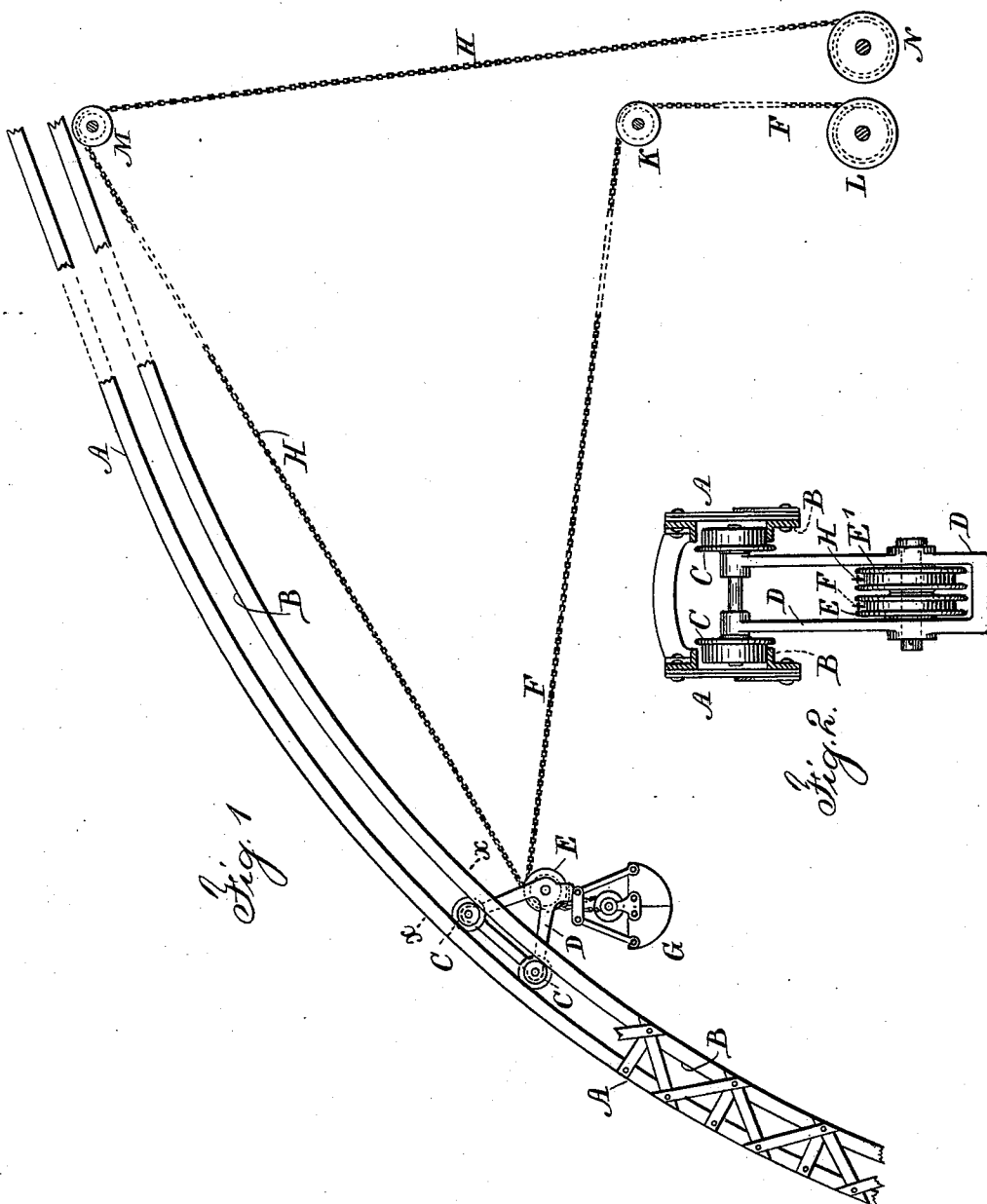


(No Model.)

C. W. HUNT.
HOISTING APPARATUS.

No. 541,612.

Patented June 25, 1895.



Witnesses

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Inventor

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UNITED STATES PATENT OFFICE.

CHARLES W. HUNT, OF WEST NEW BRIGHTON, NEW YORK.

HOISTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 541,612, dated June 25, 1895.

Application filed July 20, 1893. Serial No. 480,975. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. HUNT, a citizen of the United States, residing at West New Brighton, in the county of Richmond and State of New York, have invented an Improvement in Hoisting Apparatus, of which the following is a specification.

In patents heretofore granted to me, Nos. 351,445, 351,446, and 361,418, a boom is represented at an inclination and provided with track rails and a truck upon the same and a hoisting chain passing around a pulley upon the truck to a bucket for raising and discharging coal, ore or other material, and buckets of this character have been made in two parts and two chains have been employed in actuating the same, the one chain acting to close the two-part bucket and grasp the coal or other material as the two halves of the bucket are closed, and the other chain serving to open the bucket and lower the same in an open condition. The present improvement is especially available in this class of excavating devices but not limited to the same. In many instances difficulty arises in drawing the truck up the incline after the bucket or weight has been drawn up to the truck because the track is sometimes steep and irregular and a large expenditure of force is necessary to cause the truck to pass up the incline and carry the weight with it, and where but one rope or chain is used the bucket moves by jerks in passing up the incline especially where the track is irregular or out of perfect alignment. As before mentioned, it is usual to provide two chains for buckets that are in two parts, and it has heretofore been usual to simply wind up the lowering chain as the truck is drawn up by the hoisting chain and then to lower both chains after the contents of the bucket have been discharged, and sometimes the bucket is kept open when being lowered, and sometimes it is closed after being discharged and while being lowered and then said bucket is opened while adjacent to the material to be hoisted, and then closed again to grasp the material to be raised.

In my present invention I make use of two chains, and I arrange the hoisting mechanism that acts upon the two chains in such a manner that the required power is applied to the second chain as the bucket and truck are

being drawn up the incline by the ordinary hoisting chain, to draw the truck up the inclined track upon the boom, thus causing the truck to move up the inclined track with regularity and without depending solely upon the hoisting chain.

In the drawings, Figure 1 is a diagrammatic elevation illustrating the present improvement. Fig. 2 is a section at the line *xx* of the track and elevation of the truck in larger size.

I make use of a boom A, the track of which is inclined; I have shown a portion as curved. Upon the boom is a track B and the truck runs thereon. The wheels C and the frame of the truck support the sheave E over which the hoisting chain or rope F passes to the bucket G or device to be hoisted. I have shown a bucket of the character usually known as a clam-shell bucket made of two halves to be closed together by the action of the hoisting chain F and to be opened by the action of the dumping chain H, which chain passes over a pulley E' at the side of the pulley E.

The hoisting chain F passes over a drum or pulley K to the barrel or hoisting engine L and the chain H passes over a pulley M to the barrel or hoisting engine at N. These barrels or engines are of any desired character and are preferably provided with frictional devices as usual in this class of machinery.

The sheave or pulley M is near the upper end of the track. The sheave or pulley K however is at some distance below the same and in such a position that the rope or chain passing over the pulley E to the bucket G will act to raise up the bucket when the truck D is near the lower end of the track B until the bucket G comes in contact with the truck frame D, and then the further pull upon the chain F will cause the truck D to travel up the inclined track upon the boom A, and the angle of the chains or ropes to the track is to be such that more power has to be exerted after the weight has been raised to cause the truck to travel over the track than has been exerted in raising the weight to the truck, and this is determined by the location of the pulley or sheave K in relation to the track, but it is advantageous in operating this apparatus to employ a boom with the parts so

located that the tendency of the truck is to run down the incline when upon any portion of the track, and because the pull upon the chain F tends to draw the truck wheels toward the track. It is advantageous to employ an additional force that acts to pull the truck up the inclined track with a uniform movement or nearly so. With this object in view the pulley M is located near the upper end of the track, and in winding up the ropes the principal weight is taken upon the rope or chain F, and a sufficient force is applied by the barrel or drum N and to the rope or chain H to pull the truck up the track with regularity, and when the truck has reached the place for the discharge of the contents of the buckets or the lowering of the weight, the chains and hoisting barrels or engines are manipulated to discharge the contents of the bucket or to lower the weight, and after the contents of the bucket have been discharged or the weight lowered, the truck will run down the inclined track by the action of gravity as the two chains F and H are allowed to unwind from the respective barrels I and N.

It is advantageous to make use of an engine

and gearing for driving the barrels I and N by friction, and by relieving the friction the barrels are free to revolve in the proper direction as the chains unwind from such barrels.

I claim as my invention—

The combination in a hoisting apparatus, of an inclined track, a truck running upon the track, a bucket and chains connected with the same for closing and elevating the bucket and for opening and lowering the bucket, pulleys upon the truck over which the chains pass, hoisting drums for the respective chains, the pulley M for the chain H adjacent to the upper end of the track, and the pulley K for the chain F at a distance below the pulley M, so that the chain F is adapted to elevate the bucket and draw the same up the curved incline, the chain H acting to assist the movement of the truck, substantially as set forth.

Signed by me this 23d day of June, 1893.

CHAS. W. HUNT.

Witnesses:

GEO. T. PINCKNEY,
A. M. OLIVER.