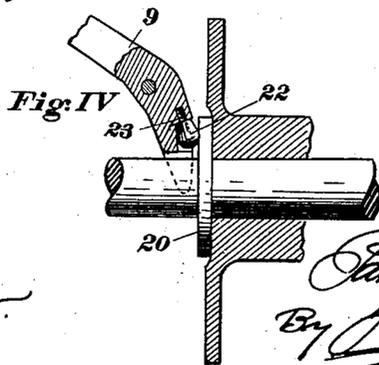
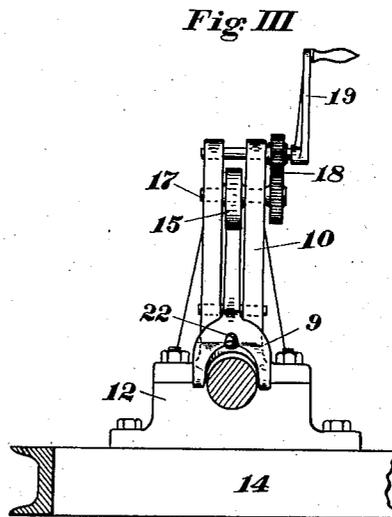
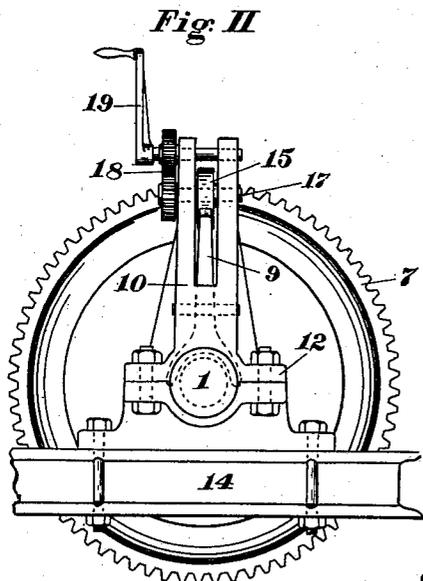
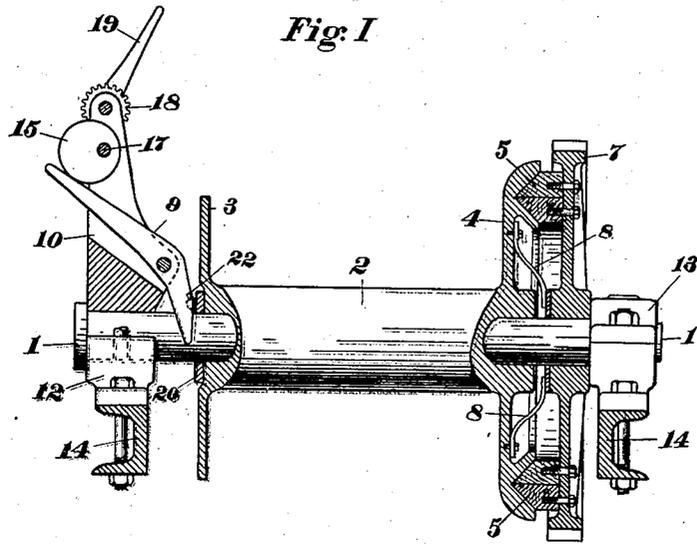


P. F. DUNDON.  
CLUTCH FOR HOISTING MACHINES.

APPLICATION FILED DEC. 13, 1902.

NO MODEL.



WITNESSES:  
*P. W. Lender,*  
*W. E. Swenson, Jr.*

INVENTOR.  
*P. F. Dundon*  
 By *J. Richards & Co*  
*Attys*

# UNITED STATES PATENT OFFICE.

PATRICK F. DUNDON, OF SAN FRANCISCO, CALIFORNIA.

## CLUTCH FOR HOISTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 735,862, dated August 11, 1903.

Application filed December 13, 1902. Serial No. 135,116. (No model.)

*To all whom it may concern:*

Be it known that I, PATRICK F. DUNDON, a citizen of the United States, residing at San Francisco, county of San Francisco, and State of California, have invented certain new and useful Improvements in Clutches for Hoisting-Machines; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to an improvement in friction-gearing especially adapted to winding or hoisting machinery.

My improvement consists of a strong pivoted lever mounted in the end framing that bears against the movable element of the clutch, this lever operated by a cam, wheel-gearing, and a hand-lever, as illustrated in the drawings herewith, that form a part of this specification, also in the combination and arrangement of parts, as hereinafter explained and illustrated by drawings, forming a part of this specification.

The objects of my invention are to avoid hollow shafts, axial or central devices to move and set such clutches, and to arrange such machines so that they will occupy a minimum space laterally when employed on vessels, pontoons, or derrick-frames. On such vessels the hoisting apparatus is always crowded, and when arranged in the usual manner, with the setting-gearing applied centrally through the drum-shaft, the width of the machine is so unduly increased as to preclude its use in many places. By my improvement I limit the width of the whole apparatus to the width of the hoisting-drum and clutch proper and also avoid the costly drilling of the main shaft.

Referring to the drawings, Figure I is a partly longitudinal section through a clutched winding barrel or drum and its operating-gearing arranged according to my invention. Fig. II is an end view of the same machine. Fig. III is a view of the opposite side of the main standard that supports the clutch-operating mechanism. Fig. IV is an enlarged view, mainly in section, showing details of the clutch-setting devices.

The main shaft 1 is made solid and passes through the winding-drum 2, the latter adapt-

ed for a rope or chain, that is wound between the flanges 3 and 4 in the usual manner. The flange 4 is provided on its outside with a lateral grooved channel around the periphery to receive the friction-ring 5, commonly made of wood and held as shown. This clutch-ring 5, which may be of any suitable material or of any number of pieces joined together, is attached to a strong gear-wheel 7, driven by the usual train of wheels connecting to the motive power. The winding-drum 2 is loosely mounted and longitudinally movable on the shaft 1, so that when pressed toward the wheel 7 the clutch is engaged and when released is moved back by the springs 8, that hold the clutch out of contact, permitting the drum 2 to be free to revolve in either direction.

The shaft 1 is held in the bearings 12 and 13, the former made integral with the standard 10, the whole being fastened to a base-frame 14, made of metal or wood, in the usual manner.

To engage the clutch and cause the barrel 2 to revolve in the direction of winding, or to raise a load, it is pressed toward the wheel 7 by means of a strong lever 9 mounted in the standard 10 pressed downward by a cam 15. The cam 15 is held rigidly on the shaft 17 and is turned by the gear-wheels 18 and a crank 19, the gear-wheels 18 being made of sizes relatively to the amount of force to be applied to the cam 15 and lever 9. The lever 9 is forked, as shown in Fig. III, to pass partly over the shaft 1 at each side to prevent lateral movement of the lever and keep it in position. This lever 9 bears against a collar 20, made of hardened steel, that in turn presses against the end of the drum 2. In the face of the lever 9 I place a roller 22, held on a screw 23, that bears in a matrix or curved seat at the back. This roller projects slightly beyond the face of the lever 9, and being free to turn is by this means prevented from wearing into flat faces where it bears on the collar 20.

In operating an attendant moves the handle 19 backward and forward or throughout a range in proportion to the pressure to be applied, starting, raising, and lowering loads by control of the friction-clutch, the load itself causing the reverse or backward movement of the drum 2 when lowering loads.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

5 In hoisting-machine clutch apparatus, a solid fixed central shaft, a winding-drum revoluble thereon, a motor gear-wheel revolubly mounted on said fixed shaft at one end thereof, friction-clutch members on said gear-wheel  
10 and said drum adapted for engagement, a means for throwing the drum-clutch out of engagement, a lever for moving the drum with its clutch member into engagement, mounted directly above the fixed shaft-bear-

ing, a cam, gears, and a crank for operating said lever, also mounted above said shaft-bearing, whereby the width of the machine is practically confined within the limits of the drum and clutch mechanism.

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

PATK. F. DUNDON.

Witnesses:

A. W. GRANT,  
P. W. J. LANDER.