afforded by the bail arms 10. As the bucket settles to place it is pulled, along the track cable by means of power applied to the load cable, the front edge of the bucket cutting into the bed of material and the bucket being thus filled. When the bucket is filled the track cable is tightened, which action raises the carrier and bucket and thereupon pulling power being applied to the load cable, the carrier will be pulled toward the point of discharge. After the bucket has been filled, the load cable is tautened and the track cable wound up whereupon the latter will be raised. The load cable is then operated to draw the carrier and bucket along the track cable. The forward pull of the branch 22 in the bucket will prevent the bucket from moving backward in its pivot 11 away from the hook, while the stops in front of the arms 10 prevent a rocking motion with either the hook or the pivot pin 11 as the pivot of each movement, such as would tend to release the latch bar from the hook. The latch thus co-operates with the branch cable 22 in this action and by their conjoint use an effective bucket holding device is provided, that is adaptable for a single track cable, avoids the use of elongated bars or levers connected to the load cable for obtaining sufficient leverage to hold the bucket up which necessitate an increase in the amount of clearance required when the bucket is dumped, and the arrangement specified also obviates the use of complicated and expensive chain connections for the above purpose. As the divided arm of the latch member strikes against the trip block 20, the latch will be automatically tripped so as to release the front end of the bucket from the carrier, whereupon the bucket will tip forward in its pivot 11, dumping the load. As the latch member engages the trip 20, the operator throws off the controlling lever of the winding drum of the load cable and this action slackens the load cable whereupon this bucket will dump its load instantly and without retardation by the

load cable and the carrier will then return by gravity to the excavating point for another operation.

The substantially rectangular carrier frame depending below the track cable and having the integral front arm or arms on which the latch is pivoted, particularly adapts the device for use in connection with a single track cable, while the vertically divided construction of the frame permits of the convenient mounting and central positioning of the latch and the pulley 22.

It is clear that changes in the details of construction of some of the features of the device may be made without departing from the scope of my invention.

Having thus described my invention, what I claim is,

1. In an excavating machine, the combination with a track cable of a carrier mounted thereon, an excavating bucket pivoted to said carrier near its rear end, a rigid load supporting latch member pivoted on the carrier and operable to engage the bucket at its front end, and manually controlled flexible means having support by the carrier and operable to lift the bucket into engagement with said latch member, substantially as described.

2. In an excavating machine, the combination with a track cable of a carrier mounted thereon, an excavating bucket pivotally connected to said carrier, a rigid load supporting latch member pivoted on said carrier, means at the front end of the bucket to engage said latch member, a manually controlled load cable connected to said bucket and having a branch thereof supported from said carrier and operable to lift the bucket into engagement with the latch member, substantially as described.

3. In an excavating machine, the combination with a track cable of a carrier mounted thereon, an excavating bucket pivoted near its rear end to said carrier, a rigid load supporting latch member pivoted to said carrier, means near the front end of the bucket to engage said latch member, a load cable having branches at its end, one of said branches being connected to the lower part of the bucket and the other branch having support from the carrier and connected to said bucket and operable to lift the bucket into engagement with the latch member and stop means at the rear of the bucket operable to prevent rocking of the bucket relative to the carrier, substantially as described.

4. In an excavating machine, the combination with a track cable of a carrier, an excavating bucket, rigid arms depending below said carrier to which said bucket is pivoted, means associated with said arms to limit the rocking movement of the bucket, a rigid load-supporting latch member pivoted on said carrier and adapted to engage

said bucket at the front end thereof and a manually controlled load cable having support by the carrier and engagement with the bucket at the front end thereof, substantially as described.

5 5. In an excavating machine, the combination with a track cable of an excavating bucket, a wheeled carrier mounted on said cable and having all of its track engaging
10 wheels in alinement, said carrier having a rigid frame portion below said cable, rigid depending bail arms connected to said frame portion to which said bucket is pivoted, stop
15 means limiting in one direction the rocking movement of the bucket on said arms, a rigid latch member pivoted on the carrier, means on the bucket to engage said latch member, and a flexible manually controlled
20 bucket lifting member operable to lift the empty bucket into engagement with the latch member, substantially as described.

6. In an excavating machine, the combination with a track cable, of a carrier mounted thereon and having a rigid frame depending below the cable, an excavating
25 bucket pivoted to said frame near the rear end of the former, a rigid load-supporting bucket-engaging latch member, a pulley on the carrier, said latch member being pivoted on the axle of said pulley, a load cable, said
30 load cable having a branch running over said pulley and connected to said bucket near its forward end, substantially as described.

In witness whereof, I have hereunto set
35 my hand and seal at Indianapolis, Indiana, this first day of May, A. D. nineteen hundred and twelve.

CLAUDE E. NEGLEY. [L. s.]

Witnesses:

H. P. DOOLITTLE,
A. C. RICE.