

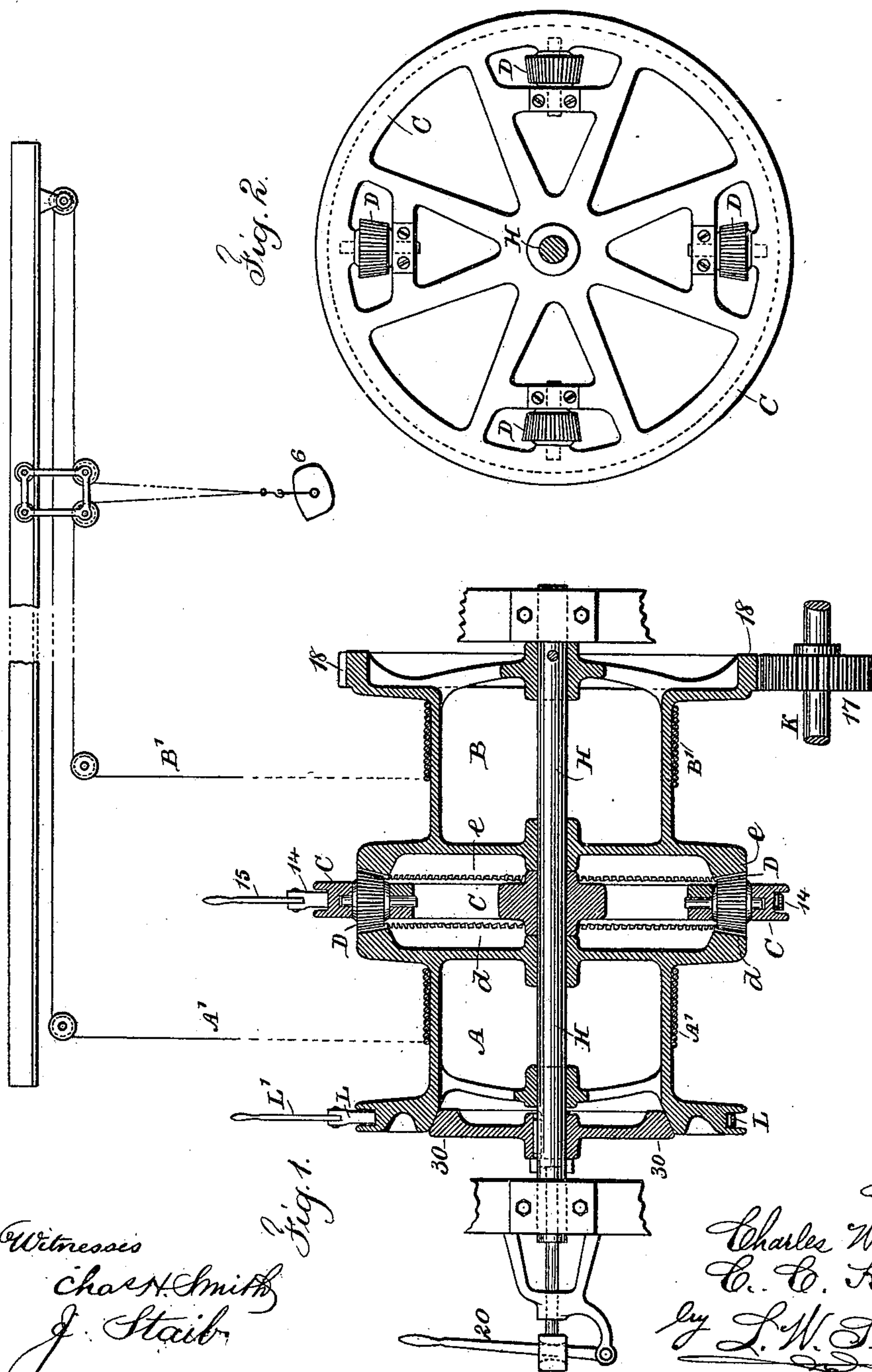
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Patented Apr. 4, 1899.

C. W. HUNT & C. C. KING.  
HOISTING APPARATUS.

(Application filed July 19, 1898.)

(No Model.)



Witnesses  
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# UNITED STATES PATENT OFFICE.

CHARLES W. HUNT AND CHARLES C. KING, OF NEW YORK, N. Y., ASSIGNORS  
TO THE C. W. HUNT COMPANY, OF SAME PLACE.

## HOISTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 622,366, dated April 4, 1899.

Application filed July 19, 1898. Serial No. 686,354. (No model.)

*To all whom it may concern:*

Be it known that we, CHARLES W. HUNT, residing at New York, (West New Brighton,) and CHARLES C. KING, residing at New York, (West Brighton,) in the county of Richmond and State of New York, both citizens of the United States, have invented an Improvement in Hoisting Apparatus, of which the following is a specification.

10 In the applications, Serial Nos. 684,068, 684,069, and 684,070, filed by C. W. Hunt June 21, 1898, a hoisting apparatus is represented in which there are two drums and intermediate connecting bevel-pinions engaging  
15 ing bevel-gears on the respective drums, and these are made to act upon ropes leading to the article to be raised. The present invention is made for availability of the same general devices; but the parts are constructed and arranged in such a manner as to occupy but little space and to effect the hoisting or raising, holding, lowering, or moving of a bucket containing mineral substances or any other material or substance that is handled usually  
20 by hoisting mechanism with ease and facility.

25 In the present invention two drums are made use of and an intermediate wheel and bevel-gearing connecting the said drums, and one drum is secured upon a shaft and receives motion in either one direction or the other from a driving-shaft and hoisting engine or motor and the other drum is loose upon the shaft and a friction device is employed to connect the second drum at will  
30 with the main shaft or to allow it to run freely and separately. When the friction device is employed to connect the second drum to the shaft, both drums can be turned together by the motive power in either direction for  
40 either hoisting or lowering, because the intermediate wheel and the bevel-gearing all go around together with the shaft; but if the intermediate wheel is held in a fixed position one drum will turn in one direction and the other in the other direction, thereby adapting the hoisting apparatus to drawing in one rope and simultaneously paying out the other rope at the same or a different speed, according to the respective sizes of the drums, and  
50 when the intermediate wheel and gearing are

allowed to turn unrestrained the first drum only will be under the control of the power and the second drum can run down or the rope or chain pay off from the same at any desired speed, and in connection with the  
55 second drum a friction device is made use of for detaining the same to any extent, so that while the first drum is employed in hoisting or lowering by the action of the power the second drum can be rotated in the same direction or in an opposite direction, or it can be uncontrolled, or a friction can be applied to the same, so that the second drum may be used either in raising or lowering and at  
60 either the same or a different speed or a rotation in the reverse direction can be given to the second drum and at the same or a different speed, according to the friction applied to the respective parts.

In the drawings, Figure 1 is a section of the improvement with a diagrammatical illustration of an apparatus with which the drums may be used. Fig. 2 illustrates the gearing and wheel between one drum and the other.

The drums A and B are upon a shaft H, and they may be of any desired size or shape, and they may be of the same or of different diameters, according to the circumstances under which such drums are to be used.

Upon the drum B a gear-wheel 18 may be applied, and this is driven by a gear or pinion 17 and a motor-shaft K, to which any suitable power is to be applied, such as a steam-engine or an electric motor, and while we find it generally advantageous to apply the power  
80 through the pinion 17 and gear-wheel 18 the power might be applied directly to the shaft H, the drum B being connected to the shaft H, so that these parts rotate in unison and may be turned by the motor in either one direction or the other, according to whether the rope or chain B' is to be wound upon the drum or passed off from the same. It is to be understood that the shafts H and K are to be supported in any desired manner by suitable bearings upon a framework or otherwise.

The drum A is loose upon the shaft H, and there is between the drums A and B a wheel C, also loose upon the shaft H and having one or more gear wheels or pinions D engaging  
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ing the gears *d e*, and to the wheel C a suitable friction is applied, preferably by a band 14, surrounding such wheel C and having a lever 15 by which the band can be tightened or loosened to apply or remove the friction. The drum A being free to revolve upon the shaft H should be held in position by suitable collars thereon, so as to prevent endwise movement and to keep the gears *d* and *e* properly in mesh with the pinions D.

The friction-band L or similar device and a lever L' are employed to give friction to the drum A whenever required, so that the same may be held stationary or allowed to revolve at the same speed as the shaft H, or at a different speed, or in a reverse direction, according to the power applied to the same or the weight that has been raised and is being lowered as the same may act through the chain or rope A'. A friction wheel or clutch 30 is mounted so that it will slide endwise of the shaft H, but always revolve with the same, and a lever 20 is employed to act through the central push-rod in the shaft H and the cross pin or key upon the disk 30 to bring the same into engagement with the drum A or the reverse, according to the circumstances under which the present improvement is employed; but this clutch or friction device may be of any desired character.

It will now be understood that the drum B may be revolved in either one direction or the other by the motor, and that when the friction 30 is applied through the lever 20 to the drum A the drum A will be revolved by and with the shaft H and at the same speed as the drum B. In this instance the wheel C travels around with the drums A and B and its friction-band 14 and lever 15 are out of action; but if the friction 30 is relieved and the wheel C held by the friction 14 15 the drum A will be revolved and in the reverse direction to the drum B through the action of the gears *d* and *e* and the pinion or pinions D, and in this case the rope or chain will be wound upon one drum simultaneously with the rope or chain from the other drum being given out or allowed to draw off the drum A. Hence by this improvement a weight can be drawn up by a double tackle to any desired height beneath a truck, the two barrels revolving in the same direction and acting through ropes or chains A' B' for the lifting of the weight; but should there be a horizontal or an inclined boom, carrying upon it a truck and a chain or rope passing over pulleys or sheaves to the article to be raised, the rope or chain from the drum A passing direct to the bucket or weight 6 and the rope or chain B' passing around the pulley at the lower or distant end of an elevated truck, the two ropes will be pulled on at the same time and to the same extent. Hence the weight will be raised vertical to any desired height, after which by clamping the wheel C to hold it stationary and disengaging the friction 30

the drum B will continue to act through the rope or chain B' and the rope or chain A' will be moved in the opposite direction—that is to say, if the drum B is being used for hoisting the drum A will simultaneously lower upon its rope or the reverse, and in accomplishing this object the wheel C and the bevel-gears will continue to revolve with the drum B, or else the wheel C will be held stationary by the brake 14 15 and the drum A receive a reverse motion in consequence of the intermediate connection by the pinions D. If during this time the rope or chain A' is to be held stationary, the friction-band 14 or the friction-disk 30 and lever are thrown out of action and the friction-band L brought into action to control the downward movement of the apparatus in lowering. By this means the ropes or chains passing off from the two drums can be regulated in their action by the motor and either raise, lower, or hold the article or move it along upon a truck from place to place as necessity may require.

We claim as our invention—

1. The combination with a drum and shaft connected together and means for revolving the drum and shaft in either one direction or the other, of a second drum upon the shaft, gears on the respective drums, an intermediate wheel and pinion carried by the same, and a mechanism for connecting or disconnecting the second drum and the shaft, substantially as set forth.

2. The combination with a drum and gear-wheel and a shaft connected and revolving together, of a pinion for driving the gear-wheel, drum and shaft, a second drum upon the shaft, gearing for connecting the two drums and a friction device for connecting the second drum to the shaft, substantially as set forth.

3. The combination with a drum and shaft connected together and means for revolving the drum and shaft in either one direction or the other, of a second drum upon the shaft, gears on the respective drums, an intermediate wheel and gear carried by the same, and a mechanism for connecting or disconnecting the second drum and the shaft, and a friction mechanism for controlling the second drum when disconnected from the shaft, substantially as set forth.

4. The combination with the drum and shaft and means for revolving them together, of a second drum loose upon the shaft, a gear upon each drum, an intermediate pinion, a wheel carrying such pinion, a friction mechanism for holding the wheel and a friction mechanism between the second drum and the shaft, substantially as set forth.

5. The combination with the drum and shaft and means for revolving them together, of a second drum loose upon the shaft, a gear upon each drum, an intermediate pinion, a wheel carrying such pinion, a friction mechanism for holding the wheel and a friction



mechanism between the second drum and the shaft, and a friction mechanism for holding the second drum, substantially as set forth.

5 6. The combination in a hoisting apparatus, of a drum and gear, a shaft to which the same are connected, a driving-gear, a second drum loose upon the shaft, gear-wheels upon the respective drums, an intermediate wheel and pinions supported by the same engaging  
10 the said gears, a friction device for holding the intermediate wheel when desired, a friction-disk around the shaft and a push-pin and lever for acting upon the same to connect the second drum with the shaft, substantially  
15 as set forth.

7. The combination in a hoisting apparatus, of a drum and gear, a shaft to which the

same are connected, a driving-gear, a second drum loose upon the shaft, gear-wheels upon the respective drums, an intermediate wheel and pinions supported by the same engaging the said gears, a friction device for holding the intermediate wheel when desired, a friction-disk around the shaft and a push-pin and lever for acting upon the same to connect the second drum with the shaft, and a friction device for controlling the second drum, substantially as set forth.

Signed by us this 15th day of July, 1898.

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Witnesses:

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