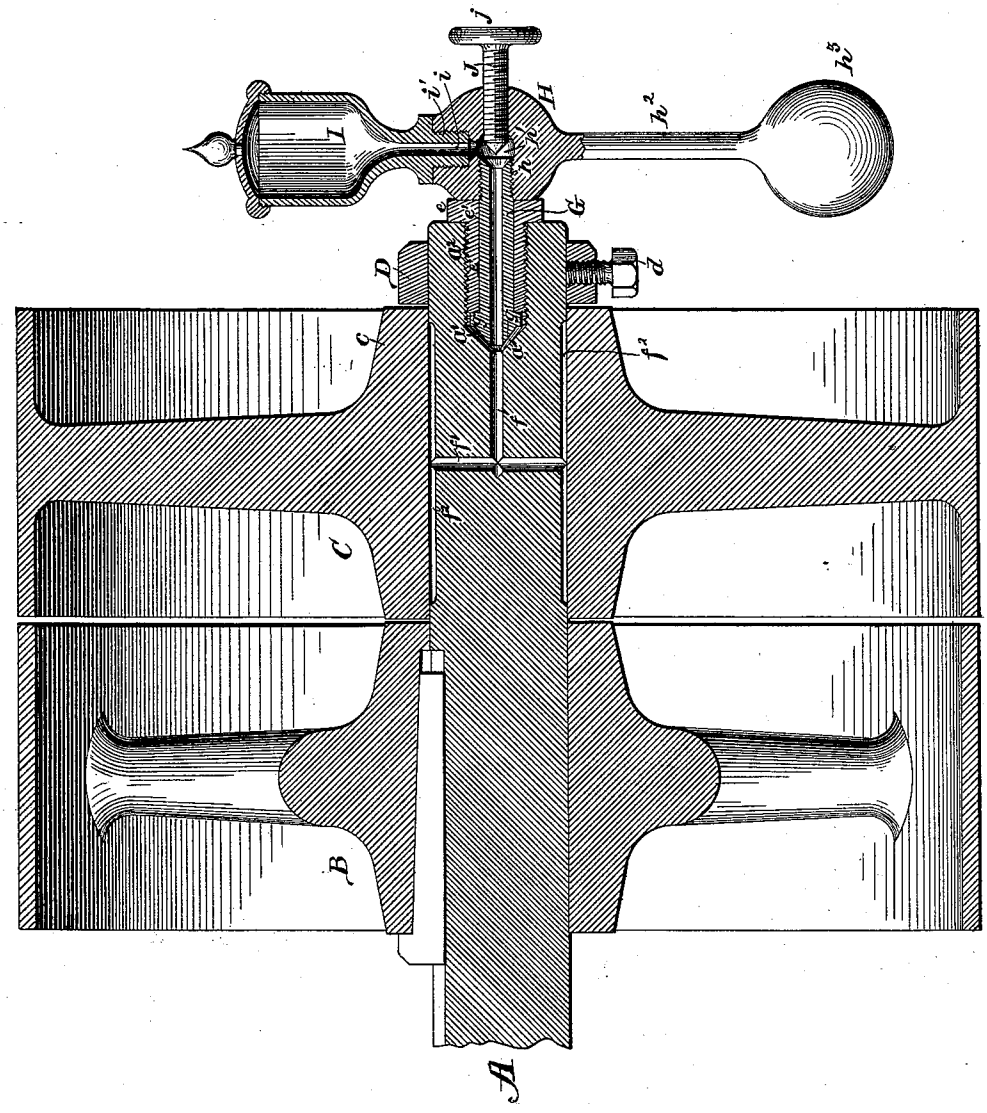
(No Model.)

E. J. WELLS.

DEVICE FOR OILING LOOSE PULLEYS.

No. 349,546. Patented Sept. 21, 1886.



Witnesses

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UNITED STATES PATENT OFFICE.

EDGAR JAMES WELLS, OF TICONDEROGA, NEW YORK, ASSIGNOR OF ONE-HALF TO FREDERICK IVES, OF SAME PLACE.

DEVICE FOR OILING LOOSE PULLEYS.

SPECIFICATION forming part of Letters Patent No. 349,546, dated September 21, 1886.

Application filed January 18, 1886. Serial No. 188,954. (No model.)

To all whom it may concern:

Be it known that I, EDGAR JAMES WELLS, a citizen of the United States, residing at Ticonderoga, in the county of Essex and State of New York, have invented a new and useful Improvement in Devices for Oiling Loose Pulleys, of which the following is a specification, reference being had to the accompanying drawing.

My invention relates to devices for oiling loose pulleys; and the novelty consists of the combination and arrangements of elements or parts, and in the peculiar construction of the elements or parts, substantially as hereinafter fully set forth, and specifically pointed out in the claims.

In my improved oiling mechanism for loose pulleys I propose to feed or supply the pulley with oil or lubricant from the shaft itself, which is provided with oil-passages for this purpose, and also to cut off the supply of oil when the loose pulley remains stationary and the belt is shifted to the rigid pulley to drive or be driven by the shaft on which the said loose and rigid pulleys are mounted.

One of the objects of the present invention is to provide means whereby the oil is prevented from waste, whether the shaft or either of the pulleys is in motion or at rest.

A further object is to provide means which shall be capable of application to and removable from shafts and pulleys of ordinary construction; to provide means which can be readily and expeditiously removed and replaced for repairs or other purposes; to provide a device for regulating the supply of oil to the pulley, and to provide means which shall be very simple, strong, and durable in construction, thoroughly effective for the purposes designed, and cheap.

In the accompanying drawing I have shown a vertical central sectional view of my improved device for oiling loose pulleys.

Referring to the drawing, A designates the shaft on which the fast and loose pulleys B C are mounted in the usual well-known manner. The loose pulley C is held from lateral displacement on the end of the shaft A by a collar, D, that is fitted on said shaft, and carries a binding or clamping screw, *d*, that rigidly holds the collar on the shaft, said collar bearing at one face against the adjacent face of the hub *c* of the loose pulley C. The shaft A has an enlarged opening or bore, *a*, at its extreme outer end, and the rear end of the opening or bore has inwardly-converging or inclined end walls or abutments, *a'*, while the front end of said opening *a* has interior threads, a^2, with which engage the inner threaded end of a bushing, E. The shaft A is further provided with a central longitudinal oil passage or educt, *f*, which opens into or communicates with the rear of the bore or opening *a*, and the shaft is further provided with a transverse passage or passages, *f'*, and longitudinal passages f^2 at its periphery. The transverse passages *f'* are arranged at right angles to the longitudinal passages f^2 at the rear end of the latter and communicating therewith, said transverse passages being in alignment with the longitudinal axis of the arms of the loose pulley, and the passages f^2 at the periphery of the shaft terminate at points a short distance from the ends of the hub of the loose pulley. The threaded bushing E has a head or collar, *e*, that bears against the vertical face of the shaft, and it also has a central passage or opening, *e'*, in which is loosely mounted or arranged a supply tube or stem, G. This supply-pipe has an outer threaded end extended beyond the bushing E, and this threaded end is screwed into a correspondingly-threaded opening, *h*, of a hub, H, which is thus rigidly mounted on the tubular supply-stem and rotates therewith. The inner end of this tubular supply-stem G has an enlargement thereon, which forms a collar, *g*, that bears against the inner face of the bushing E. This collar *g* is provided with a rearwardly-projected conical or curved lug, *g'*, the inclination or curve of said lug corresponding to that of the abutment *a'* of the bore *a;* and this lug *g'* is adapted to firmly bear against the abutment when the tubular supply-stem is adjusted inwardly, so that it can be rigidly connected with the driving-shaft A, to rotate therewith. The hub H has a central chamber, *h'*, with which communicates an oil-educt passage, *i*, that is formed in a threaded lug, *i'*, of an oil reservoir or vessel, I, said threaded lug *i'* of the reservoir being detachably secured

in a correspondingly-threaded socket formed in the upper portion of the hub H. This oil reservoir or chamber may be of any preferred construction, and it is provided with a detachable cap that is connected thereto by threaded lines or other suitable means. The hub H is thus loosely mounted on the shaft, and it is provided with an arm, h^2, which carries a counterbalancing-weight, h^3, at or near its free end, said weight being of sufficient ponderosity to maintain the reservoir in a vertical position at all times above the shaft and its supporting-hub when the shaft is at rest.

J designates an adjusting screw or bolt for regulating the supply of oil to the loose pulley. This adjusting-bolt works in a threaded opening in the hub H, and it is disposed in a horizontal position in alignment with the longitudinal axis of the supply-stem. The outer end of the adjustable regulating-bolt has a thumb-piece, *j*, and the inner end thereof is conical or pointed, and said pointed end is adapted to fit in a correspondingly-shaped socket formed in the outer end of the tubular supply-stem to cut off the supply of oil to the stem and shaft, as is obvious. By adjusting the screw or bolt in one direction the space between the end of the bolt and stem is increased to allow a greater quantity of oil to pass into the stem, and thence to the shaft and loose pulley; but by rotating the regulating-screw in the reverse direction the space between the end thereof and the stem is decreased, or closed entirely, to allow a smaller quantity, or no oil, to pass into the tubular stem.

The operation of my invention is as follows: When the belt is shifted onto the loose pulley, it is rotated thereby, but the pulley does not rotate or affect the shaft A, which thus remains at rest or stationary, together with the feeding devices. When the shaft is at rest and the loose pulley also at rest or in motion, the proper quantity of oil is fed to the loose pulley to lubricate the same. If the belt is adjusted to the rigid pulley, the shaft A is rotated, and the collar and bushing, being rigidly connected thereto, also rotate with the said shaft. Through frictional contact between the bushing D and the hub and stem, the said stem and hub also rotate with the shaft after the latter has been running for some time, and for a same reason the loose pulley will likewise rotate with the shaft. When the shaft rotates, it forces the oil in its passages outwardly by the centrifugal motion thereof, and as the hub, its weighted arm, and the oil-reservoir rotate with the shaft it is obvious that the supply of oil from the reservoir to the chamber of the hub is cut off by the centrifugal force generated by the revolution of the hub and oil-reservoir. When the shaft A stops, the weighted arm of the hub automatically returns the oil-reservoir to its vertical position in proper condition for feeding oil to the loose pulley of the shaft, which is revolved by the belt, which has been previously shifted from the rigid to the loose pulley.

It will be observed from the foregoing description, taken in connection with the drawing, that I utilize the centrifugal force of the shaft to properly and uniformly supply oil in the required quantity to the loose pulley of a shaft, and that the supply is automatically shut off when the driving-shaft is rotated and the loose pulley remains inactive or inert. The means by which I attain these ends are very simple, strong, and durable in construction, thoroughly effective for the purposes designed, and they are cheap.

I do not desire to limit myself to the precise form and proportions of parts and details of construction herein shown and described as an embodiment of my invention, as I am aware that many changes therein can be made without departing from the principle of my invention.

Having thus fully described my invention, what I claim as new is—

1. The combination of a shaft provided with oil channels or passages $f f' f^2$, and the bore *a*, having the abutment *a'*, a threaded bushing seated in the bore *a*, the fast and loose pulleys on the shaft, a tubular supply-stem having a collar, *g*, and pointed lug *g'*, adapted to bear against the abutment of the bore, a chamber-hub mounted on the stem and provided with a counterweighted arm, a movable regulating-bolt working in the hub and adjustable toward and away from the tubular supply-stem, and a reservoir secured on the hub, the whole combined and adapted to serve substantially as described, for the purpose set forth.

2. The combination of a shaft provided with a pulley or pulleys, and having the connected axial and peripheral oil-educts, and an oil-reservoir loosely mounted directly in the shaft and adapted to be rotated therewith by frictional contact between the surfaces, whereby the centrifugal force of the shaft and reservoir generated by the revolutions thereof will automatically cut off the oil-supply from the reservoir, substantially as described.

3. The combination, with the shaft provided with the interior oil-educts, of a supply-stem loosely fitted directly in the shaft and rotating therewith, and a counterbalanced hub carried by the stem and provided with an oil-reservoir, substantially as described.

4. The combination of a shaft having the interior and peripheral oil-educts, a pulley or pulleys, a tubular stem mounted directly in and adapted to rotate with the shaft, and having its chamber or passage in communication with the oil-educts, and an oil-reservoir carried by the stem and normally held in an upright position when the shaft is at rest, substantially as described.

5. The combination of a shaft having the peripheral and the axial oil-passages, the latter having an enlarged outer end and an abut-

ment, a', a longitudinally-movable bushing fitted in the said enlarged end of the axial educts and adjustable laterally of the abutment therein, a tubular stem loosely fitted in and carried by the adjustable bushing, and a weighted hub secured on the stem and carrying an oil-reservoir, substantially as described.

6. The combination of a shaft provided with axial and peripheral oil-educts, a pulley or pulleys, a supply-stem loosely fitted directly in the axial educt of the shaft and having a conical outer end, a counterbalanced hub secured on the outer end of the stem, a reservoir carried by the hub and normally held above the plane of the educts of the shaft, and a pointed regulating-screw fitted in the hub and adjustable therein laterally of a conical end of the supply-stem, substantially as described.

7. The combination of a shaft provided with the connected axial and peripheral oil-educts, a pulley or pulleys, a threaded bushing removably seated in the axial educt of the shaft, a supply-stem loosely fitted in the bushing, and having an annular flange bearing against the bushing to retain the stem in place, a chambered hub carried by the outer end of the stem, and an oil-reservoir mounted on the hub in communication with the chamber therein, and normally held in a vertical position above the chamber of the hub and the educts in the shaft, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

EDGAR JAMES WELLS.

Witnesses:
C. P. FENTON,
LOYAL IVES.