

(No Model.)

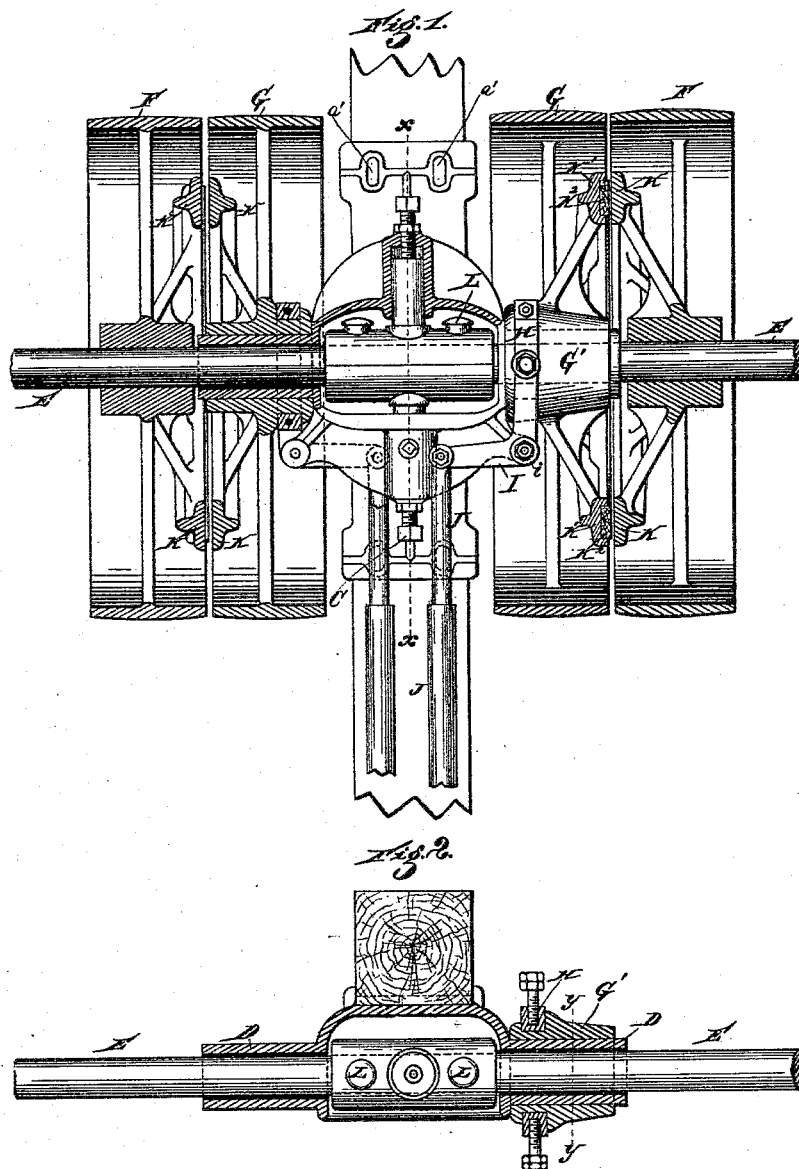
2 Sheets—Sheet 1.

J. M. SMITH.

FAST AND LOOSE PULLEY DEVICE.

No. 301,764.

Patented July 8, 1884.



WITNESSES
Jno. E. Miles
N. S. Wright

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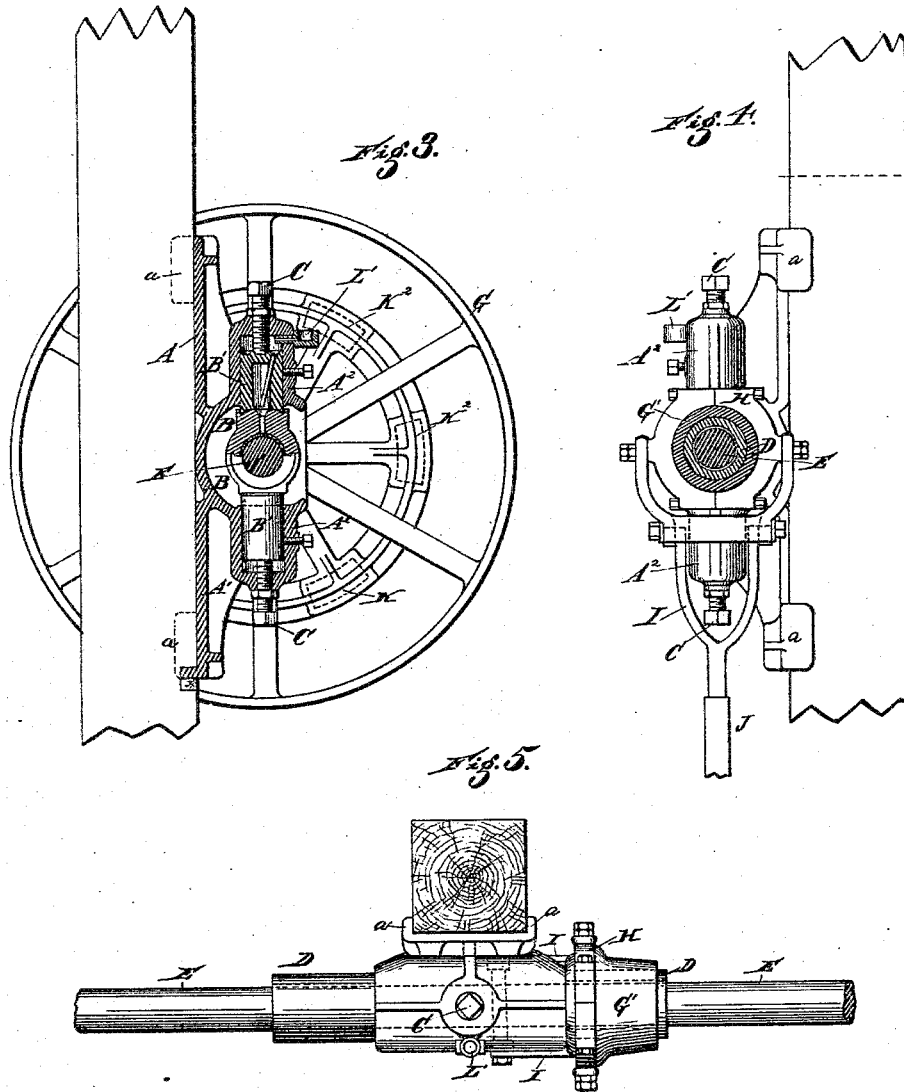
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UNITED STATES PATENT OFFICE.

JESSE M. SMITH, OF DETROIT, MICHIGAN.

FAST AND LOOSE PULLEY DEVICE.

SPECIFICATION forming part of Letters Patent No. 301,764, dated July 8, 1884.

Application filed December 26, 1883. (No model.)

To all whom it may concern:

Be it known that I, JESSE M. SMITH, of Detroit, in the county of Wayne, State of Michigan, have invented a new and useful Improvement in Fast and Loose Pulley Devices; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form a part of this specification.

My invention consists of the combination of devices and appliances hereinafter specified, and more particularly pointed out in the claims.

In the drawings, Figure 1 is a longitudinal sectional view of a post-hanger embodying my invention. Fig. 2 is a horizontal central section of the post-hanger. Fig. 3 is a vertical central section at right angles to the shaft. Fig. 4 is a section on the line Y Y of Fig. 2, showing parts beyond in elevation. Fig. 5 is a plan view.

In carrying out my invention, A is the bed-plate of the hanger proper, provided with transverse and projecting ribs *a*, for engaging the post, and with the usual bolt-holes, *a'*. The bed-plate is, in the usual manner, provided with wings A', cast upon it for supporting the usual sockets, A², for the upper and lower sections, B B', of the journal bearing or box.

C represents the usual adjusting-screws for giving to the boxing the proper vertical alignment. Upon the bed-piece are cast sleeves D, which project at the sides and form the loose pulley-bearings. The line or driving shaft E, as shown in Fig. 2, is seated in its boxing B B', but passes freely and loosely through the sleeves D.

F represents tight pulleys, keyed to the line or driving shaft, and revolved therewith.

G represents loose pulleys, journaled upon the sleeves D. The hub G' of the loose pulley is suitably engaged with a collar, H, which in turn is fastened to and governed by a bell-crank, I. The bell-crank is pivoted at *i* to the bed-piece, and at its free end connects with a vertical rod, J, so that by lifting on the rod the bell-crank and collar shifts the loose pulley outward upon the sleeve D into frictional

engagement with the tight pulley F. The frictional engagement is effected by opposing surfaces K K', and I prefer usually to provide either one or both of said surfaces with a filling, K², of wood, vitreous fiber, or any other good friction material.

L represents oil-cups. L' is also an oil-cup. The latter delivers its oil through the cap of the journal-boxing. The cups L may be open, if desired, for the introduction of oil to the journal, or they may be stopped by fusible plugs, so as to deliver a charge of oil to the journal only at a time when the plug is melted by the heat of the journal.

The operation of the device will be readily understood. We will suppose the line or driving shaft to be running and the machine-belt at rest upon the dead-pulley G. It is now desired to start the machine. The operator first, with any suitable mechanism, lifts upon the rod J, thus shifting the pulley G outward upon its sleeve D until said pulley engages the fast pulley F. As soon as this is effected the fast pulley F begins to take up and give motion to the pulley G and the machine connected therewith. As soon as the machine is in motion its belt is shifted off from the pulley G onto the pulley F. The dead-pulley G is then shifted back again out of contact with the pulley F and quickly comes to rest. To stop the machine the operation is repeated and the belt shifted back upon the dead-pulley, the pulley thrown out of contact with the fast pulley, and the machine comes to rest. It will be seen that motion is communicated to the machine gradually, thus preventing the machinery, shaft, or belting from being racked or strained. It will also be seen that the loose pulley is not continuously revolving and the belt traveling during the entire time that the machine is at rest, and while the line or driving shaft is revolving. The loose pulley only revolves a sufficient period of time necessary to obtain motion from the fast pulley in order that the requisite traveling movement of the belt is obtained to shift the belt onto the fast pulley, thus reducing the wear of the loose pulley and the belt to a minimum.

What I claim is—

1. A loose-pulley hanger for a line-shaft, 100

provided with journal-bearings for the shaft, and with a hollow sleeve concentric with the driving-shaft, and of a size sufficient to permit said shaft to pass freely through it without contact, in combination with a fast pulley 5 on the shaft and a dead-pulley loose on the said sleeve, and having longitudinal movement thereon to be brought into and out of engagement with the fast pulley on the shaft, 10 substantially as described.

2. A loose-pulley device for a line or driving shaft, consisting of a hanger having bearings for the driving-shaft, and a sleeve projecting therefrom, with an opening for the passage of the driving-shaft without contact, in 15 combination with a fast pulley on the shaft, a loose pulley on said sleeve, and having longitudinal movement thereon, and a pivoted lever for moving the loose pulley on the sleeve, 20 to bring it into or out of engagement with the fast pulley on the shaft, substantially as described.

3. A loose-pulley device for a line or driving shaft, consisting of a hanger provided with 25 adjustable bearings for the driving-shaft, a sleeve having an opening for the free passage of said shaft without contact, a loose pulley mounted upon said sleeve, and mechanism for

shifting said loose pulley longitudinally upon the sleeve, to engage or disengage it from an 30 adjacent fast pulley on the shaft, substantially as described.

4. The combination, with a shaft hanger or support, of a compensating journal-box, and a sleeve upon one or both sides of said journal- 35 box, adapted to receive loose pulleys, and to permit the shaft to pass centrally through the sleeves without contact, substantially as described.

5. The combination of the shaft hanger or 40 support formed with a support for the journal-box, and a sleeve at a right angle thereto, a journal-box having its bearing in said support, a shaft journaled in said box and passed 45 loosely through said sleeve without contact therewith, a loose pulley journaled upon said sleeve, a collar on said pulley, and a lever connected with said collar for shifting the loose pulley, substantially as described.

In testimony whereof I sign this specification 50 in the presence of two witnesses.

JESSE M. SMITH.

Witnesses:

N. S. WRIGHT,

M. B. O'DOHERTY.