A. R. McPHERSON & E. H. MUNRO.

POWER DRIVE FOR SHIPS' HOISTING AND PUMPING MACHINERY.

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1,298,074. Patented Mar. 25, 1919.

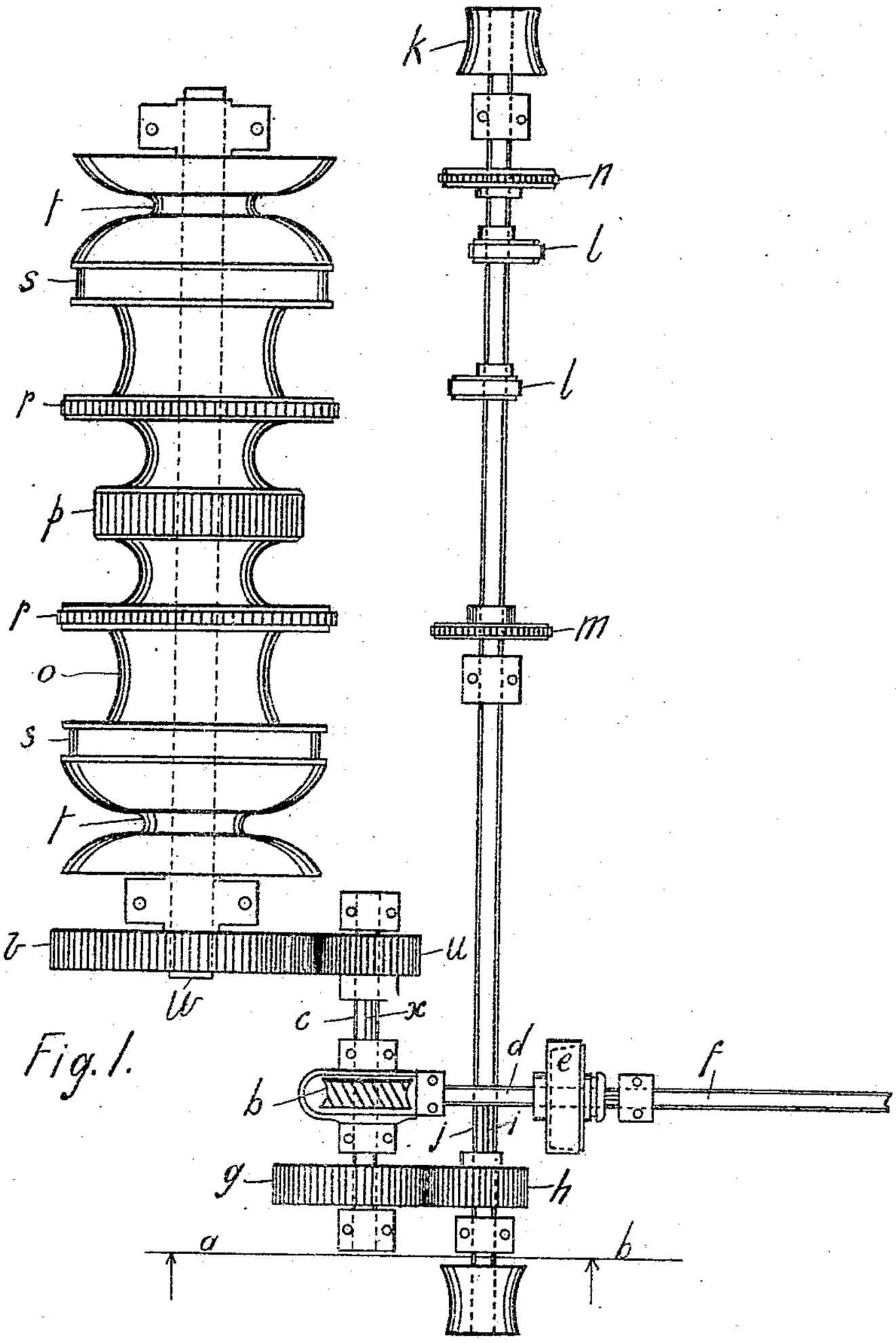

Fig. 1.

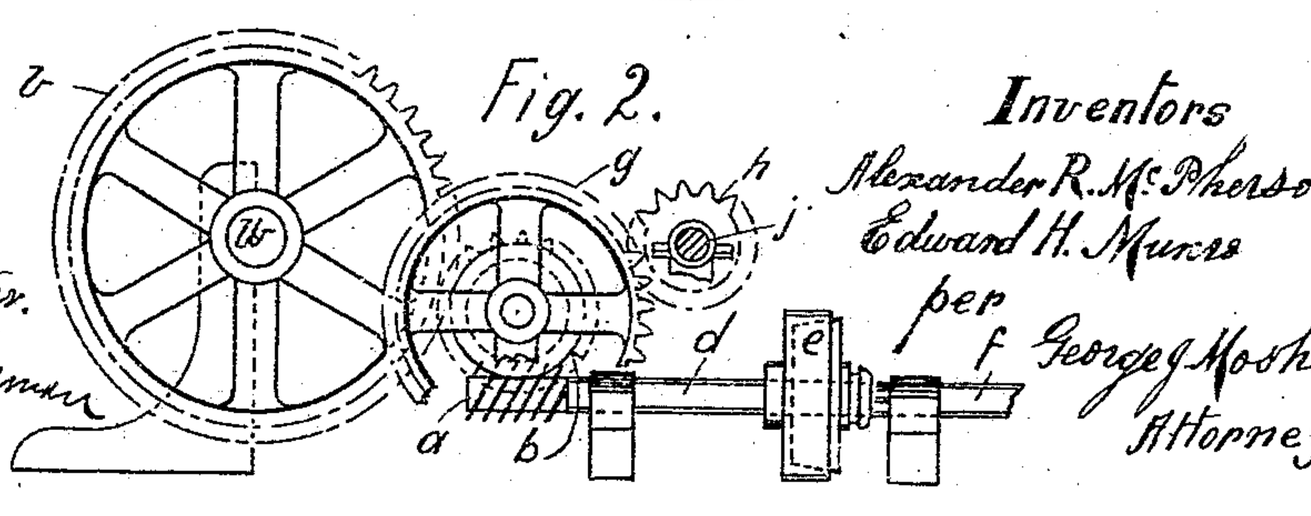

Fig. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

ALEXANDER R. McPHERSON AND EDWARD H. MUNRO, OF WINDSOR, NOVA SCOTIA, CANADA, ASSIGNORS TO WINDSOR FOUNDRY AND MACHINE COMPANY LTD., OF WINDSOR, NOVA SCOTIA, CANADA.

POWER-DRIVE FOR SHIPS' HOISTING AND PUMPING MACHINERY.

1,298,074. Specification of Letters Patent. **Patented Mar. 25, 1919.**

Application filed June 11, 1918. Serial No. 239,498.

To all whom it may concern:

Be it known that we, ALEXANDER R. MCPHERSON, a subject of the King of England, residing at the town of Windsor, in the county of Hants, in the Province of Nova Scotia, in the Dominion of Canada, and EDWARD H. MUNRO, a subject of the King of England, residing at the town of Windsor, in the county of Hants, in the Province of Nova Scotia, in the Dominion of Canada, have invented new and useful Improvements in Power-Drives for Ships' Hoisting and Pumping Machinery, of which the following is a specification.

Our invention relates to the hoisting and pumping machinery such as windlasses, pumps and general hoisting gear, and the objects of our invention are, first, to provide a drive in which a part of the driven machinery can be disconnected and driven separately from the remainder, and second, to provide a drive which when the motive power is shut off, will hold the driven mechanism immovable.

We attain these objects by the mechanism illustrated in the accompanying drawing in which:—

Figure 1 is a plan showing our invention as applied to several kinds of hoisting and pumping machinery. Fig. 2 is a section of Fig. 1 on the line *a b*.

Similar letters refer to similar parts throughout the several views.

In the drawing *a* is a worm gear which when its motive power is cut off will hold the attached machinery in suspension, thus accomplishing our second object. Said worm gear drives the worm wheel *b* which is keyed rigidly to the worm wheel shaft *c*. *d* is the worm shaft which is separately connected by the clutch *e* to *f*, which can be the shaft of a gasolene engine or other shaft having the required speed. *g* is a gear wheel keyed rigidly to the worm wheel shaft *c* and meshes into the slip gear pinion *h* which drives the hoisting and pumping shaft *j* and its attached machinery. *i* is a spline or feather on which the slip pinion is moved when it is desirable to separate the shaft from the remaining machinery. *k k* are winch barrels which are adapted to various uses. M is a sprocket wheel for the purpose of running the cargo hoist. *l l* are eccentrics for pump drives. N is a spare sprocket wheel. O is a windlass. *p* is the holding pawl ratchet. *r* is the ratchet for the operating pawls when the windlass is worked by hand. *s* shows the location of the friction band. *t* is the anchor chain grab or "wild cat". U is a slip gear pinion which is carried by the worm wheel shaft *c*, and meshes into the gear wheel V which drives the windlass through its shaft *w*. *x* is a spline along which the slip gear pinion U is moved when it is desirable to operate the windlass by hand through the pawls *p* and *r*, or to operate the hoisting and pumping gear independent of the windlass. It is not considered to be essential to the validity of the patent that either the windlass or the shaft *j* are driven by toothed gearing, as any other suitable means can be employed for that purpose.

We are aware that worm gear driven windlasses and other machines are not new, and we therefore do not broadly claim such as our invention, but what we do claim and desire to secure by patent is:—

A device of the class described, including a windlass having a shaft, a longitudinal driving shaft spaced from and parallel with the windlass shaft and extending beyond one end of the same, a short intermediate shaft spaced from said shafts and arranged opposite the extended portion of the longitudinal shaft and having its inner end located between the windlass shaft and the said longitudinal shaft, inner and outer sets of gears located at the ends of the intermediate shaft and connecting the same with the windlass shaft and the longitudinal shaft, one of the gears of the inner set being slidable on the intermediate shaft and

one of the gears of the other set being slidable on the longitudinal shaft, the sliding gears being adapted to connect the intermediate shaft with either the longitudinal shaft or the windlass shaft; a worm wheel mounted on the intermediate shaft, a power shaft arranged at right angles to the said shafts and located between the said sets of gears and a worm actuated by the power shaft and meshing with the worm wheel.

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