C. TADEY.

ELECTRICALLY OPERATED PULLEY BLOCK.

APPLICATION FILED DEC. 23, 1912.

1,165,814. Patented Dec. 28, 1915.

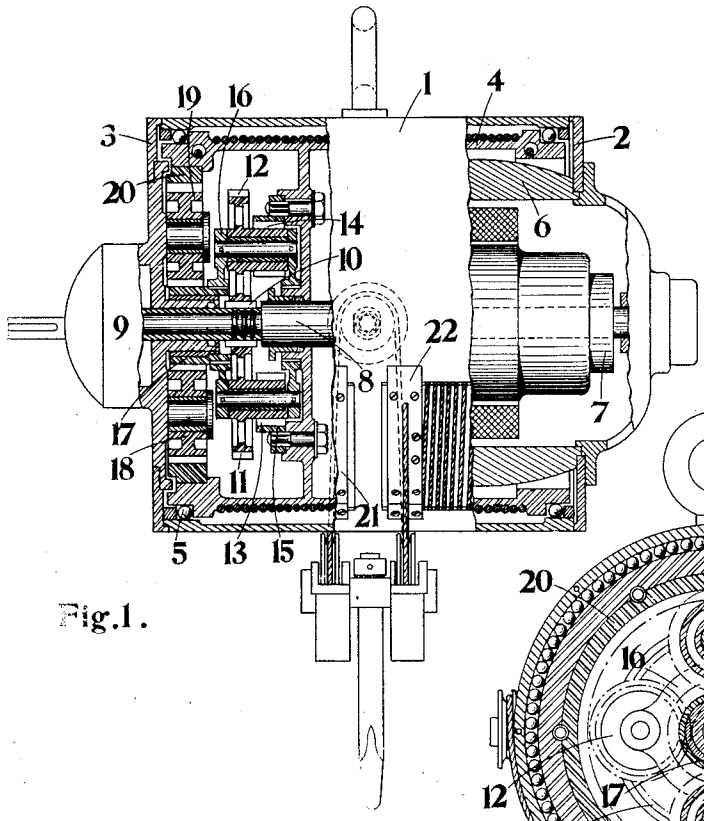


Fig.1.

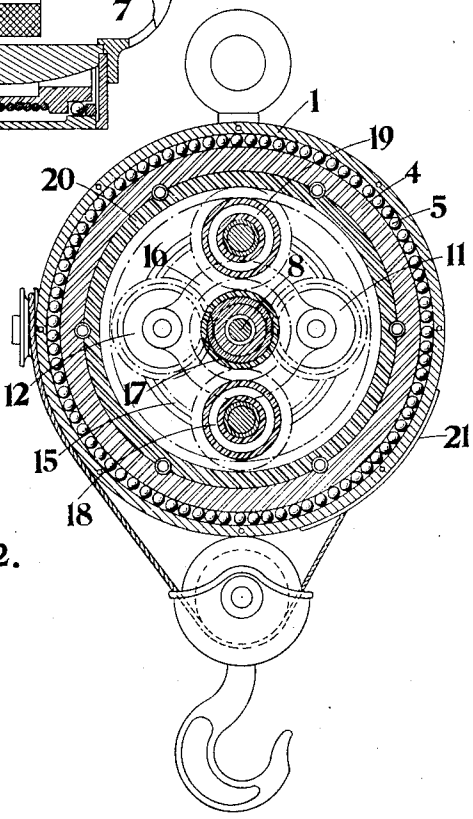


Fig.2.

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UNITED STATES PATENT OFFICE.

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ELECTRICALLY-OPERATED PULLEY-BLOCK.

1,165,814. Specification of Letters Patent. Patented Dec. 28, 1915.

Application filed December 23, 1912. Serial No. 738,237.

To all whom it may concern:

Be it known that I, CARL TADEY, a subject of the German Emperor, residing at 5 Kirchstrasse, Wetter-Ruhr, Germany, have invented a certain new and useful Electrically-Operated Pulley-Block, of which the following is a specification.

This invention has for its object to construct a pulley block of the smallest overall dimensions and this end is attained by completely inclosing the motor and gear in the interior of the hoisting drum. The motor and gear however are at the same time easily accessible and permit of the exchange of the separate parts thereof when the pulley block is under load, and in consequence of the particular gear employed an extremely great reduction in speed, but a high mechanical efficiency is obtained.

In the accompanying drawing is diagrammatically illustrated a construction of pulley block according to this invention.

Figure 1 is a side elevation partly in vertical section, while Fig. 2 shows a cross-section on the line I—II of Fig. 1.

As will be seen from the figures the whole construction, motor, hoisting drum, gear and other parts, is mounted in a common casing which is closed on all sides. This casing consists, in the construction illustrated, of a tubular member 1 and two detachable end covers 2 and 3. The hoisting drum 4 completely fills the tubular member 1 and is mounted on balls or rollers 5. To the detachable end cover 2 is secured the motor casing 6 containing the field magnets, armature, commutator 7, the brushes and other parts of the motor, so that when the detachable end cover 2 is removed from the casing 1, the complete motor is carried with it and is removed from within the hoisting drum 4.

On the motor shaft 8 there is mounted under the action of the load brake 9 shown inclosed in the drawings a pinion 10 which engages with two planet wheels 11 and 12. To the wheels 11 and 12 are respectively rigidly fixed two smaller planet wheels 13 and 14 which are in engagement with a toothed flange 15 secured to the interior of the drum 4. On the support 16 by means of which the planet wheels 11 and 12 are carried is fixedly mounted the toothed wheel 17 which by means of the toothed wheels 18 and 19, mounted on the two covers 3, transmits its rotation to a second toothed flange 20 also rigidly secured to the interior of the drum 4.

To obtain a certain operation of rope pulley blocks a correct guide for the rope is necessary. The devices hitherto known for guiding the load rope in pulley blocks mostly consists of a screw spindle which is coupled to the shaft of the pulley block for the purpose of rotation and on which is mounted a nut to guide the rope according to the winding or unwinding of the rope. These devices are extremely complicated and as they are outside the drum casing are liable to injury.

According to this invention this device is also provided in the interior of the hoisting drum and the compactness of the casing 1, 2 and 3 produced thereby permits of an extremely simple and certain guiding of the rope by means of guide blocks 21 and 22 which are provided on their inner sides with slide members which engage with the rope grooves of the drum and in this manner are displaced directly on the rotation of the hoisting drum.

What I claim as my invention and desire to secure by Letters Patent is:—

1. An electrically operated pulley block, comprising a casing, a hoisting drum rotatably mounted within said casing, an electro-motor mounted within said drum but independently thereof, and gearing within said casing and connecting the electro-motor to the drum.

2. An electrically operated pulley block, comprising a casing, end cover plates for said casing, a hoisting drum rotatably mounted within said casing, an electro-motor secured to one of said end cover plates and mounted within the said drum but independently thereof, and gearing within said casing and connecting the electro-motor to the drum.

3. An electrically operated pulley block, comprising a casing, a hoisting drum rotatably mounted within said casing, an electro-motor mounted within said drum but independently thereof, gearing connecting the electro-motor to the drum, guide pieces for the rope, and means for moving the said guide pieces upon the winding of the rope on the drum.

4. An electrically operated pulley block, comprising a casing, a concentric hoisting drum rotatably mounted within said casing

upon ball bearings, an electro-motor mounted within said drum at one side but independently thereof, and gearing within said casing and connecting the electro-motor to the drum, said gearing being mounted within the other side of the said drum.

5. An electrically operated pulley block comprising a tubular casing, a hoisting drum mounted within said casing, end cover plates to said casing, a motor mounted on one of said end plates, said motor projecting into the interior of the hoisting drum, a brake mounted on the other end plate, gearing connecting the motor to the drum, said gearing being such that the hoisting drum is driven at a slow speed in relation to the motor, and that the motor can be removed and examined while the drum is under a load.

6. An electrically operated pulley block comprising a tubular casing, end cover plates to said casing, a hoisting drum mounted within the said casing, two circular series of teeth in said hoisting drum, a motor mounted on one end plate, a brake mounted on the other end plate, a pinion mounted on the motor shaft, gearing connecting the pinion to the said two circular series of teeth, said motor and gearing being adapted to be removed and examined while the drum is under a load.

7. An electrically operated pulley block comprising a tubular casing, end cover plates to said casing, a hoisting drum mounted within the said casing, two circular series of teeth in said hoisting drum, a motor mounted in one end plate, a brake mounted on the other end plate, a pinion mounted on the motor shaft, gearing connecting the pinion to the two circular series of teeth, said motor and gearing being adapted to be removed and examined while the drum is under a load, guide pieces for the rope, and means for moving said guide pieces relatively to the winding of the rope on the drum.

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

CARL TADEY. [L. S.]

Witnesses:
HELEN NUFER,
ALBERT NUFER.