To all whom it may concern:

Be it known that I, WILLIAM H. CRAW-  
ford, a citizen of the United States, residing  
at Los Angeles, in the county of Los An-  
geles and State of California, have invented  
and useful Improvements in Cable-Way  
Excavators, of which the following is a  
specification.

This invention relates to cableway excava-  
tors and has for its object the provision of  
an extremely simple but efficient mecha-  
nism for raising a load and carrying the  
same along a cableway and then dumping  
the load at any desired point.

The invention will be readily understood  
from the following description of the ac-  
ccompanying drawings, in which—

Figure 1 is a side elevation of an excavator  
constructed in accordance with the in-  
vention.

Fig. 2 is a transverse section on the line  
2—2 of Fig. 1.

Fig. 3 is a perspective view of the bucket  
of the excavator.

Fig. 4 is a transverse section on the line  
4—4 of Fig. 1.

In the drawings the surface level of the  
ground to be excavated is represented at A,  
the bucket of the excavator being filled in  
the excavation B and dumping at the point  
C. The excavator includes a cableway 12,  
supported above the surface level and ex-  
tending across the excavation B, and the  
dump C with the end of the cableway ad-  
jacent the dump C higher than the opposite  
end of the cableway, so that after the bucket  
of the excavator has been dumped the car-  
rriage movable along the cableway and sup-  
sorting the bucket will return by gravity  
down the inclined cableway to the desired  
point above the excavation B. The cable-  
way is shown as connected to masts 2 and  
2' which may be suitably braced as shown at  
2. A carriage 4 is movable along the cable-  
way 1, this carriage being shown comprising  
side frames between which are journaled  
grooved wheels 5 adapted to rest upon the  
cableway so as to suspend the frame of  
the carriage beneath the cableway. A pulley  
6 is journaled in the frame 4, this pulley,  
preferably, comprising two sheaves 7 and  
8. A block 9 is suspended from the pulley  
as by a cable 10 extending from an eye 11  
in the block up over one of the sheaves of  
pulley 6, say the sheave 7, and thence down-  
wardly over the sheave 11 of block 9 and  
then up and over sheave 8 of pulley 6. The  
cable then extends along the upward in-  
cline of cableway 1 and over a sheave 12  
journed to the mast 2 at the upper end of  
the inclined cableway, and the cable then,  
preferably, extends down along the mast  
and around a suitable sheave 13, and thence  
to any desired means for drawing in and  
paying out the cable.

The bucket of the excavator is shown at 15  
as a closed bucket except for its open end  
through which it is filled. Supporting con-  
nections are provided between the sides  
of the open end of the bucket and the block  
9, these supporting connections being shown  
as cables 17. A dumping cable 18 is con-  
ected to the rear end of the bucket 13 and  
then passes up over a sheave 19 journed in  
the carriage 4 and then extends to a suit-  
able point for adjusting the length of said  
cable. For this purpose the cable may be  
passed around the mast 2 and 2' at the lower  
end of the inclined cableway 1, any desired  
length of cable being arranged between the  
mast and the bucket 15. A stop 20 is pro-  
pvided upon the cableway 1 for limiting the  
gravity movement of the carriage 4 along  
the cableway, this stop being shown as ad-  
justable along the cableway and comprising  
clamping sections 20' and 20' clamped upon  
the cableway as by bolts 22.

In operation the stop 20 is so positioned  
upon the cableway 1 as to stop carriage 4  
above the point of excavation, and cable 10  
is then paid out so as to lower block 9 and  
the bucket 15 carried thereby so that the  
bucket will rest upon the surface to be exca-  
vated. The cable 18, when the parts are in  
this position, will be slack so as to lower the  
rear end of the bucket and thereby permit  
the latter to rest flat against the surface to  
be excavated.

The bucket may be shifted by hand along  
the surface of the ground to the exact posi-  
tion which it is desired to excavate and the  
bucket may then be filled either by shoveling  
or by forcing the open end of the bucket into  
the material which is to be removed. When  
the bucket has been filled the cable 10 is  
drawn in thereby raising the block 9 and  
the bucket until the block abuts against the  
carriage 4. Continued drawing in upon  
cable 10 will then cause the carriage 4 and  
the block 9 and bucket 15, supported thereby,  
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to move upwardly along the inclined cableway 1 to a position above the point at which the material is to be dumped.

The slack of cable 18 is so adjusted that when the bucket has been moved to this point at which it is desired to dump the same, the slack of cable 18 will have been taken up so as to draw the cable taut and thereby elevate the rear end of the bucket 15 so as to swing the latter into the position shown in dotted lines in Fig. 1 in which position the open end of the bucket extends downwardly so that the material within the bucket will be dumped. The cable 10 being now released, the carriage and the bucket carried thereby will move by gravity back down the cableway 1 until the carriage abuts against the stop 20 when the bucket will be again lowered to the surface to be excavated.

My cable excavator is especially adapted for loading and unloading cars and excavating or filling deep depressions or holes in the ground, and making excavations under bridges and the like, although, as will be understood, it is not limited to such purposes.

Various changes may be made without departing from the spirit of the invention as claimed.

What is claimed is:

1. A cableway excavator comprising an inclined cableway, a carriage movable along said cableway, an excavator bucket, a supporting cable for said bucket carried by said carriage and arranged to first elevate the bucket and then move the bucket and carriage upwardly along the cableway, said carriage and bucket being arranged to return by gravity down the inclined cableway, and an adjustable stop upon said cableway for limiting the return movement of said carriage and bucket.

2. A cableway excavator comprising an inclined cableway, a carriage movable along said cableway, an excavator bucket, a supporting cable for said bucket carried by said carriage and arranged to first elevate the bucket and then move the bucket and carriage upwardly along the cableway, and a dumping cable secured to the bottom of said bucket and supported by said carriage, said cable being slack as the carriage and bucket moves up the inclined cableway and becoming taut so as to elevate the bottom of the bucket for dumping the latter at a selected point along said inclined cableway.

3. A cableway excavator comprising an inclined cableway, a carriage movable along said cableway, two pulleys on the carriage, a block, a third pulley on the block, a cable attached to the block and running around the pulleys, a bucket having its top connected to the block by flexible connections, a pulley at the high end of the cableway over which the cable passes, a guide pulley on the carriage, and a dumping cable connected to the bottom of the bucket and running over the guide pulley to the lower end of the cableway.

In testimony whereof I have signed my name to this specification.

WILLIAM H. CRAWFORD.