A. LAMBERT.

WINCH ATTACHMENT FOR STATIONARY HOISTER SHAFTS.

APPLICATION FILED SEPT. 24, 1909.

967,202.

Patented Aug. 16, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

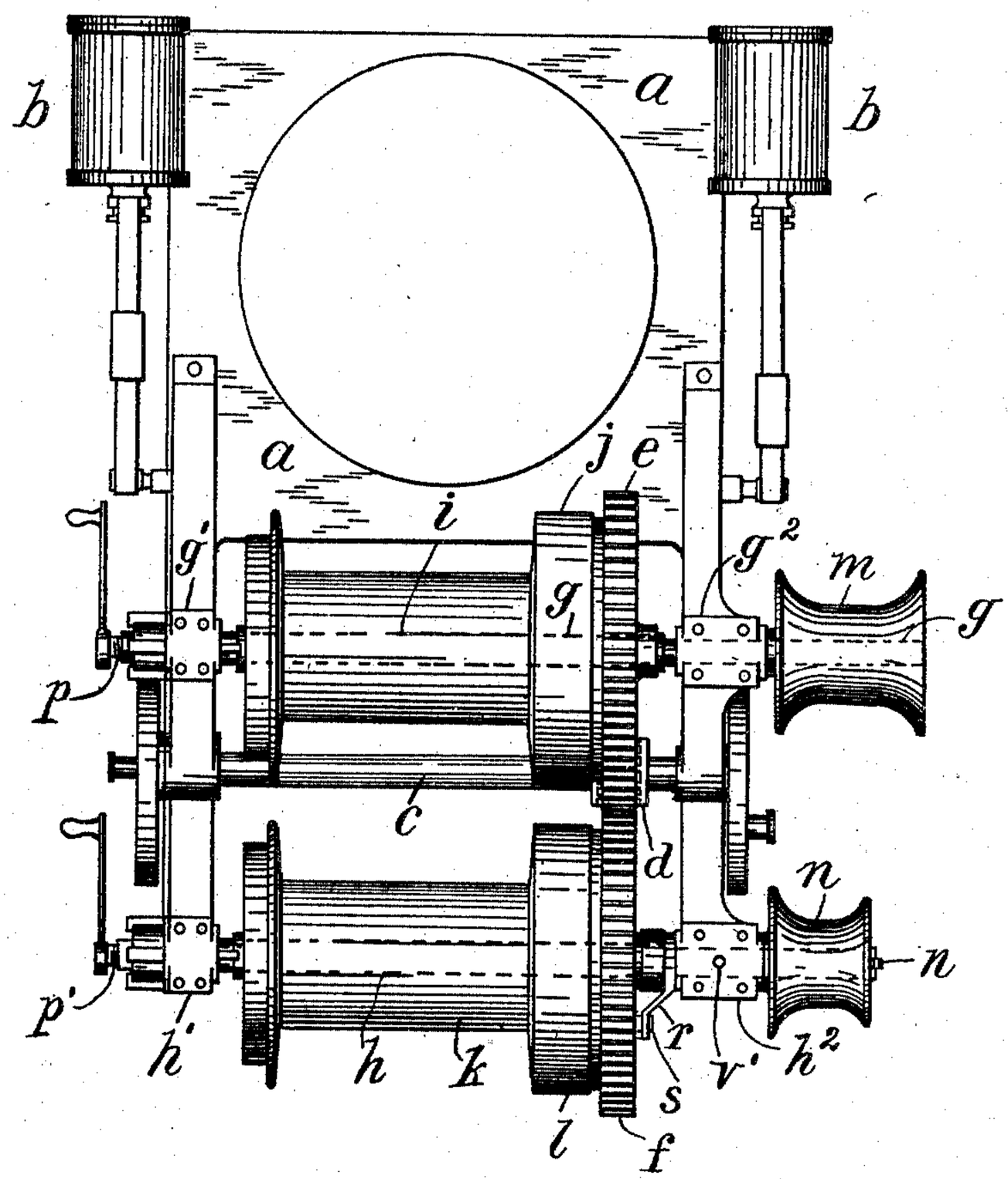
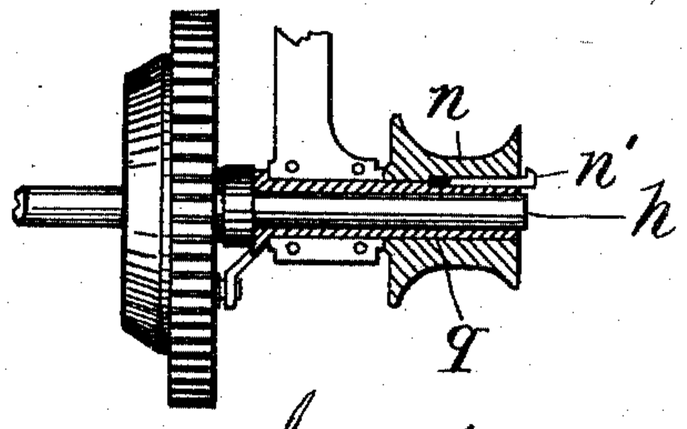


Fig. 1a.



Witnesses:
L. Lee.
J. W. Greenbaum.

Inventor.
Asher Lambert, per
Thomas L. Crane, Atty.

A. LAMBERT.

WINCH ATTACHMENT FOR STATIONARY HOISTER SHAFTS.

APPLICATION FILED SEPT. 24, 1909.

967,202. Patented Aug. 16, 1910.

2 SHEETS—SHEET 2.

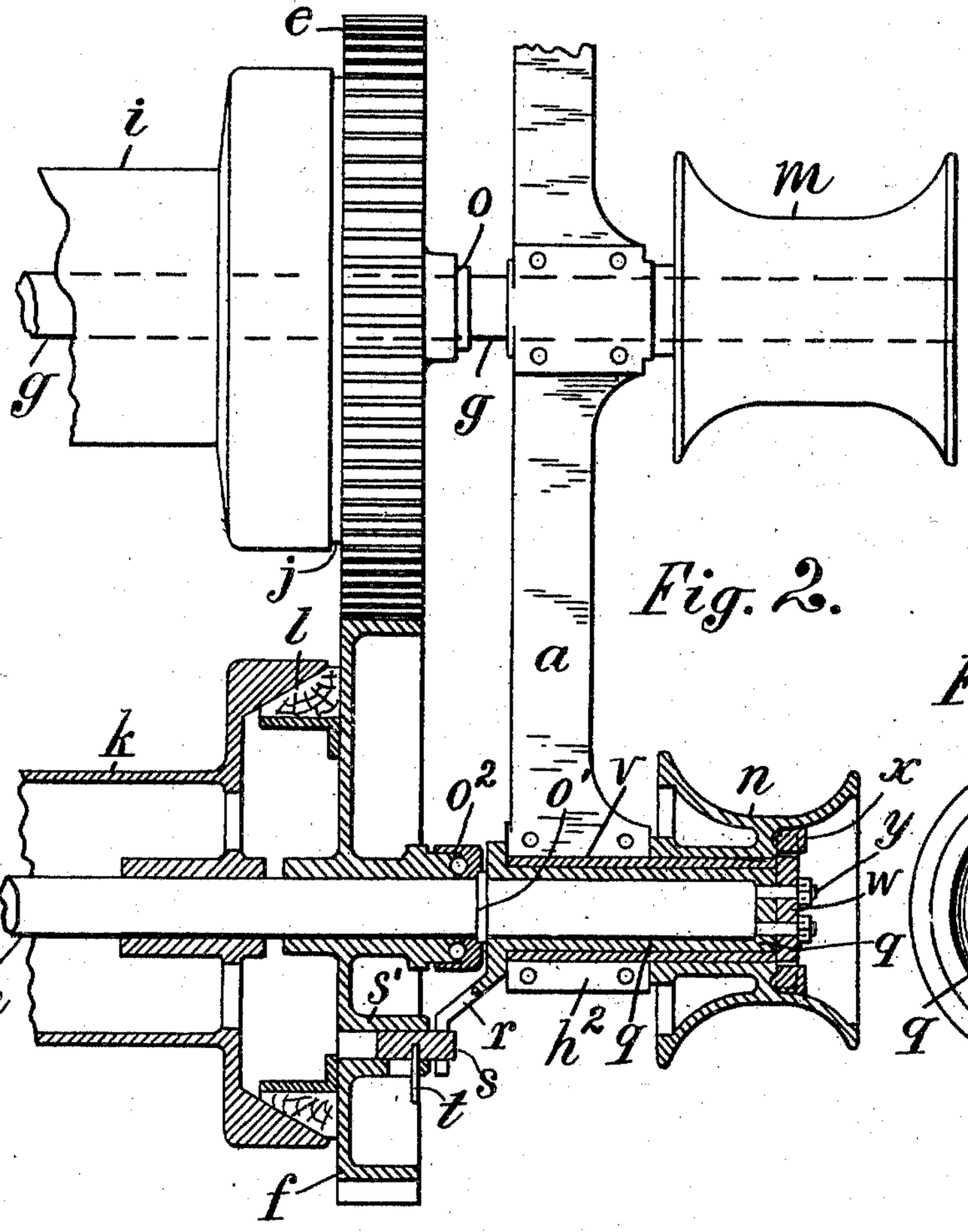
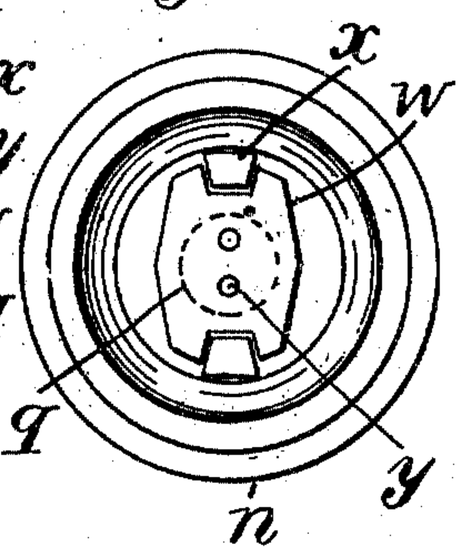


Fig. 2.

Fig. 3.



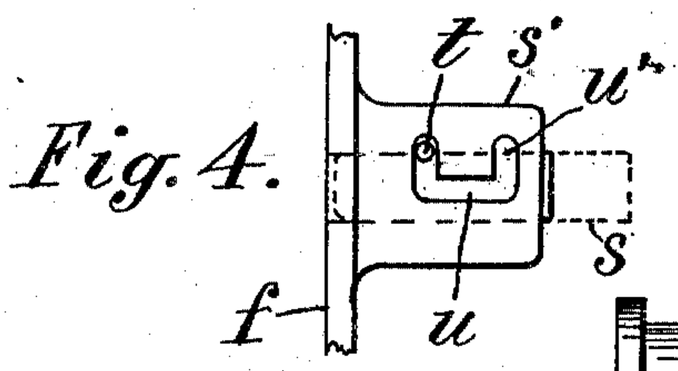


Fig. 4.

Fig. 5.

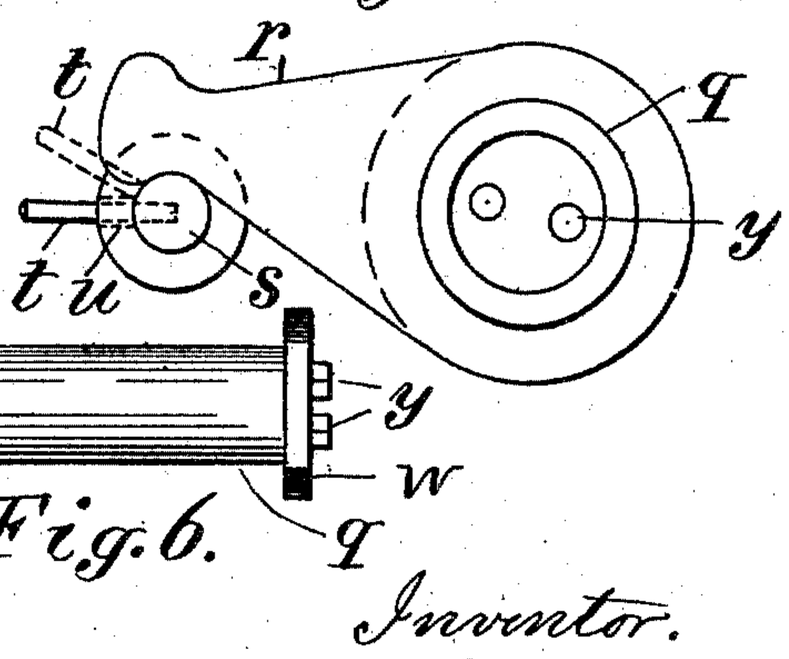


Fig. 6.

Witnesses:
L. Lee.
J. W. Greenbaum

Inventor.
Asher Lambert, per
Thomas S. Crane, Atty.

UNITED STATES PATENT OFFICE.

ASHER LAMBERT, OF NEWARK, NEW JERSEY.

WINCH ATTACHMENT FOR STATIONARY HOISTER-SHAFTS.

967,202. Specification of Letters Patent. Patented Aug. 16, 1910.

Application filed September 24, 1909. Serial No. 519,441.

To all whom it may concern:

Be it known that I, ASHER LAMBERT, a citizen of the United States, residing at No. 1 Johnson avenue, Newark, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Winch Attachments for Stationary Hoister-Shafts, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to a means of supporting and rotating a winch upon the end of a shaft projected from the outer side of a frame-bearing, in cases where the shaft is held stationary in the said bearing and a gear or other rotary member revolves upon the shaft at the inner side of the bearing.

It is common in hoisting machines where a drum or its driving-gear is mounted with a rotary shaft, to extend the rotary shaft outside of the frame-bearing in which it revolves and attach a winch to the shaft to turn therewith; but in certain classes of hoisting machines the drum-shaft is held stationary and the drum and its driving-gear are rotated upon the shaft, and it is obvious that in such case the shaft cannot furnish the means for rotating the winch, although it may be projected outside of the bearing to support the winch and resist the lateral pull when in use.

The means which I employ to rotate a winch upon such a stationary shaft consists of a sleeve extended through the bearing around the shaft and provided with means at its opposite ends for coupling it respectively to the winch and to the rotatable member.

I find it preferable, although not essential, that a stationary bushing should be fitted within the bearing and projected from the outer side of the same, with the winch mounted rotatably upon such bushing, and the sleeve fitted rotatably upon the shaft within the bushing. The sleeve extends to the outer end of the bushing and in such construction is provided with a coupling-plate by which connection is made with the winch to rotate it, and which plate operates also to hold the winch in its place upon the bushing.

A detachable connection between the sleeve and the rotary member is readily made by providing a longitudinally movable stud upon the rotary member, and projecting an arm from the sleeve into the path of the stud, the retraction of the stud in its bearing upon the rotary member enabling it to clear the arm when it is not desired to rotate the winch.

The construction will be understood by reference to the annexed drawing, in which—

Figure 1 is a plan of a hoister having two drums mounted respectively upon rotary and stationary shafts, each provided with a winch. Fig. 1ª is a section of the bearing for the stationary shaft with the sleeve fitted directly in the bearing and the winch rotatable upon the projecting end of the shaft. Fig. 2 is a plan of the frame-bearings carrying the rotary and stationary shafts, with the fixtures in section at the center line where hatched, for revolving the winch around the end of the stationary shaft. Fig. 3 is an end view of the winch with its coupling-plate; Fig. 4 is a plan of the means for retracting the stud upon the driving-gear; Fig. 5 is a cross section of the sleeve with the arm upon the same engaged with the stud; and Fig. 6 is a side view of the sleeve with its attachments.

a represents the frame of a hoister with engines *b* operating a crank-shaft *c* carrying a pinion *d*, which meshes with two driving-gears *e* and *f* upon the rotary shaft *g* and the stationary shaft *h* respectively. The shaft *g* is mounted to turn in frame-bearings g' and g^2 and is extended beyond the farther bearing g^2, with a winch *m* attached to rotate with the shaft. The shaft *h* is held stationary in frame-bearings h' and h^2, being clamped rigidly in the nearer bearing h' and extending between the bearings and through the farther bearing h^2 within the bushing which supports the winch *m*.

A drum *i* is shown upon the rotary shaft and provided with a friction-clutch *j* for coupling it to the driving-gear *e*, and a drum *k* is fitted to turn upon the stationary shaft *h* and provided with a friction-clutch *l* to couple it with the driving-gear *f*.

Thrust-screws *p* and p' are suitably mounted upon the bearings g' and h' to clutch the drums *i* and *k* to their respective driving-wheels, the thrust being resisted by shoulders *o* and o' upon the shafts *g* and *h* respectively, as is shown in Fig. 2. To support the rotary gear *f* under the thrust, an anti-friction thrust-bearing o^2 is inserted between the hub of the driving-gear and the shoulder.

Fig. 1ª shows a sleeve *q* fitted to revolve

in the bearing h^2 around the stationary shaft h and has the winch n coupled to its outer end by a key n', and the inner end provided with an arm r to engage a stud or dog s upon the body of the driving-gear f. The arm r is offset to extend over the thrust-bearing into the path of the dog s. The dog is formed as a sliding stud retractable within a boss s' upon the body of the driving-gear f as shown in Fig. 4.

The boss is furnished with a slot u having lateral channels u' at its opposite ends, and the sliding dog is furnished with a radial shifting-pin t adapted to move the dog in and out of the boss and to engage either of the channels to hold the dog in its adjusted position. When extended, as indicated by the dotted lines s in Fig. 4, its path engages it with the end of the arm r and causes the winch to rotate, but when retracted as shown in full lines in Fig. 4, it clears the end of the arm and the winch remains stationary.

With the construction shown in Fig. 1^a, the winch turns directly upon the stationary shaft, but Fig. 2 shows a preferable construction in which a bushing v is fitted within the bearing h^2 and projected outside of the same with the winch fitted rotatably upon its outer surface. The bushing is held from rotation in the bearing, as by the screw v' in Fig. 1.

The sleeve is extended through the bearing around the shaft h within the bushing, and is provided upon the outer end with a detachable coupling-plate w which engages teeth x upon the winch, and is secured upon the end of the bushing by bolts y.

The coupling-plate w operates not only to drive the winch when the sleeve is rotated by the dog s, but operates to hold the winch in its place upon the bushing adjacent to the bearing h^2. By this construction the strain of the rope which is wound around the winch is wholly sustained by the bushing, which is secured rigidly in the bearing h^2 and no lateral strain upon the sleeve is thus transmitted from the winch to the sleeve.

The winch m secured upon the end of the revolving shaft g is rotated thereby whenever the shaft revolves; but when mounted upon the stationary shaft such shaft does not rotate it, but the sleeve operates as a detachable connection between the winch and the rotary member f, and the winch can be revolved thereby only when required for use.

Having thus set forth the nature of the invention what is claimed herein is:

1. In a hoister, a frame-bearing having a stationary shaft extended through the same, a rotary member upon the shaft at one side of the bearing, a stationary bushing fitted within the bearing and projected from the outer side of the same, a winch rotatable upon the bushing, and a rotatable sleeve surrounding the shaft within the bushing with means for coupling the sleeve to the winch and to the rotary member.

2. In a hoister, a frame-bearing having a stationary shaft extended through the same, a rotary member upon the shaft at one side of the bearing, a winch rotatable around the shaft at the opposite side of the bearing, a rotatable sleeve extended through the bearing around the shaft and coupled rigidly to the winch and a detachable connection between such sleeve and the rotary member.

3. In a hoister, a frame having bearings with a stationary drum-shaft secured in the nearer bearing and extended between the bearings and through the farther bearing, a stationary bushing fitted within the farther bearing and projected outside of the same with a winch rotatable upon the bushing, a drum rotatable upon the shaft, a driving-gear with means for rotating it upon the shaft and means for coupling the drum and gear together at pleasure, a rotatable sleeve extended through the bushing around the shaft and coupled to the winch, and a detachable connection between the sleeve and such driving-gear.

4. In a hoister, a frame having bearings with a stationary drum-shaft secured in the nearer bearing and extended between the bearings and through the farther bearing, a stationary bushing fitted within the farther bearing and projected outside of the same with a winch rotatable upon the bushing, a drum rotatable upon the shaft, a driving-gear with means for rotating it upon the shaft and means for coupling the drum and gear together at pleasure, a rotatable sleeve extended through the bushing around the shaft and coupled to the winch, the shaft having a shoulder at the inner end of such sleeve, an anti-friction thrust-bearing between such shoulder and the hub of the driving-gear, an arm extended from the sleeve over such thrust-bearing to the driving-gear, and a movable dog upon the driving-gear to engage such arm.

5. In a hoister, a frame-bearing having a stationary shaft extended through the same, a driving-gear upon the shaft at one side of the bearing, a tubular boss upon such bearing, a sliding dog fitted movably in such boss, a winch rotatable around the shaft at the opposite side of the bearing, a sleeve extended through the bearing around the shaft and coupled to the winch, and an arm upon the inner end of the sleeve arranged to engage the sliding dog when projected from the tubular boss.

6. In a hoister, a frame-bearing having a stationary shaft extended through the same, a rotary member upon the shaft at one side of the bearing, a stationary bushing fitted within the bearing and projected from the outer side of the same, a winch rotatable upon the bushing, a rotatable sleeve sur-

rounding the shaft within the bushing, a clutch-plate secured detachably upon the outer end of the sleeve and engaged with the winch and holding the same rotatably upon the bushing, and an arm upon the inner end of the sleeve with means for coupling it detachably to the rotary member.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ASHER LAMBERT.

Witnesses:
T. M. WATSON, Jr.,
THOMAS S. CRANE.