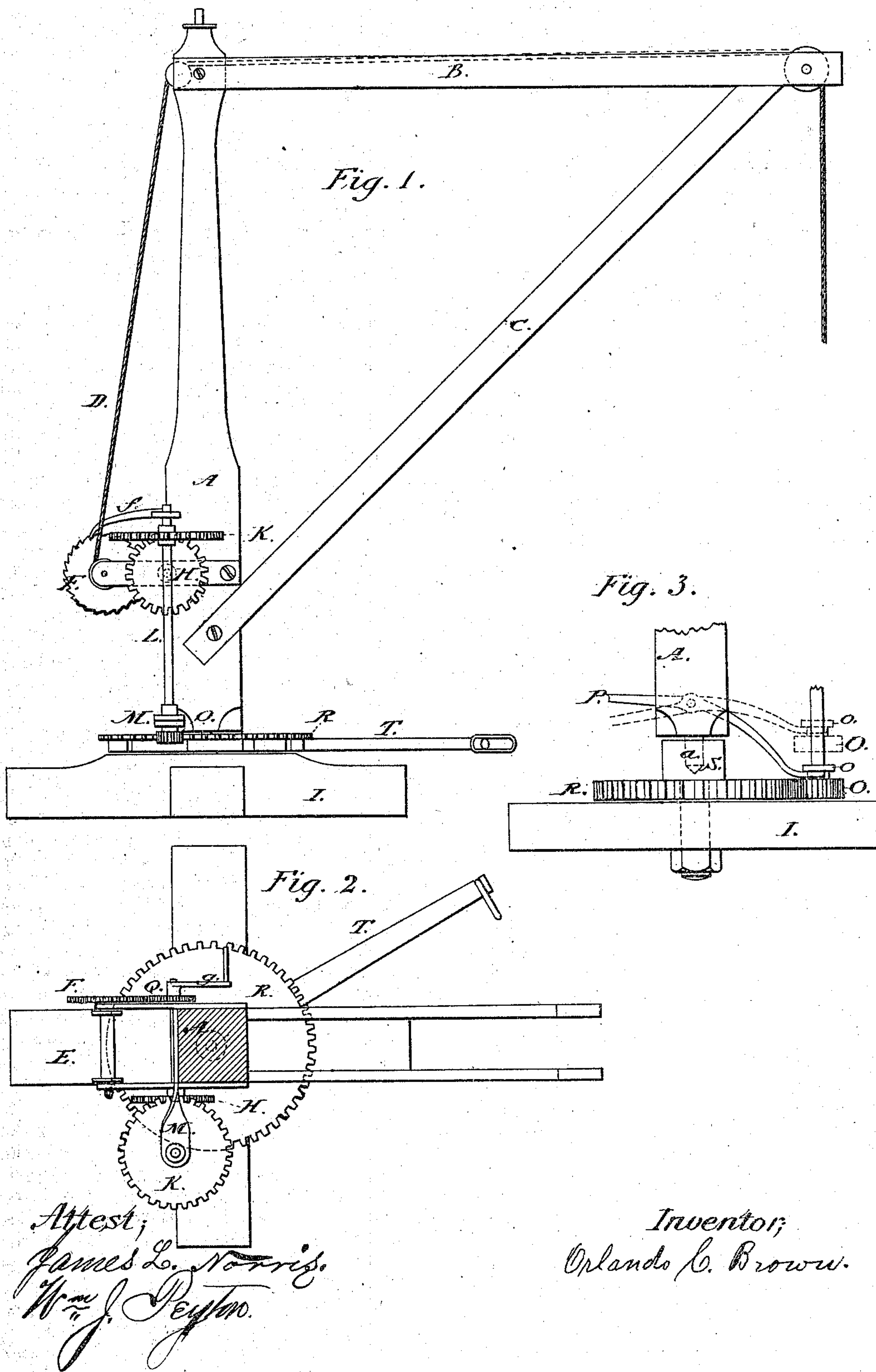


O. C. BROWN.

Improvement in Derricks and Cranes.

No. 131,934.

Patented Oct. 8, 1872.



UNITED STATES PATENT OFFICE.

ORLANDO C. BROWN, OF IBERIA, OHIO.

IMPROVEMENT IN DERRICKS AND CRANES.

Specification forming part of Letters Patent No. 131,934, dated October 8, 1872.

To all whom it may concern:

Be it known that I, ORLANDO C. BROWN, of Iberia, in the county of Morrow and State of Ohio, have invented certain new and useful Improvements in Combined Derrick, Crane, or Lifting-Jacks, of which the following is a specification:

This invention relates to certain improvements in the construction and operation of derricks, cranes, and similar apparatus used in hoisting and handling heavy weights. Its object is to obviate the necessity of backing the horse when horse-power is used in hoisting the weight, as in loading and unloading vessels, and for other purposes; to provide a means of transferring power of any kind, more especially horse-power, so as to operate upon the winding-drum; and to arrange a transmitting mechanism so that it can be thrown into or out of gear at pleasure, enabling the rope to be wound upon or unwound from the drum by hand or horse power, as may be desired. To this end my invention consists in providing a cogged power-wheel, with central opening for the passage of the pivot, for stepping the main shaft of the derrick, so that the shaft or pivot shall form an axle, around which the power-wheel revolves; also of a shaft, carrying gear-wheels, connected parallel with a main shaft, each or both of which are adapted to be rotated around a common center by a power-wheel arranged below said shafts, whereby a compound or double motion is secured; also, in a vertical shaft, provided with a gear-wheel at each end, the upper wheel gearing with a wheel secured to one end of the crank-shaft gearing by mechanism with the winding-drum, and the lower wheel gearing with the power-wheel at the base of the shaft, said vertical shaft being supported parallel to the main shaft, near its base, by framework or arms projecting from the main shaft; and in a lever pivoted to the main shaft and having a slotted end, which embraces the vertical shaft carrying the gearing, so that the power-wheel can be used or not, as desired.

In the drawing referred to in this specification, and making a part of the same, Figure 1 is a view of a derrick having my improvements applied; Fig. 2 is a top view of the same, taken from above, the main shaft being cut away; and Fig. 3 is an enlarged view of

the base of the main shaft, power-wheel, lever, and lower end of vertical shaft.

Like letters refer to like parts in the several figures.

A is the main shaft of the derrick, B its arms, and C the braces, all of the common or ordinary construction, and supported upon the frame or platform I, so as to allow of rotary motion, and is braced by guy-ropes in the usual manner. E represents the drum upon which is wound the hoisting-rope D, the rope passing thence over pulleys on main shaft A and arms B. This winding-drum is of the usual construction, provided with a cog-wheel, F, gearing with the wheel G of the crank-shaft, and having a pawl, *f*, to prevent reverse rotation. The crank-shaft has upon one end a handle or crank, *g*, so that the derrick may be used with hand-power for light weights. Upon the other end is a cog-wheel, H, which gears with the cog-wheel K upon the upper end of a vertical shaft, L. L is a vertical shaft parallel to the main shaft of the derrick, and supported by or stepped in framework or arms M which project from the main shaft A. On the lower end of the shaft L is a cog-wheel, O. As shown in the drawing, this cog-wheel is attached to a sleeve, *o*, which slides upon the shaft L, and is keyed to the shaft by a projection on the lower end of the shaft taking into a recess or slot in the sleeve *o* when in the position shown in Fig. 3. When this wheel is to be thrown out of gear, it is done by raising it to the position shown in dotted lines in the same figure. P is a lever pivoted to the main shaft A, and forked at one end, the forked end of the lever embracing the sleeve *o* of the cog-wheel O. This is the form I prefer, but the cog-wheel O can be made fast to the shaft L, in which case the shaft and its gear-wheels will have to be raised together by means of a lever, P, to take the cog-wheel O out of gear with the power-wheel; and the shaft L will require to be provided with projections, so that a purchase may be obtained thereon by the forked end of the lever. R is the power-wheel, which is a large cogged wheel, provided with a central opening for the passage of the step or pivot upon which the main shaft A moves. S is a block of iron, or other suitable material, in which the pivot *a* of the main shaft A is stepped.

This block is so constructed or formed as to furnish an axle for the power-wheel R. Instead of the block S forming the axle for the power-wheel, the pivot *a* may pass through the power-wheel and form the axle; or the lower part of the main shaft may be made to perform that function, as shown in Fig. 1. T is a shaft secured to the power-wheel R for attaching a horse when horse-power is used, or for connecting with a suitable pitman or connecting-rod when steam or water is used.

It is evident that the mechanism herein described can be adapted for other uses than in connection with cranes or derricks, for the same can be, by slight change in parts, arranged to operate or drive various machines.

Operation.

Power being applied to the power-wheel R, is transmitted, by the cog-wheel O, shaft L, and the wheel K, to the gear-wheel on the crank-shaft, by which the drum E is driven. When it is desired to use only manual power, the free end of the lever P is depressed, which elevates cog-wheel O out of gear with the power-wheel R. When power is transferred from power-wheel R to drum-axle E, it may be used on a cylinder substituted for drum E and transferred still further on other axles attached either vertically or horizontally to main shaft A, and used for thrashing grains, grinding apples, or same power exerted on ratchet-wheel; or it can be used to give motion to mechanism connected on main shaft A, to saw wood or perform other labor.

Having thus described my invention, I claim—

1. The power-wheel R and the vertical shaft L, with its gear-wheels, in combination with the winding-drum of a derrick, substantially as and for the purpose specified.

2. A shaft, L, provided with gear-wheels at each end for engaging with driving-wheels, said shaft L adapted to be operated upon by a disengaging-lever, so as to throw the mechanism in or out of gear, for the purpose of transmitting power by hand or by horse, or other power.

3. A gear-wheel, R, arranged at or near the bottom of a vertical shaft, A, essentially as described, for operation in connection with a shaft, L, and its operating mechanism.

4. The lever P, in combination with vertical shaft L, and its gear-wheels, with the vertical shaft A, substantially as and for the purpose set forth.

5. A shaft, L, carrying gear-wheels K O, and arranged parallel with a main shaft, A, each or both of said shafts adapted to be rotated around a common center by a power-wheel, R, arranged below said shafts, as described.

In testimony that I claim the foregoing I have hereunto set my hand this 23d day of September, 1872.

ORLANDO C. BROWN.

Witnesses:

JAMES L. NORRIS.

WM. J. PEYTON.