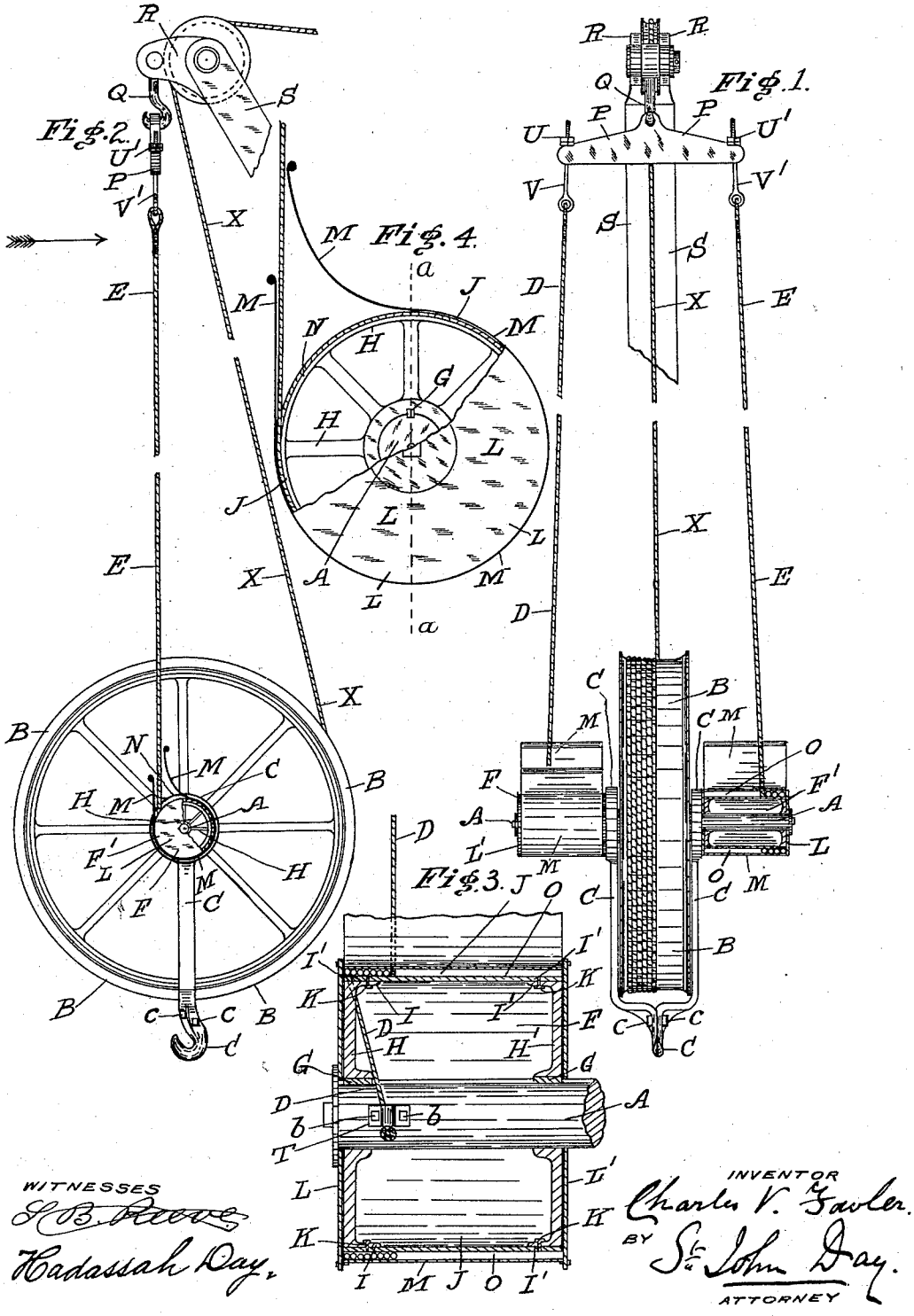
No. 749,898. PATENTED JAN. 19, 1904.

C. V. FOWLER.

APPARATUS FOR RAISING OR LOWERING HEAVY BODIES.

APPLICATION FILED DEC. 3, 1902.

NO MODEL. 4 SHEETS—SHEET 1.



WITNESSES

L. B. Rowe

Hadassah Day.

INVENTOR

Charles V. Fowler.

BY

St. John Day.

ATTORNEY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 749,898. PATENTED JAN. 19, 1904.

C. V. FOWLER.

APPARATUS FOR RAISING OR LOWERING HEAVY BODIES.

APPLICATION FILED DEC. 3, 1902.

NO MODEL. 4 SHEETS—SHEET 2.

Fig. 6

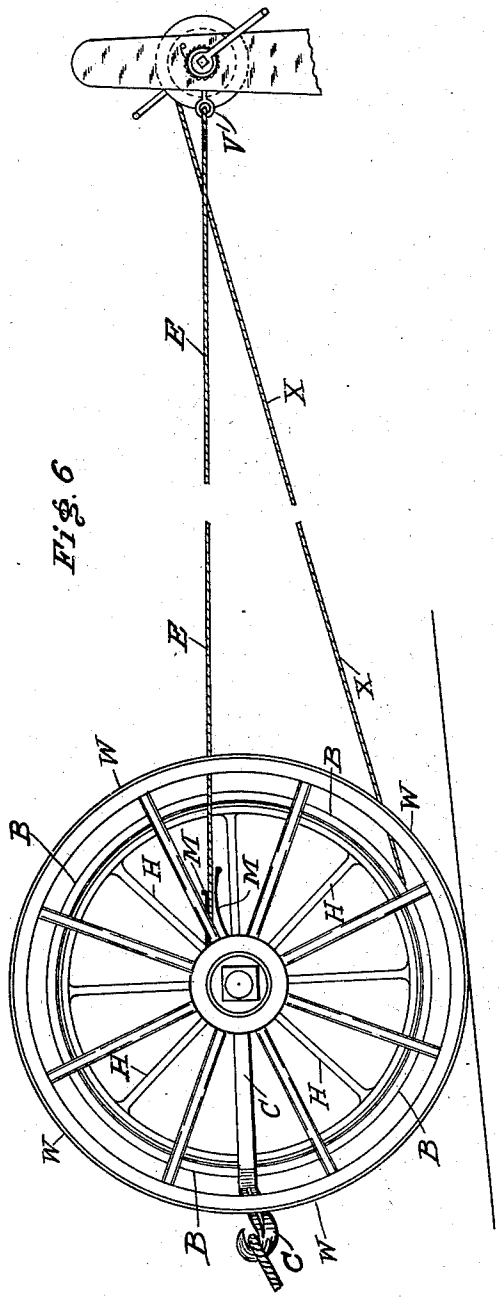
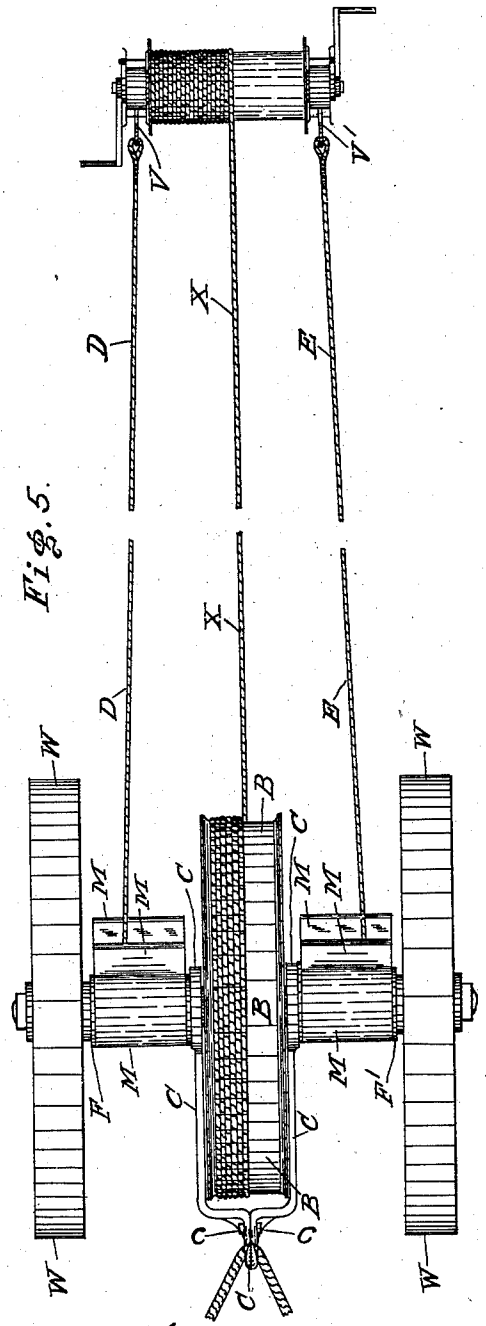


Fig. 5.



WITNESSES

E. B. Moore

Hadassah Day

INVENTOR

Charles V. Fowler.

BY

St. John Day.

ATTORNEY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 749,898. PATENTED JAN. 19, 1904.

C. V. FOWLER.

APPARATUS FOR RAISING OR LOWERING HEAVY BODIES.

APPLICATION FILED DEC. 3, 1902.

NO MODEL. 4 SHEETS—SHEET 3.

Fig. 7.

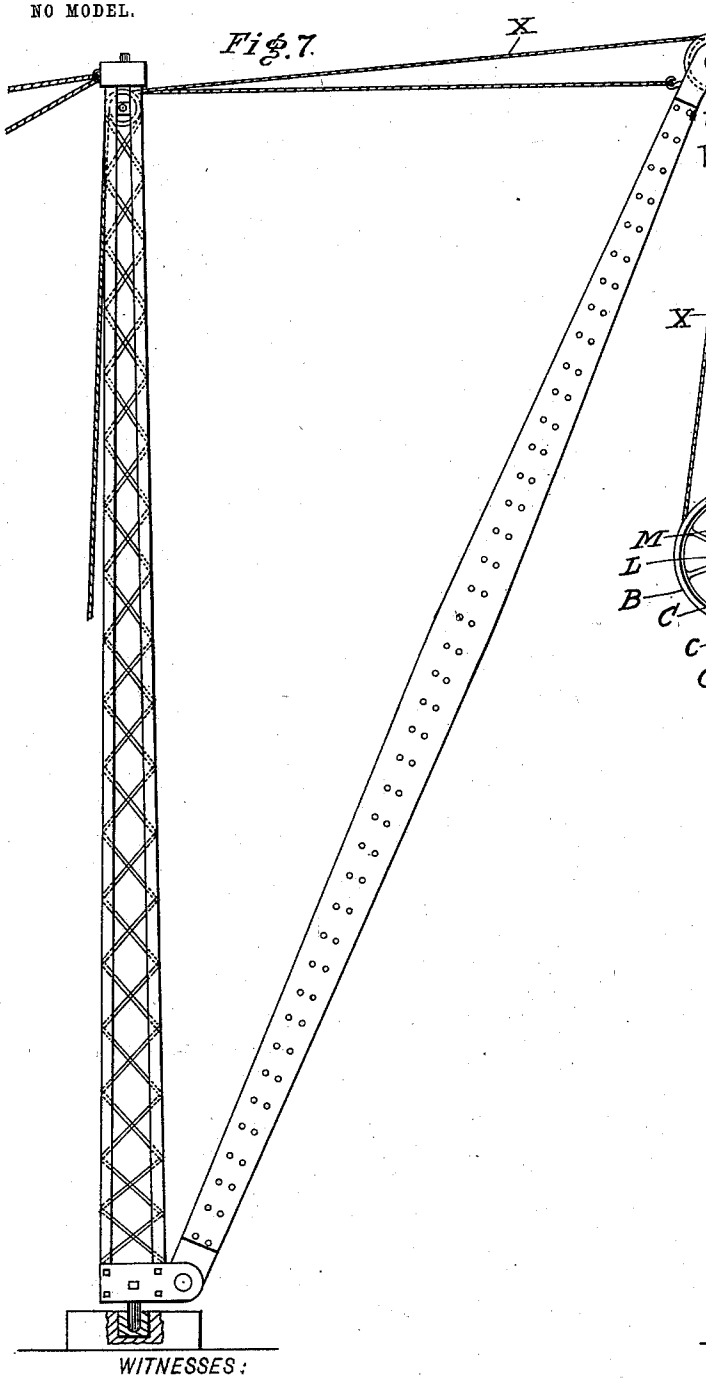
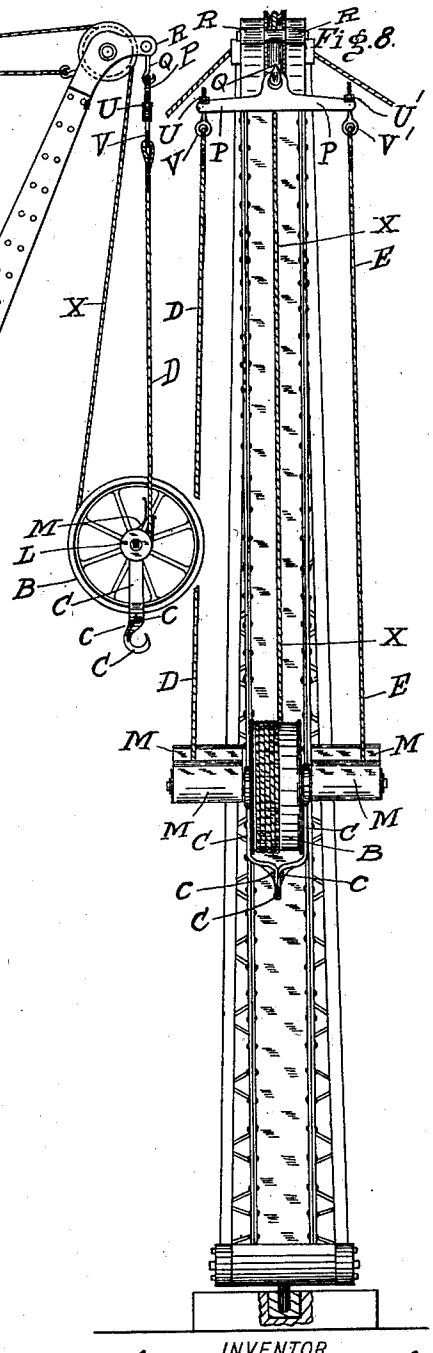


Fig. 8.



WITNESSES:

J. B. Reese

Hadassah Day.

INVENTOR

Charles V. Fowler.

BY St. John Day.

ATTORNEY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 749,898. PATENTED JAN. 19, 1904.

C. V. FOWLER.

APPARATUS FOR RAISING OR LOWERING HEAVY BODIES.

APPLICATION FILED DEC. 3, 1902.

NO MODEL. 4 SHEETS—SHEET 4.

Fig. 9.

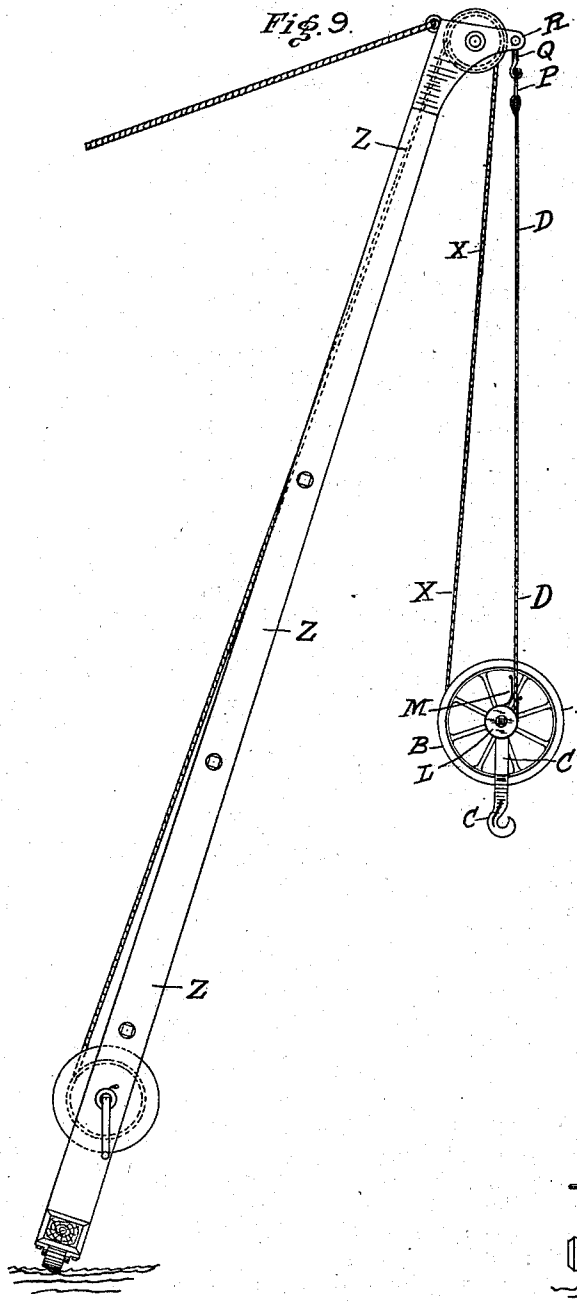
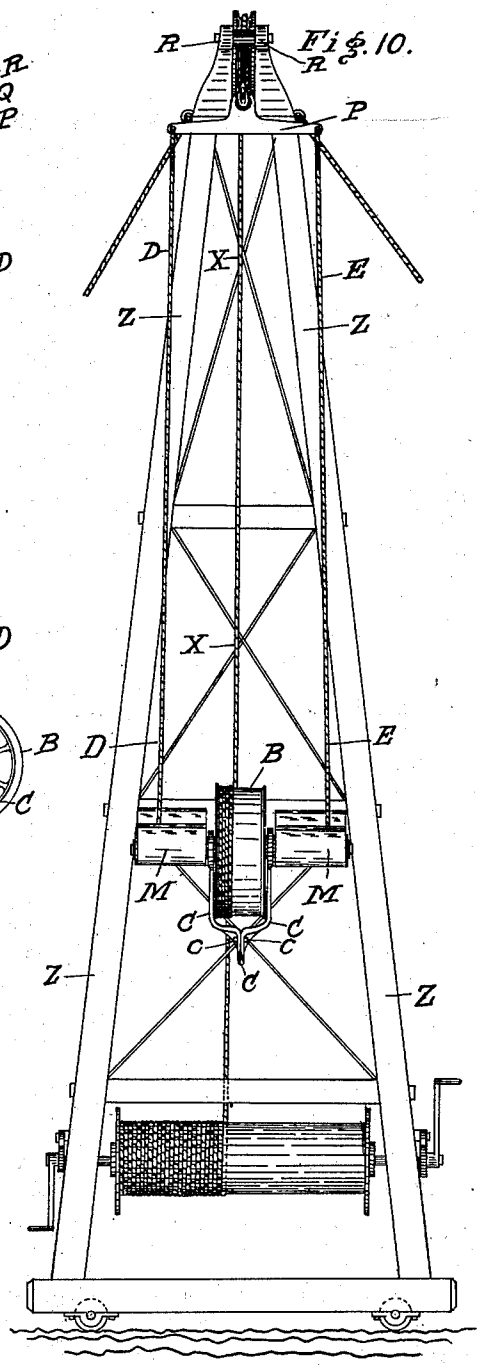


Fig. 10.



WITNESSES

L. B. Reeve.

Hadassah Day.

INVENTOR

Charles V. Fowler.

BY

Sherman John Day.

ATTORNEY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 749,898. Patented January 19, 1904.

UNITED STATES PATENT OFFICE.

CHARLES V. FOWLER, OF LOS ANGELES, CALIFORNIA.

APPARATUS FOR RAISING OR LOWERING HEAVY BODIES.

SPECIFICATION forming part of Letters Patent No. 749,898, dated January 19, 1904.

Application filed December 3, 1902. Serial No. 133,801. (No model.)

To all whom it may concern:

Be it known that I, CHARLES VINCENT FOWLER, of No. 555 South Ficket street, in the city of Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Apparatus or Mechanism for Raising or Lowering Weights or Heavy Bodies, of which the following is a full, clear, and exact description or specification, reference being had to the annexed sheets of drawings and to the letters marked thereon.

This invention, which relates to mechanism or apparatus for raising and lowering heavy bodies such as are used in building operations in the construction of masonry, railway, canal, and dock works, and in analogous operations, has for its object to insure the accurate winding and unwinding of the cables or ropes whereby the apparatus or mechanism itself is suspended from any kind of lifting or lowering appliance, such as a derrick, or crane, or windlass, or when such apparatus is hauled upon any surface upon which said apparatus may be supported—such, for example, as the ground or any artificial platform or inclined surface—and upon the annexed sheets of drawings I have shown the apparatus constituting my invention not only in its separate condition, but I have also shown it as used in practice for hauling a heavy body upon a level or inclined surface, also as it is used in connection with a derrick or stationary jib.

Upon the drawings, Figure 1 represents a front elevation of my apparatus as it is used for being operated in connection with a derrick. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical section of the suspension-rope winding or unwinding part of my apparatus on the line *a a*, Fig. 4, and drawn upon an enlarged scale with the object of showing the detail of the construction of this part of my apparatus more clearly than in Figs. 1 and 2. Fig. 4 is an end elevation, partly in section, corresponding to Fig. 3 and drawn upon a slightly-smaller scale than Fig. 3. Fig. 5 is a plan of my apparatus as used for hauling a heavy body upon an inclined plane or upon a level surface, showing the same suspension-cable winding or unwinding device as is shown at Figs. 1 to 4. Fig. 6 is a side elevation corresponding to Fig. 5, showing the apparatus as carried upon idlers and resting upon an inclined plane. Fig. 7 is a side elevation of a derrick, showing my invention as operated in connection therewith. Fig. 8 is an end elevation corresponding to Fig. 7. Fig. 9 is an end elevation of a stationary jib, showing my invention as operated in connection therewith. Fig. 10 is a front elevation corresponding to Fig. 9.

My present invention is a further development of the invention for which Letters Patent have been granted to me on the 20th day of May, 1902, No. 700,319; and my present invention principally consists in the device hereinafter described for guiding the suspension-cables as these are wound upon or unwound from the outer or end portions of the axle or shaft, and this constitutes the essential feature of my apparatus.

In Figs. 1 to 4 this central shaft is marked A, and upon it the rope-pulley B, by which the shaft A is operated, is carried, as set forth in my aforesaid allowed application for Letters Patent—that is to say, the rope-pulley B is keyed or otherwise equivalently fastened upon the central part of the shaft A. The hook connection (marked C) is a hook connection of the same kind as is described in my former allowed application for Letters Patent, and it is constructed to hang loosely—that is to say, rotatively—upon those portions of the shaft A immediately on either side of the rope-pulley B, being made in two portions which are united by one or more bolts *c c*, passing through the hook portion at the lower part of the hook device, (marked C C,) as shown at Figs. 1 and 2.

Instead of winding the suspension-cables D and E, respectively, directly upon the shaft A, as in my former allowed application for Letters Patent, I use under my present improvements means for enlarging the diameter of the cylindrical carriers upon which the ropes or cables D and E are wound on or off from in order to prevent the cables D and E from being bent round to so small a diameter of cylindrical winding-surface, and with this object in view instead of winding the cables D and

E directly upon the shaft A, I mount upon each outer part of the shaft A a winding-drum, (marked F and F′ in Figs. 1 to 4,) and upon these winding-drums F and F′ the cables D and E, respectively, are wound and unwound in the manner now to be described.

The drums F and F′ are securely keyed to the shaft A, as shown more particularly by the keys G in the enlarged views, Figs. 3 and 4, and these drums F and F′ are for convenience preferably constructed of two wheel-frames H and H′, (more particularly seen at Figs. 3 and 4,) which are constructed with inwardly-projecting flanges I and I′ at their peripheries and to which a cylindrical casing of steel (marked J) is attached by rivets or bolts K, thus producing a light and stiff cylindrical body for the cables D and E to be wound on or off from. Upon and over the cylindrical surface J of each of the cylindrical winding-drums F and F′ there is carried a casing consisting of two end plates (marked L L′) and a circumferential portion, (marked M.) In the plates L and L′ are holes corresponding in diameter to the shaft A, so that the shaft A and end plates of the casing L L′ are rotable independently of each other. The peripheral or circumferential part of the casing M consists of a plate of hard metal, preferably steel, bent into the form more especially shown at Figs. 2 and 4, which incloses the whole of the cylindrical surface J and each pair of drums F and F′, excepting the portion thereof marked N in Fig. 4 and in the manner shown at Fig. 4, wherein the ends of the plate M are shown, one of them situated vertically and the other reaching to a higher level and curved outward to nearly the same vertical plane as that which the other part of the plate M lies in. Between the circumference of each of the drums F F′ and the interior surface of the curved plate M of the casing constituted of the end plates L L′ and the said curved plate M there is an annular free space O, which in thickness approximately corresponds to the diameter of each cable D and E, and into this space O, as shown at Figs. 3 and 4, the cable D or E is wound or unwound in the manner now to be described.

While the upper end of each cable D and E is attached to adjustable eyebolts carried in a suspension-beam P, swung upon a hook Q, carried in a bracket R, constituting the upper outer end of the derrick-jib S, the lower end of each cable D and E is attached to the corresponding end of the shaft A. Any suitable attachment may be used for connecting the lower ends of D and E with the outer ends of the shaft A, and in Fig. 3 I have shown the lower end of the cable D as secured thereto by means of a clamp T, fastened thereto by screw-bolts *b b*, passing through the flanges of the clamp T and into the tapped holes in the shaft A, the lower end of the cable D being knotted, as shown at Fig. 3. The cables D and E are led out through the hole in each of the respective end frames H H′, as shown with respect to the cable D in Fig. 3, and the cable is then wound upon each drum F F′ for one or two turns, passing out from the space O through the upper open part of the casing, (marked M N in Figs. 1 to 4 more especially.) When the cables D and E suspend the apparatus either with or without any additional weight carried thereby, the cables D and E bear their opposite edges upon the outer ends of the opposite plates M N, as shown at Figs. 2 and 4, and being in rigid tension each cable D or E thus suspends the casing composed of the end plates L L′ and the inclosing plate M in such position that the casing is maintained rigidly with its opening in the position shown at Figs. 1, 2, 3, and 4. From this arrangement it follows that as the annular space O between the casing L L′ M is but little more than sufficient in width to admit of the cables D or E being wound up therein upon the drums no overlapping of either cable D or E in winding or unwinding from the drums F or F′ can take place, and because of this the casing L L′ M constitutes an accurate guide for insuring that the cables D and E are at all times whether in being wound upon or unwound from the drums F F′ not only prevented from overlapping, but caused to wind up on or wind off from the drums F F′ in continuous and non-interfering contact with the portion of each cable wound upon the drums F and F′.

If at any time the apparatus constituting my invention should get out of the truly horizontal position of the shaft A A, then it is readily restored to the horizontal position by tightening or loosening either or both of the nuts U U′ on the suspension-bolts V V′, passing through the beam P, to which the cables D and E, respectively, are fastened, as shown at Figs. 1 and 2.

In Figs. 5 and 6 the only difference in the apparatus constituting my invention there shown from the apparatus hereinbefore described with reference to Figs. 1 to 4 consists in the fact that the apparatus shown at Figs. 5 and 6 is provided with idlers W for supporting the apparatus upon any inclined or horizontal surface upon which it is operated for hauling a heavy weight; but in all other respects the apparatus corresponds with the construction hereinbefore described with reference to Figs. 1 to 4, and therefore need not be further referred to, excepting to add that the several parts in Figs. 5 and 6 are marked with similar letters of reference to corresponding parts in Figs. 1 to 4 and that also in Figs. 5 and 6 the winding-drum for operating the rope X is shown and which corresponds to the winding-drum of any conveniently-operated windlass which is or may be used to wind on or wind off the operating-rope X, acting upon the pulley or

drum B for imparting rotatory motion in either direction to the shaft A and the drums F and F', connected thereto.

In Figs. 7 and 8, which show my apparatus as applied to be operated in connection with an ordinary movable jib-derrick, the rope X, which operates the drum B, corresponds to the rope X in Figs. 1 to 6, and in operating my invention from or in connection with an ordinary stationary jib, (marked Z,) as shown at Figs. 9 and 10, the rope X also operates upon the drum B and actuates the whole of the other parts of the apparatus constituting my invention in the manner and for the purposes hereinbefore described with reference to Figs. 1 to 6, and therefore need not be herein further described.

Having now described the nature of my said invention and the best system, mode, or manner I am at present acquainted with for carrying the same into practical effect, I desire to observe in conclusion that what I consider novel and original, and therefore claim as the invention to be secured to me by Letters Patent, is as follows:

1. The apparatus for raising and lowering heavy bodies consisting of the main drum operated by the hauling-rope, the drums carried upon the outer portions of the shaft of the main drum to which drums the suspension-ropes respectively are attached, the casings carried upon the outer portions of the shaft of the device, and which casings each constitute inclosed annular spaces around the drums to which the suspension-cables are attached and acting as guides for the suspension-cables, all in the manner and for the purposes substantially as hereinbefore described.

2. The apparatus for raising and lowering heavy bodies, consisting of the main drum operated by the hauling-rope, the drums of smaller diameter than that of the main drum upon the outer portions of the shaft of the main or hauling-rope drum, the suspension-ropes respectively, attached upon these outer drums, the casings carried upon the outer portions of the shaft of the device, said casings each constituting an inclosed annular space, respectively, around each outer drum, through which spaces the suspension-cables pass to the suspension-beam, the suspension-beam, with end adjustments, for the suspension-cables connected to the drums at the outer end of the shaft of the main drum, carrying the hauling-rope, all operating in the manner and for the purposes substantially as set forth.

3. The casing and drum on the outer ends of the driving-shaft of the apparatus having an open space formed by the outer ends of the curved plate uniting the ends of the casing, the said outer ends of the curved plate producing the opening through which the suspension-rope passes and is guided in winding on or unwinding from the drum in the manner and for the purposes substantially as hereinbefore described.

4. The combination of the main drum, the rope operating the main drum, the shaft on which the main drum is carried, the suspension-hook carried upon the driving-shaft of the apparatus, the suspension-cable drums, one at each end of the shaft of the apparatus, the casings inclosing each a space between itself and the suspension-cable drums, the suspension-beam, the adjustments for the suspension-cables attached to the ends of the suspension-beam, all operating together in the manner and for the purposes substantially as hereinbefore described.

In witness whereof I, CHARLES VINCENT FOWLER, have hereunto set my hand, this 27th day of January, A. D. 1902, in the presence of two subscribing witnesses.

CHARLES V. FOWLER.

Witnesses:
ST. JOHN DAY,
HADASSAH DAY.