Sept. 25, 1923. 1,468,916

H. B. NEWHALL ET AL

POWER MEMBER

Filed June 21, 1922

Fig 1

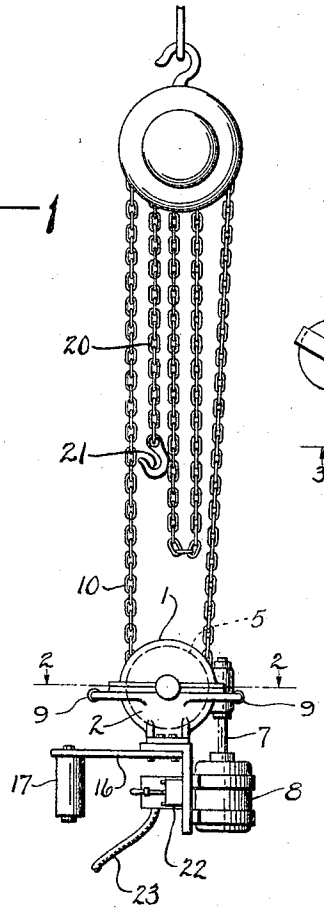


Fig 2

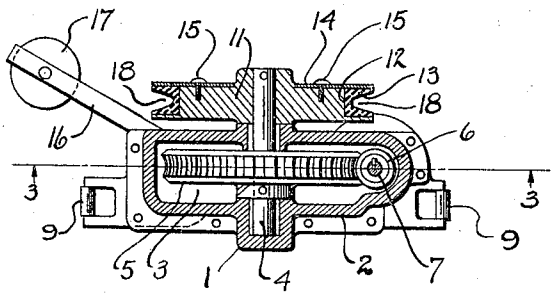
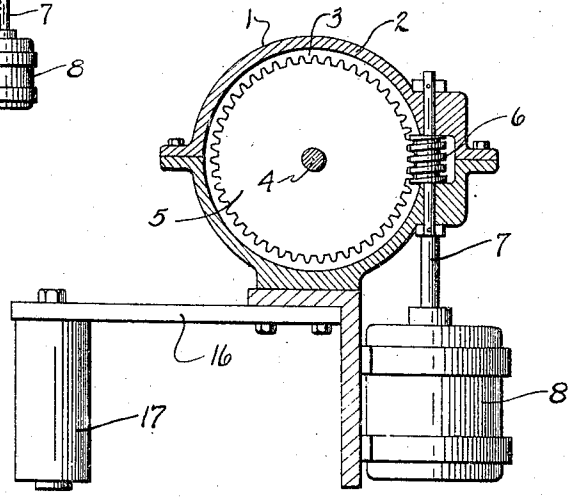


Fig 3



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UNITED STATES PATENT OFFICE.

HENRY B. NEWHALL, OF PLAINFIELD, AND ETHAN N. HESCOCK, OF WESTFIELD, NEW JERSEY; SAID HESCOCK ASSIGNOR OF HIS RIGHT TO NEW JERSEY FOUNDRY AND MACHINE COMPANY, A CORPORATION OF NEW JERSEY.

POWER MEMBER.

Application filed June 21, 1922. Serial No. 569,944.

To all whom it may concern:

Be it known that we, HENRY B. NEWHALL, a citizen of the United States, and a resident of Plainfield, in the county of Union and State of New Jersey, and ETHAN N. HESCOCK, a citizen of the United States, and a resident of Westfield, in the county of Union and State of New Jersey, have made certain new and useful Improvements in Power Members, of which the following is a specification, taken in connection with the accompanying drawings.

Our invention relates broadly to a power member, which is adapted to operate a flexible drive member of any device, whether that device be a hoist mechanism or not. We have shown it in connection with a heavy capacity hoisting mechanism, but it is equally applicable itself to operate theater curtains, traveling cranes or any mechanism operated by a flexible member having a loop in which our device can be mounted.

Our invention further relates to hoisting mechanism, and more particularly to an auxiliary hoisting mechanism to be used in connection with a flexible driving member of a heavy capacity hoisting mechanism.

More specifically, it relates to an auxiliary device to operate the ordinary chain member of a standard chain hoist. Of course, it is to be understood that while we have shown the flexible member in the form of a chain, any other suitable form of flexible member may be used.

Our present invention is an improvement and simplification of the invention covered by United States Letters Patent 1,288,137 patented Dec. 7, 1918 to Henry B. Newhall, jr., now known as Henry B. Newhall, and one of the joint inventors of this case.

Our invention further relates to certain combinations, and details of construction, which will be more fully hereinafter described and pointed out in the claims.

Fig. 1 is a side elevation of the ordinary form of standard chain hoist showing our auxiliary hoist mechanism cooperating with a flexible drive member shown as a drive chain;

Fig. 2 is a horizontal section substantially on the line 2—2 of Fig. 1;

Fig. 3 is a vertical section substantially on the line 3—3 of Fig. 2.

Large hand power cranes are now in common use in locations where they are not used often enough to warrant the additional expense of installing electric cranes of the same capacity. For example, such large hand power cranes are now used in factories, power houses, sugar mills and where it is necessary to replace armatures, dismantle dynamos or turbines, or handle the rolls of a sugar mill, or other heavy part of the operating equipment. These cranes often run as high as fifty tons capacity. They are equipped with the ordinary chain blocks which are operated by a flexible member or hand chain. To operate these heavy cranes often takes a great deal of time, often hours, to hoist an armature, or other similar heavy portion of the equipment, only a few feet, so that the necessary work in connection with, or upon, it may be accomplished. This is on account of the multitude of gear and chain reductions necessary to hoist heavy loads by hand power.

By our invention, with a very slight additional outlay, the ordinary heavy capacity hand crane can be speeded up so that it may be operated ten or fifteen times, or more, faster that it can be operated manually.

In locations where more than one such crane is used our auxiliary hoisting mechanism may be moved from one to another crane performing its work equally well. In cases, where it is not desired to operate it for any reason, it can be readily disconnected and laid aside until such time as it may be desirable to use it again.

Frequently the flexible drive members vary both in cross-section and contour, being of different size chain or rope. By our invention all that is necessary is to lift the auxiliary power member into the bight of the flexible drive member or chain and it will immediately and automatically cooperate with it without the aid of further instrumentalities or further manipulation or adjustment. Our auxiliary power member may be lifted from one hoisting mechanism to another hoisting mechanism having a different form of flexible member, or the drive member may be of the same form but of different size. In either case, it will perform its function equally well without any manual adjustment or manipulation, or the operation of any other member.

In the particular embodiment of our invention shown in the drawing, but to which of course we are not to be limited except by the scope of our claims, 1 is our auxiliary power member formed of a closed housing 2 having an interior chamber 3 within which is mounted an axle 4 upon which is keyed a worm wheel 5. This worm wheel is driven in any suitable manner, such as by the worm 6 upon the shaft 7 actuated by the electric motor 8. We preferably place oil in the chamber 3 so that the worm wheel 5 and worm 6 may run in oil. Keyed to the axle 4 is a member which will automatically engage with, and adjust itself to, flexible drive members of different shapes and contour so that no further adjustment or operation is necessary to connect the auxiliary power member 1 to the flexible drive member, other than by simply lifting it by the handles 9, 9 and letting said member rest in the bight of the flexible drive member 10.

One form of our invention is illustrated in the drawings. For example, we may use a sheave 11 keyed to the axle 4 and provided with a deep peripheral groove or score 12 lined with some resilient material 13, such as rubber. We have shown, by way of example, the sheave 11 provided with the rubber ring 13 which is firmly clamped onto the sheave by the plate 14 and securing screws 15, 15, though of course any suitable arrangement may be employed which will accomplish the function herein set forth.

Connected with the housing 2 is an arm 16 having the counter-balance weight 17.

Regardless of the size of the flexible drive member 10 and whether or not it is a rope, chain, or other flexible member, all that is necessary in our invention is to simply lift the auxiliary power member 1 by the handles 9, 9 and place it so that the bight of the flexible driving member 10 will be seated within the groove 18 of the resilient ring 13, which will immediately adjust itself and conform to the particular contour and size of the flexible drive member without the aid of any other member or members to hold the auxiliary power member 1 onto the flexible driving member. It is of course understood that the counter balancing weight 17 will balance the auxiliary power member 1 in the bight of the flexible drive chain.

As explained in the prior pioneer Patent 1,288,127 the operation of the electric motor 8 will cause the auxiliary power member 1 to climb, or tend to climb, the flexible drive chain 10 at high speed and in that manner operate the load chain 20 having the hook 21. The motor 8 is controlled by the switch 22, the current being supplied by the cable 23.

Having thus described this invention in connection with an illustrative embodiment thereof, to the details of which we do not desire to be limited, what is claimed as new and what is desired to secure by Letters Patent is set forth in the appended claims.

What we claim is:—

1. In a hoisting mechanism the combination of a main hoisting mechanism operated by a flexible drive member, and an auxiliary power member provided with an overhung power sheave adapted to be dropped into and held in the bight of the flexible member to operate it.

2. A power member adapted to detachably engage and rest in the bight of a flexible drive member, including a housing, an axle mounted in the housing, means to drive said axle, an overhung power sheave mounted on the axle and extending on the exterior of the housing and adapted to engage with, be supported by, and drive the flexible drive member by simply dropping the overhung power sheave in the bight of the flexible drive member.

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Witnesses:
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