C. WICK.

PORTABLE WINCH.

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Fig. 1.

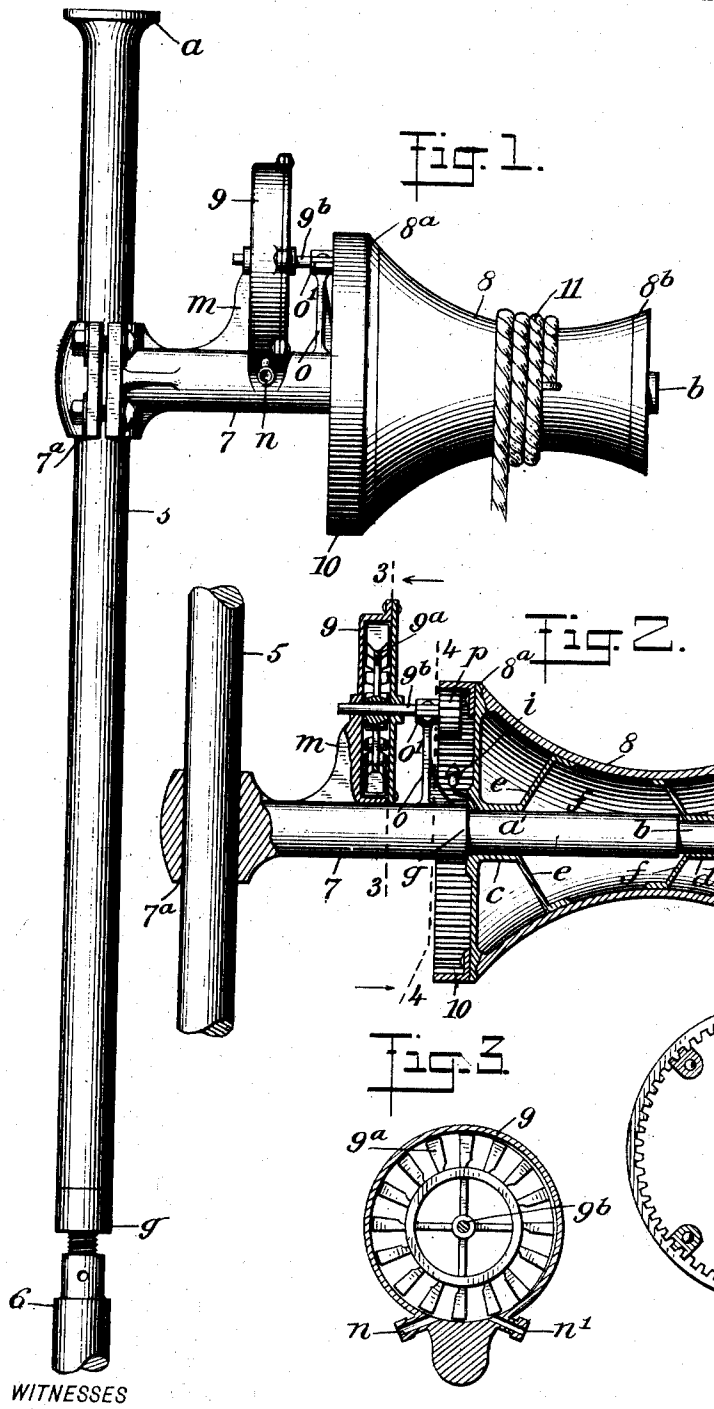
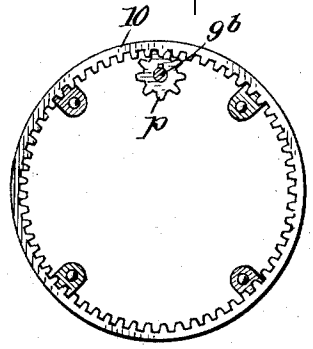


Fig. 2.

Fig. 3.

Fig. 4.



WITNESSES

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PORTABLE WINCH.

No. 927,200. Specification of Letters Patent. Patented July 6, 1909.

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To all whom it may concern:

Be it known that I, CHARLES WICK, a subject of the Czar of Russia, and a resident of Bingham Canyon, in the county of Salt Lake and State of Utah, have invented a new and Improved Portable Winch, of which the following is a full, clear, and exact description.

In removal of coal or other mineral from veins below the surface of the earth, gangways and devious passages are formed that vary in width and also in height. In many situations, heavy timbers are used for props, when the coal or other material mined is too friable to afford a safe support for the roof of a gangway or drift in a mine.

It is found very laborious to manually transfer timbers or other heavy material along low, narrow drifts in a mine, and the purpose of this invention is to provide a novel, simple winch that may be operated by steam or compressed air as a motive agent, and afford means for the easy movement of heavy material in a mine, from one point to another as occasion may require.

A further object is to provide a novel combination of elements, that will adapt the improved winch for a convenient and reliable attachment upon the walls of a drift or passage in a mine, in a manner that will permit its removal and erection at another selected point, as the transfer of material may require.

The invention consists in the novel construction and combination of parts, as is hereinafter described, and defined in the appended claim.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side view of the improved winch; Fig. 2 is a sectional side view of principal details of the winch; Fig. 3 is a transverse sectional view of parts substantially on the line 3—3 of Fig. 2; and Fig. 4 is a transverse sectional view, substantially on the line 4—4 of Fig. 2.

In the drawings, 5 indicates a preferably metal post of suitable length, that may have a radial flange *a* on one end that increases the bearing surface thereof, and in the opposite end an extension piece 6, is screwed and adapted for longitudinal adjustment by use of a lever inserted in any one of a series of perforations formed in said extension piece, one perforation appearing in Fig. 1. The extension piece 6, that for convenience in drawing is shown broken off, is in service afforded a proper length, so that the post may be secured upright or in any other convenient position between the roof and floor, or between the sides of a drift in a mine, by an obvious screwed adjustment of the extension piece. Upon the post 5, a substantial arm 7 is adjustably secured by means of a clamp 7^a that is formed on one end thereof. Upon the outer portion of the arm 7, two spaced journals *a'* and *b* are formed by reducing the diameter thereof.

A windlass drum 8 is a detail of the invention, and consists of a metal shell that is contracted in diameter from each end toward the center and at each end is closed by a secured head wall, said walls 8^a, 8^b each having a cylindrical sleeve formed thereon at their centers, said sleeves that are respectively designated by the characters *c*, *d*, being mounted rotatably upon the journals *a'*, *b*, as is shown in Fig. 2. The sleeves *c*, *d* that are respectively engaged with the journals *a'*, *b* are reinforced at their inner ends by braces *e*, *f* which extend therefrom into engagement with the inner surface of the drum 8, and are thereto secured to suitable means. The sleeve *c* at the end nearest to the clamp 7^a, has contact with a shoulder *g* formed on the arm 7, and which limits the sliding of said sleeve toward the post 5, and as shown in Fig. 2, the drum is loosely secured in place on the outer portion of the arm 7, by a collar *h* and set screw *h'*, that is screwed through the collar into contact with the outer end portion of the journal *b*. Preferably, the journals *a'*, *b* are lubricated by oil or the like contained in oil cups *i* carried by the end walls or heads 8^a, 8^b.

On the arm 7 a turbine motor casing 9 is held by a bracket arm *m* which supports said casing in a normally erect position. Within the casing 9 a turbine wheel or rotor 9^a, is rotatably supported by a shaft 9^b, that is journaled centrally in the side walls of the casing, and in said casing at opposite points near its base, inlet and outlet openings *n*, *n'* are formed, for the entrance and discharge of a motive agent that actuates the rotor 9^a. The shaft 9^b is supported near the drum 8, by an upright bracket arm *o* whereon the box bearing *o'* is formed or secured that receives the shaft and supports it for free rotation.

Upon the head wall 8^a of the drum 8, an internal spur gear ring 10 is secured concentric with the axis of the drum, the open side of the gear facing the motor casing 9. The shaft 9^b projects into the internal gear ring 10, and on said projected end of said shaft pinion p is mounted and secured, that meshes with the teeth of said gear ring.

The motor may be changed in form of its working part, so as to render it more effective, it being understood however, that its rotor is adapted for direct rotation by a liquid or fluid motive agent. The actuation of the rotor will rapidly rotate the pinion p, which will turn the drum 8 slower than the speed given to the pinion, and thus considerable power is developed, that may be utilized by securing one end of a cable 11 on the drum, and giving it a turn or two thereon, which will adapt the drum to pull on the cable when it is rotated.

To adapt the device for service, the post 5 is secured in a convenient position by its engagement with the walls of a drift or gangway in a mine, as hereinbefore mentioned, and the cable 11 is extended toward and secured to the timber or other material that is to be moved toward the post. The motive agent, that may be compressed air, steam or water under pressure, is preferably conducted to the rotor by means of strong hose or jointed pipes, extended from the source of supply toward the motor casing and connected to its inlet opening. It will be seen that upon setting the rotor 9^a in rapid motion, the drum 8 will be rotated slowly, and the cable 11 wrapped thereon, which will pull the load that it is attached to, toward the post. It is to be understood that the load may be placed on a truck to facilitate its transfer; furthermore, if the load is to be moved in a devious route, the post 5 may be changed in position as often as may be required to effect a convenient transfer of the same.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

In a portable winch, the combination with a post, an adjustable extension on one end of said post, an arm, and a clamp on one end of said arm adapted to secure it extended laterally from the post and permit its change in position thereon, of a turbine motor on the arm, a drum rotatable on the outer end of the arm, a cable on the drum, an internal spur gear on one end of said drum, a driving shaft extended from the motor and rotatable thereby, and a pinion on said shaft meshing with the internal gear.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES WICK.

Witnesses:
F. W. QUINN,
ALICE FITZGERALD.