

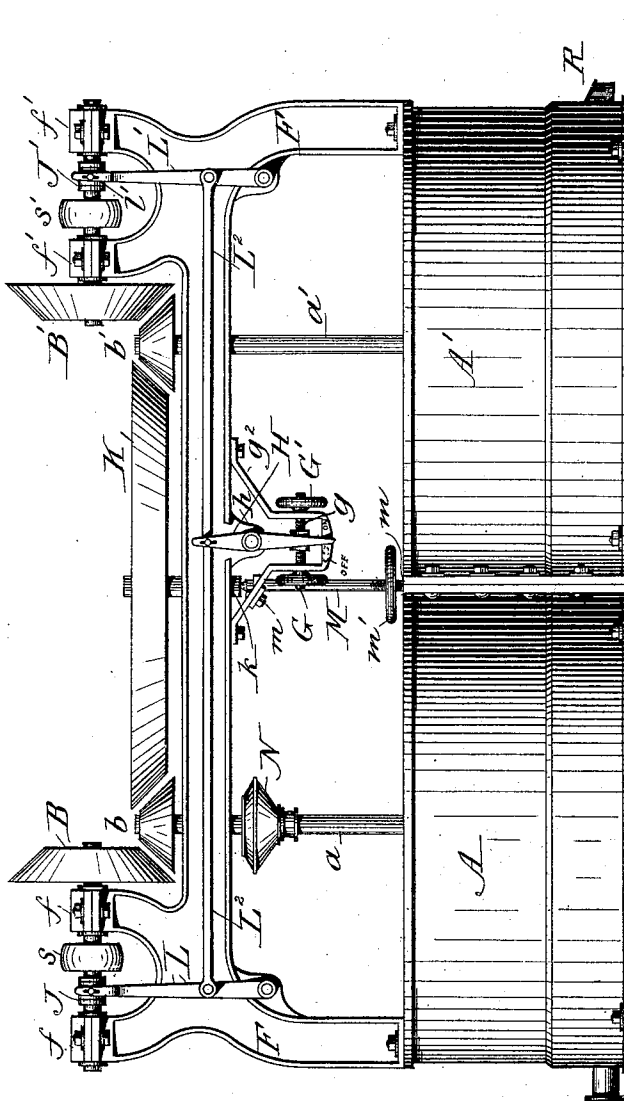
(No Model.)

J. HEAD.

STARTING GEAR FOR HIGH SPEED ROTARY MACHINES.

No. 478,541.

Patented July 5, 1892.



Inventor:

John Head
Richardson

Witnesses:

E. E. Bolton
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By

His Attorneys.

UNITED STATES PATENT OFFICE.

JOHN HEAD, OF KING WILLIAM'S TOWN, CAPE COLONY, ASSIGNOR OF ONE-HALF TO HENRY O'KELLY WEBBER, OF SAME PLACE.

STARTING-GEAR FOR HIGH-SPEED ROTARY MACHINES.

SPECIFICATION forming part of Letters Patent No. 478,541, dated July 5, 1892.

Application filed September 25, 1891. Serial No. 406,828. (No model.)

To all whom it may concern:

Be it known that I, JOHN HEAD, a subject of the Queen of Great Britain, residing at King William's Town, Cape Colony, South Africa, have invented certain new and useful Improvements in and Relating to Starting-Gear for High-Speed Rotary Machines, of which the following is a specification.

My invention relates to improvements in and relating to starting-gear for high-speed rotary machines—such as centrifugal hydro-extractors and the like—operated by spindles driven through gearing and where two or more such machines are disposed in proximity to one another.

The object of my improvements is to utilize the power accumulated in one machine revolving at a high rate of speed for the purpose of overcoming the inertia and starting a second rotary machine and for transmitting power from the second to a third, and so on. This accumulated power, so far as I know, when a machine has done its work has hitherto been neglected or wasted on the brake.

I attain my object by the mechanism illustrated in the accompanying drawing, in which is shown an elevation of a pair of hydro-extractors or centrifugal wringing-machines having my invention applied thereto.

Similar letters refer to similar parts.

A A' are two machines, and *a a'* are their central spindles, having friction-cones *b b'* at their upper ends driven alternately by bevel-wheels B B', fixed to power-shafts S S', carrying pulleys *s s'*, driven by belting or otherwise. The shafts S S' are carried in bearings *f f'* upon a frame or yoke F, fixed to and above the machines A A'. In applying my invention I dispose in close proximity to the spindle-cones *b b'* a correspondingly-coned independent or idle wheel K of such diameter that it will simultaneously gear with both (or three or four, if there be three or four machines grouped) the spindle-cones *b b'*. For throwing wheel K in and out of gear I may make the foot of its spindle *k* concave and mount it upon a pointed shaft M, working in

bearings, such as *m m*. Thus it is lifted out of gear by hand-screw wheel *m'* and falls into gear by gravity, or the spindle *k* may be continuous and operated by the screw and gear to mechanically lift and lower the wheel K. For throwing the drivers B B' alternately in and out of gear with the cones *b b'* the shafts S S' are traversed in their bearings by fixed clutches J J', with which engage the forks *ll'* of levers L L', centered on frame F and simultaneously moved through connecting-rod L² by lever H, centered at *h* on the frame. The lever H is operated by screw *g* and hand-wheels G G', supported in a bracket-bearing *g*² on frame F. On the bottom limb of said bracket the words "On" and "Off" are or may be inscribed, and an index-finger *h'* is or may be fixed to the foot of lever H.

When one machine, say A, is at work, the next A' is made ready to start, and at the proper time the running machine is disconnected from its driver B by sliding lever H to left by hand-wheel G until the finger *h'* points to "off." The starting-wheel K is then thrown into gear simultaneously with both the running cone *b* and the stationary cone *b'*. The momentum of the former *b* is then transmitted to the latter *b'* and starts it from rest. When both machines are revolving at the same speed, the wheel K is lifted out of gear and the driver B' is geared with the cone *b'* by moving the levers L, L², and H in the reverse direction to that above described. The machine A' is then driven at normal speed, the momentum of the running machine A having thus been utilized to start it. To prevent oil running down the spindles *a a'*, I may provide metal receivers, such as N, thereupon.

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

1. The starting-gear for high-speed rotary machines, consisting in the combination, with the bevel-gear for driving alternately a plurality of such machines, of an independent bevel-wheel K, adapted to gear simultaneously with a plurality of driving-spindle cones,

and disconnecting mechanism, substantially as set forth.

2. The combination, with the coned driving-spindles, driving-wheels B B', sliding
5 shafts S S', levers H L L' L², and hand-gear G G' for operating same, of starting-wheel K, provided with operating-gear, all substantially as and for the purposes set forth.

In witness whereof I have hereunto set my hand in presence of two witnesses.

JOHN HEAD.

Witnesses:

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