

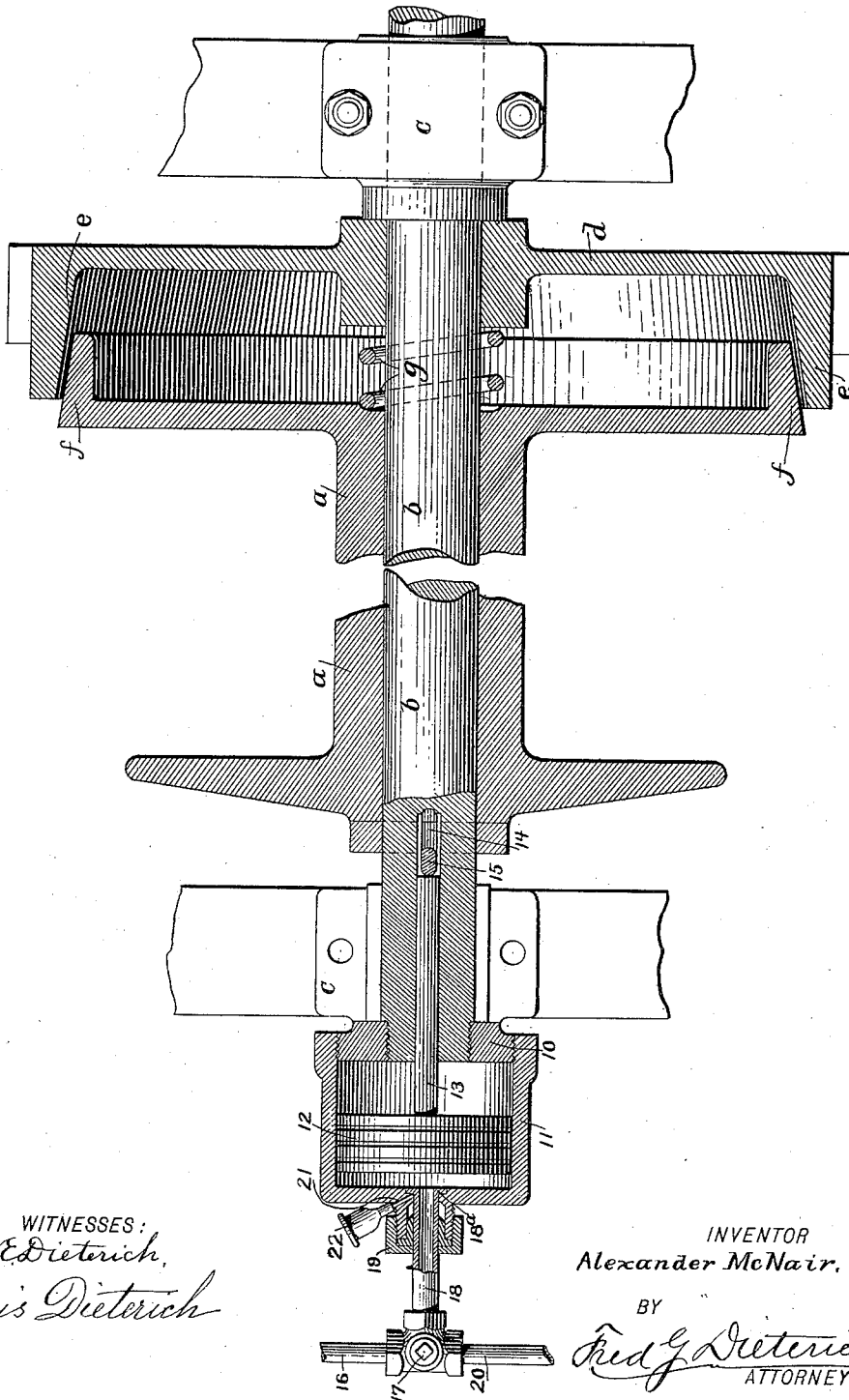
No. 652,135.

Patented June 19, 1900.

A. McNAIR.  
FRICTION CLUTCH.

(Application filed Dec. 26, 1899.)

(No Model.)



WITNESSES:

*A. E. Dieterich,*  
*Louis Dieterich*

INVENTOR

*Alexander McNair,*

BY

*Frederick Dieterich*  
ATTORNEY

# UNITED STATES PATENT OFFICE.

ALEXANDER MCNAIR, OF VANCOUVER, CANADA.

## FRICITION-CLUTCH.

SPECIFICATION forming part of Letters Patent No. 652,135, dated June 19, 1900.

Application filed December 26, 1899. Serial No. 741,616. (No model.)

*To all whom it may concern:*

Be it known that I, ALEXANDER MCNAIR, a citizen of the Dominion of Canada, residing at Vancouver, in the Province of British Columbia, Canada, have invented a new and useful Friction-Clutch, of which the following is a specification.

My invention relates to improvements in devices for moving the ordinary cone-clutch of a hauling or hoisting winch in and out of contact with the moving cone to which is attached the driving power; and my object is to reduce the friction at the point where the thrust power is applied by employing a fluid or liquid pressure to force the cones into contact instead of, as in the old way, using a screw-pressure operated by a hand-wheel.

Other important advantages will be made clear when this specification and the appended claim are fully understood.

I attain the object by the mechanism illustrated in the accompanying drawing, which is a longitudinal sectional detail of a winch to which my improvement is attached.

In describing my improvement, *a* represents a drum loosely mounted on a shaft *b*, suitably supported at each end in journals *c*. Securely fixed to one end of the shaft *b* is a large gear-wheel *d*, the inner side of which is provided with an internal friction-cone *e*, and the counterpart of this friction-cone is mounted on one of the rims of the drum *a*, as *f*. These parts described by letters are common to winches of this class now in use, and now comes my improvement, which consists of a collar 10, secured to the opposite end of the shaft *b* from the wheel *d*. This collar is provided with a screw-thread on its outer side, and screwed onto this is a cylinder 11, in which is arranged to move a piston 12, having a stem 13, which extends into a suitable aperture in the end of the shaft *b*. About the position occupied by the end of the drum *a* on said shaft is a slotted aperture 14, placed at right angles therethrough, in which is placed a flat cotter-pin 15. The end on the drum or reel engages the cotter-pin 15 on one side, and the stem of the piston 12 engages it on the other, and as the piston is caused to move forward the drum *a* is forced over and the clutches contracted, and when the power is released a spring *g*, interposed between the end of the drum and the gear-wheel *d*, forces said clutches apart.

Fluid or liquid pressure is used to operate my improvement, which is brought through a pipe 16 to a three-way cock 17, which connects the pipe 18, having access to the cylinder 11 through an ordinary gland 19. When the pressure is released, the cock 17 is turned so that communication is had between the cylinder and the waste-pipe 20.

To prevent the pipe 18 being blown out of the gland by the pressure, I provide a small collar 18<sup>a</sup> on the inner end of the same, which lies in an annular recess in the rear end of the cylinder, and a small aperture 21, communicating between this point and an oil-cup 22, secured to the outer side of cylinder, provides suitable means of lubrication.

From the foregoing it is seen that the cylinder 11 is a fixture and turns around with the shaft *b*, the only part not turning being the pipe 18, which is comparatively small, and therefore the frictional area is reduced to a minimum, and consequently the tendency of any of the parts to heat is overcome.

Having now described my invention, what I claim as new, and desire to be protected in by Letters Patent, is—

As an improvement in clutches, the combination with the drive-shaft *b*, the clutch-wheel *d*, fixedly held thereon, the clutch-drum *a*, slidably held on the said shaft spring-pressed to its clutch-released position and having a cotter-pin engaging the lug, said shaft *b*, having one end terminating in an externally-threaded extension and the said end provided with a longitudinal bore terminating at one end in a transverse cotter-pin-receiving slot; and the cotter-pin 15; of the collar 10, internally threaded to engage the threaded end of the shaft *b*, the cylinder 11 open at one end; said end being threaded to engage the collar 10, said cylinder also having a gland 19, and an annular recess surrounding the gland-aperture, the valved feed-pipe 18, extended through the gland and having a collar 18<sup>a</sup>, at its inner end seated in the aforesaid annular recess in the cylinder, and a piston 12, operating within the cylinder, said piston having a stem fitting the bore of the shaft *b*, all being arranged substantially as shown and for the purposes described.

ALX. MCNAIR.

Witnesses:

ROWLAND BRITAIN,  
EDITH G. MACKENMON.